




*Consultations according
to the **Environmental Code***



Compilation 2005

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Contents

New actors in the consultations	4
Background	6
Consultations – Why?	9
Local information	14
Documentation of the consultations	16
Completed consultations	18
Excerpts from minutes	21
If you would like to read more	141

New actors in the consultations

Consultations for an encapsulation plant and a final repository have now been proceeding for several years. The past year's consultations were characterized by increased interest and a greater diversity of questions. One reason for this is that it is now possible for organizations to obtain funding from the Nuclear Waste Fund to attend the consultations, resulting in the participation of new actors.

So now it is once again time to reflect on the past year and the consultations that have been held. Our work in 2005 has been focused on completing the studies that form a basis for the environmental impact assessment (EIA) for the encapsulation plant. We have also made substantial progress with the environmental impact statement (EIS) for the plant. A permit under the Nuclear Activities Act to build the encapsulation plant at Clab in Oskarshamn must be submitted in the autumn of 2006.

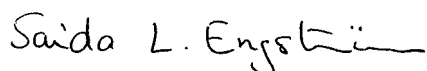
Our consultations during the past year have been interesting. This is partly thanks to the conservation and environmental organizations that have obtained funding from the Nuclear Waste Fund to participate in the consultations. As always when new actors enter an ongoing process, adjustments have to be made to accommodate the new participants. We have tried during the year to find work forms for the consultation meetings that are both efficient from SKB's viewpoint and enable the parties to make a good contribution. The regional consultation meetings, which are held 3–4 times a years in both Oskarshamn and Östhammar, have been opened to private citizens to participate as observers. They are given an opportunity during the meetings to ask questions to the participating parties, in other words the municipality, the County Administrative Board, SKI, SSI and SKB.



I sometimes wonder about the problems the extended project period may entail for our consultation parties. For even though new actors have joined the consultations, most inhabitants of both Östhammar and Oskarshamn have followed SKB's work for over a decennium now. This makes it even more important that the work procedures be renewed to keep interest from flagging. In the months to come, SKB will present the results of many important studies and analyses which we hope to communicate in a fruitful manner to as many people as possible.

The 2005 consultations have given rise to many questions, and you will find both the questions and SKB's replies in the following compilation. Compared with previous years it is gratifying to note that both interest in the consultations and the diversity of questions is increasing. The diversity of the questions and of those who ask them is a great asset, which we intend to take advantage of. We all share a common goal: finding a safe long-term solution for managing and disposing of the spent nuclear fuel. At the same time, we all want to minimise any environmental impact and other negative consequences on the sites where the encapsulation plant and the final repository are ultimately built.

The consultations will continue until 2008. So we will soon meet again to discuss more results and new questions and opinions!



Saida Laârouchi Engström
Head of EIA and Public Information



Background

SKB, Svensk Kärnbränslehantering AB (the Swedish Nuclear Fuel and Waste Management Co.), which is owned by the nuclear power producers, has been assigned the task of managing and disposing of the spent nuclear fuel from the reactors.

The waste is Sweden's collective responsibility, after 30 years of nuclear power. We must not pass on this responsibility to future generations. SKB's proposal is that the spent nuclear fuel be disposed of according to the KBS-3 method. This involves encapsulating the fuel in copper canisters that are embedded in bentonite clay at a depth of 400–700 metres in the bedrock. The KBS-3 method was formally examined by the regulatory authorities and the Government in the early 1980s and comprised the basis for the permits to commission the nuclear power reactors Oskarshamn 3 and Forsmark.

The scientific and technical basis for the method has been continuously developed and reported to the regulatory authorities and the Government every third year in the RD&D programmes. At the same time, SKB has followed, and will continue to follow, the development of other strategies and methods for the management and disposal of spent nuclear fuel. The regulatory authorities and the Government have repeatedly given their support to the strategy of deep geological disposal according to the KBS-3 method with continued parallel evaluation of alternative methods.

In the late 1970s, SKB commenced an extensive effort aimed at building up a body of general knowledge of the Swedish bedrock and the conditions that can affect the performance of a repository built in the bedrock. With a final repository according to the KBS-3 method as a planning premise, a stepwise siting process has been under way since 1992 and

has now entered a final phase with the ongoing site investigations. In 2002, SKB initiated site investigations for siting of a final repository on two sites: the Simpevarp area in Oskarshamn and the Forsmark area in Östhammar. In 2004 the investigations in Oskarshamn were extended to include the Laxemar area as well. The investigations are expected to be concluded during 2007. The intention is then to apply for a permit for the final repository.

SKB's proposal is to site the encapsulation plant next to Clab (the central interim storage facility for spent nuclear fuel) on the Simpevarp Peninsula. An alternative siting for the encapsulation plant is adjacent to the nuclear power plant and SFR (the final repository for radioactive operational waste) in Forsmark. This alternative will only be considered if the final repository is also sited at Forsmark.

Consultations

Both the encapsulation plant and the final repository for spent nuclear fuel require a consultation process. Since these two facilities are part of the system for final disposal of spent nuclear fuel, SKB has chosen to coordinate the consultations.

The consultations should deal with the siting and design of the activities as well as the form and content of the EIS. Consultations are held with the County Administrative Board, the national authorities, the municipalities, the public and the organizations that can be expected to be affected.

The consultation process commenced in 2002 and will continue until the permit applications are submitted. An account of the consultations and what questions have come up is included in the EIS.

The consultations during 2003 and 2004 are compiled in "*Extended consultations according to the Environmental Code*", *compilations 2003 and 2004*. This is the compilation of the 2005 consultations.



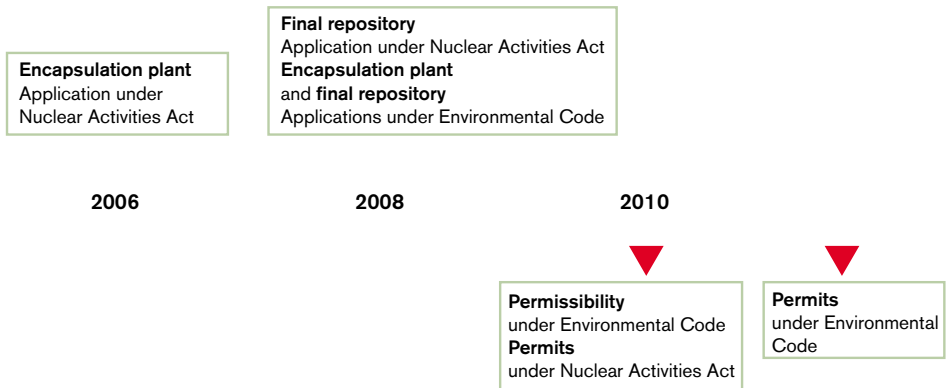
Applications

Permits under the Nuclear Activities Act and the Environmental Code are required in order to build an encapsulation plant and a final repository for spent nuclear fuel. SKB's plans for submission of these permit applications are briefly as follows:

- In 2006 SKB applies for a permit under the Nuclear Activities Act for the encapsulation plant. An environmental impact statement is appended to the application.
- In 2008 SKB applies for a permit under the Nuclear Activities Act for the final repository. SKB also applies for permits under the Environmental Code for the encapsulation plant and the final repository. An EIS is appended to the applications.

The biggest difference between the EIS in 2006 and the one in 2008 is the scope. The EIS for the applications in 2006 focuses on the encapsulation plant, while the EIS for the applications in 2008 will include the entire final repository system. Accounts of alternative methods for disposal of spent nuclear fuel and alternative sitings of the final repository are included in the EIS in 2008.

No decisions will be made until all material for both facilities has been submitted. It is SKB's hope that the Government will make decisions on permissibility under the Environmental Code and a permit under the Nuclear Activities Act by 2010.



Consultations – Why?

Consultations give all interested parties an opportunity to influence the design of the encapsulation plant and the final repository in order to mitigate damage and detriment for humans and the environment. Consultations also give SKB an opportunity to benefit from the knowledge and viewpoints of the participants.



In SKB's opinion, the main purpose of consultations is to give different actors an opportunity to influence:

- The design and layout of the facilities, with a view towards human health and the environment as well as the landscape, natural and cultural values in the area.
- The scope and content of the EIS.
- What studies and investigations need to be conducted in order to obtain a comprehensive EIS.

Another important purpose is to take advantage of the local expertise possessed by individuals and organizations.

SKB's goal with the consultations is that everyone who wants to get involved is given an opportunity to do so. This applies to both private citizens and organizations as well as local and national authorities. The ambition is that the consultations should result in a carefully conceived and solidly underpinned environmental impact statement.

Consultations regulated by Environmental Code

The consultation procedure, for applications under both the Environmental Code and the Nuclear Activities Act, is regulated by Chapter 6 of the Environmental Code. In the case of an activity that requires a permit pursuant to the Environmental Code, consultations shall be held with the County Administrative Board, the supervisory authority and any individuals who are likely to be affected.

In the case of certain types of activities, for example nuclear activities, consultations shall also be held with other national authorities, local authorities, private citizens and organizations that are likely to be affected. According to the Environmental Code, the consultations shall cover the siting, scope, design and environmental impact of the planned activity, as well as the form and content of the EIS.

If an activity is likely to have a significant environmental impact in another country, the Swedish Environmental Protection Agency shall, according to the Espoo Convention, “*inform the competent authority in that country about the planned activity or measure and give the country concerned and the citizens who are affected the opportunity to take part in a consultation procedure concerning the application and the environmental impact assessment*”. The Swedish Environmental Protection Agency has sent out an inquiry to all countries around the Baltic Sea and is waiting for replies during the spring of 2006 as to whether they are interested in participating.

Consultation meetings held in 2005

Two public consultation meetings were held in Östhammar during 2005: on 4 June and 14 November. Three public consultation meetings were held in Oskarshamn: on 5 April, 3 July and 17 November.





The reason for the summer meetings was that SKB wanted to offer the same information when part-time residents (summer home owners) were able to participate. The theme at these meetings was the same as at the consultation meetings that were held in November 2004 in Östhammar and 5 April in Oskarshamn: the disturbances that can arise in conjunction with, for example, rock works and haulage.

The autumn meetings were devoted to the EIS for the encapsulation plant that is being prepared for the permit application under the Nuclear Activities Act in 2006. Viewpoints and proposals have emerged from the consultations concerning both the contents of studies and more general questions, for example alternative methods for disposing of the spent nuclear fuel.

Regular meetings are held in the municipalities of both Oskarshamn and Östhammar with representatives of the local county administrative board and municipality plus the Swedish Nuclear Power Inspectorate (SKI), the Swedish Radiation Protection Authority (SSI) and SKB. The county administrative board chairs the groups' meetings. Meetings with the EIA Forum in Oskarshamn were held on three occasions during the year: 11 March, 1 June and 17 November. Meetings with the Forsmark Consultation and EIA Group were held on two occasions: 10 March and 18 November. In addition, the groups held a joint meeting on 24 August.

In November it was decided that all meetings with the EIA Forum in Oskarshamn from now on will be public meetings, in other words private citizens will be welcome to attend. At the meeting in November with the Forsmark Consultation and EIA Group, it was decided that the organizations that have been granted support from the Nuclear Waste Fund should be offered an opportunity to attend the group's meetings during 2006 as observers, with one representative per confederation of grant-receiving non-profit organizations. KASAM may also attend on the same terms.

More information about the consultations is provided in a special report entitled "*Consultations according to the Environmental Code*", which is published every year.

The EIS work

Important phases during the consultations are:

- Scoping of EIA
- Studies
- Reconciliations

The consultations held during 2003 and 2004 mainly concerned scope, delimitations and studies for environmental impact assessments (EIAs) for encapsulation plant and deep repository for spent nuclear fuel. In 2005 the reports *Scope, delimitations and studies for environmental impact assessments (EIAs) for encapsulation plant and deep repository for spent nuclear fuel* for Forsmark and Oskarshamn were published. In these reports, SKB describes the point of departure for the study work, where the viewpoints and proposals that have emerged in the consultations have been taken into consideration.



At the same time as the consultations have dealt with scope and delimitations, a number of studies have been conducted as a basis for the EIS. The sites in Forsmark and Simpevarp/Laxemar have been surveyed with respect to protected, valuable and sensitive natural and cultural environments, groundwater conditions, residential environment and health, recreational and outdoor activities, etc. The disturbances to which an encapsulation plant and a final repository can give rise have been identified. Based on the knowledge we have of the site and the activities that will be pursued there, we assess what environmental consequences different disturbances may have during construction, operation and decommissioning/closure. Our assessments are discussed with the designers, who make necessary adjustments to mitigate the negative consequences. Viewpoints from the consultations are also taken into consideration in the continued work of planning and designing the facilities. Knowledge of the sites is also important for evaluating post-closure safety, which is done in safety assessments.

Both the structure and content of the EISs will be progressively defined and adjusted in response to what has emerged in the consultations, as well as in design, investigations and studies for the planned facilities. The work with the EISs during the year was focused on the EIS for the encapsulation plant to be appended to the permit application under the Nuclear Activities Act in 2006. At the end of the year SKB presented a new website that will provide information on the work with the EISs and the studies that serve as a basis for the environmental impact assessment.

Planned consultation meetings

In the future we plan to hold one to two consultation meetings per year in Oskarshamn and Forsmark. Prior to each consultation meeting, SKB will prepare background material with a given theme. Questions and discussions at the meeting are not limited to this theme; rather, ample opportunity is provided for information and discussion of SKB's activities and study results with a bearing on the encapsulation plant and the final repository.

One meeting per year is planned on each site during the period May – August to provide an opportunity for part-time (summer) residents to participate. No special background material is compiled for these meetings.

In the spring of 2006, alternative methods for management of spent nuclear fuel and alternative sitings of the final repository will be discussed at consultation meetings in both Oskarshamn and Forsmark. It is our intention to present current studies on topics such as nature, culture, living, health, risk and safety at the consultation meetings held early in 2007, and to describe the assessed environmental impact.

The consultations leading up to the permit applications under the Nuclear Activities Act for the final repository and under the Environmental Code for the encapsulation plant and the final repository will be concluded during 2008.



Overview of consultation activities 2006–2008

- Public meetings once or twice a year in Oskarshamn and Forsmark.
- Municipality, County Administrative Board, SKI and SSI meet around 4 times a year within the Oskarshamn EIA Forum and the Forsmark Consultation and EIA Group.
- Government agencies receive background material and invitations to the public consultation meetings. A reconciliation meeting may be held in 2008.
- Organizations that obtain funding from the Nuclear Waste Fund receive background material and invitations to the public consultation meetings.
- A reconciliation meeting may be held with national organizations in 2008.
- Consultations with other countries take place via the Swedish Environmental Protection Agency.

Local information

In addition to the formal consultations under the provisions of the Environmental Code, extensive information activities are taking place in both Oskarshamn and Forsmark. The activities span a broad field – from daily spontaneous meetings with people who live in the area to receiving visitors from other parts of the world. Maintaining a local dialogue is vital in order to build a democratic consensus on the nuclear waste issue.

The site investigations for the final repository require a close dialogue with everyone who is in any way affected by our activities. We have regular contact with the landowners where the investigations are conducted. In addition, we arrange different types of nearby resident meetings for the purpose of information and goodwill, along with field visits to present and obtain viewpoints on suggested locations of the final repository's above-ground facilities. A newsletter is sent regularly to everyone who lives in Misterhult parish in Oskarshamn, as well as to nearby and part-time residents in the Forsmark area, where we tell about the site investigation, our activity in the field and current events.

SKB also tries to meet with other municipal residents as often as possible in other contexts (for example at municipal workplaces, schools, businesses and private associations) to provide information on and discuss the nuclear waste programme and ongoing site investigations.



The contact with nearby residents is important. In Oskarshamn, for example, we held a meeting during the year with the municipal Misterhult Group dealing with private wells. Personnel from OKG also participated at this meeting. They talked about the tests of agricultural and fishery products that are performed regularly in accordance with SSI's guidelines. Road 743 has been discussed in various contexts. SKB has conducted a conceptual study with a focus on the road's use today and in the future. The results were presented to the residents of Misterhult on 30 May.

In Forsmark, nearby residents are invited to information get-togethers where questions concerning the ongoing site investigations are brought up. These gatherings are well-attended, which we greatly appreciate since our day-to-day work goes smoother if many people know what we are working on and why.

During the year, Forsmark received a visit by the Swedish royal couple and two ministers. King Carl Gustaf and Queen Silvia were informed about the site investigation on a visit in May. The royal couple were on tour to learn more about developments in the energy field. Thomas Östros, Sweden's Minister for Industry and Trade, visited the site investigation in August, while Environment Minister Lena Sommestad came in September.

Publications and the Web

Four issues of our information magazine Lagerbladet were published during the year. It is distributed to all households in the concerned municipalities and other interested persons can subscribe to it free of charge. In this magazine we discuss our activities and subjects that concern us directly or indirectly, particularly on the local level in the site investigation municipalities.

Websites for Oskarshamn and Forsmark can be accessed via SKB's website. They are updated regularly with information on SKB's activities and on past and planned events in the different municipalities.

Visitor service

During 2005, SKB's facilities were visited by more than 20,000 people altogether.

In Forsmark, SFR and the visitor drilling site had nearly 9,000 visitors. Others, more than 11,000 persons, visited one or more of our facilities in Oskarshamn (the Äspö HRL, Clab, the Äspö Path, the Canister Laboratory, the visitor drilling site and the field exhibition on Hålö).

The largest visitor category is school children; more than 6,000 pupils visited us during the year. Approximately 5,000 of our visitors live or work in the municipalities of Oskarshamn or Östhammar.

We also have many international visitors at our facilities; the number in 2005 was 1,100.

Documentation of the consultations

The final documentation of completed consultations consists of the consultation reports that are to be appended to the permit applications in 2006 and 2008. The annual compilations are published to provide an overview of questions and answers from the past year's consultations.

All consultations, whether in the form of meetings or correspondence, are documented. All minutes, notes and viewpoints are posted on SKB's website, and hard copies can be obtained on request.



Documentation of meetings

Minutes are kept of the meetings with the Oskarshamn EIA Forum and the Forsmark Consultation and EIA Group, which the participants subsequently check and sign. Minutes are now prepared after public consultation meetings as well, and are also checked and signed by a person appointed at the meeting. After the public consultation meetings it is possible to submit questions and viewpoints regarding the meeting for another two weeks. The questions and viewpoints discussed during a consultation meeting and received within the appointed period after the meeting are included in the documentation of the meeting. There SKB also answers those questions that can be answered immediately. Some questions may lead to supplementary studies and further discussion. Some questions are judged to lie beyond the scope of the EIA work and are dismissed from the consultations. Reasons are given for this.

Written viewpoints

The viewpoints that are received between consultation meetings and in the written consultations are made available on SKB's website and in the annual compilations of the consultations. Whenever possible, SKB responds to questions and viewpoints.

Annual compilation

The consultations for the encapsulation plant and the final repository are coordinated. The annual compilations contain questions and viewpoints, as well as SKB's replies and comments, from the past year's consultations grouped in the following categories:

- Encapsulation plant
- Final repository for spent nuclear fuel
- Common issues

The consultation report appended to the EIS for the encapsulation plant in 2006 will contain questions and viewpoints from the categories "Encapsulation plant" and "Common issues" up to and including consultation meetings in November 2005. The consultation report for the final repository system in 2008 will contain questions and viewpoints from all three categories. The consultation reports will explain how SKB has taken submitted viewpoints into account.

Completed consultations

The consultation process has been going on for four years. The early consultations were conducted in separate meetings for the encapsulation plant and the final repository. Joint meetings have been held in the continued consultations. A final consultation meeting for the encapsulation plant in preparation for a permit application under the Nuclear Activities Act was held in November 2005.



Early consultations

Early consultations regarding the final repository in Oskarshamn and the encapsulation plant in Forsmark were held during the period 2002–2003. Invitations were sent out to more households than just those who belonged to the category “likely to be affected”. The invitation included specially produced background material describing the project and the purpose of the meeting.

The background material compiled for the early consultations, the consultation reports and the County Administrative Board’s decision are available from SKB or on www.skb.se.

Extended consultations

The extended consultations began in 2003. The extended consultations for the encapsulation plant and the final repository are being coordinated in both Oskarshamn and Forsmark. An important feature of the consultations is the meetings being held with the Oskarshamn EIA Forum and the Forsmark Consultation and EIA Group. These groups include representatives from SKB, SKI, SSI and the relevant County Administrative Board and municipality.

Changes were made in the Environmental Code in 2005. The terms “early” and “extended” consultations have been removed. Now only the concept “consultations” remains.

Completed consultations 2005

Eleven meetings about the final repository and the encapsulation plant were held during 2005 in accordance with the Environmental Code, three of which were held with the Oskarshamn EIA Forum, two with the Forsmark Consultation and EIA Group, and one joint meeting. A final consultation meeting for the encapsulation plant in preparation for a permit application under the Nuclear Activities Act was held in November 2005 in both Östhammar (Alunda) and Oskarshamn.



Early consultation	Date	Place
Final repository	10 January 2002	Oskarshamn
Encapsulation plant	8 March 2003	Oskarshamn
Final repository	15 June 2002	Forsmark
Encapsulation plant	29 October 2003	Forsmark

Consultations during 2005

Date	Meeting
10 March	Forsmark Consultation and EIA Group
11 March	Oskarshamn EIA Forum
5 April	Public meeting in Oskarshamn Municipality
1 June	Oskarshamn EIA Forum
4 June	Public meeting in Östhammar Municipality
3 July	Public meeting in Oskarshamn Municipality
24 August	Joint meeting of Oskarshamn EIA Forum and Forsmark Consultation and EIA Group
14 November	Public meeting in Östhammar Municipality
17 November	Oskarshamn EIA Forum
17 November	Public meeting in Oskarshamn Municipality
18 November	Forsmark Consultation and EIA Group, public meeting
At the end of 2005, written consultations were held with government agencies.	

Previously held consultations

2003	Meeting
26 May	Oskarshamn EIA Forum
17 September	Forsmark Consultation and EIA Group
30 September	Oskarshamn EIA Forum
12 November	Public meeting in Oskarshamn Municipality
11 December	Oskarshamn EIA Forum, public meeting
17 December	Government agencies
2004	Meeting
19 January	Forsmark Consultation and EIA Group
5 February	Public meeting in Östhammar Municipality
24 March	Oskarshamn EIA Forum
22 April	Local conservation and environmental organizations in Oskarshamn Municipality
4 May	National conservation and environmental organizations
13 May	Local conservation and environmental organizations in Östhammar Municipality
14 May	Forsmark Consultation and EIA Group
26 May	Oskarshamn EIA Forum
1 October	Forsmark Consultation and EIA Group
6 October	Oskarshamn EIA Forum
25 November	Public meeting in Östhammar Municipality
8 December	Oskarshamn EIA Forum
10 December	Forsmark Consultation and EIA Group
Written consultations were held during the first quarter of 2004 with regional actors in Kalmar and Uppsala counties.	

Excerpts from minutes

This section contains excerpts from the documentation from the consultations held in 2005. In each excerpt, questions, viewpoints and topics have been grouped in the following categories:

- Encapsulation plant
- Final repository for spent nuclear fuel
- Common issues

Questions and viewpoints have been expressed both orally at the consultation meeting and in the form of written submissions. The excerpts do not show who asked a question or expressed a viewpoint at the meeting. In the case of written questions and viewpoints, however, there is a notation as to who expressed the question or viewpoint.

The excerpts also show the purpose and target group of the meeting, as well as how invitations took place, what background material was provided and who participated.

A number of conservation and environmental organizations participated in the consultations during the year, including MKG (The Swedish NGO Office for Nuclear Waste Review) and MILKAS (the Swedish Environmental Movement's Nuclear Waste Secretariat).

MKG is a joint body between the Swedish Society for Nature Conservation, the Uppsala County Society for Nature Conservation, the Swedish Association of Field Biologists and Oss (Opinion Group for Safe Final Disposal). MILKAS represents the Swedish Anti Nuclear Movement and Friends of the Earth.



Meeting with Forsmark Consultation and EIA Group

Date	10 March 2005, 09:00–12:00 hrs
Place	Assembly Hall, County Administrative Board in Uppsala County
Target group	Östhammar Municipality, County Administrative Board in Uppsala County, SKI and SSI
Invitation	The date of the meetings is decided on jointly. SKB sends out e-mail invitations to each meeting.
Purpose	The group consults on matters related to SKB's plans to site an encapsulation plant and a final repository for spent nuclear fuel in Forsmark. Furthermore, each participating party gives a status report on the work they are taking part in that has a bearing on the disposal of spent nuclear fuel.
Background material	—
Present	County Administrative Board in Uppsala County – <i>Ulf Henricsson (chairman), Mats Lindman</i> Östhammar Municipality – <i>Margareta Widén Berggren, Bertil Alm, Sten Huhta, Hans Jivander, Bengt Johansson, Gunnar Lindberg, Virpi Lindfors</i> SKI – <i>Magnus Westerlind, Judith Melin</i> SSI – <i>Björn Hedberg</i> SKB – <i>Saida Laârouchi Engström, Kaj Ahlbom, Olle Olsson, Erik Setzman, Claes Thegerström, Sofie Tunbrant (secretary)</i>
Observer	<i>Mark Elam, Göteborg University</i>

1 Encapsulation plant

No questions or viewpoints were expressed pertaining solely to the encapsulation plant.

2 Final repository for spent nuclear fuel

No questions or viewpoints were expressed pertaining solely to the final repository for spent nuclear fuel.

3 Common issues

3.1 Discussion around SKB's proposed timetable

Both the encapsulation plant and the final repository for spent nuclear fuel require permits under both the Environmental Code and the Nuclear Activities Act. According to the plan of action in RD&D-Programme 2004, SKB planned to apply for permits for the encapsulation plant under the Environmental Code and the Nuclear Activities Act in mid-2006. The equivalent applications for the final repository were planned to be submitted at the end of 2008.

The consultation parties have on different occasions questioned the reasons for separate application and examination occasions for the encapsulation plant and the final repository. Among other things it has been noted that the KBS-3 method requires the existence of both facilities, which means that the Government cannot be expected to make separate decisions on permits and permissibility for the facilities.

SKB has carried out a new, in-depth analysis of the licensing scheme that was presented in the plan of action in RD&D-Programme 2004, thereby taking into account viewpoints expressed in the consultation process. The analysis has resulted in a modified proposal for the application process, which in brief entails the following:

2006 SKB applies for a permit under the Nuclear Activities Act for the encapsulation plant. An EIS is appended to the application.

2008 SKB applies for a permit under the Nuclear Activities Act for the final repository and for permits under the Environmental Code for the encapsulation plant and the final repository, i.e. the entire KBS-3 system. An EIS is appended to the applications.

3.2 Bengt Johansson, Östhammar Municipality, said that the method question is central and now the discussion of alternative reporting will come up even later, in 2008.

SKB replied that on the contrary, the discussion is already going on now. The fact that permit applications under the Environmental Code will be submitted in 2008 for both facilities means that the question of a method for disposal of the spent nuclear fuel can be kept alive throughout the process. In other words, the time for the consultation procedure will be longer.

3.3 Magnus Westerlind, SKI, stated that SKI cannot take a stand on this proposal now, but that it appears to contain interesting solutions. One question, however, is how SKB will have time to take into account the review comments regarding, for example, SR-Can in the preparation of SR-Site? Is there any reason at all to have separate application occasions?

SKB replied that they see advantages to having two separate application occasions, but only one decision occasion. SKI alone decides when to submit its comments on the applications.

3.4 Björn Hedberg, SSI, said that SSI also takes a positive view of this proposal, but needs time to look into what it entails, for example with regard to time for feedback of viewpoints obtained.

SKB replied that the advantages they see of having two application occasions are better utilization of the authorities' resources and that the encapsulation issues get the attention they deserve.

3.5 Discussion concerning decommissioning of the nuclear power plants

The timetable for the decommissioning of the nuclear power plants has not been established; it is the power companies themselves who are responsible for it. Before decommissioning can begin an EIS has to be prepared, and time should be allowed for the radioactivity to decay, which means it takes several years before decommissioning can begin.

3.6 The municipality pointed out that these plans are based on the assumption that the nuclear power plants are operated for 40 years. What will the consequences be if they are operated for 60 years, which is actually being discussed today? Are rock volumes for a final repository for the long-lived low- and intermediate-level waste included in the current site investigation?

SKB replied that examining the prospects for a final repository for long-lived low- and intermediate-level waste is not included in the current site investigations. What is included, however, is seeing whether capacity exists in the rock for additional canisters with spent nuclear fuel besides the 4,500 included in the reference alternative. The two types of waste should incidentally be separated. The repository for other

long-lived waste will contain large quantities of cement, which could have a detrimental effect on the final repository for spent nuclear fuel. The two repositories should therefore be kept separate and be positioned so that groundwater from the repository for other long-lived waste does not flow towards the final repository for spent nuclear fuel.

3.7 The municipality pointed out that an interim storage facility in SFR requires new permits.

SKB replied that permits will probably be applied for in conjunction with the expansion of SFR. The idea is to make use of one of the four envisioned rock caverns for interim storage until the final repository for other long-lived waste is finished.

3.8 The municipality wondered where in SKB's planning near-surface repositories are included.

SKB replied that near-surface repositories are the responsibility of the nuclear power plants. All waste of the type that can be placed in the near-surface repositories will continue to be deposited there.

Meeting with Oskarshamn EIA Forum

Date	11 march 2005, 09:30–16:00 hrs
Place	Äspö HRL, Oskarshamn
Target group	Oskarshamn Municipality, County Administrative Board in Kalmar County, SKI and SSI
Invitation	The date of the meetings is decided on jointly. SKB sends out e-mail invitations to each meeting.
Purpose	To discuss matters related to the expansion of Clab, as well as the encapsulation plant and the final repository for spent nuclear fuel. Furthermore, each participating party gives a status report on the work they are taking part in that has a bearing on the disposal of spent nuclear fuel.
Background material	Prior to the meeting, Oskarshamn Municipality had posed an “EIA question” to SKB. EIS question no. 8 – Remaining R&D
Present	County Administrative Board in Kalmar County – <i>Ulf Färnhök (chairman), Sven Andersson</i> Oskarshamn Municipality – <i>Kjell Anderson, Elisabeth Englund, Rigmor Eklind, Charlotte Liliemark, Kaj Nilsson, Lars Tyrberg, Peter Wretlund, Harald Åhagen</i> SKI – <i>Magnus Westerlind</i> SSI – <i>Tomas Löfgren</i> SKB – <i>Claes Thegerström (part of meeting), Saida Laârouchi Engström, Tomas Holmström, Katarina Odéhn, Olle Olsson, Erik Setzman, Peter Wikberg, Lars Birgersson (secretary)</i>

1 Encapsulation plant

No questions or viewpoints were expressed pertaining solely to the encapsulation plant.

2 Final repository for spent nuclear fuel

No questions or viewpoints were expressed pertaining solely to the final repository for spent nuclear fuel.

3 Common issues

3.1 Decision process

Oskarshamn Municipality and SKB presented their views on the coming decision process.

Discussion

With SKB's modified scheme for the applications, the Environmental Court will become involved in the nuclear waste issue at a later stage than originally planned.

The municipality wondered whether it may be a disadvantage that the Environmental Court, which will be a principal actor and has not yet worked actively with the nuclear waste issue, is entering the process later than planned.

SKB noted that the legal counsel they had been in touch with considers that it may be an advantage if the Environmental Court deals with both the encapsulation plant and the final repository at the same time.

The County Administrative Board pointed out that the question of ionizing radiation is dealt with in the licensing examinations under both the Nuclear Activities Act and the Environmental Code. SKB replied that ionizing radiation is an issue that falls in the borderland between the Nuclear Activities Act and the Environmental Code. Radiation protection will be reviewed in the application for the encapsulation plant under the Nuclear Activities Act in 2006.

SSI noted that in the environmental examination of Studsvik, the Environmental Court refrained from establishing radiation protection conditions. In various statements of comment to the Environmental Court in conjunction with preparations for environmental examinations (Ringhals, Forsmark and Studsvik), SSI has stated that they wish that the court would refrain from stipulating radiation protection conditions. After the environmental examination of Studsvik, an environmental judgement will soon be announced for Ringhals. The outcome remains to be seen. If this court also refrains from stipulating radiation protection conditions, it is possible that this will become practice.

The municipality's veto was discussed. The municipality's veto concerns applications under the Environmental Code, not the Nuclear Activities Act.

The EIS was discussed. SKB, SKI and others noted that even if an application is only submitted under the Nuclear Activities Act in 2006, an EIS must still be appended to the application. The consultations for the encapsulation plant will continue until 2008. The viewpoints expressed in the consultations, as well as the EIS that is submitted in 2006, will be incorporated in a revised EIS that will be submitted in 2008 in conjunction with permit applications under the Environmental Code. What this EIS will look like has not yet been decided. It is possible that a joint EIS for the entire encapsulation-transportation-disposal system will be submitted with the applications in 2008. The alternative is to have separate EISs for the encapsulation plant and the final repository. SKB would be happy to discuss with the national and local authorities how this should be done in order for the process to be as transparent as possible.

3.2 System analysis

SKB's coming system analyses were discussed.

Discussion and decision

The municipality stated that they do not have a clear picture of what SKB's coming system analyses will contain. The previous system analyses were produced about five years ago. SKB stated that the work with the system analyses had only recently begun and that it must continue for awhile before they are ready to present the direction and scope of coming system analyses.

When the time is ripe, SKB will arrange a seminar, about half a day, for the municipality about the contents of coming system analyses.

3.3 EIS question no. 8 – Remaining R&D

The municipality's question to SKB

The municipality observed that RD&D-Programme 2004 shows that a great deal of research and development still remains to be done before SKB has a sufficient knowledge base to prove that a future final repository will be safe. Only two years remain until SKB intends to submit an application for the encapsulation plant, and four years until

the application for the final repository. It is reasonable to assume that imperfections and uncertainties will remain to be straightened out in both 2006 and 2008. The municipality would therefore like to see an account from SKB of which research issues are deemed to be most important and which results must be obtained before the two applications can be submitted.

SKB's reply

Olle Olsson, SKB, answered that the requirement for approval of the applications is that SKB can describe at least one working method (a reference design) for all components of the final repository that are of importance for safety and that the repository in its entirety satisfies the safety requirements. SR-Site, which will be submitted in 2008, will answer whether the repository satisfies the requirements.

The goal of the safety assessment is to evaluate the performance of the system and possible consequences of different events. In many cases, maximum consequences can be estimated without full knowledge of the system by making pessimistic assumptions that often lead to great overestimates of possible consequences.

The research conducted by SKB is primarily aimed at acquiring further knowledge to be able to make more realistic estimates of consequences and to optimize the system. One part of this system optimization is, for example, examining alternative materials for e.g. buffer and backfill and different methods for fabricating and emplacing them.

In the applications in 2008, SKB will present a reference design that meets these requirements. The work of optimizing the system will continue even after the applications have been submitted and permits have been obtained. Any proposals for changes in the reference design will be submitted to the authorities for consideration and approval.

Discussion

The subsequent discussion mainly dealt with how the municipality's EIA questions should be followed up. The municipality has posed a total of eight EIA questions to SKB. The questions have been raised at meetings with the EIA Forum and answered by SKB. The municipality's intention has, however, been that the EIA questions should be kept "alive" and not just be answered on a single occasion and then be forgotten.

The discussion resulted in the decision that the future ambition level should be to have a regular (for example annual) status review and reconciliation of all EIA questions.

3.4 Construction and operation of encapsulation plant and final repository

SKB gave an account of the construction and operation of an encapsulation plant and a final repository, and the disturbances that can occur in conjunction with this.

Discussion

The municipality asked about shipments of nuclear fuel. If the encapsulation plant is built at Clab and the final repository in the Laxemar area, how will the shipments of spent nuclear fuel take place? Will they go overland or in tunnels from the encapsulation plant? Olle Olsson, SKB, replied that both alternatives are possible, but if overland transport is opted for it will take place on dedicated roads without public traffic.

Public meeting in Oskarshamn Municipality

Date	5 April 2005, 19:00–21:00 hrs
Place	Figeholms Fritid och Konferens (Figeholm Leisure and Conference), Hägnad
Target group	Private citizens and organizations
Invitation	<p>Written invitation to some 1,300 households in the Misterhult area, some 45 organizations and the three organizations that obtain funding from the Nuclear Waste Fund to follow the consultations.</p> <p>A brochure accompanied the invitation, see below.</p> <p>Advertisement in Nyheterna (26/3 and 2/4) and Oskarshamns-Tidningen (26/3 and 2/4).</p>
Purpose	To discuss SKB's first proposal of where a final repository and an encapsulation plant could be placed in Oskarshamn, and what disturbances can be expected in conjunction with e.g. rock excavation and haulage during construction and operation.
Background material	<p>Specially produced brochure: Encapsulation and final disposal in Oskarshamn (in Swedish). Background material for consultation meeting on 5 April 2005. It is about construction and operation of the facilities and the disturbances that can arise.</p> <p>Specially produced fact sheet: Encapsulation and final disposal in Oskarshamn (in Swedish). Facts about the encapsulation plant and the final repository for spent nuclear fuel.</p> <p>The brochure was available on SKB's website three weeks before the meeting.</p>
Present	<p>About 50 persons attended the meeting.</p> <p>Private citizens and organizations about 30 persons</p> <p>SKB – <i>Saida Laârouchi Engström, Anders Nyström, Eva Widing, Peter Wikberg, Olle Zellman, Tommy Zetterling and others</i></p> <p>SKI – <i>Magnus Westerlind</i></p> <p>SSI – <i>Tomas Löfgren</i></p> <p>Representatives from <i>Oskarshamn Municipality, the County Administrative Board in Kalmar County, the Döderhult nature conservation society, MILKAS and MKG</i></p>
Minutes signed by	<p><i>Catharina Lihnell Järnhester and Carl Johan Rydh</i></p> <p>The meeting was preceded by an open house, 15:00–18:00 hrs, at SKB's site investigation office, Simpevarp. Seven people came to the open house.</p>

1 Encapsulation plant

1.1 Will all handling of radioactive materials be automated without manual involvement?

All handling will be radiation-shielded, for example under water or remote-controlled behind radiation-shielding walls. As much as possible of the handling will be automated.

1.2 Has it already been decided that the encapsulation plant will be built at Clab?

Nothing is decided before a permit has been obtained. SKB will apply for a permit to build the encapsulation plant at Clab. SKB considers this the best location for the encapsulation plant, regardless of where the final repository is sited.

1.3 How will transportation be arranged if the encapsulation plant is located in Forsmark? How will the fuel be transported from Clab?

Today the spent fuel is transported to Clab by the ship m/s Sigyn. If the encapsulation plant is built in Forsmark, the spent fuel will probably be transported in a similar manner, by ship.

1.4 Will Sigyn be used for these shipments?

It is not likely that Sigyn will be used for these shipments, for reasons of age. A new ship similar to Sigyn will probably be put into service.

1.5 There are some 10 or so homes located approximately 1 km from the planned site of the encapsulation plant at Clab. Some of them are permanent homes, the others are summer homes. We who live in the area are worried about the consequences of an elevated noise level and increased traffic.

At present it does not appear as if anyone will be affected by an elevated noise level. However, it is difficult at present to know exactly how much noise there will be and what the consequences of this might be. The noise calculations and studies that are being done are aimed at quantifying the noise and limiting possible consequences by, for example, suppression of fan noise or construction of noise barriers around crushing equipment.

2 Final repository for spent nuclear fuel

2.1 Why is the expression “final repository” used sometimes and “deep repository” other times?

Laws and regulations stipulate requirements on final disposal of spent nuclear fuel. SKB uses both the terms “deep repository” and “final repository” for the repository for spent nuclear fuel. Both designations refer to the same thing.

2.2 One of the overhead transparencies was a photomontage of a possible layout of the final repository’s surface facilities. Did the picture show a realistic area for the rock heaps?

Yes, the picture shows an example of the size of the rock heaps at their biggest, in other words when they consist of about 1 million m³ of rock. They then measure about 300 x 250 m with a height of about 15 m. The picture shows what the heaps might look like. But the exact design of the rock heaps has not been decided.

2.3 One of the overhead transparencies showed rock haulage vehicles such as articulated dumptrucks and rigid trucks. Will these vehicles drive on the roads in the area, and to what extent?

Mobile machinery will not normally drive on the roads. However, trucks that haul materials to and from the building site will drive on the roads.

2.4 Is the enclosed rock crusher included in the noise calculations?

Yes, the enclosed rock crusher is included in the calculations and in the noise propagation maps that have been shown. Furthermore, the calculations have been done with conservative assumptions as regards wind direction, sound attenuation by the vegetation etc. in order to illustrate the worst case scenario.

2.5 What is the distance from the noise centre to the end of the yellow markings on the noise propagation maps?

The distance from the noise centre to the end of the yellow markings is approximately 1,500 metres. (This question was answered by Tommy Zetterling later during the meeting.)

2.6 The overhead transparency that was shown describes noise propagation during the operating phase. Is there a transparency that shows noise propagation during the construction phase?

Yes, there are transparencies that show noise propagation during the construction phase. (Transparencies showing noise propagation during the construction phase were shown by Tommy Zetterling later during the meeting.)

2.7 What kind of noise propagation can be expected from haulage traffic on the road to Laxemar, considering the possibility of a harbour expansion? We who live nearby are very interested in getting information on this.

The investigations have not yet been completed. But some noise can be expected. The question will be included in the continued work.

2.8 It has been said that SKB may be tending towards siting the final repository in Laxemar instead of Simpevarp. Will there be consultation meetings about Laxemar, and if so when?

Yes, a consultation meeting will also be held regarding Laxemar when sufficient information (above all geoscientific) is available. It is estimated that this information will be available by the end of the year. SKB will get back with the time of the consultation meeting.

2.9 Will consultations be held regarding noise mapping in Laxemar as well?

Yes, the consultation meeting that will be held on Laxemar will include noise questions.

SKB clarified the reply to the preceding two questions: Scientific data for the Laxemar area will be available by the end of 2005. After that SKB must have time to process all the data, so the consultation meeting will probably be held in mid-2006.

2.10 Is Laxemar the most interesting area for the final repository?

We have good results from both Simpevarp and Laxemar. The available rock volume in Simpevarp is limited. The available volume is greater in Laxemar, which provides

greater flexibility. SKB will continue its site investigations and process the results obtained so that it can eventually choose between Simpevarp and Laxemar.

2.11 I would like to get back to the studies being done concerning sea transport. If this option is chosen, materials such as bentonite and crushed rock will have to be transported from Laxemar to the “new” harbour area. How will this affect the haulage traffic volume on the local road network? What will the shipments mean from a noise perspective? Where will the harbour be built?

If the rock spoil could be shipped out by sea instead of by road, the volume of traffic on the local road network could be reduced. Since the existing harbour at Simpevarp is used for shipments of spent nuclear fuel, there are restrictions on the activities that are allowed there. The possibilities of building a new harbour at Ävrö, which could be used to ship out the rock spoil by barge, are therefore being examined. Studies will be conducted concerning roads and noise.

2.12 Large quantities of rock spoil will be transported. Is it possible that SKB will engage haulage firms from a neighbouring country that may not be up to par environmentally with regard to engines and fuel? Will this be described in the EIA?

SKB intends to handle procurement of transport services in a correct fashion. SKB will impose tough environmental and quality requirements on the contractors that are engaged. A minimum requirement is that the contracted firms have to comply with Swedish law. As during the site investigations we will try to engage local contractors. Since nuclear activities are involved, tough requirements are also made regarding quality in safety matters.

Follow-up question: This sounds reassuring, but is it possible that another EU country will be involved?

SKB chooses the suppliers and contractors that will be engaged. There are transport companies in the region.

2.13 How do you plan to store the rock spoil? Will they be hauled away or dumped? How great will be the impact on roads, for example road 743?

In the construction of the tunnels needed for the final repository, a total of about 3 million m³ of rock (loose measure) will be excavated, hauled to the ground surface and handled above ground.

Of this rock spoil:

- 1 million m³ will be sold.
- 1 million m³ will be reused directly in the final repository.
- 1 million m³ will be dumped on temporary heaps for subsequent reuse in the final repository.

So we are talking about roughly 1 million m³ of rock that may be hauled away on road 743 during the construction phase (about seven years). Studies show that a market can probably be found for this rock spoil within a radius of about 70–100 km (Kalmar, Västervik) from the Simpevarp area. But it is difficult to give an exact answer as to where there may be use for this rock spoil, since we are talking about the period 2010–2017. Transport of this rock spoil will naturally entail a heavier load on the roads in question. The alternative of transporting it by barge currently appears to be a feasible suggestion, which SKB will continue to study.

2.14 What is SKB doing about the problems that may arise if the groundwater table is lowered?

How great a “drawdown” of the water table will be caused by the final repository depends on the nature of the bedrock in terms of for example fractures, fracture zones, groundwater flow etc., and the extent of sealing measures adopted to reduce the seepage of water into the final repository. Groundwater drawdown could affect wells in the immediate area and as well as the natural environment.

If the final repository has an impact on the wells of nearby residents, SKB will arrange to supply them with water.

As far as impact on the natural environment is concerned, it is more difficult to say today what such an impact could be and how it could be mitigated. Further investigations of the natural environment in the area affected by the final repository would be necessary to say anything about this.

2.15 Do you have more detailed information on a possible facility and rock heap on Hålö/Ävrö and how it will affect Kråkelundsvägen? Will the road pass through the facility on Hålö or will there be a new route? Will the facilities be fenced in, considering the increased safety awareness? (Private person)

The road system will be affected, but it isn't possible at this point to say how much and where. In the event that parts of the facility are built above ground, the infrastructure will be affected and roads may have to be re-routed. SKB is also looking at the possibility of using a separate road for goods transport between Clab and Hålö.

2.16 Reports in the media claim that SKB will prioritize the Laxemar area when they complete the site investigation for a final repository. Why is SKB now inclining towards the Laxemar area? Is it a question of geological advantages, the possibilities of expanding the final repository in the event of prolonged operation of the Swedish nuclear power plants, the risk of environmental impact on areas of national interest for nature conservation, or are there other reasons? (Döderhult nature conservation society)

At the beginning of the site investigation in Oskarshamn, the Simpevarp and Laxemar areas were designated priority areas within the large candidate area. Initial site investigations have now been carried out on both of these areas, and one of them will be prioritized for complete site investigation.

The results show that the bedrock conditions are similar at Simpevarp and Laxemar, so SKB is prioritizing the area that provides greater flexibility for subsequent detailed planning of the repository's surface and underground parts. The Laxemar area is twice as big as Simpevarp and provides greater flexibility. The formal designation of a priority area will be made at the beginning of 2006 when a preliminary safety evaluation is available for both areas. There are still uncertainties concerning the size of the available rock volume at Simpevarp, while Laxemar appears to have sufficient suitable rock volumes regardless of the length of the nuclear power programme.

The area of national interest for recreation and outdoor activities extends into parts of the Simpevarp area, but this does not have a significant bearing on SKB's prioritization of Laxemar since the underground parts of the repository are not judged to have a negative impact on the national interest for nature conservation, recreation and outdoor activities.

2.17 The background material for the consultation meeting focuses on a siting on the Simpevarp Peninsula. When will SKB convene a consultation with background material that concerns the Laxemar area? (Döderhult nature conservation society)

The investigations, and thereby also the design work, got started earlier in Simpevarp than in Laxemar. Material for a siting in Laxemar will be presented in mid-2006 with

the same level of detail as the one that has now been presented for Simpevarp. When the material is available, SKB will convene a consultation meeting on the Laxemar area.

2.18 Can SKB say how much rock spoil has to be hauled away during the construction phase? How much rock spoil has to be stored during the operating phase so that it can be used far in the future to seal the repository? (Döderhult nature conservation society)

During the seven-year-long construction phase for the ramp, shafts and central area, approximately one-third of the total volume of rock spoil will be excavated, i.e. about 1 million m³. This spoil is not needed for backfilling of the final repository, but can be used as a resource for other construction activities, for example roadbuilding or other civil engineering projects in the region. The spoil can be placed in a temporary heap pending removal from the area. It will probably be hauled away by truck, but the possibility of transporting the spoil by sea (barge) is being investigated. For this reason, SKB is investigating the possibility of building a new harbour on Ävrö.

The remaining rock spoil, about 2 million m³, will be excavated during the operating phase. Half of this material will be taken to the production building to be crushed and mixed with bentonite, after which it will be transported down into the underground facility to be used as backfill in the deposition tunnels. This will take place continuously during the operating phase.

The remaining rock spoil that is excavated will be used for backfilling of tunnels and shafts when the repository is sealed. The rock spoil will be stored in heaps. At most about 1 million m³ of rock spoil will be stored.

2.19 How will explosives residues, leachate and other waste products from the rock spoil be managed so they don't pollute watercourses and the sea? (Döderhult nature conservation society)

Depending on how the rock spoil is used, different environmental requirements will be made. This is particularly true of the rock spoil that is stored in heaps for a period of 30–40 years. The leachate, for example, will be managed and treated so it does not pollute watercourses and the sea.

2.20 SKB says that the rock will be crushed in different processes. During the construction period, they say that a mobile rock crusher will be used for a number of days per year. Can SKB explain why crushing rock ten days per year is sufficient and how this fits in with the logistics for managing the rock spoil? (Döderhult nature conservation society)

Whether or not ten days per year of crushing rock on the surface will be enough during the construction phase depends on how surplus rock will be disposed of.

About 1 million m³ of rock spoil will be excavated during the seven-year-long construction phase. These materials are not needed for backfill in the final repository and will therefore be hauled away, either uncrushed or after crushing. If crushing is required before haulage, this will be done by a mobile crusher on the surface. Rock crushing will be carried out periodically during at least the first half of the construction phase. During the latter half of the construction phase, this crushing may be done in a permanent crusher under ground, instead of on the surface.

A smaller portion of the excavated rock spoil will be used for the final repository's own needs, for example to build up the road surface inside the tunnel. This material will be crushed on the surface by a mobile rock crusher. Since the quantity is limited, the rock crusher only needs to be used for about 5–10 days per year. During the latter half of the construction phase, this crushing may also be done in a permanent crusher under ground, instead of on the surface.

The scope of the crushing on the surface is thus dependent on whether the surplus of rock spoil will be disposed of uncrushed or after crushing, which in turn is deter-

mined by what the rock spoil will be used for. If the surplus is disposed of uncrushed, the rock crusher will only be used for the final repository's own needs, 5–10 days per year. If, however, the surplus is disposed of after being crushed, crushing will be carried out periodically during at least the first half of the construction phase.

2.21 It is stated that during operation rock crushing will be carried out continuously, except at night, in a rock crusher enclosed in buildings on the surface. Can SKB give examples of other rock crushers that are built in a similar manner? What does “at night” mean? (Döderhult nature conservation society)

During the operating period, which lasts much longer, there is plenty of opportunity to enclose the crusher and thereby reduce the environmental nuisance caused by the crushing. “At night” means between 22:00 and 07:00 hrs.

We cannot give an example of an enclosed rock crusher in the Oskarshamn region. There are, however, built-in crushing plants in the Göteborg area and in Skåne.

2.22 There are maps for noise propagation from stationary sources during the operating phase for a siting in the Simpevarp area on page 9. When will a similar map be available for the Laxemar area? Do the noise levels shown include noise from the planned enclosed rock crusher? What will the noise levels during the construction phase from the mobile rock crusher and from the heavier traffic look like? How will you deal with the problem of varying noise propagation over time during the day? (Döderhult nature conservation society)

Maps showing noise propagation in Laxemar will be available at the consultation about Laxemar during 2006. Noise levels for both stationary and mobile rock crushers will be reported at this time. However, the exact geographic propagation of noise and variations during the day cannot be shown before the procurement of a rock works contract in Laxemar has been completed.

2.23 Based on experience from Äspö and the effects groundwater drawdown has already had on wells in the area, it is reasonable for the company to present figures and scenarios for groundwater disturbances. This should be done before settlements have been reached with landowners and early in the consultation process. How will you handle the groundwater problem so that all residents in the area can be assured of having reliable information before permit applications for the facilities are submitted? Does SKB plan to drill their own well and build their own piping system in the Laxemar area? (Döderhult nature conservation society)

Ongoing investigations in boreholes in Laxemar are providing data on the water-conducting properties of the rock in terms of both the long-term effects at repository depth and the superficial effects (groundwater drawdown) during the construction and deposition phases. The body of data being compiled in preparation for a possible application to build a final repository in Laxemar will provide a reliable picture of the drawdown effects for different scenarios. Local residents will be guaranteed a water supply. In the event the final repository causes loss of water, SKB will supply water.

2.24 In a near-coastal area where the ecosystems of the Baltic Sea are already exposed to environmental impact, it is important not to further pollute the groundwater and the sea. How will SKB guarantee that this will not happen? You show an example of how this area might be adversely environmentally affected by a siting of the final repository beneath the Simpevarp Peninsula on page 4, where rock heaps are located on Hälö and Ävrö. How does SKB justify the storage of rock spoil on small islands in the archipelago when the goal expressed in the environmental legislation is to eliminate the risks (leachate containing oils, explosives residues, etc.) to the environment? (Döderhult nature conservation society)

During the final repository's construction and operating periods, groundwater will seep into tunnels and shafts. This water, along with the drilling water, will be pumped up out of the facility and may contain particles, oil and nitrogen compounds from blasting and other rock works. It will therefore be tested and, if necessary, treated before being discharged. The leachate from rock heaps will also be tested and treated if necessary.

These aspects will be clearly described in the environmental impact statement that is submitted with the application to the Environmental Court. However, a completed and closed final repository will not have any environmental impact in the form of polluting releases.

Site Investigation Oskarshamn currently includes initial investigations and subsequent design work in both Simpevarp and Laxemar. Due to the flexibility allowed in the placement of both surface and underground facilities, SKB has already tentatively prioritized the Laxemar area for continued investigations. It is nevertheless important that SKB complete the entire sequence of investigation-evaluation-design in order to obtain comparable knowledge in both Laxemar and Simpevarp. This will facilitate the review of, for example, why the Laxemar area has been prioritized over Simpevarp.

2.25 SKB has said that the construction period will last about seven years. What assumptions concerning labour on a daily, weekly and annual basis lie behind this projection? (Döderhult nature conservation society)

Building an access tunnel and a skip shaft to a depth of 500 metres in a period of seven years requires continuous work. It is often inefficient to have the same work pace at night as in the daytime and on weekends as on weekdays. The rock works are therefore planned to take place in the daytime and in the evenings (double shift), five days a week. During certain periods, rock works may also be carried out at nights and on weekends. Time is also needed for investigations. They can be carried out at nights and on weekends, when rock works will not normally be carried out.

2.26 SKB states in the background material for the meeting that they use both terms "final repository" and "deep repository" for a repository for spent nuclear fuel, even though they refer to the same thing. The use of two terms for the same thing without giving the reasons for this causes confusion, which was also noticed at the meeting. What reasons does SKB have for using the term "deep repository" when the legislation only talks about a "final repository"? (MKG)

Laws and regulations stipulate requirements on final disposal of spent nuclear fuel. For historical reasons, SKB uses both the terms "deep repository" and "final repository" for the repository for spent nuclear fuel.

A final repository for radioactive operational waste from the nuclear power plants, SFR, already exists in Forsmark.

2.27 A final repository of the type which SKB is now planning will sooner or later release radioactive and hazardous substances. How these substances are spread and diluted and impact the environment (for example collective doses to future generations of people) depends on the local groundwater flows and nearness to the sea. When will SKB conduct a study that makes it possible to compare a siting in Laxemar or Simpevarp with a siting in an area above the highest coastline and in a deep recharge area in terms of environmental impact? (MKG)

The factors which could be advantageous for an inland siting compared with sites nearer the coast have to do with the flow patterns and the lower salinity of the groundwater.

- SKB has commenced the work of looking at regional groundwater flow conditions. This work will be completed during the autumn of 2005.
- An evaluation of the properties of the buffer and backfill materials and their dependence on the salinity of the groundwater will be presented in SR-Can in 2006.

The results obtained in these studies may be a suitable topic for discussion at a consultation meeting, for example in early 2006.

3 Common issues

3.1 Before Clab was built, isn't it correct that Sweden sent spent nuclear fuel to France for reprocessing? Isn't this done anymore?

It's true that Sweden used to send spent fuel to France. This is not done anymore. Since the dispatched fuel was intended for reprocessing and SKB has opted for direct disposal of the fuel, the Swedish fuel in France was eventually exchanged for German fuel. In other words, the Germans took over the Swedish fuel in France and we took German fuel with the equivalent quantity of plutonium. This fuel is now being stored in Clab and will be disposed of in Sweden in the same way as other fuel.

3.2 In such an important and serious question as this, isn't it appropriate to find out how democracy issues are being handled? I would like to hear how SKI views this.

SKI replied that the work is being conducted in compliance with applicable laws and ordinances. The licensing process is being handled in compliance with both the Nuclear Activities Act, which SKI is governed by, and the Environmental Code, which the Environmental Court is governed by. The process under the Nuclear Activities Act entails the following in this case:

- SKB applies for a permit.
- SKI reviews the application and requests comments from various reference bodies, for example SSI and the municipality.
- SKI then submits a statement of opinion to the Government, which makes a decision.

3.3 How will the Environmental Code be applied? Both the encapsulation plant and the final repository will be examined under both the Nuclear Activities Act and the Environmental Code. SKI has explained the licensing process under Nuclear Activities Act, but how will the matter be examined under the Environmental Code?

Examination under the Environmental Code will be handled by the Environmental Court. SKI offered to answer the question, even though they are not governed by the Environmental Code, and even though they are not experts in the Environmental Code examination.

The Environmental Court handles an application in roughly the same manner as SKI, i.e. when the application comes in it is circulated for comment and reviewed by

selected bodies. The main proceedings are held and interested parties are heard. The Environmental Court concludes this portion of the process with a statement of opinion to the Government. At this stage the municipal veto applies, i.e. the Government cannot approve a siting unless the concerned municipality assents to it. The work of the Environmental Court is not finished when the Government approves the permit application. The matter goes back to the Environmental Court for a decision and issuance of the permit conditions, for example regarding noise and water. Thus, an application under the Environmental Code is handled in two steps.

SKI pointed out that it is difficult to say exactly how the Environmental Court will work in this specific matter, since it is unique.

3.4 According to the information which SKB has furnished regarding the licensing process for the encapsulation plant, an application under the Environmental Code will not be submitted in 2006. Is this correct? If so, this is new information for us.

That is correct.

Both the encapsulation plant and the final repository for spent nuclear fuel require permits under both the Environmental Code and the Nuclear Activities Act. According to the plan of action in RD&D-Programme 2004, SKB planned to apply for permits for the encapsulation plant under the Environmental Code and the Nuclear Activities Act in mid-2006. The equivalent applications for the final repository were planned to be submitted at the end of 2008.

The consultation parties have on different occasions questioned the reasons for separate application and examination occasions for the encapsulation plant and the final repository. Among other things it has been noted that the KBS-3 method requires the existence of both facilities, which means that the Government cannot be expected to make separate decisions on permits and permissibility for the facilities.

SKB recently carried out a new, in-depth analysis of the licensing scheme that was presented in the plan of action in RD&D-Programme 2004, where viewpoints expressed in the consultation process have been taken into consideration. The analysis has resulted in a modified proposal for the application process, which in brief entails the following:

2006 SKB applies for a permit under the Nuclear Activities Act for the encapsulation plant. An EIS (environmental impact statement) is appended to the application. At the same time, a safety assessment focusing on the performance of the canister in the final repository (SR-Can) is submitted to SKI and SSI, along with a system analysis focusing on the encapsulation plant's role in the KBS-3 system and an account of the planned canister shipments.

2008 SKB applies for a permit under the Nuclear Activities Act for the final repository, and at the same time adjusts the application for the encapsulation plant based on the review and consultation comments received.

SKB applies for permits under the Environmental Code for the encapsulation plant and the final repository.

This proposal gives the Government an opportunity to make simultaneous decisions on permits under the Nuclear Activities Act and the Environmental Code for all parts of the KBS-3 system. One decision occasion also permits coordinated circulation of SKB's applications to reference bodies for comment. It is SKB's hope to be able to obtain a decision by 2010.

In SKB's judgement, coordinated examination of the KBS-3 method and its facilities under the Environmental Code promotes an integrated account, a holistic view and transparency for all parties involved due to the fact that central documents for the examination, for example the EIS, will be common for the facilities and the examination under the two laws. Moreover, this approach promotes harmonized and clear permit conditions.

The modified application process entails that the final reporting of alternative methods for disposal of spent nuclear fuel will not take place until 2008, instead of 2006 as previously planned. However, SKB plans to discuss how alternative sitings and methods are to be reported in future EISs at consultation meetings in early 2006.

3.5 An application for the encapsulation plant is planned to be submitted next year. How will SKB deal with the fact that many questions remain to be answered and studied as far as the KBS-3 method is concerned?

The review under the Nuclear Activities Act that will start in 2006 will focus on the radiological aspects of the encapsulation plant, such as handling and welding of canisters.

3.6 We are a group of summer residents who are worried about whether our properties will be affected in terms of disturbing noise and lowering of the water table. What does SKB have to say about this? We may want to sell our property and might have difficulty getting a good price. Can SKB make sure that we are compensated? Is it possible to discuss these questions in a smaller group?

SKB is favourably disposed to a continuing discussion of the possible consequences of the encapsulation plant and the final repository in a smaller group of affected summer house owners. SKB will make a note of this question and include it in the continued work.

A meeting with residents living near the future encapsulation plant was held on 7 March. Notes from the meeting can be obtained from SKB.

3.7 If a harbour is built along with an industrial area for the encapsulation plant and one for the final repository, there will presumably be quite a few new light sources. Has any study been made regarding light disturbances?

A study will be made of disturbances caused by light.

3.8 How big will the harbour area be including storehouses, other buildings, storage areas etc.? How big will the boats be?

At present no studies have been completed, so no concrete answers can be given. There will, however, be two types of sea vessels: barges for removal of rock spoil, and ships for delivery of bentonite. These are not huge ocean-going vessels, but they are not small boats either. We are probably talking about ships of about 5,000–10,000 tonnes with a draught of 6–9 metres and a length of about 120 m.

3.9 How will the question of traffic safety on the coast road be solved, considering that the road is so narrow? Is SKB prepared to assume responsibility for and pay the cost of the infrastructure if the National Road Administration doesn't do anything?

The question of traffic on the coast road has also been brought up by the Misterhult Group and SKB has held discussions with them on the subject. SKB has had a meeting with the National Road Administration, which does not consider it necessary to improve the road. At present SKB cannot promise anything before we know where the final repository will be located. SKB will get back on this question.

3.10 I would like to have a discussion about the radioactive content of the waste. This perspective is missing from the debate. We have to be clear about the fact that it is a high-risk project where the most dangerous poison that exists is being handled. The main problem is not where rock heaps and roads are located, but the fact that we are dealing with the most hazardous waste man has created. Nothing is ever said in the brochures SKB sends

out about how dangerous the waste is and how serious its management is. I think that is misleading people. I would like to hear SSI tell about what the risks are and what the scenario for a leak is.

SKB replied that they take a very serious view of the question of the safe management of the spent nuclear fuel and therefore deal with questions relating to this very seriously. This type of question has not been presented or discussed at this meeting, but will be dealt with in other contexts where the theme is safety.

SKB's presentations at today's meeting were supposed to deal with the construction and operation of the facilities and the disturbances that can arise in conjunction with such activities as rock excavation and haulage. The idea is that nearby residents should be given an opportunity to have their voice heard and discuss matters that concern them. In view of the fact that so many people are participating here this evening and that all the questions we have received so far have had to do with noise, transport and roads, there appears to be a need to discuss these questions.

As far as the brochure that was sent out prior to this meeting is concerned, it has been made as concise and concentrated as possible for easier reading. The brochure contains information relating to the topic of today's meeting, i.e. construction and operation of the facilities and the disturbances that can arise.

SSI said that they will never approve any facility or repository if they are not convinced that SKB can meet the radiation protection requirements.

3.11 According to SKB's timetable, the encapsulation plant will begin to be built in four years and the final repository a few years later. This will result in an increase in transport activity. SKB must understand that we are concerned in view of the high transport volume during the construction period and later during the operating period. We demand a new road.

SKB refers to a previous reply (3.9) regarding road questions and will include the question in the continued work. See also reply to question 3.21.

3.12 Transports, noise etc. will have environmental consequences, for example on road 743. But SKB does not give any concrete answers as to what their plans are. What is the main scenario for transports? Is it by barge? I would like to know when we can expect answers.

SKB understands that it can feel frustrating not to get answers to your questions. But the fact remains that we have no answers to give at this time. However, SKB will include all questions that are raised in its continued work.

3.13 Is it really certain that the encapsulation plant and the final repository will be located on the coast? As far as I understand the authorities would like the possibility of an inland siting to be investigated. Isn't it true that SSI wants additional studies?

The aspects the authorities hold up which could be advantageous for an inland siting compared with sites nearer the coast have to do with the flow patterns and the lower salinity of the groundwater.

By further analyses of factors that can affect the groundwater flow on a regional scale, SKB will meet the authorities' request for a supplementary account. SKB has commenced the work of looking at regional groundwater flow conditions. This work will be completed during the autumn of 2005.

An evaluation of the properties of the buffer and backfill materials and their dependence on the salinity of the groundwater will be presented in SR-Can in 2006.

The results obtained in these studies may be a suitable topic for discussion at a consultation meeting, for example in early 2006.

3.14 The background material sent out in preparation for the consultation meeting included maps of “Noise propagation from stationary sources”. The maps give the impression that noise from OKG’s and SKB’s activities does not reach beyond the Simpevarp Peninsula. Under certain conditions the buzzing of switchgear can be heard seven kilometres north of the Simpevarp Peninsula. Since sound propagation is influenced by such factors as temperature, relative humidity and wind direction, it should be clarified under what conditions the measurements and modellings have been done. As pointed out previously during the meeting, the maps must be provided with scales. (Private person)

It is true that noise propagation depends on many factors, including temperature, relative humidity and wind direction. Normally noise from the transformer station is not heard as far away as seven kilometres, but this is possible under the “right” meteorological conditions, for example during inversions. During measurements performed in January–February 2005, sound from the transformer station was clearly heard at measurement point 1, which is located about 3.5 kilometres from the source. On this occasion there was newly fallen snow with extremely much ground attenuation. This means that other sound did not help to mask the transformer sound, which could therefore be heard clearly. At the same time, tones can be perceived in a noise-like sound, even if the tone is ten dB below the noise level.

We have based our reporting of stationary sound sources during the operating period of the final repository on the Swedish Environmental Protection Agency’s guidelines “External industrial noise”, 1978:5 (2nd edition 1983). They give an outdoor guideline value for vacation homes and outdoor activities, where experience of nature is an important factor, of 40 dBA equivalent daytime sound level (7:00–18:00 hrs). A guideline value of 35 dBA is given for evenings (18:00–22:00 hrs) and nights (22:00–07:00 hrs). Our maps, which show sound propagation from stationary facilities, apply the guideline value for evenings and nights. The colour green shows sound levels below 35 dBA.

The Swedish Environmental Protection Agency’s general recommendations concerning noise from building sites are normally applied during a construction phase. Here, for example, the outdoor guideline value around vacation homes is 50 dBA in the evening, which is much higher than the value applying for “External industrial noise”, see above. The reason we have applied these stricter guideline values to the construction phase as well is that the construction period is long (about seven years), at the same time as the area is relatively quiet.

Figures in the reports that have been published have scales.

3.15 How were the maps produced? Was it really by measurements, or mainly by modelling? (Private person)

The mapping of the current noise situation was done using measured sound levels from all sources as input data to theoretical calculations. For future activities during the construction phase, calculations were carried out with “typical” sound data for the particular sources. Calculations for current and future activities were then carried out using “the Nordic calculation model” devised with support from the Nordic Council of Ministers. The calculations take into account terrain conditions and existing buildings.

3.16 Do the measurement cases represent normal or extreme scenarios? (Private person)

The measurements aim at describing noise conditions under normal conditions.

In order to determine current noise conditions around Simpevarp/Laxemar, measurements were carried out on three occasions in five positions. On each measurement occasion, the measurements were performed during a period of about two weeks. The measurements were carried out during different seasons:

1. Early spring with bare ground, March 2004.
2. Early summer when the trees were leafing, June 2004.
3. Winter, snow-covered ground (new snow), January/February 2005.

Measured sound levels show large variations and differences between the seasons. The lowest sound levels were recorded during the measurement period with new snow.

The noise measurements also serve as an important basis for calculating and judging what sound levels can be expected when planned facilities and activities are in place.

The calculations for the final repository's stationary sources assume a tailwind in all directions simultaneously, or comparable meteorological conditions. Furthermore, all sources are operating simultaneously. The calculations thus concern a "worst case scenario" for noise from stationary sources.

3.17 What are the seasonal variations? (Private person)

Measured sound levels exhibit great variations and differences between the seasons, see above reply.

The calculations do not take seasonal variations into consideration. For example, acoustically hard surfaces (lake) have greater ground attenuation with new snow than during the summer. The influence of the vegetation (trees with or without leaves) has not been taken into account either. In this respect the calculations give a higher sound level value, since the attenuating effect of the vegetation is not taken into account.

3.18 What sound propagation can be expected in different directions in extreme cases? How often? (Private person)

The difference in sound propagation under different meteorological conditions can be considerable. It is not unusual for the difference between tailwind and headwind conditions to be about 20 dBA at long distances. Conducted measurements (see coming measurement report SKB P-05-13) show that during a 24-hour period (13–14 March 2004) a sound level change was recorded at all five measurement points. The sound level decreased from 35–40 dBA to below 20 dBA at one measurement position. This was caused by extreme meteorological conditions, which has subsequently been verified. Statistics on how often such conditions occur are lacking.

3.19 What noise load will a possible harbour facility and transport roads on Ävrö contribute? (Private person)

This has not been studied, but will be if it is decided to build a harbour on Ävrö.

3.20 SKB says that during the approximately seven years of the construction phase, 40–75 trucks will drive back and forth (hauling rock spoil in one direction and empty returning) along road 743 towards Fårbo. At the same time, other traffic on the road will increase due to the new activities. How much noise will come from the road at different times of the day? How much will the human-perceived noise increase? Can SKB explain in a pedagogical fashion how this will be perceived by people living along the road compared to today? (Döderhult nature conservation society)

If rock haulage takes place by truck, the runs will be scheduled at times when the accident risk is lowest. The construction phase will last for about seven years. The intensity of the rock haulage traffic and the construction activity will be greatest during the latter half of the construction phase. During this period, precrushing will take place under ground and the precrushed rock will be hoisted to the ground surface by skip (rock hoist). There will be a small rock stockpile on the surface between skip and truck. Skipping of crushed rock spoil is planned to start four years after construction start.

This makes it possible to schedule the haulage runs. How much noise is created at different times of the day and how this will be perceived by humans (this is probably very individual) has not been studied. For the same reasons we cannot explain in a pedagogical fashion how the noise is perceived today and will be perceived in the future by people living along the road.

3.21 Increased traffic on road 743 will require improvement of the road. Is SKB prepared to pay the costs of road improvement if the National Road Administration is not prepared to include this in its improvement plans in time? (Döderhult nature conservation society)

We share the view that a siting of a final repository in the area requires measures on and alongside the road. These measures are primarily the responsibility of the National Road Administration and the municipality. If a final repository should be built in Oskarshamn Municipality, we are prepared to discuss a possible co-financing at that time. At present we are conducting a conceptual study aimed at listening to those most affected, i.e. those who live along the road, and come up with ideas for improvements. The study will be finished in June 2005.

3.22 The Simpevarp Peninsula borders on areas that are of national interest for nature conservation (NRO08002 Västervik and Oskarshamn archipelago). Parts of Hälö and Ävrö are included in this area, for example an area on Hälö which SKB has mentioned as the site of a possible rock heap. How does SKB intend to take the nearness of this area into account in siting facilities and in the construction and operation of an encapsulation plant and a final repository? (Döderhult nature conservation society)

Areas for different national interests can co-exist. The fact that there is a final repository at a depth of 500 metres does not in itself have any detrimental impact on the natural environment. A rock heap and above-ground facilities must, however, be adapted to the landscape and the limits set by legislation. The near-coastal location of the Simpevarp area makes it difficult to find “good” locations for rock heaps that can contain up to a million cubic metres of rock spoil. The encapsulation plant will be located in an area intended for industrial activity.

3.23 What will SKB do to prevent disturbing light from the encapsulation plant and the surface part final repository? (Döderhult nature conservation society)

Both the encapsulation plant and the surface parts of the final repository are industrial facilities that require illumination. They can be illuminated in different ways to avoid lighting that can be regarded as disturbing.

3.24 Could SKB consider changing the form for consultations in the future so that it is simpler for private citizens to have their questions presented? One suggestion is that a portion of the time at future consultation meetings be set aside for discussion in smaller groups and that rapporteurs keep notes of viewpoints and questions that come up in the groups. Another suggestion is to have an independent moderator appointed by, for example, Oskarshamn Municipality. (Döderhult nature conservation society)

Yes, SKB is open to changing the form for consultations so that it is simpler for private citizens to have their questions presented.

3.25 In order to make it easy for non-profit organizations to analyze and formally handle their viewpoints at consultation meetings, it is important that the time of the meetings be announced in good time before the meetings. It is also important that the background material for the consultations be available in good time before the consultation meetings. In the future, can SKB provide notice of the time of consultation meetings and distribute the background material earlier than the legal minimum of three weeks? (Döderhult nature conservation society)

SKB can give notice of the time and theme of consultation meetings earlier than three weeks before the meeting. As far as the time for distributing the background material is concerned, a balance must be struck between distributing the material early and keeping it as up-to-date as possible. In view of the intensive pace of the work on the site investigations, design, EISs etc., SKB concludes that it is best to distribute the material a few weeks before the meeting, just as before.

3.26 In order for a consultation meeting to serve its purpose, opportunities must be provided for private citizens to voice questions and viewpoints. At the meeting in Oskarshamn on 5 April 2005 scheduled between 19:00 and 21:00 hrs, SKB and SKB's consultants made presentations between 19:00 and 20:45, with a short break for coffee. That left only 15 minutes of scheduled time for general questions and free discussion. The meeting then continued until nearly 22:00, and even though SKB accepts written questions for two weeks after the meeting, the problem still remains. If SKB convenes a meeting for the purpose of consulting with the public, there must be time scheduled for other questions than information from SKB. What will SKB do to make sure that private citizens are given greater opportunity to speak during the actual meeting in the future? (Döderhult nature conservation society)

SKB is aware of this problem. At future consultation meetings, we are considering setting aside more time for the actual consultation meeting and/or having shorter presentations.

3.27 There have recently been indications that SKB is no longer intending to submit a separate (in time, from the final repository) permit application under the Environmental Code for the encapsulation plant in 2006. Has SKB changed its strategy for obtaining permits for the encapsulation plant and the final repository? What are SKB's reasons for such a change? How will the time for the start of construction of the encapsulation plant be affected by such a change? At what point in time will the method report be available for review if the licensing and EIA process is changed? (MKG)

This question was answered in part at the meeting, see 3.4.

According to SKB's earlier plan, construction of the encapsulation plant was supposed to begin in 2009. That deadline will now be delayed by a year or two.

The modified decision process entails that the final reporting of alternative methods for disposal of spent nuclear fuel will not take place until 2008, instead of 2006 as previously planned. However, SKB plans to discuss how alternative sitings and methods are to be reported in future EISs at consultation meetings in early 2006.

3.28 According to the Environmental Code, a permit application for a final repository shall contain an account of alternative methods. One alternative method that is of interest from an environmental viewpoint is deep boreholes (also known as Very Deep Holes). This method was mentioned in the heralded American study “The Future of Nuclear Power” from 2003 as a disposal method that should be aggressively pursued as an alternative to mined repositories. When will SKB present its report on alternative methods, and will the emphasis be on an analysis of the deep boreholes method? (MKG)

The report on alternative methods for management and disposal of spent nuclear fuel will be included in the environmental impact statement (EIS) that is planned to be submitted in 2008 for the encapsulation plant and the final repository. The scope of the report is being discussed with SKI, among others.

According to SKB's current plan, the EIS will contain an account of the alternative strategies that have been studied (reprocessing and transmutation, supervised storage, launching into outer space, disposal beneath ice sheets, sub-seabed disposal and various forms of geological disposal). The EIS will also contain a safety comparison, barrier for barrier, between the deep boreholes alternative and the KBS-3 method, as well as a description of how the Swedish nuclear waste programme would have to be revised to develop and apply the alternatives reprocessing and transmutation or deep boreholes.

3.29 In order to be able to hold penetrating meetings in the treatment of different topics, it is important that enough time be provided at the meetings. It is desirable that SKB divide up the meetings so that one theme can be addressed at a time, for example alternative methods and siting. What plans does SKB have for the continued consultation meetings prior to the permit applications, and what themes are planned? When is the next time SKB will hold a meeting with national NGOs? (MKG)

SKB concurs that the consultation meetings should if possible focus on a single theme. The theme of today's meeting was “the construction and operation of the facilities and the disturbances that can arise in conjunction with, for example, rock excavation and haulage”.

In the autumn of 2005, consultation meetings are planned in Oskarshamn and Östhammar on the main theme: “Structure and content of the EIS for the encapsulation plant”.

In the spring of 2006, consultation meetings are planned in Oskarshamn and Östhammar to discuss coming reports of:

- Siting of final repository for spent nuclear fuel.
- Alternative methods for disposal of spent nuclear fuel.

SKB will return with the time and theme of subsequent meetings.

National organizations will receive information on results and planned consultations, up until a reconciliation meeting in 2008. During 2004 SKB held separate consultation meetings aimed at different groups such as local conservation and environmental organizations in the municipalities of Oskarshamn and Östhammar and national organizations. SKB was then criticized because this procedure split up the consultations, making it difficult for other actors than SKB to keep track of what comes up at the consultations. SKB has heeded this criticism and will try in the future to avoid, or at least reduce the number of, consultation meetings aimed at separate groups.

As a consequence, we are planning in the future to schedule 1–2 public consultation meetings per year in Oskarshamn and Forsmark. If desired, it is naturally also possible to meet with individual groups to discuss specific questions.

3.30 What is SKB's timetable for presenting the scoping reports for the EISs for the applications for the encapsulation plant and final repository? (MKG)

The work of updating the "Scoping report" is temporarily stalled. The reason is that SKB's modification of the application process affects what will be covered in the different EISs and thereby affects the contents of the report. The work will now be resumed, with the aim of finishing the report by the summer.

3.31 The Swedish Environmental Movement's Nuclear Waste Secretariat (MILKAS) appended the publication "How long will the nuclear waste be hazardous?" (in Swedish). This publication claims, among other things, that "the spent nuclear fuel will never in the future history of our earth decay to levels that occur naturally on the globe." As far as the waste deposited in SFR in Forsmark is concerned, the question is posed: "why is so much trouble being taken to arrange a waste repository 60 metres down in the bedrock and why are such rigorous precautions being taken for a waste whose activity does not even amount to one hundredth of the level that has been designated 'harmless'?" (MILKAS)

The Swedish Environmental Movement's Nuclear Waste Secretariat's publication refers to SKB's report from 1997 entitled "Använt kärnbränsle – Hur farligt är det?" (SKB R-97-02) ("Spent nuclear fuel – How dangerous is it?" (in Swedish). This report provides support for the claim that "After 100,000 years the radiotoxicity of the spent nuclear fuel will have declined to a level comparable to that occurring in nature". This claim is questioned by MILKAS.

In SKB R-97-02, the "radiotoxicity" of a tonne of spent nuclear fuel (uranium weight) is compared with the radiotoxicity of the quantity of natural uranium ore consumed in the fabrication of one tonne of nuclear fuel. This quantity is eight tonnes (uranium weight).

Besides uranium, the natural uranium ore also contains the decay products of the uranium, which are in equilibrium with the parent isotopes uranium-235 and uranium-238. The "radiotoxicity" of the uranium ore is dominated by the uranium decay products, as is evident from SKB's report. It is further stated in the report that after more than 100,000 years the "radiotoxicity" of one tonne of spent fuel will have declined to the "radiotoxicity level" represented by eight tonnes of natural uranium ore. A recently published report from the IAEA (Implications of Partitioning and Transmutation in Radioactive Waste Management, IAEA Technical Report Series no. 435, December 2004) says that this occurs after 130,000 years. The time varies somewhat depending on the type and burnup of the fuel.

SKB does not claim that the spent nuclear fuel is completely harmless after 100,000 years. But after this length of time, its "radiotoxicity" will have declined to roughly the same level as that found in natural uranium ores. Furthermore, the "radiotoxicity" of the fuel after 100,000 years is dominated by the same radionuclides as are "radiotoxic" in natural uranium ores.

MILKAS states that the activity levels for the waste that is disposed of in SFR are considerably lower than in the spent nuclear fuel. It is true that there are great differences in activity level, which is why the SFR repository has a completely different design compared with the final repository for spent nuclear fuel.

Meeting with Oskarshamn EIA Forum

Date	1 June 2005, 9:30–15:00 hrs
Place	Canister Laboratory, Oskarshamn
Target group	Oskarshamn Municipality, County Administrative Board in Kalmar County, SKI and SSI
Invitation	The date of the meetings is decided on jointly. SKB sends out e-mail invitations to each meeting.
Purpose	To discuss matters related to the expansion of Clab, as well as the encapsulation plant and the final repository for spent nuclear fuel. Furthermore, each participating party gives a status report on the work they are taking part in that has a bearing on the disposal of spent nuclear fuel.
Background material	Prior to the meeting, Oskarshamn Municipality had posed three “EIA questions” to SKB. EIA question no. 9 – Use of rock spoil EIA question no. 10 – Bentonite, transport and compaction EIA question no. 11 – Transparency in site selection
Present	County Administrative Board in Kalmar County – <i>Ulf Färnhök (chairman), Sven Andersson</i> Oskarshamn Municipality – <i>Rigmor Eklind, Charlotte Liliemark, Kaj Nilsson, Göte Pettersson, Lars Tyrberg, Peter Wretlund, Harald Åhagen</i> SKI – <i>Magnus Westerlind</i> SSI – <i>Björn Hedberg, Elisabeth Öhlén</i> SKB – <i>Claes Thegerström (part of meeting), Anders Nyström, Katarina Odéhn, Olle Olsson, Erik Setzman, Peter Wikberg, Lars Birgersson (secretary)</i>
Observers	<i>Göran Sundqvist, Göteborg University, Mark Elam, Göteborg University</i>

1 Encapsulation plant

1.1 Preliminary EIS for encapsulation plant

SKB’s upcoming preliminary EIS for the encapsulation plant was discussed.

Discussion

The discussion in conjunction with Erik Setzman’s presentation mainly had to do with if and how the municipality will work with the preliminary EIS for the encapsulation plant. At a consultation meeting with private citizens in the autumn of 2005, SKB will present the structure and content of the EISs, especially for the encapsulation plant. Other stakeholders could also be given an opportunity to hear what SKB has to say about the structure and content of the EISs at this meeting. However, a preliminary version of the EIS will not be available before the spring of 2006, a few months before the permit application under the Nuclear Activities Act for the encapsulation plant is to be submitted.

The municipality pointed out that if viewpoints on the preliminary EIS are to be offered, this will take at least 2–3 months. SKB noted that the “reconciliation” promised with the municipality could be that the municipality presents its viewpoints on the overall picture of the structure and content of the EIS that will be given in the autumn of 2005. In other words, the “reconciliation” would cover the major features of future EISs.

SKI pointed out that it is the applicant, i.e. SKB, who is responsible for the content of the EIS and that the municipality will be able to review the finished document after the application has been submitted. The discussion showed that it is important to agree on when reconciliation with the municipality should take place and what it should include.

2 Final repository for spent nuclear fuel

2.1 EIA questions nos. 9, 10 and 11

Prior to the meeting, LKO’s safety group had posed three “EIA questions” to SKB.

The questions concerned:

EIA question no. 9 – Use of rock spoil.

EIA question no. 10 – Bentonite, transport and compaction.

EIA question no. 11 – Transparency in site selection.

EIA question no. 9 – Use of rock spoil

When the final repository is built, approximately 3 million m³ of rock will be handled in different ways. An estimated 1 million m³ of this will be surplus, which will be hauled away. The municipality regards the surplus as a resource that can be put to productive use. The municipality wants a study to be conducted concerning how, where and when the rock spoil can be put to use.

SKB pointed out that a surplus of about 1 million m³ of rock spoil will arise during the mining of the accesses to the final repository, i.e. during the first 7–8 years of the construction period. This time is not too far off, so it should be possible to assess the chances of finding a market for the rock spoil. No net surplus will arise during operation.

SKB shares the municipality’s view that the rock spoil constitutes a resource that should be put to appropriate use. SKB said that the municipality should compile a list of possible projects, after which SKB can study how the needs of these projects for rock spoil might be met.

EIA question no. 10 – Bentonite, transport and compaction

The municipality’s general requirement is that as much as possible of the necessary activities and facilities for the final repository system should be sited in the same municipality as the final repository. The harbour in Oskarshamn should be suitable for receiving and warehousing the bentonite. The harbour area or its immediate vicinity should also be an advantageous place to locate the facility for compaction of bentonite blocks. This alternative should be studied together with the alternatives of siting the activity and facilities in Simpevarp or directly adjacent to the final repository.

SKB replied that since large quantities of clay material will be handled during a long period of time, the harbour for unloading of the material should be as close to the final repository as practically feasible in order to minimize road haulage. The Oskarshamn harbour should be a good alternative.

As far as the fabrication of blocks for buffer and backfill is concerned, this facility is planned to be located directly adjacent to the final repository. As far as the fabrication of blocks for backfill is concerned, these blocks will probably contain crushed rock from the final repository, which greatly reduces the haulage need if fabrication takes place directly adjacent to the final repository.

EIA question no. 11 – Transparency in site selection

How will different site selection criteria be weighed together in an integrated evaluation?

The municipality would like SKB to prepare a report that clearly describes the site selection factors (e.g. geology, including coast-interior, land and environment, societal aspects), how they may have been modified between site selection steps, how they have been used in these different steps, and how they will be used in the final site selection.

SKB noted that they described the principles they intend to apply in site selection in RD&D 2004. They were described in greater detail in TR-01-03 and no significant changes have occurred since then.

Transparency in site selection is achieved by a clear presentation of factors of importance for safety, radiation protection, environmental impact and societal impact backed by facts from the sites that have been investigated, studied and analyzed. It is SKB's responsibility to present facts in a well-structured and pedagogical fashion so that those concerned can understand the grounds for site selection. SKB does not believe that a theoretical presentation of site selection factors beyond those already provided would add anything positive to the decision process at this point. The best way to achieve transparency is for SKB to present facts and evaluations in a clear fashion when they have been compiled, which we expect can be done in 2008. Everyone can make their own judgement based on a complete body of material that is available to everyone.

Discussion

Use of rock spoil, i.e. EIA question no. 9, was discussed. Both the municipality and SKB noted that it is important to have a regular dialogue to make sure the surplus of rock spoil, for example, is put to suitable use. SKB knows how much rock spoil will be produced and when it will be produced. The municipality knows about possible projects that may have need for rock spoil.

Transparency in site selection, i.e. EIA question no. 11, was discussed. The municipality stated that they would like to have a clear explanation of how different site selection factors will be used in final site selection. SKB does not believe that a presentation of site selection factors beyond that already provided would contribute anything positive to the decision process at this point. The discussion ended with a promise by SKB to provide a detailed written reply to the municipality's EIA question that makes reference to relevant reports.

The follow-up of the municipality's EIA questions was discussed. The municipality has posed a total of eleven EIA questions to SKB. The questions have been raised at meetings with the EIA Forum and answered by SKB. The municipality's intention has, however, been that the EIA questions should be kept "alive" and not just be answered on a single occasion and then be forgotten. The discussion resulted in the decision that the future ambition level should be to have a regular (for example annual) status review and reconciliation of all EIA questions.

Decision

The municipality and SKB need to have a dialogue to ensure that rock spoil will be put to an appropriate use. Peter Wikberg was appointed liaison between SKB's investigators and the municipality.

Transport and handling of bentonite also requires a dialogue between SKB and the municipality to ensure that it is done properly. Peter Wikberg was instructed to schedule a meeting where SKB informs the municipality about the status of the design work.

3 Common issues

No questions or viewpoints were expressed that pertained to both the encapsulation plant and the final repository.

Public meeting in Östhammar Municipality

Date	4 June 2005, 11:00–14:00 hrs
Place	Börstils Northern Local Arts and Crafts Museum (Simundö School)
Target group	Private citizens, particularly part-time residents in the Forsmark area
Invitation	Written invitation to all residents within a distance of about ten kilometres of the Forsmark nuclear power plant, which is located adjacent to the area for site investigation. The meeting was also advertised in Upsala Nya Tidning (14 May and 3 June), Östhammars Nyheter (12 May and 2 June) and Annonssbladet (11 May and 1 June).
Purpose	To discuss SKB's first proposal of where a final repository and an encapsulation plant could be placed in Forsmark, and what disturbances can be expected in conjunction with e.g. rock excavation and haulage during construction and operation.
Background material	Specially produced brochure: "Final disposal and encapsulation in Forsmark" (in Swedish). Same material as for the meeting of 25 November 2004. It is about construction and operation of the facilities and the disturbances that can arise.
Present	About 50 persons in all. Private citizens and organizations <i>about 30 persons</i> SKB – Erik Setzman, Kaj Ahlbom, Tomas Holmström, Bengt Leijon, Olle Olsson and others SSI – Mikael Jensen Representatives from MKG, MILKAS and Östhammar Municipality
Minutes signed by	Bertil Alm and Virpi Lindfors

1 Encapsulation plant

- 1.1 I am surprised that the waste from decommissioning of the encapsulation plant has not been discussed. Management of the long-lived low- and intermediate-level waste must be described and included in the supporting material for the applications. This is a parallel to the Environmental Court's handling of the permit applications from Ringhals, where the waste problem is not considered to have been solved. What is your view of this?**

All environmental impact should be addressed in the EIS. The question in Ringhals concerned the fact that there are no formal permits for the final disposal of the spent nuclear fuel. The disposal work has nevertheless come far and has a solid foundation. The Government is now supposed to tell the Environmental Court what their view is of this and we await their reply.

2 Final repository for spent nuclear fuel

2.1 High rock stresses sound risky. Is this a weakness from a safety viewpoint?

No, not as far as we are able to judge today, but it does affect the construction and operation of tunnels and rock caverns. The orientation, shape and reinforcement of the rock openings must be adjusted to the rock stresses.

2.2 Low water flow is an advantage for avoiding transport of radionuclides, but is it a disadvantage for bentonite performance?

Sooner or later water will flow in; it's just a question of how long it takes. The water makes the bentonite swell and thereby isolates the canisters. It is also a question of the temperature in the repository. Removal of heat is desirable, and wet bentonite transports heat better than dry. The low water flow is not regarded as a problem today, but research on this will continue.

2.3 Have you considered scenarios with high fracturing due to high rock stresses when the tunnels are built?

Very little rock will be taken out in relation to the total volume of the lens, so the lens as a whole is not expected to be weakened, even if there will be some local fracturing around the tunnels. An important aspect is to calculate how future earthquakes will affect the repository.

2.4 One-third of the rock spoil will be hauled away. How much is that in terms of truckloads? Is it 150 trucks per day?

Yes, that's a reasonable figure. Of the heavy traffic during the construction period, haulage of rock spoil accounts for the largest quantity.

2.5 Bentonite will also be transported, won't it? How much?

About half of the additional 35 trucks per day during the operating period will carry bentonite. The bentonite will arrive by sea and only travel the last bit by road.

2.6 That's a lot of trucks, are you planning to improve the roads?

This question often comes up. First it is worth noting that the existing roads are perfectly capable of handling the additional traffic in terms of loadbearing capacity. But there are other factors that are important to consider, such as accessibility and recruitment possibilities. SKB naturally considers a good infrastructure to be an important factor from an establishment viewpoint.

2.7 Construction is scheduled to start in only seven years. Don't you have any plans for the transport network?

We cannot start building roads until we know whether the final repository will be built in Forsmark or Oskarshamn. The National Road Administration is responsible for the public road system, but we would be happy to discuss whether and how the roads can be improved.

2.8 How are you planning to grout the rock down to repository level? They didn't have much luck with that in Hallandsåsen. What kind of grout will you use?

We plan to stick with cementitious grouts, but we haven't yet decided on what type. It has to be chosen with great care, for the sake of both the environment and the pH it creates in the rock. It definitely won't be Rhoca Gil.

2.9 The span of time we are facing is enormous. It must be difficult to know whether the sealant will last 100,000 years.

The cement grout “only” has to last during the construction and operating periods, about 50 years. After sealing the groundwater level will be restored.

2.10 Water has to be diverted during construction work in rock; how large an area will be affected? Can Bolundsfjärden be affected, for example? Will it affect the nature protection areas?

We are carrying out calculations of this. Seepage of water, resulting in a change in the groundwater level, depends on both the properties of the site and what sealing measures are taken. The first calculations will be finished in the autumn. So far we only expect a noticeable lowering of the groundwater level near the shafts.

2.11 Is the water saline? Is there a lot of old water, like that in the “souvenir bottles”?

Most of the water flow comes from the upper 200 metres, and that water is usually non-saline, but may also be saline. Below this depth and down to repository depth the water is saline. A large portion of the water probably stems from the Littorina Sea, which existed about 6,000 years ago as a predecessor of the Baltic Sea.

2.12 I am thinking about the lessons learned from Äspö. The tunnels there are only 70 metres deep, but the groundwater drawdown is noticeable within a radius of six kilometres. The final repository will be situated at a depth of about 500 metres. Isn't it possible to assume the same extent of the groundwater drawdown in Forsmark?

Calculations of the groundwater drawdown are being made and the first calculations will be finished in the autumn. It isn't possible to apply the experience from Äspö to Forsmark. The rock in Forsmark is less permeable than the rock on Äspö, and the entire area at repository depth is not open all the time.

(SKB's comment on the question, which did not emerge at the meeting: The tunnels on Äspö go down to a depth of 450 metres and the groundwater drawdowns that have been observed are located only 1.5 kilometres from the access tunnel along a major fracture zone.)

2.13 Is there any risk of salt water intrusion into wells?

That risk cannot be ruled out. Wells closest to the power plant and the final repository run the greatest risk of salt water intrusion.

2.14 Are there any scenarios in the calculations where there is vertical water transport at that level?

This is an important question for the assessment of long-term (postclosure) safety, but not for the repository's construction and operating periods. The safety assessment is done in several stages. A model based on data from the initial site investigations will be constructed in SR-Can, which will be finished at the end of 2006. This assessment will be updated for applications for the final repository in 2008.

2.15 How will the rock with a final repository hold up in a future ice age? Without a repository the rock is compact, with a repository it is perforated.

Very little rock will be taken out in relation to the total volume of the lens, so the lens as a whole is not expected to be weakened. During the deglaciation following an ice age, a great deal will take place in a very short time. These are also important questions for long-term safety, where calculations are under way.

2.16 How much drainage water from tunnels and leachate from rock heaps will be released during the lifetime of the final repository? How will it be managed?

The quantity of drainage water depends on how much we seal, and that has not yet been decided. The drainage water is somewhat saline and can therefore not be released indiscriminately. It may also contain contaminants, such as nitrogen residues from explosives. We have made a general study of the nitrogen content of the drainage water. We will make a more site-specific study to estimate the quantity and content of contaminants in the water from the underground facility and the leachate from a possible rock heap. There are guideline values and limit values that we will take into consideration. The water will be tested and, if necessary, treated before it is discharged. Conventional industrial methods can be used for this wastewater treatment.

2.17 Where in the sea will the drainage water be discharged – far out or near shore?

We don't know yet. Studies are under way here as well.

2.18 Will blasting of tunnels and deposition of spent nuclear fuel proceed in parallel?

Yes, the operating phase, after about seven years, will consist of blasting of deposition tunnels alternating with deposition of canisters, but in different parts of the repository of course.

2.19 One of the arguments against nuclear power in the 70s was the risk of an increase in ionizing radiation to the environment. Is there radioactivity in the rock that will suddenly be exposed to the air when you dig in the rock? If so, will it be released to the environment?

Yes, there is radioactivity in the rock. Uranium occurs naturally in the bedrock, and when uranium decays other radioactive substances are formed, including radon. The concentration of radon depends on the uranium concentration in the rock. Radon is a radioactive gas with a half-life of 3.8 days and decays to radon daughters that are radioactive metal atoms. The presence of radon is an occupational safety issue and a problem in some hard rock facilities. Radon can be emitted both from rock surfaces exposed by blasting and from seeping groundwater. There is little chance of this being a problem in Forsmark, especially with the right ventilation.

2.20 You have drilled deep, so you should know how much water there is in the rock. Then you should know what the levels of radioactivity are in the groundwater. Based on that you can figure out how many becquerel it emits.

We measure natural radiation both on the surface and in boreholes, which enables us to calculate the natural concentrations of radioactive substances. It is data from these measurements that convinces us that the rock in Forsmark does not harbour potential radon problems.

2.21 SKB's analyses of regional groundwater flow were reviewed by the authorities last year. Why doesn't SKB consider a siting that entails long flow paths? An inland siting, for example in Hultsfred, which has been a candidate?

SSI replied that the focus on Oskarshamn and Forsmark has been declared openly in the RD&D programmes through the years. It is the Government who decides whether special requirements are to be imposed on SKB with regard to research. SSI does not conduct any research of its own on this, but looks at SKB's judgements. In conjunction with the review of RD&D 2004, it was observed that there are questions

that remain to be answered, for example safety assessment and system analysis will be the topic of consultations.

SKB pointed out that the question of recharge and discharge areas is still being discussed in the consultations with the regulatory authorities. SKB has previously given an account of geoscientific factors of importance for repository safety. Important conclusions from this report show that recharge area is one of many factors of importance for the safety of the repository. By further analyses of factors that can affect the groundwater flow on a regional scale, SKB will respond to the authorities' request for a supplementary account. SKB has commenced the work of looking at regional groundwater flow conditions. This work will be completed during the autumn of 2005.

2.22 No intrusion scenario was presented in SR 97 4–5 years ago. SKI did not consider that they have a responsibility for the activities of future generations. It is not entirely unlikely that an intrusion in the final repository could occur. Shouldn't SKB present an intrusion scenario? What does SSI think?

SSI replies that SSI's answer is included in its statement of comment on RD&D 92. Deep boreholes are the alternative to prevent intrusion.

2.23 If everything goes as planned, there don't seem to be any risks with a final repository for spent nuclear fuel. But presenting these calculations isn't enough. SKB must also show calculations for scenarios where something goes wrong.

SSI replies that they are doing this. SKB has presented many scenarios for which calculations will be carried out. SSI is reviewing the choices of scenarios and may make demands on what is to be included.

2.24 Is SSI satisfied with the scenarios? Have they been made public?

SSI replied that the scenarios are public, but there are many of them and they are not easy for private citizens to grasp. They include much of what should be included, but SSI pointed out in its review of SR 97 that SKB had underestimated the consequences of future earthquakes following a glaciation.

One of SSI's duties is to inform the public, and we will think about how we can present this.

SKB said that they would be happy to provide guidance in the reports.

2.25 It would be good to get a simple summary of what scenarios are included in SKB's safety assessment.

SKB notes the request.

2.26 There are high concentrations of radioactive contaminants in the Baltic Sea. For example a kilogram of fish in the Baltic Sea contains about 30 becquerel nowadays, compared to about one becquerel in the Barents Sea. Half of the radioactive substances in the Baltic Sea come from SFR and half from Chernobyl. All countries around the Baltic Sea have signed the Helsinki Convention, which limits polluting discharges to the Baltic Sea. Is it really a good idea to build more facilities near the Baltic Sea coast? SKB's method is based on isolation, retardation and dilution. The Baltic Sea has been pointed out by SKB as a suitable receiving body, since it has a large volume and dilution is therefore great. Why isn't this mentioned anymore?

SKB replied that the whole point of the KBS-3 method and the safety assessment is to ensure that there is no negative impact on the environment in connection with the disposal of the spent nuclear fuel. We must be able to show that the authorities'

safety requirements are met. The method is based on two safety functions: isolation and retardation, for example by the use of the copper and bentonite barriers.

Dilution is not credited as a safety function. But in order to calculate the consequences quantitatively, for example of releases to a well or a stream, dilution effects must be taken into account.

SSI pointed out that the accident in Chernobyl led to releases of as much radioactivity in the Baltic Sea as SFR is licensed to contain. It is the accident in Chernobyl that is the reason for the relatively high concentrations of radioactive contaminants in the Baltic Sea.

(SSI's comment on the question, which did not emerge at the meeting: The quantity of cesium-137 for which SFR has a licence is roughly the same as the amount of fallout in the Baltic Sea from the Chernobyl accident.)

2.27 The company must present evidence showing whether high rock stresses in the Forsmark area are to be regarded as an advantage or a disadvantage from a safety viewpoint. (Oss)

Work is under way and an analysis of the importance of the rock stresses for long-term safety will be presented in the safety report, SR-Can, that will be published at the end of 2006. An update will then be done in the analysis of the long-term safety assessment, SR-Site, that is intended to be appended to the permit application for the final repository in 2008.

2.28 Scenarios must be presented showing the environmental effects of damage in the final repository rock due to rock stresses. Such an account must include ice age scenarios. (Oss)

SKB has in SR-Can Interim /TR-04-11/ presented its plans for the coming safety assessments. The effects of rock stresses are naturally analyzed in the methodology used by SKB. This also includes analyzing how the entire repository system (including any damage caused by rock stresses) performs during an ice age. An initial account will be given in the safety assessment SR-Can, which will be published at the end of 2006.

2.29 SKB AB must also explain whether low groundwater flow at the planned repository depth is to be regarded as an advantage or a disadvantage from a safety viewpoint. (Oss)

The safety assessment of long-term safety includes an evaluation of the safety-related importance of the groundwater flow at the investigated sites.

2.30 The application should contain data showing what groundwater flow is desirable to optimize the swelling capacity of the bentonite clay in relation to the requirement of minimizing the risk of leakage. (Oss)

The safety assessment SR-Site will contain an analysis of the wetting of the buffer (bentonite clay) and the influence different groundwater flows can have on the performance and of the buffer and its importance for safety. The safety assessment is part of the supporting material for a permit application.

2.31 Scenarios must be presented showing the environmental consequences of radioactive leakage in relation to the groundwater flow on the site in question. (Oss)

The safety assessments include calculations of radionuclide transport and consequences (dose) from damaged canisters. The calculations are being done for the groundwater flow on the site in question. An account will be given in the safety report SR-Can, which will be published at the end of 2006.

2.32 An account must be given of whether the large fractures high up in the bedrock with very high water flows communicate in any way with the circulating groundwater at the ground surface, and scenarios must be presented of how a groundwater drawdown could affect the protected natural areas near Forsmark. (Oss)

Oss would also like to have an account of how the extracted rock spoil will be handled to ensure that leachate and waste products from the blasting work will not pollute surrounding areas, and further how the rock drainage water from construction and operation will be managed.

The supporting material SKB is compiling for the application includes a description of the groundwater flow on the site and the impact the repository can have during operation and after closure on nearby areas, including the protected natural areas adjoining Forsmark. This work includes describing the interaction between superficial and deep groundwaters.

The first calculations of the extent and effects of groundwater drawdown will be finished in the autumn. The results indicate that there will only be a noticeable lowering of the groundwater level near the shafts.

SKB will give an account of how both leachate and rock drainage water will be managed. Studies have been conducted and there are preliminary proposals for how extracted rock spoil can be stored and how leachate can be managed.

There should be enough material by 2007 for these matters to be discussed in the consultations.

2.33 SKB AB must explain how dilution is not included as a method principle, or describe how the KBS-3 method has been developed or modified so that leakage will no longer be diluted by the groundwater and transported to the Baltic Sea. (Oss)

The KBS-3 method is based on isolation as the primary safety function and retardation and dispersion as secondary safety functions. Since the repository must be safe for a very long time, the safety requirements must be satisfied under different biosphere conditions. Land uplift means that the envisioned repository area in Forsmark will gradually get farther away from the coastline, and there are great uncertainties as to what biosphere conditions will prevail after the next ice age.

In the long-term safety assessment SR-Site, an evaluation is made of whether the regulatory requirements on safety are met for different scenarios. Dilution is not credited as a safety function, but in order to calculate the consequences quantitatively, for example of releases to a well or a stream, dilution effects must be taken into account.

2.34 The extensive work that is being pursued to develop different scenarios regarding what can happen with a final repository is difficult to grasp for a layman. It would therefore be desirable to obtain a popular presentation from SKB concerning the scenarios included in the scenario work. Could SKB consider doing this? An example of an intentional intrusion within the framework of sustainable development is that the final repository is emptied because a more sustainable method has been found for disposing of the waste. An example of an intentional intrusion outside the framework of sustainable development is that someone in the future uses the plutonium in the final repository to make nuclear weapons and that they are used. Is SKB prepared to broaden its scenario work to include intentional intrusions, whether within or outside the framework of sustainable development? (MKG)

SKB intends to write a simplified version of around 100 pages of the next safety assessment, SR-Can. SR-Can will be published in November 2006 and the simplified version a few months later. Scenario selection will be given great weight there. In keeping with international practice in the area, SKB does not intend to include

intentional intrusion in the repository. This also complies with, for example, recently published general recommendations from SSI (general recommendations to SSI FS 1998:1), where only analyses of unintentional intrusions are called for.

2.35 At present, a relatively good understanding exists of the various chemical environments that could result from different future scenarios. There is also a broad knowledge of what the microbiological environment looks like today. What may be lacking, however, are important links between chemistry and microbiology in the long-range scenarios. Particularly important is an understanding of the long-term microbiological environment in the buffer, considering the risk of corrosion of the copper canister. How does SKB intend to ensure that microbiological knowledge will enter into the modelling of future chemical environments to which the final repository may be exposed? (MKG)

Analysis of the chemical evolution of the canister's surroundings is an important question in site modelling and safety assessment. It also includes taking into account how microbes may possibly act to damage the repository in the long term. SKB is engaging the necessary microbiological experts in the work. An account will be given in the safety report SR-Can, which will be published at the end of 2006.

2.36 There are high rock stresses in the "lens" that is being considered to accommodate a final repository in Forsmark. Deposition tunnels are planned to be positioned so that the problems caused by these stresses during construction of the tunnels are minimized. At first glance it appears as if a final repository with such a placement in the lens could act as a fracture surface if the lens is subjected to major forces during earthquakes or under the pressure of an ice sheet. How will SKB guarantee that this does not happen? (MKG)

A number of rock mechanical analyses on different scales are performed as a basis for the layout of the repository. This includes studying how both present and future loads (rock stresses) may affect the repository and its performance.

2.37 The bedrock where a final repository in Forsmark could be located is very dry compared with the conditions in Simpevarp outside Oskarshamn. In the Äspö Hard Rock Laboratory in Simpevarp, SKB has acquired experience and knowledge of the conditions in relatively wet rock over a period of more than ten years. How will SKB make sure that sufficient experimental knowledge is obtained of microbiology, thermal impact, behaviour of the bentonite buffer, flows, etc. for a permit application for a final repository in Forsmark? (MKG)

The knowledge of the processes that are of importance for the safety of a final repository is based on a broad body of experimental results that will be presented in the process reports that serve as a basis for the safety assessment (see SR-Can Interim, TR-04-11). Experiments in underground laboratories such as the Äspö HRL are vital in obtaining this knowledge. The results from the Äspö HRL provide knowledge of important processes that also applies to the conditions prevailing in Forsmark. SKB will also profit from extensive research results from the Canadian Underground Research Laboratory (URL), where experiments have been conducted under conditions similar to those prevailing in Forsmark with high rock stresses and low permeability.

2.38 SKI Report 2004:56 notes that there are risks of corrosion of the copper canister in a sulphidic environment. How does SKB, together with the regulatory authorities, intend to address this issue? (MKG)

Calculations of sulphide corrosion are included as a natural part in SKB's safety assessments. An account will be given in the safety report SR-Can, which will be published at the end of 2006.

SKB consults regularly with SKI and SSI in accordance with the Government's decision regarding the supplement to RD&D-98. Questions concerning the safety assessments and system analyses are discussed in these consultations. The consultations will continue until the applications are submitted. After the safety assessments are finished, they will be reviewed by the authorities and other expert groups.

2.39 SKB uses both the terms "final repository" and "deep repository". Using two terms causes confusion. Final repository is the legal term used in nuclear waste contexts. To facilitate an understanding of SKB's work, it would be good if the whole company decided to use only the term "final repository" from now on. Is SKB ready to implement this change? (MKG)

Historically, SKB has used the term "deep repository" for the final repository for spent nuclear fuel in order to distinguish it from other final repositories: the final repository for radioactive waste (SFR) and the final repository for long-lived low- and intermediate-level waste. SKB is made up of individuals, all of whom are aware that the work now concerns a final repository for spent nuclear fuel. We can urge everyone to use the term "final repository" exclusively, but we cannot forbid use of the term "deep repository". We can, however, consistently use the term "final repository" in the documentation of the consultations and future applications.

2.40 We would like to point out that the historical account given by Kaj Ahlborn is slightly misleading when it comes to why SKB chose to continue investigations at Forsmark. According to feasibility study report in Östhammar Municipality, Forsmark was chosen for industrial reasons. The report also brought up the uncertainty with regard to the geological prospects of the area, and noted its nearness to the Singö Zone. The industrial advantages were considered to outweigh these aspects, however. We are very concerned about the fact that SKB is allowed at both the national and local level to give priority to industrial factors when siting the nuclear waste repository. We believe that long-term safety should be the predominant siting factor. (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

The primary goal of the siting work has been to find bedrock with good prospects of being able to meet regulatory requirements on long-term safety. There were four areas in Östhammar Municipality that were prioritized from a geological viewpoint in the feasibility study. It was not deemed possible to rank the four areas from a geological viewpoint. One of the areas was in Forsmark. It was the combination of potentially suitable bedrock with obvious advantages from an infrastructural and environmental viewpoint that persuaded SKB to pursue the Forsmark alternative.

2.41 SKB has in various contexts pointed out that they see advantages in siting the final repository in a tectonic lens. If it were so that tectonic lenses have safety-related advantages, which SKB has not yet demonstrated (although it is recognized that nearness to major fracture zones is a safety risk), such a conclusion should lead to a nationwide search for suitable tectonic lenses. What experience base does SKB have when it comes to tectonic lenses? What comparison material exists? How do the rock stresses that exist in a tectonic lens affect short- and long-term safety? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

A tectonic lens is a bedrock unit enclosed in a ductile deformation zone which is unaffected, or much less affected, by ductile deformation than the deformation zone as a whole. Of SKB's investigation areas, only Forsmark is located within a clear tectonic lens, but others may also do so, such as the Finnsjö area in the municipality of Tierp. In order to get as broad a body of data as possible as a basis for choosing a site, SKB's siting process has been aimed at prioritizing investigation sites in different geological environments. We therefore see it as an advantage that Forsmark and Oskarshamn represent different geological settings.

Whatever causes the elevated rock stresses that appear to exist in Forsmark does not necessarily have to be directly related to the fact that the area is located in a tectonic lens. Some of the explanation could possibly be the fracture-poor rock between gently-dipping fracture zones within the lens and the contrast/direction of surrounding regional fracture zones. How the rock stresses in Forsmark affect the final repository in the short and long term is an important question to which there is not yet any clear-cut answer. More data is being gathered and more analyses are planned. An answer will be found in the coming long-term safety assessment, SR-Site.

2.42 The water's flow pattern. We appreciate the fact that SKB finally admits that water is an important parameter in the final repository and that it is via water transport that a leak from the canisters can reach the near-surface environment. Great focus must therefore be placed on the hydrogeological conditions, both local and large-scale flow patterns. An SKI Report (SKI Report 00:47, section by Clifford Voss) stated that a near-coastal siting is less advantageous when it comes to the flow pattern, and that the ideal option to minimize the risks in the event of leaking canisters would be to site in a recharge area where the main flow direction is downward. In this way travel times of up to 500,000 years would be achieved, as opposed to in near-coastal areas, where travel times can be as low as 50 years. In what way does SKB believe that the choice of a near-coastal siting complies with the requirement of the Environmental Code for a best siting based on an ambition to minimize the impact on human health and the environment? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

SKB considers regional flow models to be associated with very great uncertainties. The calculations which SKB has carried out show that the locations of the flow paths are mainly determined by the local topography, and that the topography, together with the properties of the rock, determines the size of the groundwater flow.

Both in northern Uppland and in eastern Götaland, the regional topographic gradient is small compared with the local variation. This leads to the existence of flow paths with both short and long travel times both in the interior and at the coast. It is therefore difficult in practice to show that a given siting of a repository actually entails long flow paths or travel times and thereby constitutes a safety factor that we can rely on.

The Environmental Code requires that siting be based on a holistic perspective, and SKB does not believe that individual factors such as siting in a recharge area and distance to the coast can be decisive. We believe that a near-coastal siting of a final repository is compatible with the requirements of the Environmental Code on long-term safety and limiting the impact on the environment and human health.

2.43 We see an inherent paradox in SKB's choice of method and site selection. A water flow is required to saturate the bentonite, while a low water flow is preferable to reduce the risk of spreading leaking radioactive materials. How does SKB intend to handle this paradox? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

Sooner or later water will flow in, it's just a question of how long it takes. The water makes the bentonite swell and thereby isolates the canisters. It is also a question of the temperature in the repository. Removal of heat is desirable, and wet bentonite transports heat better than dry. The low water flow is not regarded as a problem today, but research on this will continue.

2.44 What will SKB do to prevent disturbing light from the encapsulation plant and the surface part of the final repository? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

Light is one of the factors that will be addressed in the environmental impact assessment. It is difficult to believe that a final repository at Forsmark would lead to serious problems with light radiation, particularly when compared with many other industrial establishments. It is too early to say what technical measures will be needed.

2.45 Considerable quantities of rock spoil must be stored during the operating phase for subsequent use in sealing the repository at some uncertain time in the future. We consider it important that SKB clarify what quantities are involved and how they will be managed. The consequences for the surrounding natural environment and the landscape must be described and the chemical content and management of leachate from the rock heap must be defined. How does SKB intend to do this? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

SKB concurs that the rock spoil is an important environmental issue. The extraction volumes and storage needs for the construction and operating phases were presented at the meeting and represent current planning for repository design and building sequence. Adjustments are possible as the planning becomes more detailed and SKB will provide updates on such changes. Quantities, handling procedure, environmental impact etc. for the design on which an application is based will be described in the EIS in 2008.

2.46 It emerged at the consultation meeting that SKB plans to import bentonite clay by boat to Hargshamn and haul the clay by truck (35 truckloads per day) to the final repository during the operating period (30 years). Can SKB describe this planned transport in greater detail? On their way to Forsmark the trucks will pass Hargs bruk, which has a very valuable cultural environment and pine forests that are classified as a Natura 2000 site. How have affected persons along road 76 between Hargshamn and Forsmark been involved in the extended consultations? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

The bentonite is intended to be handled and transported in powder form with conventional equipment and ordinary trucks. Measures must be taken to prevent dust and keep the material dry. As with other transport to and from the final repository, the plans for the bentonite shipments will be announced as they are made, as well as in an application.

All consultation meetings have been advertised in Upsala Nya Tidning, Östhammars Nyheter and Annonssbladet three weeks and one week before the meeting. In our judgement, this advertising is sufficient to reach all inhabitants in Östhammar Municipality, including Hargshamn.

2.47 SKB says that the rock will be crushed in different processes. Can SKB clarify how this will be done and how noise, dust and other types of disturbances from the rock crushing will impact the surroundings? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

The entire handling chain for the crushed material, as well as possible disturbances and mitigating measures, will be reported when the technical data are available and in the EIS in 2008.

2.48 SKB states that during the roughly seven years of the construction phase a large number of big trucks hauling rock spoil will drive back and forth on different roads in Östhammar Municipality. This will lead to a considerable increase in traffic on road 76. What environmental impact will this have? How will traffic accident statistics be affected? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

Preliminary calculations of the additional traffic that would be generated by the final repository in different phases were presented at the meeting. More detailed data, as well as assessments of accident risks and other consequences, will be reported as they become available.

We look at traffic accident statistics in our work with environmental risk analysis. The results of this work will become available in the spring of 2006 and could thereby be reported at the planned consultation meeting in the autumn of 2006.

2.49 Previous experience from similar projects indicates that there may be a groundwater drawdown that affects wells in the area. Groundwater drawdown could also lead to salt water intrusion in wells. It is reasonable that SKB should present data and scenarios for groundwater disturbances. Different scenarios should be presented, and we would particularly like to underscore the need for ecological studies in the site investigation area, which has high natural values, largely due to the water conditions in the area. How will SKB address this issue? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

Construction of hard rock facilities is always associated with changes in the groundwater level. Calculations of the scope and extent of these changes are dependent on data from the investigations in the rock and on the ground surface, as well as various grouting options.

Within the framework of the site investigations, a large number of studies and surveys are being conducted on the ground surface within the discipline of surface ecosystems. SKB has defined surface ecosystems as the area above the bedrock. This means that they include plants, animals and people living on land as well as in the sea, lakes and streams. The results of these studies and surveys will naturally be used in the environmental impact assessments.

Impact and estimated consequences for groundwater levels will be reported in the EIS for the final repository system in 2008.

Calculations are being conducted based on preliminary data and the results may be ready for presentation at the planned consultation meeting in the autumn of 2006.

3 Common issues

3.1 Is this the first meeting? Will there be more?

The first meeting with private citizens in Forsmark within the framework of extended consultations was held in February 2004. There will be more meetings. Extended consultations will continue until an application under the Environmental Code is submitted in 2008.

3.2 Why are you holding a special meeting today?

We are having a meeting today to give part-time residents an opportunity to share in information, ask questions and offer viewpoints. After the last meeting one evening in November, we were told that it was not a suitable time for part-time residents to attend.

3.3 How have you convened this meeting?

A written invitation went out to all residents within a radius of about ten kilometres of the Forsmark nuclear power plant, which is located adjacent to the area for site investigations. The meeting was also advertised in Uppsala Nya Tidning, Östhammars Nyheter and Annonssbladet.

3.4 Were the invitations addressed to the people's summer cottages or to their home addresses? Were they sent to people who live along the transport routes? According to the map, Gräsö is located within the ten kilometre radius. Were they invited?

Written invitations were sent to the addresses of the owners' permanent residences. Gräsö is not located within the area, a ten kilometre radius from the Forsmark nuclear power plant, to which invitations were sent, so part-time residents on Gräsö were not included in the mailing. It is possible they should have been included. They have previously had opportunities to obtain information, for example in connection with the Sigyn's visit last summer. Everyone who has seen the ads or heard about the meeting is welcome to attend.

3.5 A picture was shown of areas and national interests for natural and cultural values. Is there also a national interest for outdoor activities?

In Forsmark there is no national interest for outdoor activities. However, the coastal areas are included in the national interest for coastal and archipelago areas mentioned in Chapter 4 of the Environmental Code. There is also a national interest for future energy supply that must be taken into consideration.

3.6 What is the purpose of the investigations in Canada? Does Canada have nuclear power plants?

Yes, Canada has nuclear power plants. The purpose is to develop methods for final disposal of spent nuclear fuel. We are conducting similar studies in the underground laboratory on Äspö.

3.7 Do you at SSI have any international cooperation? Germany's repository is on the ground surface. Do you have any applications from other countries?

Yes, SSI is involved in international cooperation, for example via the UN where the IAEA has a committee, WASSC (Waste Safety Standards Committee), that advises the IAEA on safety standards in the nuclear waste field, and we assist developing countries. We also participate in the work in the OECD, where the focus is on "rich countries".

SSI has no formal role in the review of future applications in other countries. All

countries have proposals for solutions based on their own conditions. The western countries are agreed that deep disposal in geological formations is good.

Different countries have very different premises for waste disposal. When the USA chose the Nevada desert as the site for a waste repository, there was also a strong political component.

In Sweden it is the Riksdag that decides, and we have municipal self-government. In many other countries outside Scandinavia, the local community does not enjoy the same legal status. In the USA and Germany, for example, the industry has to consult with states instead of individual municipalities. This naturally influences the process.

3.8 Have they reviewed this particular solution that SKB has come up with? Have you had any response to this?

It is not the task of the IAEA to review SKB's work, but there are a number of international groups who do. SSI's and SKI's international review teams are called OVERSITE and INSITE. They are reviewing the ongoing site investigations. Their response is generally positive, but many questions are being asked that need answers.

3.9 You [Mikael Jensen, SSI] say that one of SSI's tasks is to conduct its own research. What kind of research do you conduct?

Research related to SKB's work has to do with shedding light on the results in preparation for our review. SSI has approximately one-third of SKI's research budget and mainly works via consultants. One team follows SKB's site investigation, but we also have our own geologists. We at SSI also conduct research in other areas, for example on the effects of the use of mobile telephones.

3.10 The purpose of the consultations is to examine environmental impact. Do you, Mikael Jensen [SSI], think that the purpose of today's meeting (design etc.) is OK? The most important issues, which are not even mentioned in the background material, are after all radioactivity, doses and half-lives. It would be good to get an answer from a representative of SSI.

It is my impression that the primary purpose of today's meeting was not to discuss SSI's regulations concerning possible doses from the repository in tens of thousands of years, even though that is close to SSI's focus. SSI is naturally interested in radiation protection matters and long-term safety – where the focus is on 1,000 years and after – and assumes that these matters will be dealt with and addressed in the supporting material accompanying the permit applications. We are particularly interested in radiation protection and occupational safety during the operation of the repository.

It is positive that conventional environmental issues, such as increasing traffic, are addressed. Questions concerning both radiation and environmental impact must be addressed.

3.11 How will the judgement in Ringhals affect you? You say that the waste will not come into contact with the ecosystem, but bedrock is a part of the ecosystem. What is your view of this?

The judgement will affect our work in one way or another. We wish to emphasize that the Environmental Code has not been tested in relation to nuclear power. The Government's response and interpretation may lead to a new way of viewing consequential activities. The judgement may have consequences for the content and scope of the supporting material for the applications.

3.12 You seem to be playing down the judgement of the Environmental Court. The Environmental Code is not untested and the Environmental Court's interpretation must be respected.

It isn't a question of playing down the judgement of the Environmental Court, but we want to follow the case to its conclusion before we see how it affects our work.

3.13 Where do we stand in the EIA process? The Environmental Code says that EIA is supposed to enable an overall assessment to be made of effects on human health. When will this be presented in your reports?

The work is under way. Material for an environmental medical assessment is being gathered, for example via the ongoing questionnaire survey.

SKB is in contact with the National Board of Health and Welfare, the county councils in the concerned counties, the environmental and health protection offices in the concerned municipalities, and most of the institutions where environmental medical expertise and people with experience of health matters in EIA are found. The results will be submitted together with the permit applications in 2008.

3.14 SKB AB has too low an ambition level in the consultation procedure when it comes to reaching out to private citizens and stimulating engagement and interest in these matters. (Oss)

Oss feels that the mailing of addressed invitations to this meeting did not go to a wide enough area. Gräsö should have been included, for example. The meeting place, Simundö School, was unfamiliar and is inconveniently located, the time was unsuitable (before the summer holiday and before school was out) so it is unlikely that many part-time residents have yet arrived in the district.

On the evening of 25 November 2004, SKB held a consultation meeting for private citizens in Öregrund. It was then complained that the time of the year was not very suitable, since it provided little opportunity for part-time residents to participate.

After contacts with residents in the Forsmark area, we chose to have another meeting on the first day of a three-day holiday in early summer. It was then believed that many people be at their summer cottages and would be willing to spend a few hours at a meeting. We have previously received requests to hold the consultation meetings at different locations in Östhammar Municipality. Börstils Northern Local Arts and Crafts Museum is well-known to both part-time and permanent residents in Östhammar Municipality.

The meeting was advertised in Upsala Nya Tidning, Östhammars Nyheter and Annonsbladet three weeks and one week before the meeting. Everyone who has seen the ads or heard about the meeting is welcome to attend. As an extra service we sent written invitations to part-time residents in the same area as invitations to early consultations, an area within a radius of about ten kilometres from the area for the site investigation. The invitation was sent to the addresses of the owners' permanent residences. Part-time residents on Gräsö were not included in the mailing. They have had an opportunity to obtain information previously, for example when Sigyn visited last summer, and via the advertisements, but it is possible they should also have been sent invitations. However, additional consultation meetings will be held providing new opportunities to participate up until the permit applications are submitted in 2008.

3.15 The regimen of the meetings, with themes determined in advance by the company, conflicts with the spirit and letter of the law when the company dismisses questions raised at the meeting that lie outside the theme. (Oss)

Oss points out that, according to the Swedish Environmental Protection Agency's general recommendations, the extended consultations should be "occasions for active exchange of knowledge, viewpoints and information". Oss says that the moderator restricted which issues could be discussed at the meeting and pointed out on a number of occasions that issues brought up lay outside of the predetermined theme of the meeting.

SKB's purpose with the consultations is to comply with the law in providing an active exchange of knowledge, viewpoints and information. SKB has a great deal of information to convey as a basis for the discussions, for example proposals and results from design, calculations and analyses. We do not find it feasible to discuss all aspects of this multifaceted project on one and the same occasion. We therefore choose one or more themes for the meeting, depending on how far we have come in our work and what information is called for. Regardless of whether the presentations deal with certain themes, questions that are directly related to the project are always welcome at all meetings. This is also clear from what was said at the meeting. There are, however, questions that are not relevant to discuss with SKB within the framework of the final repository project, for example whether nuclear power complies with the requirements of the Environmental Code. This is an issue that neither the final repository project nor SKB is responsible for or is able to influence. This type of question was dismissed to make room for discussion of the final repository project and its consequences.

3.16 SKB AB must clearly explain what the modified licensing process for the encapsulation plant entails, with an early application under the Nuclear Activities Act, and what will be included in such an application. (Oss)

Oss wants to know if SKB intends to submit in an application in 2006 that includes an Environmental Impact Statement, and what the timetable for this work looks like. Oss points out that an EIS requires that the requested and required background material be compiled, that the consultation process has been carried out and concluded, and that the notification of the EIS has been published in accordance with the provisions of the Environmental Code.

SKB has revised the licensing scheme that was presented in the plan of action in RD&D-Programme 2004, thereby taking into account viewpoints expressed in the consultation process. This has resulted in a modified proposal for the application process, which in brief entails the following:

2006 SKB applies for a permit under the Nuclear Activities Act for the encapsulation plant. An EIS is appended to the application.

2008 SKB applies for a permit under the Nuclear Activities Act for the final repository, and at the same time adjusts the application for the encapsulation plant based on the review and consultation comments received.

SKB applies for permits under the Environmental Code for the system (encapsulation plant and final repository). A joint EIS is appended to the applications.

The Government thereby has an opportunity to make simultaneous decisions on permits under the Nuclear Activities Act and the Environmental Code for all parts of the KBS-3 system. One decision occasion also permits coordinated circulation of SKB's applications to reference bodies for comment. SKB hopes for a decision during 2010.

In SKB's judgement, coordinated examination of the KBS-3 method and its facilities under the Environmental Code promotes an integrated account, a holistic view and transparency for all parties involved due to the fact that central documents for the examination, for example the EIS, will be common for the facilities and the examination under the two laws.

The EIA and consultation process for an encapsulation plant began with early consultations in Forsmark on 29 October 2003 and has so far included five meetings (including 4 June 2005) with organizations and private citizens in Östhammar Municipality. The appointed time for submission of the applications for the encapsulation plant was originally 2006, and the work with the EIS has been aimed at this date from the beginning. The adjustment of the application process does not change the scheduling of the EIS work.

As far as public notification of submitted applications with appurtenant documents is concerned, it is a task for the regulatory authorities.

3.17 The Vänersborg Environmental Court's statement on the Ringhals application should be of decisive importance for the waste company's continued work with site and method reporting and the organization of the EIA process. The company should therefore explain as soon as possible how their work will be changed to make it conform to the expected requirements in the coming environmental examination. (Oss)

The provisions of the Environmental Code, along with other relevant laws and rules, constitute premises for SKB's work. Trends in application and practice are carefully observed. Experience of the application of the Environmental Code to nuclear power and nuclear waste is limited so far. Legal judgements regarding capacity increases by the nuclear power plants and their existing activities will affect our work in one way or another. The outcome is also of importance for SKB as regards the content and scope of supporting material and applications under the Environmental Code and the Nuclear Activities Act and how consequential activities are viewed. SKB is following these legal processes with great interest, but it is as yet too early to draw any definite conclusions regarding the consequences. An important difference is that SKB's applications concern the establishment of new facilities. Beyond the adjustments of SKB's timetables for the permit applications that were made in the spring and described during the meeting, we do not currently see any need for other significant changes.

3.18 SKB AB must restructure the consultation process in such a way that meetings become more consultation meetings in the spirit of the Environmental Code than information meetings on the part of the company. (Oss)

All too often during the consultation meetings, questions are answered with "that's being studied" or "we plan to study that". A consultation should primarily be an opportunity for those in charge of EIA to respond to questions and profit from viewpoints from private citizens, environmental organizations and other stakeholders, and its ultimate goal should be to make the supporting material for the permit application as good and comprehensive as possible, and to create the necessary confidence in the project.

In Sweden, anyone planning to apply for a permit under the Environmental Code – in this case SKB – is responsible for consultations and EIA/EIS. SKB views the consultations as an opportunity to identify questions and viewpoints. We do not see any disadvantage in the fact that many questions are already identified and that studies are under way.

Extensive technical and scientific work is under way. We cannot possibly present and discuss everything at the same time. The only feasible way is to address different topics at our consultation meetings as the necessary background material becomes available as a basis for a discussion.

One of the most central documents – the long-term safety assessment, SR-Site – comes late in time. It cannot be made complete until other material becomes available. Not until the long-term safety assessment is finished can clear answers be given to many questions.

3.19 Responsibility for the consultation process should rest with an independent party. It is clearly unsuitable that it be run, as today, by the activity operator SKB AB, which has great interests in the design and outcome of the project. SKB AB should hand over responsibility for the EIA process to the county administrative boards and/or the Government so that they can appoint an independent and autonomous party, for example an EIA authority. (Oss)

A recently published thesis entitled "Environmental impact assessments as a tool for sustainable development" (in Swedish) at Umeå University asserts that an independent and autonomous EIA authority is a prerequisite for sustainable development – which has also been established by the Environmental Court in Vänersborg and the Environmental Code.

Oss therefore suggests that SKB AB should immediately relinquish responsibility for the EIA process and return it to the county administrative boards and the Government.

SKB refers to the requirements in the Environmental Code, which assign responsibility for the EIA to the operator of the activity. We take our responsibility very seriously and intend to do a thorough job that will stand up to society's scrutiny and insight. In the EIA work, SKB engages various experts whose work is based on the best available knowledge and scientific practice.

The tradition by which the applicant takes responsibility for preparing all application documents himself, including the EIS, dates back a hundred years to when the requirement for a permit for water activities was introduced in Swedish law. Ever since then the licensing process has been a two-party process where the one party is the applicant, who presents his side of the case, and the regulatory authorities and private individuals the opposing party. The independent review is finally carried out by the court, whose task is to judge the parties' arguments in light of the law. The Swedish system complies with the EEC's EIA directive (85/337/EEC, amended by 97/11/EEC). The EIA directive states that it is the developer who shall compile the necessary information.

3.20 SKB should, as soon as possible, present a consultation plan based on the viewpoints that have emerged during the consultation process to date, a plan which may not be altered unilaterally by the company and where the dates of the meetings are scheduled far in advance. (Oss)

SKB concurs that long-term planning of the consultations is desirable. In the autumn we will present such a plan on our website. In order to enable viewpoints from the consultations and updates of the planning for the entire final repository project to be taken into account, it must be possible to make adjustments in the consultation process. As the applicant/operator with responsibility for the EIA process, we consider we have the right and responsibility to adjust the consultation schedule so that it is in phase with the progress of the final repository process and the consultations.

3.21 MKG formally requests the right to attend or be an observer at the following meetings:

- Consultation meetings with SKB and the regulatory authorities and/or the municipalities.
- Meetings with the Oskarshamn EIA Forum and the Forsmark Consultation and EIA Group.
- Meetings between SKB, SKI and SSI and the regulatory authorities' expert panels INSITE and OVERSITE.

Does SKB support the right of the environmental movement to be participants or observers at the above meetings? (MKG)

SKB is favourably disposed to giving MKG, as well as the other organizations who obtain funding from the Nuclear Waste Fund, an opportunity to participate as observers at all meetings with the Oskarshamn EIA Forum and the Forsmark Consultation and EIA Group. However, any decisions about such changes are made in the aforementioned forum together with other parties. The goal is that a decision should be able to be made at the meetings in November 2005.

We have previously had a consultation meeting with special invitation only to concerned regulatory authorities. If we have additional meetings of this kind, SKB sees it as an opportunity to allow other parties to participate as well. Other consultation meetings prior to the applications for permits under the Environmental Code and the Nuclear Activities Act are in principle open meetings which anyone may attend.

Insite and Oversight are the regulatory authorities' expert panels. SKB does not intend to broaden participation at these meetings or other meetings between SKB's and the authorities' experts regarding RD&D or in other contexts.

3.22 Criticism was levelled at the meeting at how SKB is handling the environmental medical study that must be included in the environmental impact statement for the permit application. Does SKB intend to contact the County Administrative Board in Uppsala County to ensure that the county council's environmental medical units are given a greater say in the execution of this study? (MKG)

Based on the National Board of Health and Welfare's model for study and assessment of health effects, SKB has devised a working method that includes the following main activities:

- Conduct a questionnaire survey of all permanent and part-time residents in the immediate vicinity of the site investigations in the municipalities of Oskarshamn and Östhammar. Other inhabitants of these municipalities comprise a reference group. The results of the survey will be available in the autumn.
- Inventory sensitive groups and activities (for example day-care centres, schools, homes for the elderly, nursing homes).
- Determine current exposure to environmental factors that can affect health. Extensive noise measurements have been performed.
- Compile limit and guideline values, low-risk levels, environmental quality standards and health-related goals.
- Identify the impact of the future activities. The first assessment of changed noise levels is finished.
- Calculate exposure levels and frequencies. The first noise calculation is finished.
- Conduct an environmental medical assessment.

The work is being planned and carried out in cooperation with the environmental and health protection offices in the concerned municipalities.

SKB has identified and been in contact with most institutions and groups working in this field, such as the Department of Psychosocial Medicine at Karolinska Institutet (IPM) and the Department of Occupational and Environmental Medicine at Uppsala University Hospital. Furthermore, we have monitored a study of Health in EIA for roads conducted by the Department of Public Health and Clinical Medicine at Umeå University on behalf of the National Road Administration.

The questionnaire study was designed and executed in cooperation with the County Council in Uppsala County (Social Medicine) and the county council's social medicine unit, the Public Health Centre in Oskarshamn. They are also participating in the evaluation.

Possible bodies to carry out the environmental medical assessment are the Department of Environmental Medicine at Karolinska Institutet (IMM), the departments of Occupational and Environmental Medicine and Social Medicine at Lund University, the Department of Environmental Medicine at Göteborg University and the Department of Public Health and Clinical Medicine at Umeå University. The Stockholm County Council (Social Medicine) also possesses the necessary expertise, but they do not have sufficient resources today.

3.23 The notes from the meeting in Öregrund on 25 November 2004 state that "it would be appropriate for the next meeting (in the consultation process in Östhammar) to take up the question of reporting of alternative methods and siting of the final repository". At this meeting SKB thought that the scenario work would be a suitable subject for the next meeting. Both of these issues are important to address at meetings with private citizens. What does SKB plan to do? (MKG)

SKB concurs that all three of these issues – the reporting of alternative methods, the siting of the final repository and the scenario work – are important issues to discuss.

In our opinion, the scenario work is best addressed in seminar form, while the reporting of alternative methods and the siting of the final repository in the EIS is definitely a matter for consultation.

SKB intends to write a simplified version of around 100 pages of the next safety assessment, SR-Can, where scenario selection will be given great emphasis. SR-Can will be published in November of 2006, and the simplified version several months later. After that it may be suitable to hold a seminar on the scenario work.

The next consultation meeting in Forsmark is planned for November 2005. The suggested theme for this meeting is the EIS for the encapsulation plant, since consultations on this must be rounded off prior to submission of the permit application under the Nuclear Activities Act next year. Note, however, that the consultations and the work with the EIS and the consultations will continue – including for the encapsulation plant – up to the permit applications under the Environmental Code in 2008. We suggest that the first consultation in 2006 should discuss how alternative sitings and methods are handled in the EIS.

3.24 When is the next time SKB will hold a meeting with national NGOs? (MKG)

We have had meetings with private citizens, as well as a special meeting for national organizations and one for local organizations. After the special meetings, wishes were expressed that all the consultation meetings should be held jointly for private citizens, organizations and other interested parties. This would stimulate engagement and interest while facilitating an exchange of information and permitting an overview of information. Now we have had a couple of joint meetings, and they have proved to have both advantages and disadvantages. A wish has been expressed for special meetings, and we will get back regarding how this can and should be arranged.

3.25 Limitation of summons to part-time residents and the announced purpose of the meeting. Extended consultations are aimed at all affected parties. The term “affected” shall be interpreted in a broad sense, according to the travaux préparatoires to the Environmental Code. We therefore consider SKB’s advertisement to have been a limiting factor in the extended consultations, since the ad in question stated that the meeting was primarily intended for part-time residents. We also find it notable that SKB said in the ad that the purpose of the meeting was to provide information on SKB’s plans. Does SKB intend in future ads announcing extended consultations to describe the purpose of the consultation so that it complies with the intent of the Environmental Code? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

SKB regrets that the formulation of the ad “The primary purpose of this consultation meeting is to provide information on ...” was misleading. The wording should have been such that the material SKB presents prior to and at the meeting has to do with “Construction and operation...”, but that the actual meeting is about “Encapsulation plant and final repository for spent nuclear fuel in Forsmark”. In future we will be more careful in how we formulate our ads.

The formulation “The meeting is primarily aimed at part-time residents in the Forsmark area....” is completely correct, however. We were mainly addressing ourselves to part-time residents in the Forsmark area since a meeting with similar presentations and participation from SKB was held in Öregrund one evening late in November 2004. It was then complained that the time of the year was not very suitable, in view of the limited opportunity for part-time residents to participate, and the meeting in June was therefore primarily intended to give them a greater opportunity to participate.

3.26 We appreciate the fact that SKB had sent out invitations directly to owners of vacation homes, since they seldom have access to the local press. However, we think that SKB's choice of geographic limitation for this was remarkable. The application of a ten-kilometre limit excluded all part-time residents on Gräsö. These people are greatly affected by the planned activity. This group may also possess valuable knowledge and experience when it comes to the local environment, knowledge that is important in the preparation of the EIS. When SKB summons vacation home owners to consultations in the future, does SKB intend to invite owners of vacation homes on Gräsö? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

If we send out special invitations to part-time residents in future we will consider including owners of vacation homes on Gräsö. Normally the meetings are advertised in Upsala Nya Tidning, Östhammars Nyheter and Annonsbladet three weeks and one week before the meeting. Everyone who has seen the ads or heard about the meeting is welcome to attend. As an extra service, this time we sent written invitations to part-time residents within a radius of about ten kilometres of the area for the site investigations. Part-time residents on Gräsö were not included in the mailing. It is possible they should have been included. They have had an opportunity to obtain information previously, for example when Sigyn visited last summer, and via the advertisements, but it is possible they should also have been sent invitations. However, additional consultation meetings will be held with new opportunities to participate up until the permit applications are submitted in 2008.

3.27 We also think that the choice of time and place for the meeting was ill-chosen in view of the preferred target group. A date during the summer holiday would have been preferable. For a part-time resident without a car it was impossible to get to the meeting. We therefore think the consultation meeting should be repeated during the summer holiday and held in Öregrund. Does SKB intend to do this? All vacation home owners with houses on Gräsö should be invited to this meeting by letter sent to both permanent and part-time residents. Does SKB intend to do this? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

This meeting will not be repeated. However, it is our ambition to schedule the consultation meetings at different times during the year and at different places in Östhammar Municipality in order to give as many people as possible an opportunity to attend.

See also reply to question 3.14.

3.28 The entire area in question is of national interest for nature conservation. The area is considered to be a prime example of a combination of types of countryside that clearly illustrate the evolution of the landscape. Moreover, the area is relatively unspoilt and contains threatened or vulnerable habitats. The area is therefore of great importance for the preservation of biological diversity. The County Administrative Board judges the area to be ecologically sensitive. The Kallriga nature reserve is also located adjacent to the site investigation area. Besides the mainland part it also includes numerous small islands and coves. How will the area's high natural values and important function as a resting place for birds be affected by a final repository and an encapsulation plant and the disturbances to which they give rise? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

An assessment of the environmental impact will be included in the EIS. It is SKB's ambition to describe the consequences for the environment both during the operating period and in the long-term perspective. In previous consultation meetings we have described and discussed what is to be investigated and studied and what envi-

ronmental consequences should be described. The size and extent of effects and consequences are dependent on where the facilities are located, how they are designed, and how construction and operation are conducted. As soon as we have some results to discuss we will bring them up for consultation.

The consultations for applications under the Environmental Code for the encapsulation plant and the final repository will continue for a couple more years. According to our current plan, the consultation meetings in the autumn of 2006 and the autumn of 2007 will deal with results from studies of the natural, cultural and residential environments, health etc. and – from the current design perspective – assessed environmental impact.

3.29 Kallriga has also been designated a Natura 2000 site. The nature reserve, and the Natura 2000 site Skaten-Rångsen, are located north of the site investigation area. There are also islands designated Natura 2000 sites in Öregrundsgrepen. Since Natura 2000 provides protection against impact from facilities, even if they are located outside the Natura 2000 site, it is important that SKB, in its ongoing survey of nature in the site investigation area, also perform similar investigations in the nearby Natura 2000 sites and surrounding areas where there is a risk of impact. Does SKB intend to do this? How does SKB intend to take the nearness of these areas into account in siting facilities and in the construction and operation of a final repository? What environmental impact will this have? In a near-coastal area where the ecosystems of the Baltic Sea are already exposed to environmental impact, it is important not to further pollute the groundwater and the sea. How will SKB guarantee that this will not happen? SKB has not yet presented anything on this subject, and we believe it would be valuable if SKB would at its consultation meetings, instead of describing technical solutions and plans, focus on the purpose of an environmental impact assessment: describing the environmental impact of the current project. (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

According to the estimates made so far of the extent of the impact of the future facilities, the existing investigation area is big enough. We therefore have no plans today to include the Natura 2000 sites in the ongoing survey. See also the answer to question 3.28.

3.30 Forsmark will be an alternative site for the encapsulation plant. We do not consider it appropriate for SKB to submit a separate application for the encapsulation plant under the Nuclear Activities, since we consider it an integral part of the final repository system, and it is the final repository system in its entirety that should be examined. We therefore think that the split permit application process should be abandoned. Does SKB intend to do this? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

The answer to question 3.16 contains a brief description of SKB's plan of action for the application procedure.

The encapsulation plant is definitely a part of the final repository system, and coordinated examination of the KBS-3 method and its facilities under the Environmental Code will take place via the permit applications in 2008.

The technical documentation that is needed for an application under the Nuclear Activities Act for the encapsulation plant will be ready during 2006. After consultation with the concerned regulatory authorities, SKB has decided that it would be suitable to start the technical examination of the facility then, since the regulatory authorities' review resources will then be spread out over time.

More background documentation is needed for the examination of the final repository and the system as a whole, and it is estimated that this documentation will be ready during 2008.

3.31 The encapsulation plant will generate long-lived low- and intermediate-level waste, for which there is no established disposal method today. SKB has previously declared that they do not intend to give an account of how this waste will be managed in the permit application for the encapsulation plant. This is in violation of the rules of the Environmental Code. We find it natural that an activity operator should be able to show that all waste generated by the planned activity can be managed and disposed of in such a manner that it does not endanger human health and the environment. How does SKB intend to obtain a permit for the encapsulation plant without having an approved final repository for long-lived low- and intermediate-level waste? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

Long-lived low- and intermediate-level waste is interim-stored today at Clab, at the nuclear power plants and at Studsvik. The volume of this waste is small so far, but is increasing and will increase further when the nuclear power plants are decommissioned. To relieve Clab, SKB plans to interim-store this type of waste under dry conditions. This can be done in a rock cavern at Simpevarp and later in SFR as well. According to current plans, the interim storage facility does not have to be ready for use until around 2020. A final repository will be needed 25 years later. The siting work for this will begin in about 30 years. The encapsulation plant will not give rise to long-lived low- and intermediate-level waste until it is decommissioned, which is estimated to take place in around 2050. Then the final repository for this waste will be established, according to plans.

In summary, SKB takes the view that a satisfactory solution and timetable for construction of the necessary facilities for the disposal of long-lived low- and intermediate-level waste (LILW) exists and is well-known to the regulatory authorities through the RD&D process. Permit applications for LILW with associated EIS will be prepared in a separate process at a later stage.

3.32 An increase in heavy traffic on municipal roads will require reinforcement of the roads in the municipality. Is SKB prepared to pay the costs of such measures if the National Road Administration is not prepared to include this in its improvement plans? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

In Sweden the state is responsible for financing the public road network via taxes and appropriations to the National Road Administration. In a purely technical sense, the existing roads are adequate for SKB's needs. A final repository will not generate so much traffic or such types of traffic that will require any new construction or improvements. From many other viewpoints, good roads are always a great advantage for industrial establishments, and the final repository is no exception in this respect. In the case of Östhammar, the municipality's geographic location lends particular weight to these factors. SKB is therefore prepared to take active part in discussions of improvements in the road network in the municipality and the region. How much SKB might be involved in the longer term will depend on whether the final repository is located in Forsmark or not.

3.33 At the consultation meeting it was indicated that analysis of the noise issue is in progress and that SKB therefore does not at this time want to discuss the problem of noise from construction and operation of the final repository. When will SKB present such a study? We also wish to point out that we believe that SKB should give an account of the noise situation during a 24-hour period and any peaks in noise disturbance. Simply reporting nighttime values, as was done at the meeting, is not enough. How does SKB intend to improve its noise reporting? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

At the meeting, Bengt Leijon said that he would not present anything about noise, but that Tomas Holmström was present and prepared to present results from the studies and to answer questions.

Statistics were presented at the meeting on the projected increase in heavy traffic, which will be particularly great during the latter part of the construction period (3.5–7 years from the start). The heavy traffic causes high instantaneous (peak) sound levels that can be perceived as disturbing. A report will be given on the impact of the traffic increase at the consultations in the autumn of 2006 and the autumn of 2007, when the structure of the EIS for the final repository will be addressed.

Noise from stationary sources during the operating period (for example the enclosed crusher and enclosed rock hoist) causes the same sound level regardless of the time of day. It must be possible for some activities to continue round the clock. It is therefore reasonable to report what guideline values (Swedish EPA guidelines) apply at night, since they are much stricter than those for other times of the day.

In other words, if the guideline for built-up areas at night can be met, it won't be a problem in the daytime, since the guideline value is much higher then.

3.34 A question was asked at the consultation regarding what environmental medical assessments are being done. SKB then brought up the questionnaire study that is now being conducted (where SKB asks, for example, whether the inhabitants have psychological problems) and said that this was the only way they intended to study possible environmental medical effects. We find this to be an inadequate approach that is only capable of determining the effects of people's anxiety concerning a final repository for nuclear waste. An environmental medical study must also include an analysis of the medical effects of different types of releases. We believe that an environmental medical study of the medical effects of various scenarios involving radioactive release should be presented. What are the effects on human health of an inadvertent intrusion in 200 years, for example? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

See the answer to question 3.22. It is not, however, a part of our work to assess the effects on human health of an inadvertent intrusion.

3.35 In order to make it easy for participants to plan their attendance and their questions at consultation meetings, it is important that the date and time of the meetings be announced well in advance. It is also important that the background material for the consultations be available in good time before the consultation meetings. Can SKB in future announce the date of the consultation meetings as soon as they have been scheduled? (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

In the autumn SKB will present a general schedule of coming consultation meetings up to 2008. We will announce the date and place for each meeting as soon as our own planning permits, but at least three weeks before the meeting.

3.36 Could SKB consider changing the form for consultations in the future so that it is simpler for private citizens to have their questions presented? One suggestion is that a portion of the time at future consultation meetings be set aside for discussion in smaller groups and that rapporteurs keep notes of viewpoints and questions that come up in the groups. Another suggestion is to have an independent moderator appointed by, for example, Östhammar Municipality. (Swedish Society for Nature Conservation and Östhammar Nature Conservation Society)

SKB plans to try different forms for the consultation meetings. At the consultation meeting in November we will have three presentations that start at set times in the afternoon, followed by a formal meeting in the evening. This makes it possible for those who are interested to delve more deeply into different topics, together with SKB's experts. The evening meeting will provide ample time for the participants' questions and viewpoints.

At the meeting scheduled for the spring of 2006 we intend to resume the practice of having parallel group discussions. One "rapporteur" in each group collects the questions that are discussed and presents them for further discussion with all meeting participants.

Regarding viewpoints on who leads the meetings, the practice of having "independent moderators" will be tested at the meetings in November.

Experience from these meetings will decide how we proceed in the future.

3.37 MILKAS has submitted two documents, but no concrete questions.

- "EIS and EIA consultations", written by Elisabet Ahlin and Maria Kuylenstierna (in Swedish).
- Increase of regional total cancer incidence in north Sweden due to the Chernobyl accident? A research report by Martin Tondel, Peter Hjalmarsson, Lennart Hardell, Göran Carlsson and Olav Axelsson published in *J Epidemiol Community Health* 2004; 58:1011-1016.

SKB has read both of these documents. "EIS and EIA consultations" appears to be a response to RD&D-98 and the viewpoints expressed have already been taken into consideration by SKB.

SKB has not found any questions or results in the research report that have a bearing on SKB's mission to manage and dispose of spent nuclear fuel.

Public meeting in Oskarshamn Municipality

Date	3 July 2005, 15:00–18:00 hrs
Place	Figeholms Fritid och Konferens (Figeholm Leisure and Conference), Hägnad, Figeholm
Target group	Private citizens, particularly part-time residents in the Misterhult area
Invitation	Written invitation to about 1,500 households in the Misterhult area, including summer residents. Advertisement in Oskarshamns-Tidningen (18 and 24 June) and Nyheterna (18 and 24 June).
Purpose	To discuss SKB's first proposal of where a final repository and an encapsulation plant could be placed in Oskarshamn, and what disturbances can be expected in conjunction with e.g. rock excavation and haulage during construction and operation.
Background material	<p>Specially produced brochure: Encapsulation and final disposal in Oskarshamn (in Swedish). Background material for consultation meeting on 5 April 2005. It is about construction and operation of the facilities and the disturbances that can arise.</p> <p>Specially produced fact sheet: Encapsulation and final disposal in Oskarshamn (in Swedish). Facts about the encapsulation plant and the final repository for spent nuclear fuel.</p> <p>Same material as for the meeting of 5 April 2005.</p>
Present	<p>About 25 persons attended the meeting. <i>About 15 private citizens, including 10 part-time residents.</i></p> <p>SKB – <i>Anders Nyström, Erik Setzman, Peter Wikberg, Olle Zellman and others.</i></p> <p>Representatives from <i>LKO's Misterhult Group, Oskarshamn Municipality, MILKAS.</i></p>
Minutes signed by	<i>Britta Kahanpää and Charlotte Liliemark.</i>

1 Encapsulation plant

1.1 How thick is the copper canister?

The canister itself is 50 mm thick in the reference design. Inside the canister the spent nuclear waste lies in an insert of nodular iron. The purpose of this insert is to protect the waste from the pressure that is expected to arise, for example in conjunction with future ice ages. The copper shell, which is softer, is supposed to protect against corrosion. According to what we know today, a 15 mm copper canister would suffice to protect against corrosion.

1.2 Didn't you have a thicker canister before?

It's true that we previously planned to have a thicker copper shell, but after evaluating the research conducted over the years we have found that 50 mm is enough.

1.3 Have you considered the price of copper? They say the Chinese are buying up all the copper in the world, which would lead to rising prices.

The cost of the final repository is included in the producers' waste fee. The fee is determined each year by SKI.

1.4 Have you calculated with the higher price of copper?

When it comes to calculated costs, we don't use an instantaneous value for different costs but assume mean values during a given time period. The calculations are adjusted annually. Furthermore, the copper cost is not the big part of the cost.

1.5 But don't you want to have as cheap copper as possible?

SKB wants to have as realistic cost calculations as possible.

1.6 All these operations in the encapsulation plant involve high radiation, don't they? In other words, nothing can be done manually.

Virtually all handling is done with radiation shields, for example under water, remote-controlled behind radiation-shielded walls, etc. Automated handling will be used wherever possible.

1.7 Is welding done manually without radiation protection?

No, welding will be done by remote-controlled machines.

1.8 So all handling is remote-controlled.

No, some handling will take place manually, where deemed possible.

1.9 Is there lead in the transport cask?

No, it's steel or cast iron.

1.10 How long does a weld last?

The same strength requirements are made on the welds as on the copper canisters.

1.11 Does the picture about the encapsulation plant's environmental impact shown earlier refer to releases to air and water? Or does it refer to environmental impact on man?

Yes, the study refers to the impact on air and water. Health and impact assessment is included in the analyses.

1.12 You said before that a canister per day will be handled. If there is a terrorist attack, does that mean only one canister can burst and leak?

No, there may be up to five canisters at a time in the handling process in the encapsulation plant. This will be described in the safety assessment performed by SKB.

1.13 If an airplane comes and flies into the facility, will the contents of five canisters leak?

An account of how much radioactive material may leak out in the event of different types of accidents is given in the safety report. Analyses have already been done for Clab. There a “worst case” was analyzed, where it was assumed that 25 fuel assemblies containing much fresher fuel than in the encapsulation plant are dropped. These analyses show that the releases to the environment would not be very great.

If, however, the waste has been deposited in a final repository at a depth of 500 m in the bedrock, an airplane crash will not cause any problems.

1.14 Will the application next year be for the encapsulation plant in Oskarshamn or will the site be an open question?

SKB will apply for a permit to locate the encapsulation plant adjacent to Clab in Oskarshamn.

2 Final repository for spent nuclear fuel

2.1 Why is Laxemar better than Simpevarp?

Mainly because there is more room in Laxemar than in Simpevarp. This allows greater flexibility. Simpevarp is large enough, but doesn't offer the same flexibility.

2.2 The greater flexibility in the Laxemar area, does it apply above ground?

No, it applies to the underground facility.

2.3 Is there better rock in the Laxemar area?

No, the rock in the two areas is judged to be comparable. The reason is what has been said before: there is more room, which provides greater flexibility. We haven't come as far in the investigations in Laxemar as in Simpevarp, so we can't formally say that Laxemar will be chosen.

2.4 It's difficult to understand why SKB is choosing to investigate two places on the coast. Wouldn't it be better to locate the final repository up in Lapland instead?

SKB has conducted study area investigations, general siting studies and feasibility studies in order to determine the general siting prospects for a final repository in different parts of the country. These studies show that good prospects exist for finding suitable sites for the final repository at many places in the Swedish crystalline bedrock. Furthermore, the studies showed that it doesn't much matter whether the repository is located in northern or southern Sweden. However, geological conditions disqualify the Caledonide mountains in the north and parts of Skåne and Gotland in the south.

2.5 It is only natural for SKB to choose to investigate a site near Clab, it's understandable. What's surprising is that investigations were first conducted in Storuman and Malå. Why didn't SKB begin here in Simpevarp? Why did they start investigations 10–15 years ago some 1,000 km from here instead of in the vicinity of Clab, where the waste is? Why is that?

Transport is not a problem in itself. The spent nuclear fuel is transported today to Clab from different nuclear power plants by Sigyn.

The municipalities of Storuman and Malå were positive to SKB's feasibility studies. The reason SKB has conducted surveys at different places is that we want to have as broad a basis for comparison as possible. What we can say now is that the bedrock in

Simpevarp and Laxemar has equally good prospects to accommodate a final repository as at other investigated sites.

2.6 So the ventilation building contains only fans and filters.

Yes, the building is made for exhaust air ventilation. Nothing will be produced or stored in the building.

2.7 How much rock spoil are we talking about?

About 3 million m³ altogether, of which about 2 million m³ will be reused. Discussions are currently being held about how and where the remaining 1 million m³ of rock spoil will be got rid of. The rock may be used by Oskarshamn Municipality as fill in the harbour. SKB considers it an advantage if the rock spoil can be used locally.

2.8 Will canisters be deposited at the same time as the final repository is being built out?

Yes, deposition of canisters will proceed in parallel with construction of the repository.

2.9 Will you build and deposit waste in one area under ground before starting work in a new area?

We can't say now exactly how the final repository will be built out, since it will be adapted to what the bedrock looks like, among other things.

2.10 We were down in a tunnel a few years ago where the work had begun. Is the tunnel still there? Why didn't you continue there?

You must be talking about the Äspö HRL, our underground research laboratory. In the Äspö HRL we are developing and testing the methods for which we intend to apply for a permit. But it was decided when the work was begun in the Äspö HRL that it would only be a research laboratory.

2.11 Question (when an overhead of handling of rock spoil was shown). How many m³ does such an LHD machine hold?

Roughly 20 m³.

2.12 How many times must an LHD machine go up and down in the tunnel to haul out all the rock spoil?

The largest quantity of rock spoil will be hauled up to the surface by "skip" (rock hoist) after being crushed.

2.13 Will the crusher be on the surface?

There will be crushers both above and below ground. The crusher on the surface will be enclosed to alleviate any problems with noise and dust.

2.14 It says on SKB's web page about the final repository that the canisters can be brought up again. How can canisters be brought up when they start to leak?

Leakage is not expected, but the technology for retrieving canisters during the operating phase by means of water and high pressure is being developed and demonstrated in the Äspö HRL.

2.15 When does SKB expect to be finished with the investigations that show whether the surface facility will be located in the Simpevarp area, and if so where? It is of the utmost importance that discussions of possible improvements be started with the National Road Administration.

SKB expects to be finished in a few years. But there are certain measures that the National Road Administration can start now.

2.16 Won't any rock spoil be transported on public roads?

SKB is studying transport of surplus rock on both land and sea.

2.17 What harbour is being considered?

SKB is exploring the possibilities of using the existing harbour at Simpevarp or building a harbour out on Ävrö, north of Simpevarp.

2.18 What is the noise level for a green area in the noise maps?

A green area entails that noise must be lower than the Swedish EPA's guideline for external industrial noise in the evening and at night, i.e. 35 dBA. Every new colour indicates an increase of 5 dBA. Today the noise situation in the area is dominated by OKG's ventilation plants and the transformer station. Noise associated with the final repository will mainly come from the crusher and the rock hoist. During the operating phase it is possible to enclose many of the activities that will cause noise.

2.19 What is the situation during the construction phase? Is that when the disturbances will be greatest?

It's true that the greatest noise disturbances will probably come during the construction phase. Noise will then mainly be caused by rock crushing and haulage of the rock that is to be disposed of. Rock haulage in particular may cause noise. Where and how this will take place is not yet decided, however.

2.20 Rock spoil will be transported during the operating phase as well, won't it?

During the operating phase, most of the rock spoil will be crushed, mixed with bentonite and used to backfill the final repository.

2.21 How far have you come in Forsmark with the site investigations?

A little farther than in Oskarshamn, since only one area is being investigated in Forsmark. The investigations in both Oskarshamn and Forsmark are expected to be finished by mid-2007. SKB expects to decide which of the two sites will be chosen by mid-2008.

2.22 What about salt water at the coast? Salt water is more corrosive than fresh water. There isn't so much salt water further inland.

The most important function of the rock is to ensure mechanical and chemical stability for a long time. We know with a fair degree of certainty how the rock has behaved for the past 2 billion years or so. The bedrock at a depth of 500 metres is mechanically stable for the most part and doesn't move much. A great deal of research has been done on the geological conditions. The time we are talking about for a final repository is very short, compared with the age of the rock.

2.23 "Fair degree of certainty" and "for the most part" are phrases you use, but you can never be really certain, can you?

It is probably stable.

The next question SKB regards as important concerns chemical stability. We know that geological conditions in the future will be like today. We must also make sure that the material we have chosen for the canisters will remain intact for the length of time we are talking about. That is why we have chosen copper for the canisters, since it is one of the few materials that remains intact in the environment in question. Here as well, our choice is supported by research and analyses.

We are fairly convinced today that even under the most unfavourable conditions, a 15 mm thick copper canister would resist corrosion attack. We previously planned to use a 100 mm thick copper shell, but this has been changed as we have learned more and acquired more knowledge. We are also conducting tests with 30 mm thick canisters.

The possible disadvantage associated with salt water has nothing to do with corrosion, but the fact that salt water requires a higher proportion of bentonite in the backfill mixture.

2.24 When I was visiting Sigyn they said it was completely sterile down in the rock. Then they said there are microbes. Before you said there was no water in the rock and now there is water. What will we know in 5, 10 or 100 years? There may be more down there than we are aware of today, such as various hazards, pressure conditions that crush the canister, etc. You talk about analyses and calculations. How can you enter data you don't know into a computer and get out useful information?

We have a great deal of knowledge and are conducting a great deal of research. The reason we have built our research laboratories is to acquire as much knowledge as possible, and as we do this the state of our knowledge changes.

A computer can only analyze what people feed into it, i.e. the knowledge we have. It can't do anything on its own.

2.25 Then this is an impossible project?

No, what we know with certainty is that there are laws of nature that determine what will happen in the future.

2.26 Isn't it a law of nature that everything disperses?

The law of nature I am referring to is the law of thermodynamics that says that we can predict with certainty that, for example, copper, gold and platinum will remain intact in the environment in question. The same law of nature says that steel, for example, rusts in this environment.

2.27 On another occasion you promised to send a brochure about an American research report concerning life in the rock. I haven't received it.

Contact us and give us more details about what report it is and perhaps we can help.

We have built the Äspö HRL in order to conduct research aimed at learning more about the bedrock. One of the things we have learned is that there are microbes.

2.28 When the canister is deposited the contents are presumably hot. Is there any pressure in the canister then? What happens when the canister cools?

The pressure will change marginally when the canister cools.

2.29 SSI has said that the flow of water in the rock may be so great that it washes away the bentonite clay? What do we know about that?

We know what the geological conditions have been like for a very long time. This is illustrated at the Äspö HRL by a timeline that is 18.5 m long and that symbolizes the length of time since the rock was formed. Each centimetre represents a million years, and you can clearly see how short the timespan encompassing the final repository is. See also reply to question 2.30.

2.30 When the bentonite clay is washed away, what will happen with the copper canister? (MILKAS)

The conditions in the repository are such that the “washing-away” (erosion) of bentonite clay will be minimal. Moreover, the quantity of clay used is generous enough to allow for some erosion. An evaluation of the scope of this erosion is included in our safety assessments. If large quantities of bentonite should be eroded away, the canister would sink to the bottom of the deposition hole. It would also be more exposed to the groundwater, but this is not expected to be a serious problem since the concentrations of substances that can harm the bentonite in the groundwater are very low and the groundwater flow is very small at repository depth.

2.31 If nothing affects the copper canisters, how come copper is dissolved from copper pipes every day and colours the wash basin green? (MILKAS)

That’s because there is oxygen in drinking water, but not in the groundwater at repository depth.

2.32 How are explosive residues removed from the excavated rock spoil? (MILKAS)

After blasting the rock is washed. The water, which will contain explosive residues, is pumped to a treatment plant before being discharged. However, residues of explosives are left on the rock that is stored on the ground surface. Leachate from the rock heap will collect and be treated in the treatment plant before being discharged.

2.33 Can canisters be damaged by residual explosives? (MILKAS)

No, any residual amounts of explosives will have a negligible chemical effect on the canister.

2.34 Can people be harmed by residual explosives? (MILKAS)

There will always be some explosive residues after blasting. They are not explosive, but they do contain nitrogen. The residues in the pumped-up water are removed before the water is discharged to receiving waters. The residues left on the rock spoil that is stored on the ground will leach out, but be removed before the leachate is discharged to receiving waters. Thus, humans will not be harmed by residual explosives.

3 Common issues

3.1 If it is decided that the final repository is to be built at some faraway place, would the encapsulation plant still be built at Clab?

SKB plans to apply for a permit to build the encapsulation plant adjacent to Clab, regardless of where the final repository is sited. If the final repository is sited at Forsmark, the encapsulation plant may also be sited there.

3.2 But investigations are under way in Forsmark?

Even if the final repository is sited at Forsmark, SKB intends to apply for a permit to build the encapsulation plant adjacent to Clab.

3.3 A fundamental question of importance in this context is that SKB is owned by the power companies, some of which are German-owned and some of which are state-owned. There is no continuity, since interests in the companies are bought and sold, which makes it impossible to keep track of ownership. This situation makes for uncertainty and lack of oversight. Shouldn't SKB be owned by the state?

Since Vattenfall owns a large portion of the nuclear power utilities in Sweden, the state is actually a principal owner of SKB. Swedish law makes the producer responsible for the waste. The nuclear power producing utilities in Sweden have chosen to handle waste management via SKB. The state has a supervisory role via the regulatory authorities, but cannot be made responsible for the waste under Swedish law.

3.4 So what happened in Sellafield, where the state assumed responsibility, will not happen here?

This is not something which SKB can answer or has any control over. Such decisions do not lie within SKB's sphere of responsibility.

3.5 Why doesn't SKB wait until 2008 with its encapsulation application?

After consulting with the concerned bodies, SKB has reached the conclusion that it is easier for national and local authorities to conduct as good and thorough a review as possible if they have more time to do their work. According to SKB's modified application process, the review will first be focused on the permit application for the encapsulation plant (2006) under the Nuclear Activities Act and then on the application for the final repository under the Nuclear Activities Act and the application for the system (encapsulation and final repository) under the Environmental Code (2008).

3.7 Will no decisions be made in 2008?

SKB does not expect any decisions until 2010. The purpose of the application process is to obtain good supporting material on both facilities by 2008. Decisions are expected in 2010.

3.8 Who processes applications under the Nuclear Activities Act?

SKI handles the review, in part by circulating the application for comment to concerned regulatory authorities, county administrative boards, municipalities, etc. SKI then submits a statement of opinion to the Government, which makes a decision.

3.9 Wouldn't it be simpler if the application under the Environmental Code were processed first?

Not in SKB's judgement, since the Nuclear Activities Act governs technology for managing the waste. An Environmental Impact Statement (EIS) is required under both the Environmental Code and the Nuclear Activities Act. The EIS will contain everything that is required for SKI and the Government to make a decision.

3.10 Will it say that mankind will not be poisoned in 10,000 years?

Safety aspects will be dealt with in the EIS. It will be made clear that nothing like this will ever happen.

3.11 Do you plan to improve road 743 in any way? There will be a lot of traffic on the road, which is quite narrow and in poor shape.

SKB recently completed a conceptual study of the road from Fårbo to Kråkelundsvägen. The purpose of the conceptual study was to listen to those who are most affected, those who live along the road, to find out their ideas for improvements.

However, SKB is not responsible for roads and roadbuilding. That is the responsibility of the National Road Administration, who will have to continue discussions of a possible widening of road 743.

3.12 The regulatory authorities have asked for alternative solutions for a final repository for spent nuclear fuel. When will the other methods be presented?

The regulatory authorities have not asked for alternative solutions, but they have stated that it is important that we do not forget to look at other methods, such as deep boreholes. However, SKB believes that the ample support has been found for the chosen method (the KBS-3 method) after 25–30 years of research and development. Alternative methods will be described in the EIS.

3.13 There has been discussion of road quality, but so far only about highway 743, and only to Mederhult. What about, for example, the road between Klintemåla and Misterhult Farm?

Since it has not been decided where the final repository will be located and how transportation will take place, it is difficult to say whether and if so how the road between Klintemåla and Misterhult Farm will be affected.

3.14 Won't there be any truck traffic north of the exit to Kråkelund?

Since nothing has been decided regarding scope, method (sea or road transport) or what is to be transported, we cannot answer that. However, there will probably be traffic southward, towards the town.

3.15 Are discussions being held with the National Road Administration?

SKB is conducting informal talks with the National Road Administration. The conceptual study mentioned earlier (3.11) will be shown to the National Road Administration.

3.16 About 1 year ago, on 10 May 2004, SKB and the Misterhult Group had discussions with the National Road Administration where it emerged that the National Road Administration has to plan road work 5–8 years in advance. When will we see the envisioned route from SKB?

SKB understands the problem and promises to get back to the Misterhult Group when more information is available.

3.17 How is SKB's method compared with other countries' methods, and what do other countries think about SKB's waste management?

Most countries have decided on some form of geological disposal. The methods differ in terms of, for instance, whether the waste is disposed of directly or after reprocessing. Sweden and Finland use copper canisters.

3.18 Is it SKB who has decided on the KBS-3 method, not the regulatory authority?

After many years of research and development, for example in RD&D programmes, SKB was authorized by the regulatory authorities and the Government to proceed with research focused on the KBS-3 method.

3.19 My father got to be 100. We didn't know when he was born 100 years ago what was to come. What did we know about mad cow disease and such things then? If you stand twenty 100-year-old men alongside each other, we have only come back to the time of Christ, and no one knew then what would happen in the future. How can we know what will happen in the future?

By research we try to find out as much as we can.

3.20 Have you investigated the alternatives, for example deep boreholes? There is research that suggests other methods of storage until we know more.

Most of the research that has been done shows that the basic concept of the KBS-3 method is sound. As long as research, development and analyses are conducted, more knowledge will always be obtained. We will always have more facts in 25 years, 50 years and 1,000 years, but we can't just sit around waiting until we know more. The Government and others have said that we should get on with our work. We believe we have a safe method for waste management.

3.21 There are alternative methods. Why can't the waste be stored dry and above ground until better technology is available? Who guarantees that you will be able to guard it for such a long time?

We don't think it's right for us to store the waste above ground. Who will take responsibility for supervision and control?

Once again, we believe we have a safe method. We believe it is better to rely on the rock than on man. No one can say what society will look like in the future, what international boundaries will exist, etc. With the KBS-3 method, we guarantee that the waste will be kept safe and inaccessible to humans. We think it would be irresponsible to wait and let others assume responsibility for the final repository.

We are naturally following the research that is being conducted on alternative methods. Reports on alternative methods are included in the supporting material that will be appended to our applications.

3.22 We know that the radioactivity moves. Why can't we use food colouring, for example, so we can see when it comes to the surface and poisons mankind? Research in the USA has looked at this. How fast does food colouring move?

Once again we refer to our Äspö HRL, where similar experiments, not with food colouring but with other methods, have been conducted at a depth of about 500 m.

Furthermore, nature has conducted her own experiments. A natural reactor got going in Oklo, Africa, around 1.5 billion years ago. Measurements show that the "waste" that was formed has only moved a metre or so from the source in 1.5 billion years. These results agree with our experiments.

3.23 This doesn't agree with what has been found in Nevada.

I don't know all the facts when it comes to Nevada, but conditions are completely different there, since the radionuclides that have moved stem from detonations of nuclear weapons.

3.24 You have conducted experiments and embedded canisters at Äspö. You were going to check what happens by using electronic wires. It didn't turn out like you expected. Isn't that strange, when it's a part of the concept and it doesn't work?

Monitoring via electronic wires has nothing to do with the KBS-3 method for final disposal, but is merely a part of all the research and development being conducted by SKB.

3.25 The nuclear power utilities keep everything secret. For example, they tried to keep it secret when some lint clogged the strainers in Barsebäck for a few weeks in 1992. There is a story in Lagerbladet about Sellafield where it says that there is no more secrecy in England, now everything is out in the open. Why this secrecy?

We don't understand the question since this isn't SKB's area of responsibility. SKB strives for openness in all it does.

3.26 The waste in SFR (Forsmark) has given rise to releases to air and water. Why isn't anything being done about this?

As far as the waste in SFR is concerned, it is managed differently than the spent nuclear fuel in the final repository. Releases to air and water from SFR are well below the permissible limit values.

3.27 According to my information (paper was shown), radioactivity is released to the Baltic Sea. Sweden releases more than its neighbouring countries, for example the Baltic states. This is a fact, even though the releases lie below the limit values. Why is nothing being done about this?

A private citizen asked for the floor. The citizen said that the questions that have now been asked by one person during the meeting are important, but do not belong to the theme for today's meeting, which is disposal of spent nuclear fuel. It would be more appropriate for these questions to be addressed in a forum that is intended for such questions, or for the person to become politically active. The citizen went on to say that these consultation meetings are a part of a democratic process in which we nearby residents are taking part in order to find out how we will be affected if a final repository is built in the area. This type of information is important to us!

3.28 Is there any leakage from Oskarshamn? Are there any rusty drums standing around leaking?

There is no repository in Oskarshamn similar to SFR in Forsmark.

3.29 Is it forbidden to request consultations? Can consultations be requested for alternative methods?

Convening consultations is the responsibility of whoever intends to submit the EIS, in this case SKB. SKB is only holding consultations regarding the project for which a permit application is being submitted. Thus, SKB has no intention to hold consultations on alternative methods. However, upcoming consultations will deal with the question of how alternative methods should be reported in future EISs.

3.30 The Swedish Environmental Movement's Nuclear Waste Secretariat would like the facts and an assessment of risks and environmental impact when the radioactive waste contaminates air, water, soil and man. (MILKAS)

The requested information will be provided in the safety reports SR-Can and SR-Site. SR-Can (which stands for Safety Report Canister) will be submitted to SKI and SSI in 2006. The report will be based on data from the initial phase of the site investigations. SR-Site will be based on data from the complete site investigations and be submitted in 2008.

3.31 Why does man get the most radiation from Oskarshamn compared with the other nuclear power plants around the Baltic Sea? (MILKAS)

SKB's assignment is to manage and dispose of spent nuclear fuel. The question has nothing to do with SKB's activities. For more information, we refer to the Oskarshamn plant's (OKG) information service.

3.32 Is it true that the Baltic Sea is one of the world's most radioactive seas? (MILKAS)

The relatively high level of radioactivity in the Baltic Sea is primarily a consequence of the fallout caused by the Chernobyl accident. The nuclear weapons tests conducted in the 50s and 60s are also major contributors.

3.33 Why are Swedish reactors (Oskarshamn, Forsmark, Ringhals) responsible for the greatest releases to the Baltic Sea – far more than, for example, the reactors in Leningrad and Ignalina? Why does perch caught outside Oskarshamn contain more than 3 times as much cesium as the level of about 50 Bq/kg generally referred to by SSI? We have 30-year-old nuclear power plants. Oskarshamn has very high releases compared with many foreign nuclear power plants that are also old. Oskarshamn's wastewater is normally not treated, but if it is, it is not treated effectively. Is this because it is foreign-owned? (MILKAS)

SKB's assignment is to manage and dispose of spent nuclear fuel. These questions have nothing to do with SKB's activities. For more information, we refer to OKG's information service.

3.34 Will SKB have zero releases from its facilities, or will they share wastewater systems with the nuclear power plants? (MILKAS)

The construction, operation and decommissioning of both the encapsulation plant and the final repository for spent nuclear fuel will give rise to releases to air and water.

SKB's proposal is to build the encapsulation plant adjacent to Clab. Discharges of water from the encapsulation plant are planned to be coordinated to some extent with existing systems in Clab. For example, discharges of cooling water, storm water and waste water will be connected to Clab's system. The ventilation system in the encapsulation plant will, however, not be integrated with existing systems in Clab or the nuclear power plant.

None of the ventilation or wastewater systems in the final repository for spent nuclear fuel are planned to be shared with Clab or the nuclear power plants.

Management of radioactive waste is regulated and overseen by the regulatory authorities, SKI and SSI, which sets limits on releases. The regulatory requirements must be met in order for SKB to be allowed to operate the facilities.

3.35 The environmental movement demands that available evaporator technology be put to use, and that the best technology be used. (MILKAS)

According to the Environmental Code, the "best available technology" must be used. SKB will comply with the requirements of the Environmental Code.

3.36 We do not accept any radioactive releases from smokestacks or to the Baltic Sea. Samples are not taken of the wastewater. We demand that all discharge points for wastewater be sampled. (MILKAS)

Management of radioactive waste is regulated and overseen by the regulatory authorities, SKI and SSI, which sets limits on releases. Everything that leaves a nuclear installation – water, air, materials and people – is monitored.

3.37 We would like to see a report where OKG describes what substances are released to air and water, where this takes place, in which buildings, and in what quantities. We would also like to know how and when this leakage will be remedied with the best available technology. Until then we demand that Oskarshamn 1–3 be closed. (MILKAS)

SKB's assignment is to manage and dispose of spent nuclear fuel. These questions have nothing to do with SKB's activities. For more information, we refer to OKG's information service.

3.38 We would like to see a similar report on expected radioactive releases, and on other polluting substances from the encapsulation plant and the final repository, and how normal and abnormal releases will be remedied with the best available technology. (MILKAS)

The requested information will be provided when SKB applies for permits to build an encapsulation plant and the final repository.

3.39 What happens in the event of terrorist attacks or accidents that lead to large radioactive releases in Oskarshamn? We have had major hostage-taking incidents in Sweden – one in an embassy and a hijacked airplane – Prime Minister Olof Palme and Foreign Minister Anna Lind have been assassinated. (MILKAS)

Protection against attacks on nuclear installations is highly developed. A basic prerequisite in the design of physical protection is that an attack may not lead to consequences for the surrounding environment. During the next two years a large project is being carried out at OKG in which SKB is participating to further raise the level of protection.

3.40 We demand that an environmental medical assessment be done for the worst imaginable scenario, both in the event of a terrorist attack from the air affecting the nuclear power plant, the encapsulation plant and the final repository, and in the event that the final repository starts to leak after 50–100 years due to something unforeseen. (MILKAS)

SKB's methodology for gathering material for an assessment of health consequences involves the following activities:

1. Ascertain the current situation: inventory sensitive groups and activities (for example day-care centres, schools, homes for the elderly, nursing homes) as well as protected and valuable areas.
2. Identify the impact of the future activities, for example blasting, rock crushing and haulage.
3. Assess changes of importance for health and the environment, for example higher levels of air and water pollution.
4. Conduct an environmental medical assessment.

Examples of aspects that can affect human health are:

- Noise, vibration, light disturbances.
- Emissions to air: nitrogen oxides, hydrocarbons, dust.
- Water and ground pollution.
- Risks associated with construction and operation.

It is also important to shed light on the handling of chemical substances, the occurrence of electrical and magnetic fields, the risk of traffic accidents and accidents with dangerous goods and psychological and social effects.

The environmental medical assessment is being performed in cooperation with institutions where there are environmental medical experts with experience of health matters in EIA. Important results will be presented in the EIS in 2008.

An environmental medical assessment will not, however, be done for those types of scenarios requested by MILKAS, for example terrorist attacks.

In the safety assessment we will calculate the consequences of a case where all canisters have been damaged at an early stage.

3.41 We would also like to see an environmental impact assessment and an economic impact assessment of the worst possible scenario on land, as well as in the final repository. (MILKAS)

In the safety assessment we will calculate the consequences of a case where all canisters have been damaged at an early stage.

3.42 What can OKG do with the best available technology to prevent or treat releases of radioactive substances after a core meltdown? (MILKAS)

SKB's assignment is to manage and dispose of spent nuclear fuel. The question has nothing to do with SKB's activities. For more information, we refer to OKG's information service.

3.43 The environmental movement hereby orders the report with radioactive tracer tests. (The rate of transport of radioactivity from the deep repository.) (MILKAS)

SKB has a very solid research programme. During the past 30 years a large number of tracer tests have been performed. SKB is happy to share the results that have been obtained with the environmental movement, but must know which report the environmental movement is asking for.

3.44 The environmental movement requests a consultation where alternative methods – such as Axel Mörner's – are compared with SKB's final repository. (MILKAS)

Convening consultations is the responsibility of whoever intends to submit the application, in this case SKB. SKB is only holding consultations concerning ongoing and planned projects and whatever they intend to submit a permit application for. Thus, SKB has not intention to hold consultations on alternative methods. However, upcoming consultations will deal with the question of how alternative methods should be reported in future EISs.

3.45 We refer to Lars-Olov Höglund's motions at the Växjö District Court, Case No. M3171-04. (MILKAS)

The motion concerns OKG's application for permission to raise the output of existing reactors. SKB's assignment is to manage and dispose of spent nuclear fuel. The motion has nothing to do with SKB's activities. For more information, we refer to OKG's information service.

Meeting with the EIA Forum in Oskarshamn and the Forsmark Consultation and EIA Group

This was a joint meeting for the Oskarshamn EIA Forum and the Forsmark Consultation and EIA Group. Two identical copies of the minutes were prepared after the meeting, one for each forum.

Date	24 August 2005, 9:00–12:00 hrs
Place	Prime Point, Arlanda
Target group	Oskarshamn Municipality, Östhammar Municipality, County Administrative Board in Kalmar County, County Administrative Board in Uppsala County, SKI and SSI
Invitation	The date of the meetings is decided on jointly. SKB sends out e-mail invitations to each meeting.
Purpose	To discuss matters related to the expansion of Clab, as well as the encapsulation plant and the final repository for spent nuclear fuel. Furthermore, each participating party gives a status report on the work they are taking part in that has a bearing on the disposal of spent nuclear fuel.
Background material	—
Present	County Administrative Board in Kalmar County – <i>Ulf Färnhök (Chairman), Sven Andersson</i> County Administrative Board in Uppsala County – <i>Leif Byman, Mats Lindman</i> Oskarshamn Municipality – <i>Kjell Andersson, Rigmor Eklind, Elisabeth Englund, Charlotte Liliemark, Kaj Nilsson, Göte Pettersson, Lars Tyrberg, Harald Åhagen</i> Östhammar Municipality – <i>Bertil Alm, Sten Huhta, Hans Jivander, Bengt Johansson, Gunnar Lindberg, Virpi Lindfors</i> SKI – <i>Josefin Päiviö Jonsson</i> SSI – <i>Tomas Löfgren</i> SKB – <i>Claes Thegerström, Saida Laârouchi Engström, Lennart Nordfors (Gullers Grupp), Olle Olsson, Erik Setzman, Peter Wikberg, Lars Birgersson (secretary), Sofie Tunbrant (secretary)</i>

1 Encapsulation plant

No questions or viewpoints were expressed pertaining solely to the encapsulation plant.

2 Final repository for spent nuclear fuel

No questions or viewpoints were expressed pertaining solely to the final repository for spent nuclear fuel.

3 Common issues

3.1 The EU and other countries' waste

Lennart Nordfors, Gullers Grupp, gave a presentation of the EU and other countries' waste, with an emphasis on the question of whether Sweden can be forced to receive other countries' nuclear waste.

Discussion

The question was asked whether it is possible for the European Court of Justice to equate nuclear waste with other waste. Lennart Nordfors replied that if the Commission chooses to pursue this matter via the Court instead of making proposals to the Council of Ministers, it will be perceived as bypassing the EU's supreme decision-making body. Such a procedure is not politically realistic.

3.2 How can the consultations be improved?

Experience from completed consultations to date was discussed.

Discussion

At some of the previous consultation meetings, SKB made use of outside moderators. Regardless of whether there have been moderators or not, it has been possible to have all questions answered at all meetings. Since further discussion arrived at the conclusion that there may be an advantage to having outside moderators, SKB will once again engage a moderator on trial at coming meetings.

Saida L. Engström further noted that the questions and viewpoints that emerge at consultation meetings are documented and answered in the minutes of the meetings, which are posted on SKB's website. Excerpts from the minutes are published in annual reports and in coming consultation reports.

Questions are also asked at nearby resident meetings and information meetings. These questions are gathered up locally and passed on to the EIA unit. In cases where there are new questions pertaining to the final disposal project, they are included in the consultation records. So far, however, no new questions have been brought up; the questions have mainly pertained to the ongoing site investigations. Those questions that have been asked about the final repository or the encapsulation plant have to do with noise, transport, groundwater drawdown etc., i.e. matters that are already on the agenda. In some cases, questions asked in the consultations have then been dealt with outside the formal consultations. One example is the road question in the Simpevarp area. This is not a consultation issue, since SKB is not formally responsible for the road network and cannot build roads on its own initiative. The question is nevertheless important and has therefore been brought up for discussion with the National Road Administration. Representatives from LKO have participated in the meetings that have been held and a conceptual study has been carried out.

This means that two parallel processes are under way: nearby resident and information meetings, and consultation meetings. Minutes are kept of consultation meetings and are published on the Web, in annual reports and elsewhere. Nearby resident and information meetings are not documented in the same way, but these meetings are also advertised and are open to everyone.

The result of the discussion was that SKB will continue to think about how the procedure with two processes (information vs. formal consultations) can best be made transparent.

Saida L. Engström said that SKB has heeded criticism to the effect that presentations by SKB at the consultation meetings take up too much time. At the next meeting in November 2005, a new format will therefore be tried. The afternoon will be devoted to seminars and the evening to questions. The theme of the meeting will be "EIS for the encapsulation plant", but naturally there will also be an opportunity to ask questions about the final repository for spent nuclear fuel.

At previous consultation meetings with the public, SKB has photographed, and the last two meetings have been video recorded by participants. Photographing and video recording at meetings could, however, inhibit participants from speaking freely. For this reason, video recording and photographing will not be done at future meetings.

Public meeting in Östhammar Municipality

Date	14 November 2005, 19:00–21:00 hrs
Place	Church of Sweden assembly hall, Klockarbacken, Alunda
Target group	Private citizens, organizations, government agencies
Invitations	The meeting was advertised in Upsala Nya Tidning (24 October and 12 November), Östhammars Nyheter (27 October and 10 November) and Annonsbladet (26 October and 9 November). Written invitation to organizations that obtain funding from the Nuclear Waste Fund to follow the consultations, and to government agencies. A list of all those who have obtained a written invitation plus viewpoints received in writing entitled "Summary of written viewpoints and questions plus SKB's replies" is found on page 119.
Purpose	Concluding consultation meeting prior to submission of permit application for encapsulation plant under the Nuclear Activities Act. The theme of the meeting was "Environmental impact statement (EIS) for the encapsulation plant."
Background material	<p>Specially produced material: "Material for consultations under Chapter 6 of the Environmental Code. Encapsulation plant for spent nuclear fuel. Examination under the Nuclear Activities Act. SKB, November 2005."</p> <p>The material contained descriptions of the facility and its environmental impact, risks and safety as well as effects and impact of an encapsulation plant located at Clab. The material also described differences in effects and impact if the facility is located at the alternative site in Forsmark. The material reflects the state of knowledge in October 2005. A draft table of contents for an EIS for the encapsulation plant was included as an appendix.</p> <p>The material was available on SKB's website on 1 November.</p>
Present	<p>About 50 persons in all. Private citizens and organizations <i>about 30 persons</i></p> <p>SKB – Erik Setzman, Saida L. Engström, Anders Nyström, Per Riggare, Helén Andersson, and others</p> <p>SKI – Josefin Päiviö Jonsson and others</p> <p>SSI – Tomas Löfgren and Johanna Sandwall</p> <p>Representatives from: County Administrative Board in Uppsala County, Östhammar Municipality, MKG, MILKAS</p>
Moderator	Björn Nyblom, Diplomat PR
Minutes signed by	<p>Maria Kuylenstierna and Carl-Johan Nässén. Maria Kuylenstierna's adjustments are entered as "adjustment" in conjunction with the items they concern.</p> <p>Questions and answers from the consultation meeting are given below. Written viewpoints regarding this meeting and the similar meeting in Oskarshamn on 17 November are presented in a separate compilation entitled "Summary of written viewpoints and questions plus SKB's replies".</p>

1 Encapsulation plant

1.1 What alternatives will be reported in the EIS for the encapsulation plant in 2006?

Many method choices have been made and will be reported. A clear example is the welding method. There are two possible methods. SKB has chosen one and will present arguments for that choice.

1.2 The volume and impact of overland transport appears to be reported in the EIS. What shipments will go by sea and what impact might they have, for example on bottom sediments? Where is this information? Have you given any thought to sea shipments to Forsmark? What would be the impact on the environment of more sea shipments in the shallow archipelago? Have you looked at this?

No account has yet been given of the possibility and impact of sea shipments. We will provide such an account in due course.

1.3 The fuel is handled and stored wet in Clab. If encapsulation is done in Forsmark, will the fuel be handled dry? How will the fuel be stored in Forsmark?

If the encapsulation plant is located in Forsmark, the fuel will be dried in Clab before it is shipped off. There will be space in “hot cells” in Forsmark for unloading and storing small quantities of fuel awaiting encapsulation.

1.4 The challenges in accomplishing this enterprise involve meeting the requirements. What is the greatest challenge? Does it concern safety, environment, quality or technology?

The encapsulation plant does not give rise to any appreciable releases or environmental impact during the operating phase. We have long experience in the management of spent nuclear fuel. In terms of environment and safety, it therefore does not involve any great challenges. The greatest challenge is technical – fabricating copper tubes, welding the canisters together and inspecting the welds. SKB is the first to do this and the only one to develop the technology. Welding was a challenge, and now we can do it on an industrial scale.

1.5 Does that mean that you think you have everything under control now, here at the last consultation meeting? SSI has pointed out that an in-depth analysis of certain issues is lacking. They don't think you're there yet!

We are where we intended to be prior to a permit application under the Nuclear Activities Act for the encapsulation plant. We have an ongoing discussion with the regulatory authorities, and SSI wants to see the connections between the applications in 2006 and 2008. They also want to be able to see what our research will be concerned with in the future. All data does not have to be presented now, but we have to stipulate what data will be available at what time.

1.6 The encapsulation project is aimed at producing something that has to last a long time. What if it doesn't work? How prepared are you if another method has to be chosen and the canister has to be modified?

(Adjustment: The comment refers to factors such as ice ages and earthquakes.)

Flexibility is built into the facility. It is possible to make modifications and switch methods. The most critical part of the facility is the hot cells.

1.7 The establishment of an encapsulation plant entails industrial development of the region. How have SKB's current activities in Oskarshamn influenced the choice to site the encapsulation plant in Oskarshamn?

The on-site availability of technical expertise and resources makes everything easier if the encapsulation plant is located in Simpevarp. If the final repository is sited in Forsmark, it is also fully possible that the encapsulation plant will be located there. It will, however, delay the timetable, since the facility has not yet been designed, but is still in the feasibility study phase.

1.8 The brochure (note: SKB's book "Encapsulation – When, where, how and why?", which came out in September 2005, in Swedish) about the encapsulation plant talks about physical protection. It isn't mentioned in the background material for the consultations and will presumably not be included in the environmental impact statement either, will it?

The information on the design of the physical protection is classified and is reported separately to SKI.

1.9 The EIS is not supposed to deal with the design of the physical protection. It is supposed to describe the environmental consequences of the failure of the physical protection!

The consequences of the failure of the physical protection are addressed in the safety report, but this is not public. Risk and safety issues will be included in the EIS. (Adjustment: According to sound tapes and adjustment notes, what was meant here was that the problem was that the environmental impact if something should happen and the physical protection didn't work was not yet addressed in the EIS material.)

1.10 It says in RD&D-Programme 2004 that an atmosphere change will be made by injecting argon to achieve acceptable chemistry. What is unacceptable chemistry? What can happen if the chemistry is unacceptable? Will you address this in a report?

Yes, it will be reported and dealt with by SKI. The nitrogen must be removed to prevent formation of nitric acid, which could attack the canister from the inside. This issue is included in the design premises, but is not relevant for the EIS.

1.11 It is vital that weaknesses and risks be identified. We are interested in having possible consequences elucidated in accident analyses. What should be reported in the document is what we want to be elucidated!

One purpose of the consultations is to provide an opportunity for viewpoints to be expressed.

1.12 Is there experience from other countries that is of importance in your work? Are there any cases where SKB has chosen other solutions compared with existing facilities?

An encapsulation plant has been built in Gorleben. It is not yet in active operation and is intended for encapsulation of spent fuel in steel containers. Experience from the design and inactive trial operation of the plant has been incorporated in the design of our encapsulation plant. The British Nuclear Group participated in the design of the encapsulation plant. This company has experience from the design of the reprocessing plant in Sellafield, England. (Comment: There is a salt mine in Gorleben where the prospects for final disposal of spent nuclear fuel and other high-level waste are being studied. Today there is an interim storage facility for low- and intermediate-level

radioactive waste there, along with an interim storage facility for reprocessed high-level waste. Industrial-scale reprocessing, which includes work in hot cells, takes place today at the plants in La Hague in France, Sellafield in the UK and Majak in Russia.)

1.13 The County Administrative Board noted earlier that there are very sensitive areas with regard to both animals and nature. But this doesn't seem so important in the background material for the consultations. No impact is described there. A blurry picture is provided. Both sites must be described so that they can be compared without misunderstanding.

The background material for the consultations provides merely an abbreviated and general version of what will be included in the EIS. Among other things, a full description of the environmental impact will be provided in future EISs.

1.14 The descriptions for Forsmark and Oskarshamn should be equivalent. There are transport casks for spent fuel. This is not a problem at Clab. If the encapsulation plant is sited at Forsmark, how will the fuel be transported in these transport casks? What happens if Sigyn drops a cask in the sea and it cannot be salvaged? Do the same requirements apply to these transport casks?

The same regulatory framework governs the transport casks for transporting spent nuclear fuel to Forsmark as applies today to the shipments of fuel assemblies to Clab, for example with regard to ability to withstand being dropped and fire.

1.15 The casks used for transport to Clab have worked satisfactorily. Is there any reason why the same method cannot be used as today? The fuel to be transported to the encapsulation plant is not as hot as the fuel that is transported today. Safety is satisfactory today.

SKB concurs.

1.16 The encapsulation plant is a part of the KBS-3 system. The application for the final repository lies further in the future. Are you investing a lot to get started earlier with encapsulation? Does the submission of an application in 2006 reduce the possibilities of discussing alternative methods?

It is the regulatory authorities who gain time by being able to start their review, not SKB. It's more trouble for SKB. The decisions will be made at the same time, probably in 2010 at the earliest.

1.17 SKB says that moving up the application complicates the work. Why then have you chosen to do this if it means more work for you?

After the application has been submitted, the preliminary design phase will be concluded and we will have more time for the detailed engineering of the plant.

1.18 You have done an evaluation of the two welding methods. Do you have enough results on the critical welding steps? Have you decided which method to use?

Both welding methods meet the requirements, but friction stir welding has exhibited better reliability. SKB has therefore chosen friction stir welding as the reference method in applications. (Comment: The welding methods that have been evaluated by SKB are friction stir welding (FSW) and electron beam welding (EBW).)

1.19 If a permit is issued for a given method, how can SKB change methods?

An application can be submitted for permission to make changes. The change is described along with evidence showing that the requirements are met. The application is reviewed by the regulatory authorities.

1.20 How great can the discrepancies be if you change the welding method?

We have to describe all discrepancies and show that the requirements are still met. The authorities review and must approve modifications and discrepancies.

1.21 Canister thickness – if you apply for a given thickness in 2006, can you change it in the application in 2008?

Yes, a change is possible as described earlier. In this case we must be able to show that the canister meets the requirements.

1.22 How much is fixed in the solution for which you are making an application? How much can you change?

The basic concept will be fixed. Final disposal will go on for 40 years, and it is important to keep up with the technological advances that will be made. This may involve such things as the choice of materials.

1.23 How much can you change before having to apply for new permits?

In the case of changes of safety-related importance, new permits must be applied for.

1.24 Research goes forward. Who knows what welding methods will exist in 40 years? This has to work many hundreds of years in the future. How do you think this will work?

SKB's assignment is to solve the problem now. We can always wait, but who will do something then?

1.25 How much advance planning is necessary to be able to change something which research has revealed is unsatisfactory?

This question was not answered at the meeting.

1.26 Are any full-scale canisters welded and finished?

Yes, thirteen full-scale canisters have been welded, but we have also made many on a smaller scale and see no differences in the results.

1.27 When will the application for the encapsulation plant be able to be announced in its entirety?

SKI is discussing how the application is to be handled. It may not be announced until 2008. Anyone who wants to may look at the background material.

2 Final repository for spent nuclear fuel

2.1 Will alternative sitings be discussed at the consultation meeting in the spring?

Yes.

2.2 Will the environmental and cultural impact be for today or in the future?

The short-term impact will be discussed. The long-term impact will be dealt with in the safety assessment SR-Site.

2.3 Are there other alternative sitings for the final repository than Forsmark and Oskarshamn? Will all those considered be included?

The EIS and the background material for the meeting will contain a description of the siting process with all investigated sites.

3 Common issues

3.1 (Question directed at SKI) SKB divides up the applications for the different facilities and laws. Is this in response to the wishes of the regulatory authorities?

(SKI) No, not exactly, but it makes our work easier.

(**Adjustment:** The wording of this response according to the sound tape was "...it may help us, if everything came at once in 2008 we would be pressed for time ...we have discussed the matter with SKB, but they are the ones who presented the scheme...".)

3.2 So it isn't something SKI requested?

(SKI) No, but we responded positively to SKB's proposal to do it this way.

3.3 (Question directed at SKI) There has been criticism of the fact that no independent research is being conducted. What is your position on this?

(SKI) The development of the KBS-3 method has been a long process to which SKI has lent its support along the way. The final review of the method and the research will take place when applications have been submitted.

3.4 The Baltic Sea is already heavily polluted with radioactivity. There is a Danish study from Risø that should be taken into consideration. Large amounts of radioactivity are released from Forsmark. Is it really appropriate to burden the Baltic Sea with further pollution?

SSI replies that they set limits and monitor releases, including to the Baltic Sea. They also take samples in sediments and on land.

The releases from the nuclear power plants are well below the limit values, but the requirements will become tougher and tougher.

Johanna Sandwall of SSI is familiar with the group on Risø, but not this report, but will look into it and get back on it. The Forsmark nuclear power plant's releases of radioactivity are below the established limit values. Johanna Sandwall doubts that Forsmark is the source of the high levels in the Baltic Sea.

An international comparison shows that the Swedish nuclear power plants do not rank very well in this respect, but they are located far from sensitive receiving waters such as drinking water intakes, so higher releases can be permitted.

(**Adjustment:** The question was asked by a participant in reference to a publication from MILKAS. There were slightly more responses according to the sound tape than those paraphrased here.)

3.5 Aren't present-day releases from Forsmark already below the limit values?

(SSI) Yes, far below, but we are going to tighten the requirements.

3.6 The same EIS will accompany the applications under the Environmental Code and the Nuclear Activities Act. How can the scope of the EIS be restricted for each facility? The preliminary version of the “scoping report” did not include the encapsulation plant. Why hasn’t it come up before?

(**Adjustment:** According to the sound tape, the question is how the EIS in a final repository project can be restricted to only a part of the project. In the discussion of the scope of the EIS that started in 2003, it was for the whole project. As far as I know, consultations concerning an encapsulation plant and scoping there have not been held, and the question is why. (This question is different in its meaning than what is paraphrased in the minutes.))

The preliminary version of the “scoping report” was based on an application procedure where SKB was first supposed to apply for permits under both the Nuclear Activities Act and the Environmental Code for the encapsulation plant. According to the new proposal, the application under the Environmental Code will apply to both facilities, and the EIS will describe the impact of the facilities on human health and the environment. The decision process can be discussed, but both SKI and SSI see advantages to SKB’s proposed application scheme.

(**Comment:** The claim that the encapsulation plant was not included in the preliminary version of the “scoping report” is incorrect, but was not rebutted at the meeting.)

(**Adjustment:** The comment is SKB’s and does not belong in the minutes, and in view of the fact that the claim/question was different it should be omitted.)

3.7 The catch is that the encapsulation plant and the final repository are connected, and the method question has been omitted from the consultations. There have not been any consultations on what the EIS should contain. It is important that this be clarified in the consultation report.

SKB notes this.

3.8 It is absurd to divide up the applications and the environmental impact statements. The whole purpose is to see what the combined effects are. I agree with the previous speaker. It is not possible to see the combined environmental effects with this approach. It does not comply with Chapter 6 of the Environmental Code.

The combined environmental effects will be described in the EIS that is appended to the application under the Environmental Code in 2008. Next year we only start the process by submitting an application under the Nuclear Activities Act for the encapsulation plant.

3.9 This procedure is not legally correct!

(**Adjustment:** According to the sound tape the wording is: “...it is my opinion as an environmental attorney that this is not correct (the statements are made in a slightly different order in this discussion).)”)

This can be interpreted in different ways. SKB’s lawyers see no legal obstacles.

3.10 We always talk about the process and don’t have time for the environmental consequences. When will the “scoping report” come?

(**Adjustment:** According to the sound tape, this question criticised the fact that despite a long process, the scoping report has not yet come, even though this was the last meeting before the application will be submitted. The problem is then that we are sitting here and not really in agreement as to what we should talk about.)

It is coming from the printer on Friday!

(**Adjustment:** According to the sound tape a participant makes a comment here. “I have the exact opposite opinion. In my view more arguments can be brought up if the final repository and the encapsulation plant are not discussed at the same meeting.”)

3.11 There are no arguments for “BAT” (Best Available Technology) in the EIS. In its review of the RD&D programme, SSI says that they would also like to hear arguments for BAT.

BAT is a part of the general rules of consideration in the Environmental Code. The argumentation around the general rules of consideration will be presented in applications and not in the EIS.

3.12 The nuclear waste issue is sometimes discussed in the public debate, but the regulatory authorities never participate in these discussions. SSI ought to be able to answer the questions that come up in the public debate.

SSI replies that they are primarily a regulatory authority. SSI works with the final repository issue mainly by reviewing and commenting on SKB's RD&D programmes. They are open to holding seminars on different topics and participate in the consultations.

3.13 There is a lack of information from SSI. For example, what will leak out to the Baltic Sea and how? Is it oil or radioactivity?

SSI replies that they try to disseminate information, but don't have resources for denials or participating in local debates.

3.14 Is it a resource question for SSI? How great are SSI's resources compared with other authorities and SKB?

SSI replies that they don't have any information on the size of their resources in relation to others'. The resource issue does not have a negative impact on the quality of their review. They take the time that is needed.

Comments from SKB: SSI is not required to solve this problem; that is SKB's responsibility. SSI's function is to review. The resources stand in proportion to the assignment.

3.15 Is there any international review of SKB's work?

Yes, SKB has a team of national and international experts (Sierg) that reviews the work. SKB will take their viewpoints and those of others into consideration.

SKI said that they have their own group (Insite) that is following the site investigations. The technical documentation that accompanies the applications will be reviewed by international bodies who have previously reviewed the safety assessment SR-97, for example.

3.16 There are opinions that SKB's research is inadequate. They have not done enough research, and they should have conducted more independent research.

Critical thinking is the basis for all research. Is it the funders who decide whether the research can be regarded as independent or not? Questions can be put to the researchers, but their answers must not be influenced.

3.17 SKB can't just wait for the development of other alternatives, but must take the initiative in studying them.

Broad research has led to the KBS-3 method. There are requirements in the Environmental Code on the reporting of alternatives in the environmental impact statement. SKB plans to hold a consultation on what this report should contain in the spring of 2006.

3.18 SKB has the Government's mandate to continue with the KBS-3 method. The question about alternatives is important but is being put to the wrong party. The criticism should be directed at the Government instead of SKB.

SKB concurs.

3.19 If someone expresses criticism it should be checked.

SKB concurs.

3.20 The Government has had viewpoints on SKB's research into alternative methods. Contracted research is governed by the client's conditions – sometimes independent research is called for!

The assertion that “just because you fund research you can order results” is incorrect. SKB has 200 employees and outsources assignments to 400–700 consultants and researchers. All of these people are individuals who think critically and independently. (**Adjustment:** Here someone says that the assertion did not mean that SKB controlled the results.)

3.21 If KBS-3 is conceded to be a good method, an interesting question is whether the canister will remain intact. The canister will also be examined under the Environmental Code. Will the canister meet the requirements? Do you see it as an important question too – what the canister can live up to, and not just the technical part? People need to know what questions may be asked.

The plan to submit applications under the Environmental Code for both the encapsulation plant and the final repository in 2008 provides more time to discuss the alternatives. SKB plans a consultation in the spring of 2006 about what the account in the environmental impact statement should contain. This discussion may continue until 2008.

3.22 This was a good meeting with opportunity for discussion. One question leads to another, as it should be.

SKB notes this.

3.23 Do the summer meetings for part-time residents count as consultation meetings?

Yes.

3.24 The safety assessment seems to be late in coming?

The safety assessment SR-Can will come in October 2006. SR-Site will come at the end of 2007. SR-Site is based on SR-Can. (Note: An update of SR-Can will be done in the long-term safety assessment, SR-Site, which is intended to be appended to the permit application for the final repository in 2008.)

Meeting with Oskarshamn EIA Forum

Date	17 November 2005, 09:30–15:00 hrs
Place	Badholmen, Oskarshamn
Target group	Oskarshamn Municipality, County Administrative Board in Kalmar County, SKI and SSI. The meeting was open to the public.
Invitation	The date of the meetings is decided on jointly. SKB sends out e-mail invitations to each meeting. The three organizations that obtain funding from the Nuclear Waste Fund to follow the consultations had received written invitations. Invitations to private citizens were published in Oskarshamns-Tidningen (4 and 12 November) and in Nyheterna (4 and 12 November).
Purpose	To discuss matters related to the expansion of Clab, as well as the encapsulation plant and the final repository for spent nuclear fuel. Furthermore, each participating party gives a status report on the work they are taking part in that has a bearing on the disposal of spent nuclear fuel.
Background material	—
Present	County Administrative Board in Kalmar County – <i>Ulf Färnhök (Chairman), Sven Andersson</i> Oskarshamn Municipality – <i>Kjell Andersson, Rigmor Eklind, Kaj Nilsson, Lars Tyrberg, Peter Wretlund, Harald Åhagen</i> SKI – <i>Josefin Päiviö Jonsson, Christina Lilja, Stig Wingefors</i> SSI – <i>Tomas Löfgren, Johanna Sandwall</i> SKB – <i>Claes Thegerström, Saida Laârouchi Engström, Helén Andersson, Anders Nyström, Katarina Odéhn, Olle Olsson, Erik Setzman, Peter Wikberg, Lars Birgersson (secretary)</i>
Audience	About 15 persons. Representatives from MKG, MILKAS, Environmentalists for Nuclear Power, KASAM and Regional Council in Kalmar County

1 Encapsulation plant

1.1 Will the preliminary safety analysis report for the encapsulation plant be discussed at the consultations?

SKB said that after this meeting with the EIA Forum, SKB will have presentations of the encapsulation plant and a general consultation meeting. Among other things, SKB's work with the preliminary safety analysis report (PSAR) for the encapsulation plant will be presented.

SKI explained that a preliminary safety analysis report (PSAR) for the encapsulation plant will be produced for the application in 2006 and that this is a requirement under the Nuclear Activities Act. The contents of the preliminary safety analysis report will not be included in the consultations, but certain parts may be included in the EIS.

- 1.2 We were previously told that approximately 250 kg of copper scrap will be left over from each canister. Is it possible to recycle this copper scrap, or will it be radioactive?**

SKB replied that the copper scrap will not be radioactive and will be recycled.

- 1.3 Is there a difference between an encapsulation plant in Oskarshamn and one in Forsmark in terms of releases to air and water?**

The handling process in the encapsulation plant will be virtually the same whether it is sited in Oskarshamn or Forsmark. These sitings are largely equivalent in terms of releases as well.

- 1.4 Will the encapsulation plant live up to the requirements on BAT (best available technology)?**

Yes, the encapsulation plant will live up to the BAT requirements.

- 1.5 The background material for the consultations says that the County Administrative Board wants the EIS to "...shed light on both the direct and indirect consequences of the activities...". Does SKB intend to do this? Will SKB look at the whole system?**

Yes, SKB will report both direct consequences (land requirements for buildings, roads etc.) and indirect consequences (for example how noisy activities may affect bird life). The application will show how SKB's activities relate to the national environmental objectives.

- 1.6 Nothing was mentioned about low-frequency noise in the presentation about the environmental impact statement for the encapsulation plant. Will SKB look at this?**

SKB replied that this is a question we have to bring with us to those who are working with the noise studies.

- 1.7 First I will like to note something. According to the Nuclear Activities Act, an environmental risk analysis must be appended to the application. Such an analysis should therefore have been included in the background material. Physical protection is dealt with in the brochure that was recently produced for the encapsulation plant and should also be included in the EIS.**

SKB replied that an environmental risk analysis is being done as a basis for the EIS. Conclusions of relevance will be incorporated in the EIS, which will be prepared in the spring of 2006.

Physical protection concerns, among other things, preparedness for acts of terrorism. The description of physical protection cannot be as open as other information. Physical protection will be reported to and reviewed by the regulatory authorities. Parts of the report may be included in the EIS.

2 Final repository for spent nuclear fuel

- 2.1 The American hydrogeologist Clifford Voss has said that an inland location of the final repository is better than a near-coastal location. SSI has also tried to get SKB to study an inland alternative. Has SKB conducted any studies regarding an inland location?**

SKB replied that it is true that the authorities have requested further studies on what an inland location would entail in view of the groundwater's flow pattern and salinity. Stud-

ies are under way and will be finished in February/March 2006. The results of these studies will be presented at the consultations that will be held in the spring of 2006.

2.2 The waste is the most toxic waste ever created and will remain toxic for a long time. We know nothing about the long-term consequences. Now SKB has developed a concept, KBS-3, that is being called into question by some scientists. Why haven't we been given any information about the alternatives to KBS-3 or the shortcomings of the KBS-3 system? We only get SKB's information.

SKB replied that the information on risks is important and that the information material that has been produced may need to be revised. Spent nuclear fuel is hazardous if it is handled improperly, which is why SKB was formed – to manage it in a safe manner.

SKI stated that the law requires SKB to report on alternatives to the KBS-3 method. The chosen method must be justified.

Oskarshamn Municipality noted that the work being pursued in the LKO project aims at a thorough examination of SKB's work, for example with regard to safety reports and reports of alternative methods.

3 Common issues

3.1 Environmental impact assessment

SKB provided an overview of coming applications for the encapsulation plant and the final repository for spent nuclear fuel.

Discussion

The municipality wondered if it is correct that sitings of the encapsulation plant in Oskarshamn and Forsmark are deemed to be more or less equivalent. SKB replied that these sitings are deemed to be more or less equivalent from an environmental and health point of view. The transport volume is estimated to be greater for a siting at Forsmark, while more noisy work operations will be required in the construction of an encapsulation plant at Clab.

The municipality pointed out that the Simpevarp area is rich in archaeological remains. What will happen if archaeological remains are encountered in SKB's work? SKB replied that so far only one inventory had been made. If further studies are needed or if archaeological remains need to be relocated, this will be taken into account in the next phase. The County Administrative Board said that experience exists of inventory and relocation of archaeological remains, and that the construction of an encapsulation plant and a final repository do not differ in this respect from other construction projects.

Physical protection was discussed. SKB said that a physical protection report is included in the preliminary safety analysis report that will be produced. Large parts of the physical protection report are classified and will only be available for regulatory review.

The municipality pointed out that the rebuilt section of road 743 at Fårbo will soon be opened for traffic. The new section should be described in SKB's material. SKB concurred.

The County Administrative Board wondered when the final repository system will be described in its entirety. SKB replied that a comprehensive report will be submitted in 2008. However, the function of the encapsulation plant in the final repository system will be described already in the application in 2006. It is SKB's hope that the Government will make decisions on permissibility under the Environmental Code and a permit under the Nuclear Activities Act by 2010. This means that all background material will be available before the regulatory authorities and the Government are expected to state their opinion. SKI pointed out that the encapsulation plant is a part

of the final repository system and that SKI does not intend to state its opinion to the Government until all background material is available.

The municipality asked whether alternative methods for disposal of spent nuclear fuel will be described in the EIS in 2006. SKB replied that the report on alternative methods will be submitted in 2008, but that consultations will be held already in the spring of 2006 with alternative methods as the principal theme. This will ensure ample time for discussing and analyzing the alternatives.

3.2 Change in the EIA Forum's work forms

Josefin Päiviö Jonsson of SKI presented the working group's proposal for changes in the EIA Forum's work forms.

Decision

The working group's proposal for changes in the EIA Forum's work forms was adopted. The decision means that in future, all meetings with the EIA Forum will be public.

3.3 MKG (the Swedish NGO Office for Nuclear Waste Review)

Johan Swahn of MKG talked about MKG's work.

Discussion

The municipality wondered if the meetings of MKG's expert council are open to outsiders. Johan Swahn said that they are not open to outsiders.

The municipality wondered what MKG thinks of the concept of BAT (best available technology). Johan Swahn said that MKG has engaged environmental attorneys to look at this matter.

SKB wondered if MKG thinks that the existing system for division of responsibilities is good, and what MKG's attitude is to the municipal veto. MKG explained that they are looking at how the system for division of responsibilities is organized in other countries. MKG went on to observe that it is quite possible for the Government to override the municipal veto.

3.4 MILKAS (the Swedish Environmental Movement's Nuclear Waste Secretariat)

Eia Liljegren-Palmaer of Milkas spoke about Milka's work.

Discussion

SKB wondered if Milkas is questioning the producer responsibility legislation and the fact that responsibility for preparing an environmental impact statement and conducting consultations rests with the activity operator, in this case SKB. Milkas replied that they want to work within the framework of the law, but that they also want research to be conducted by other scientists than those associated with SKB.

SKI pointed out that the money Milkas gets from the Nuclear Waste Fund may only be used to review the Swedish programme, not international programmes.

3.5 We have been given information about transport on road 743. How many vehicles will there be a day, and how many if the final repository is built in Oskarshamn?

SKB replied that the information provided earlier only applied to shipments associated with the encapsulation plant. The transport volume on road 743 today is between 1,000 and 2,500 vehicles per day.

When the encapsulation plant is built, the increase in traffic will be at most 140 transport vehicles per day. During the operating phase there will be an additional 60 vehicles per day. These estimates of the number of additional transport vehicles per day apply regardless of whether the encapsulation plant is built next to Clab or in Forsmark.

3.6 Shouldn't the process be reversed, in other words first decide how the final repository is to be designed and then look at how the encapsulation plant should be designed? With the scheme planned by SKB, the encapsulation plant may be built unnecessarily, or it may be necessary to modify the design of the facility.

SKB doesn't think this is a risk, since the Government is expected to make a coordinated decision, on one occasion. It is SKB's hope that the Government will make decisions on permissibility under the Environmental Code and a permit under the Nuclear Activities Act by 2010. This means that all background material will be available before the regulatory authorities and the Government are expected to state their opinion.

3.7 There have been some positive changes in the consultation process, for example the consultations have been opened up, but it would be good if the consultations could be handled by an independent body, for example the County Administrative Board.

SKB replied that there is a legal framework regulating the division of responsibilities. SKB and SKB's owners must be allowed to assume their responsibility for the consultation process. If a public authority were to conduct the consultation process, this would undermine the division of responsibilities.

3.8 SKB's research is focused on the KBS-3 method. There is no research on alternative methods. SKI has called for more research on alternative methods, for example deep boreholes.

SKB observed that it is true that researchers are engaged to study different questions. But this doesn't mean that SKB "orders" certain types of results. SKB's knowledge base has been built up over a long period of time by researchers both in Sweden and abroad.

SKI pointed out that SKB is responsible for research and development as well as final disposal of spent nuclear fuel. It is therefore up to SKB to judge how much resources should be invested in research on alternative methods. The authorities follow and review SKB's work, including work on alternative methods. Every three years SKI reviews and comments on SKB's research programme. It is SKI's view that SKB should do more research on the deep boreholes alternative in order to gather a better basis for comparison with the KBS-3 method.

3.9 Why are consultation meetings held in the daytime?

SKB replied that consultation meetings are held in the evening or on weekends to give as many people as possible an opportunity to attend. We have had open house in the afternoon prior to some consultation meetings in order to give persons who cannot attend in the evening an opportunity to obtain information and ask questions. Meetings with the EIA Forum will be open to the public from now on, but will be held in the daytime.

3.10 Will SKB participate in the EU project "Joint Undertaking"?

SKB gets many offers to participate in various projects and says yes to the most interesting ones. At present we are participating in projects having to do with consultations.

3.11 Work forms for local environmental issues

Kaj Nilsson of Oskarshamn Municipality said that the municipality would like to see work on these issues be pursued jointly with SKB, in the same way as for the societal studies. The municipality pointed out that it is important that the Misterhult Group take part in the work on local environmental issues.

Discussion

Peter Wikberg of SKB said that we now know better which areas are suitable for the final repository's above-ground facilities. SKB is involved in discussions with the municipal planning department with regard to an in-depth comprehensive plan and a detailed development plan.

Saida Laârouchi Engström of SKB said that the different approaches are used for societal studies and environmental studies. The societal studies lie outside EISs and applications, are conducted in collaboration with the municipalities and are mainly used by the municipalities as a basis for their planning.

The situation is not the same for the environmental studies. They comprise a basis for EISs and applications and are conducted in collaboration with the departments within SKB that work with design and site investigation. The results of the environmental studies comprise a basis for the continued work on design and site investigation. External viewpoints and dialogue on the focus and design of the environmental studies are accepted in consultations.

3.12 System analysis

The municipality, as well as other actors, is demanding that SKB perform a system analysis. The Safety Group will gather material as a basis for a discussion with the regulatory authorities and SKB concerning what a system analysis should include.

Discussion

SKB said that the system analysis should show how the system copes with different changes. One purpose of submitting a first version of the system analysis (Sys-Inka) to SKI and SSI in 2006 is to ensure that the 2008 edition will meet the stipulated requirements.

SKI also said there is a need to clearly define what is to be done within the framework of the system analysis. Besides a description of the system and its constituent components, connections between them and optimization should be included.

3.13 SKB plans to apply for a permit under the Nuclear Activities Act for the encapsulation plant in 2006. In 2008 SKB plans to apply for a permit under the Nuclear Activities Act for the final repository. SKB will also apply for permits under the Environmental Code for the encapsulation plant and the final repository in 2008. An EIS for the encapsulation plant will be appended to the application in 2006. An EIS for both the encapsulation plant and the final repository will be appended to the applications in 2008. Does this scheme comply with the regulatory framework?

SKB said that even though the application in 2006 is for a permit under the Nuclear Activities Act for the encapsulation plant, an EIS must be appended to the application. The same requirements apply to this EIS as to the EIS that will be submitted with the applications in 2008. Both EISs must be prepared in accordance with the requirements of the Environmental Code.

By submitting an application for the encapsulation plant in 2006, SKB will enable the authorities to start working on the nuclear issues relating to the encapsulation plant.

SKB does not expect any statement of opinion on the EIS submitted in 2006 until the 2008 EIS has been submitted, i.e. until all material is available.

3.14 Not enough research is being done on alternative methods. Why not take a closer look at deep boreholes? It should also be possible to do more research on retrievability.

SKB replied that waste that has been deposited in accordance with the KBS-3 method is retrievable. Such retrieval requires great resources, but is possible. Retrievability for waste deposited in deep boreholes is poorer, however.

SKI noted that the law imposes responsibility on the industry, in this case SKB, to ensure that the waste is disposed of and that the final repository is designed so that it does not place a burden on future generations. SKI went on to say that SKB is working according to the principle that the design of the final repository should not prevent future generations from retrieving the waste should they wish to do so. In SKI's judgement, retrieving waste deposited in deep boreholes is much more difficult than retrieving waste deposited in accordance with the KBS-3 method.

3.15 Financial resources should be set aside for future generations.

SKB replied that money is being set aside for the final disposal of spent nuclear fuel. SKI makes sure that the funds that are set aside are sufficient for achieving a good final disposal solution.

Public meeting in Oskarshamn Municipality

Date	17 November 2005, 19:00–21:00 hrs
Place	Badholmen, Oskarshamn
Target group	Private citizens, organizations, government agencies
Invitation	Written invitation to about 1,300 households in the Misterhult area, plus Advertisement in Oskarshamns-Tidningen (4 and 12 November) and in Nyheterna (4 and 12 November). Written invitation to organizations that obtain funding from the Nuclear Waste Fund to follow the consultations, and to government agencies. A list of all those who have obtained a written invitation plus viewpoints received in writing entitled "Summary of written viewpoints and questions plus SKB's replies" is found on page 119.
Purpose	Concluding consultation meeting prior to submission of permit application for encapsulation plant under the Nuclear Activities Act. The theme of the meeting was "Environmental impact statement (EIS) for the encapsulation plant".
Background material	<p>Specially produced background material: "Material for consultations under Chapter 6 of the Environmental Code. Encapsulation plant for spent nuclear fuel. Examination under the Nuclear Activities Act. SKB, November 2005."</p> <p>The material contained descriptions of the facility and its environmental impact, risks and safety as well as effects and impact of an encapsulation plant located at Clab. The material also described differences in effects and impact if the facility is located at the alternative site in Forsmark. The material reflects the state of knowledge in October 2005. A draft table of contents for an EIS for the encapsulation plant was included as an appendix.</p> <p>The material was available on SKB's website on 1 November.</p>
Present	<p>About 45 persons attended the meeting</p> <p>Private citizens and organizations about 20 persons</p> <p>SKB – <i>Helén Andersson, Saida Laârouchi Engström, Anders Nyström, Olle Olsson, Erik Setzman, Peter Wikberg and others</i></p> <p>SKI – <i>Josefin Päiviö Jonsson and others</i></p> <p>SSI – <i>Tomas Löfgren and Johanna Sandwall</i></p> <p>County Administrative Board in Kalmar County – <i>Sven Andersson and others</i></p>
Moderator	<p><i>Björn Nyblom, Diplomat PR</i></p> <p>Representatives from <i>MKG, MILKAS, Döderhults nature conservation society, Oskarshamn Municipality</i></p>
Minutes signed by	<p><i>Ing-Marie Brunnsgård and Catharina Lihnell Järnhester</i></p> <p>Questions and answers from the consultation meeting are given below. Written viewpoints received regarding this meeting in Alunda on 14 November are presented in a separate compilation entitled "Summary of written viewpoints and questions plus SKB's replies".</p>

1 Encapsulation plant

1.1 During the construction period for Clab stage 2 there was a great deal of noise, sometimes even at night. Nearby residents expressed complaints about this, but they were ignored. How will SKB handle noisy activities when the encapsulation plant is built?

SKB replied that the noise during the construction of Clab 2 was largely associated with the handling of rock spoil. The work was sometimes pursued in the evening, and larger quantities of rock spoil were handled compared with the quantities that will be handled when the encapsulation plant is built. The complaints that were expressed during Clab stage 2 were heeded and the working hours during which rock spoil was handled were changed.

Construction and operation of the encapsulation plant will give rise to noise. However, the noise level will lie below the official guideline values. Noisy activities will be avoided in the evenings and at night wherever possible. SKB said that nearby residents will be consulted in conjunction with the planning of the work and that SKB will take their wishes into consideration even if the noise levels are below the limit values.

1.2 Is it possible that the limit values for noise are incorrectly set? That they are intended for an urban environment, not a rural one? In other words, that the noise limit values are not adjusted to areas with a low background level?

SKB replied that the national guideline values for noise will be complied with. These guidelines values have been set by the national authorities.

1.3 How can you know if any microbes get into the weld?

SKB pointed out that the welding process used to weld the lid on the canister creates such hot conditions (about 900 °C) that microbes cannot survive.

1.4 How can you know that no microbes will survive? Life has been found on the bottom of the ocean where it was previously believed none exists.

SKB said that microbes cannot stand higher temperatures than about 115 °C.

1.5 What happens if you find archaeological remains in the area where the encapsulation plant is to be built?

The County Administrative Board in Kalmar County replied that this is not an unusual problem for the County Administrative Board to deal with, since it is often encountered during other building projects, such as roads, industrial facilities, etc. A study is conducted in each case to determine how best to handle the situation.

1.6 When is the last consultation where we can voice our opinions on the encapsulation plant?

This consultation meeting is the last one for the encapsulation plant before an application under the Nuclear Activities Act is submitted. The consultations for the encapsulation plant leading up to submission of an application under the Environmental Code will continue, however.

1.7 No decisions will be made before 2008. So why close the meetings now?

In order to apply for a permit for the encapsulation plant under the Nuclear Activities Act, an environmental impact statement (EIS) and a consultation report must be prepared in accordance with the requirements of the Environmental Code. The viewpoints that are expressed subsequently will be addressed in the consultation report that will be submitted together with the application in 2008.

1.8 There are nearby residents who are worried about what will happen to the value of their properties located near the encapsulation plant. Will property values be affected?

In general it is difficult to predict how property values will change in the future. If we look back to when the nuclear power plants were built, prices of vacation properties fell for a short period following construction, after which they recovered to normal levels.

The construction of the encapsulation plant can be regarded as an expansion of an existing industrial facility and is therefore not expected to have much effect on property values.

1.9 In connection with previous construction, there have been cases of wells going dry. Will this happen again?

The encapsulation plant will be built above the existing pools in Clab. It is therefore difficult to see how nearby wells could be affected by the construction of the encapsulation plant. However, the monitoring programme being conducted near Clab will continue.

1.10 Are the guideline values for noise reasonable in view of the fact that this is a recreational area?

SKB said that there are guideline values for noise that apply to recreational areas. These guidelines will be observed. See also replies to questions 1.1 and 1.2.

1.11 Will further blasting be required when the encapsulation plant is built?

Yes. SKB said that about 36,000 m³ of rock (loose measure) will be excavated when the encapsulation plant is built. When Clab 2 was built about 150,000 m³ of rock (loose measure) was removed.

1.12 How long will the encapsulation plant be operated? Is it 40 years?

SKB assumes that the encapsulation plant will be operated for about 40 years. The facility is being designed for 60 years of operation, however.

1.13 What about testing of the canister? Will this work continue after the application for the encapsulation plant has been submitted in 2006?

SKB explained that testing of canisters will continue after the application for the encapsulation plant has been submitted in 2006. So far we have performed pressure tests where a canister was subjected to three times as high a pressure as we expect will be exerted on the canister in the final repository. The canister passed the test.

SKI added that they have imposed requirements on SKB as far as further testing and clearer reporting of results is concerned.

2 Final repository for spent nuclear fuel

2.1 SSI has repeatedly tried to get SKB to study a siting of a final repository in the interior instead of on the coast. Is SKB doing any work on an inland siting?

SKB replied that studies are being conducted to shed light on differences between a coastal siting and an inland siting, for example with regard to groundwater flow.

2.2 Isn't it possible to install sensors on canisters so you can see when they start to leak?

SKB's methods are based on ensuring that encapsulation is reliable so that the canister does not leak. SKB has thought about using sensors, but since the final repository is based on the multiple barrier approach, it is of the utmost importance that these barriers work as intended. If we start installing sensors and running wires there is a risk these barriers will be affected. The method is supposed to be reliable, which means monitoring should not be necessary.

2.4 Can the waste really be kept isolated forever? What happens if some canisters are defective from the start?

SKB evaluates long-term safety in safety assessments. They will analyze what happens if some of the canisters break.

2.5 What happens if the canisters rust apart?

SKB said that they know from research and studies that certain materials corrode while others don't. We know that the copper canister will not corrode in the chemical environment that will surround it. The most likely possibility is that the copper canister will only corrode a little on the surface over a period of 100,000–1,000,000 years. Scenarios where canisters are breached before this are being analyzed in the safety assessments, however.

2.6 I'm worried when I hear comments and questions here this evening about retrieving the waste. This makes great demands on social planning. It's important that we make sure that those who are responsible for disposing of the waste do it in a safe manner so that it will never have to be retrieved.

SKB concurs. SKB's mission is to develop a method for final disposal of spent nuclear fuel.

3 Common issues

3.1 Can SSI and SKI require the best available technology (BAT)?

SSI and SKI replied that SKB must comply with the general rules of consideration in the Environmental Code, which requires the use of the best available technology (BAT).

3.2 The nuclear power plants were built in around 1970. How does the requirement on the best available technology (BAT) work in these cases? Do the plants have to have the best available technology that was available in 1970 or the best available technology that exists today?

SSI replied that the requirements on best available technology (BAT) have grown tougher with time, not least in connection with updated safety reports. This regular updating of the safety reports and the RD&D work means that the nuclear power plants are being operated today with the best available technology.

3.3 What do BAT and RD&D stand for?

BAT stands for Best Available Technology (or Technique). The Environmental Code uses the expression "best possible technology".

RD&D stands for Research, Development and Demonstration. The Nuclear Activities Act requires SKB to submit a programme to SKI every three years describing its research and development activities – an RD&D programme. SKI reviews the programme and submits a statement of comment to the Government.

3.4 The ongoing final repository work affects two county administrative boards, in Kalmar and Uppsala. Are you cooperating?

Yes, the county administrative boards are cooperating to achieve a consensus in various questions. The purpose is that both county administrative boards should arrive at similar decisions.

3.5 Do we have to re-pose all questions that have been posed at today's meeting with the EIA Forum in order for them to get into the consultations?

SKB replied that the questions posed at today's meeting with the EIA Forum will be included in the minutes of the meeting and have the same status as those questions posed during the evening consultation meeting.

3.6 There may be other factors that have not been discovered. Before you said that there was no life, no water and no fractures in the bedrock. Now you are saying the opposite. In 50 or 100 years we will know a lot more. We will have completely different knowledge then than now.

SKB never said that there was no water or fractures in the bedrock.

Part of our work is a systematic search of all available research and technology, national and international, in different areas. We are constantly working to update our safety report. Our work must be based on present-day research and technology. It would be irresponsible to pass on the burden of solving the waste problem to future generations. It is our responsibility to solve this problem using the best available technology and all available research results.

3.7 Will two separate sets of minutes be written after today's meetings?

SKB replied that minutes will be written both of the meeting with the Oskarshamn EIA Forum and of this consultation meeting. Both minutes will have the same status. Questions and answers from both meetings will be included in coming consultation reports.

3.8 SKB conducts extensive research and has co-opted many highly qualified experts. Is there anyone at SKI and SSI qualified to review SKB's work?

Both SSI and SKI replied that they have long been following the work SKB is conducting by conducting their own work and by engaging experts, both national and international.

3.9 My question concerns BAT. The Oskarshamn nuclear power plant has an evaporation plant from 1970 which they are not using in 2005. The Oskarshamn nuclear power plant is one of the facilities that release the most radioactivity to air and water in the Baltic Sea. Why don't SKI and SSI take action?

SSI replied that they exercise regulatory supervision when it comes to limit values, among other things. In this case they conclude that even if the Oskarshamn plant's releases are high, they are well below permissible limit values. Furthermore, an evaporation plant is not the solution to all problems.

3.10 Why doesn't SSI require the nuclear power plants to use the evaporation plant?

SSI replied that this consultation meeting, which mainly concerns the encapsulation plant, is not the proper forum for this question. If the person asking the question so desires, the discussion can be continued during the break.

3.11 In purely practical terms, how will questions and viewpoints be handled in view of the fact that separate consultations are being held for the encapsulation plant and the final repository? For example, how is the question of copper canisters handled? Is there a risk that certain questions will be neglected due to the division?

SKB replied that it is possible to pose questions to SKB concerning the entire final repository system at all consultation meetings, regardless of the theme of the meeting. The reason the presentations earlier today and now during the evening have mainly dealt with the encapsulation plant is that the entire final repository system is very extensive and complex, so we have chosen to focus on only a portion at a time.

Today's focus on the encapsulation plant stems from the fact that a permit application under the Nuclear Activities Act will be submitted in 2006. The reason this application is being submitted in 2006 instead of later is an agreement between SKB and SKI so that SKI will have more time for its review.

3.12 When will SKB report on the long-term environmental impact?

SKB replied that a report will be submitted on the long-term environmental impact of the final repository in 2008 in conjunction with permit applications under the Environmental Code for the encapsulation plant and the final repository and under the Nuclear Activities Act for the final repository.

3.13 Does this application process concern the KBS-3 method or are you also investigating other final disposal methods?

SKB clarified that the permit application under the Nuclear Activities Act in 2006 concerns the encapsulation plant, not the final repository or alternatives to the KBS-3 method. The site investigations that are being conducted in Oskarshamn and Forsmark are based on the assumption that the KBS-3 method will be used. Alternative methods for disposal of spent nuclear fuel will be described in the applications and EIS in 2008.

3.14 Some researchers claim that the zero alternative is a possible option until other methods have been further investigated.

The zero alternative entails that final disposal is not realized, which entails continued storage in Clab of the spent nuclear fuel. This is not a final solution of the waste problem, which it is SKB's mission to achieve.

3.15 What does SKB think of Göran Persson's statement that the KBS-3 method is outdated?

Via Mr. Persson's press secretary, SKB has received clarification that Mr. Göran Persson did not mean that the KBS-3 method is old-fashioned, merely that nuclear power is an old-fashioned energy source.

What governs SKB's work are the Government decisions on the RD&D programmes. A previous Government decision says that SKB should assume the KBS-3 method as a planning premise for the site investigations.

3.16 If you wish to retrieve the canisters, for example to repair them, how should they be built?

The purpose is final disposal of the canisters, but it will be possible to retrieve them if this should for some reason be deemed necessary.

SKB is developing and testing methods for retrieving canisters. A vital step in retrieval is removing the bentonite clay that will surround the canister. Experiments with this are being conducted in the Äspö HRL. After a canister has been retrieved, it can be sent back to the encapsulation plant, where the fuel assemblies can be taken out.

3.17 Will there be a map for future generations so that they know where the canisters are?

SKB replied that records will be made of the location of the final repository and the positions of the canisters. The records will be kept at several places, for example with Swedish regulatory authorities and the IAEA.

3.18 If you decide it is not possible to store the waste for eternity, will you tell the Government this? Could SKB ask the Government to change a decision?

SKB's mission is to build a repository that meets society's requirements. When SKB applies for a permit for the final repository, SKB must also give an account of how society's requirements on long-term safe final disposal can be met.

3.19 Do you know you have a long-term safe method before your research is finished?

SKB replied that the work of assessing long-term safety is a step-by-step process. Even if SKB obtains permits to build the encapsulation plant and the final repository, this doesn't automatically mean we will obtain a license to start disposing of the nuclear fuel. We will report what we have found in our research, after which the regulatory authorities and the Government will make the final decision.

3.20 We landowners have received inadequate information concerning the fact that the Simpevarp/Laxemar area has been designated of national interest for final disposal of spent nuclear fuel and nuclear waste. The municipality says it is SKI's duty to inform us, while SKI says it is the municipality's duty. From what I understand, funds have been allocated to the municipality to inform nearby residents on these matters. This is an example of how we nearby residents have been kept in the dark.

Reply from SKI:

According to the Environmental Code, it is SKI's responsibility to designate areas of national interest for final disposal of spent nuclear fuel and nuclear waste. SKI is thereby obligated to consult with SKB and affected municipalities and county administrative boards. However, SKI has made it clear to Oskarshamn Municipality that it is their responsibility to contact nearby residents and inform them of the plans and the decision.

Reply from Oskarshamn Municipality:

Oskarshamn Municipality regrets that a proper consultation was not arranged with nearby residents prior to the decision. The municipality was against designating an area of national interest at this time. Then the actual decision came as a surprise. The municipality thought that those who made the decision should provide information, which led to inadequate communication.

3.21 Why were you in such a hurry to designate areas of national interest? Decisions on national interest may affect us who live here today, for example those of us who have businesses and have made investments.

SKI replied that it is wrong to say that SKI has been in a hurry. SKI is obliged to designate areas of national interest for final disposal of spent nuclear fuel and nuclear waste. This is stated in the Environmental Code from 1999. SKI has been working with the national interest question since 2002.

SKI regrets that discussions and consultation meetings have not been held nor information provided to a sufficient extent. This is not SKI's responsibility, however.

3.22 What is happening with transmutation? Why don't you focus on that alternative?

SKB explained that spent nuclear fuel consists of nuclides with different half-lives. Some have a short half-life, some a long half-life. Spent nuclear fuel will thus remain hazardous for a long time. The purpose of transmutation is to reduce the quantity of long-lived radionuclides that have to be disposed of.

Transmutation means transformation. Long-lived radionuclides can be transformed into short-lived or stable ones by being bombarded with neutrons in a nuclear reactor. The reactors would have to be operated for about 100 years to eliminate the waste. In order for the process to achieve its purpose, the long-lived nuclides to be transmuted have to be separated from the remaining uranium. Reprocessing, followed by separation (partitioning) of different nuclides, is therefore a prerequisite for transmutation. Partitioning and transmutation (P&T) is therefore spoken of as a unified concept. Sweden will probably never be able to build and operate a reprocessing plant on its own, but would be forced to rely on e.g. France or the USA.

A great deal of research remains to be done before P&T can be a serviceable method. In the end there will still be waste that we will have to dispose of somehow.

3.23 It seems as if SKB has a monopoly on information and research. There was recently a TV programme that dealt with transmutation. Why does SKB only talk about the KBS-3 method and not alternative methods such as P&T?

SKB encourages and funds other research. For example, SKB is funding research on partitioning and transmutation at Swedish universities (for example the Royal Institute of Technology) in the amount of about SEK 6 million per year.

3.24 There are several points where SKB has been forced to revise its opinion after obtaining new knowledge. There should therefore be independent bodies, for example universities, who conduct research in the same field. I would like to see more independent research.

SKB replied that they are already collaborating with several universities.

3.25 Nevertheless, a researcher's independence is compromised if he is paid by a company to conduct the research. Contract research is not as objective.

SKB said that the research that is being conducted must be credible and well-supported regardless of who funds it. SKB encourages the researchers to publish in scientific journals. This enables the results to undergo independent peer review before they are published, confirming that the research is objective and of good quality.

Meeting with Forsmark Consultation and EIA Group

Date:	18 November 2005, 09:30–13:00 hrs
Place	Olandsgården, Alunda, Östhammar Municipality
Target group	Östhammar Municipality, County Administrative Board in Uppsala County, SKI and SSI. The meeting was open to the public.
Invitation	The date of the meetings is decided on jointly. SKB sends out e-mail invitations to each meeting. Invitations to private citizens were published in Uppsala Nya Tidning (12 November), Östhammars Nyheter (10 November) and Annonsbladet (9 November).
Purpose	The group consults on matters related to SKB's plans to site an encapsulation plant and a final repository for spent nuclear fuel in Forsmark. Furthermore, each participating party gives a status report on the work they are taking part in that has a bearing on the disposal of spent nuclear fuel.
Background material	—
Present	County Administrative Board in Uppsala County – <i>Leif Byman (chairman), Mats Lindman</i> Östhammar Municipality – <i>Bertil Alm, Sten Huhta, Hans Jivander, Bengt Johansson, Gunnar Lindberg, Virpi Lindfors</i> SKI – <i>Josefin Päiviö Jonsson</i> SKB – <i>Kaj Ahlbom, Helén Andersson, Saida Laârouchi Engström, Gerd Nirvin, Olle Olsson, Erik Setzman, Claes Thegerström, Sofie Tunbrant (secretary)</i>
Audience	About 15 persons. Representatives from MKG, MILKAS, Environmentalists for Nuclear Power, the reference group in Östhammar Municipality and private citizens.

1 Encapsulation plant

- 1.1 Bertil Alm, Östhammar Municipality, noted that SKB concludes that sittings of the encapsulation plant at Simpevarp and Forsmark have equivalent environmental impact. Furthermore, good arguments are advanced for building the encapsulation plant adjacent to Clab.

Bengt Johansson, Östhammar Municipality, pointed out that the background material for the consultation says that “This alternative [siting in Forsmark] will only be considered if the final repository is sited in Forsmark”. This can be interpreted as meaning that SKB has already made up its mind that the final repository is to be located in Oskarshamn.

SKB replied that they want the encapsulation plant to be in Simpevarp, but do not yet have any preference regarding the siting of the final repository.

There are no environmental or technical obstacles to locating the encapsulation plant in Forsmark, but the logistic, economic and technical advantages of a co-siting with Clab remain. A location in Forsmark may be dictated by societal or political considera-

tions, but can only be realized if the final repository for spent nuclear fuel is also located in Forsmark. Purely logistically, SKB does not think it is suitable to site an encapsulation plant in Forsmark if the final repository is to be located in Oskarshamn. The fuel would then have to be transported to Forsmark for encapsulation and then back to Oskarshamn for deposition in the final repository.

2 Final repository for spent nuclear fuel

2.1 Bengt Johansson pointed out that road 76 through Norrskedika is heavily trafficked. If the final repository is located in Forsmark, this will lead to even more traffic. The road has to be improved to accommodate the increase in traffic.

Leif Byman, County Administrative Board, replied that the road plans will be rolled every four years. Road 76 is the National Road Administration's responsibility, but the Regional Council has a great interest in road matters. Sometimes priorities can change quickly, for example in Trollhättan. We have to work together to see to it that the road network is built to handle the additional traffic.

2.2 How deep are the deepest fractures?

(SKB) We don't know how deep the deepest fracture zones go, but if they go through the whole crust they could be 30 kilometres deep. Then we're dealing with regional faults and not fractures in the lens in Forsmark.

2.3 We have been told at the meeting about the fractures in Forsmark. What's the situation in Oskarshamn?

(SKB) The Laxemar area and environs consists largely of Småland granite, and there is no discrete lens like in Forsmark. The rock in Laxemar is generally more fractured than in Forsmark. The area in Laxemar is bounded by major fracture zones, but no parts of the repository will be located in a fracture zone.

3 Common issues

3.1 Virpi Lindfors, Östhammar Municipality, wondered when the final EIS will be presented. It seems as if all investigations needed for an environmental impact statement for the encapsulation plant are finished. What will happen with the EIS when it has been submitted; will it just rest or will it be reviewed?

SKB replied that the final EIS for the encapsulation plant will be presented when the permit application under the Nuclear Activities Act is submitted. It is the regulatory authorities who decide how this EIS is to be handled, whether it is to be publicly announced and circulated for comment or not. The EIS prepared in 2006 will then be incorporated in the EIS appended to the permit applications in 2008.

SKB pointed out that they have demanded that SKB must be clear about what is complete and reviewable supporting material and which parts they know, when they submit the application in 2006, will need further work.

3.2 Bertil Alm said that the encapsulation plant cannot be regarded as a stand-alone facility, as it is described in the background material. Now SKB says that it is only the impact of the encapsulation plant that is being reported in 2006. But the encapsulation plant is not standalone, it is linked to the final repository, and the impact of both plants must be reported. The differences in delimitations between the Nuclear Activities Act and the Environmental Code must be described clearly in the EIS. There was a beginning of such a description in the circulated version of “the scoping report”, but it has not been included in the final version.

There has been no discussion of the delimitation of the EIS for the encapsulation plant in the consultations. The encapsulation plant entails a lot of things that are dependent on KBS-3. SKB should therefore explain in the EIS on what grounds further delimitations have been made in the EIS without consultations.

SKB replied that they have not differentiated between the 2006 and 2008 EISs. Both must pass review under both the Environmental Code and the Nuclear Activities Act, but no party has to state their opinion until after 2008 when all material has been submitted. SKB will submit an application for the encapsulation plant in 2006 to give the reviewers an opportunity to focus on the technical material. The encapsulation plant is a more technically complex nuclear installation than the final repository. The supporting material will require a lot of time for review. Since the supporting material will be finished next year, the review can start then.

SKI said that their viewpoints regarding reviewing time have been a contributing reason for the new timetable for submission of applications which SKB has put forth. SKI will not state its opinion in the matter until all supporting material has been submitted and reviewed.

As regards consultations regarding delimitations for the encapsulation plant, SKB said that the background material for the consultations during 2003 consisted of the draft version of “the scoping report”. It also dealt with the encapsulation plant. The final version of the report has just been printed. The work has taken a long time, partly because it took two years to obtain everyone’s viewpoints. Then came SKB’s change in the application process, and it was not deemed appropriate to publish a report based on completely changed premises.

3.3 Bertil Alm also pointed out that immediate replies to the viewpoints expressed in a consultation are not always needed. The purpose of the consultations is to elicit viewpoints so they can be taken into consideration in the continued work.

SKB replied that in cases where there are simple answers to questions posed at the consultation meetings, they will naturally be given.

3.4 Virpi Lindfors asked when the actual choice of site will take place. According to SKB’s plans for the consultations, it appears as if it will be after the consultations have been closed.

SKB replied that they intend to propose a site for the final repository in mid-2008, after the results of the long-term safety assessment (SR-Site) are available. In other words it will be after the consultations have been closed, but the consultations have to do with what is to be described in the EIS and how. The EIS is then one of the bases for site selection. The continued discussions will be with the municipalities.

3.5 Bertil Alm wondered what parts will not be included in the background material for the consultation on alternative reporting. In the general timetable that was shown it says regarding the meeting in the spring of 2006 that “parts of the alternative report” will be included in the background material.

SKB replied that the background material will mainly include those parts that are

proposed to be included in the alternative report in the EIS. Other material depends on which ongoing studies are finished by that time.

3.6 What do students ask when they visit FKA?

(SKB) They can ask anything they want. Many questions have to do with how nuclear power plants work and Sweden's nuclear power programme. They also wonder where the final repository for spent nuclear fuel will be located.

3.7 All of us who use electricity contribute money to the Nuclear Waste Fund. Now the state will take billions from the fund to phase out nuclear power and the nuclear power plants are borrowing money for repairs and power increases. How will this money be paid back?

(SKB) The money in the fund is earmarked for disposal of the radioactive waste from the Swedish nuclear power plants.

The state pays compensation for lost power production to the owners of the reactors that are shut down, but that money is not taken from the Nuclear Waste Fund. The nuclear power plants pay for their own repairs and the costs of power increases.

3.8 SKB furnishes very good information. Couldn't you give the environmental movement a greater voice in the information material you produce?

(SKB) It would probably only cause confusion. It's better to be clear-cut about the source of the information.

3.9 This is a long drawn-out story. It's important to document the role of the environmental organizations.

(SKB) The money paid out from the Nuclear Waste Fund must be used for its intended purpose. The recipient organizations must work within the given framework. SKB is obligated by law to carry out an environmental impact assessment, and it feels meaningless to have to argue against proposals that this should instead be done by an "independent party".

3.10 What do Östhammar Municipality and the County Administrative Board think about the consultations? How do you feel about your roles? Are you making your own evaluations? Do you dance to the industry's tune, or do you conduct consultations in the true sense of the word? Producer responsibility is good, but not for the radioactive waste from the nuclear power plants. It's far too hazardous.

(The municipality) We are dependent on the regulatory authorities and have good relations with them. We receive good answers to the questions we ask, from both the regulatory authorities and SKB. Regardless of our attitude to nuclear power, we in the municipality are all doing our best to arrive at a good solution to the waste question.

(County Administrative Board) The County Administrative Board has an assignment according to the Government's decision on the supplement to RD&D-Programme 1992 (SKB Technical Report TR-01-03, 1995). There it is said that the County Administrative Board in the county where SKB conducts investigations should assume coordinating responsibility for measures that enable the concerned municipality to follow, assess and provide information on the work for final disposal of spent nuclear fuel and nuclear waste. The Government decision also says that the County Administrative Board has a coordinating responsibility for the contacts with local and state authorities that are needed in order for SKB to gather material for an EIS.

The County Administrative Board in Uppsala County cooperates a great deal with the County Administrative Board in Kalmar County. The involvement of the county administrative boards complies with the provisions of Chapter 6 of the Environmen-

tal Code, for example in these consultations with the Forsmark Consultation and EIA Group, and with the provisions of Chapter 12 of the Environmental Code in the consultations with SKB to mitigate the impact of the site investigations on the natural and cultural environment.

(SKB) SKB has had a dialogue in various forms with Östhammar Municipality for 10 years, ever since the feasibility studies began. The work is effectively evaluated in conjunction with the planning of the coming work. The Oskarshamn EIA Forum has carried out a more formal evaluation.

3.11 MILKAS would like to see more independent research. Even though SKB has producer responsibility there can be independent research.

(SKB) Research linked to the management of spent nuclear fuel has been pursued in Sweden for the past 30 years or so, and research independent of SKB has been pursued all over the world for many years. SKB decides how the money should be allocated between different methods in its own programme. Every three years we prepare a programme for the research and development activities. There we give an account of completed research, demonstration and results, as well as plans for coming work. The programme is submitted to SKI for review. SKI then submits its statement of comment to the Government, which makes a decision concerning the thrust of the programme. SKB then complies with the Government's decision. SKI and SSI fund their own research as a basis for their regulatory duties.

SKB engages researchers with great integrity at universities in Sweden and abroad, who deliver results based on their field of expertise. They are given specific questions to answer, but the answers are determined completely by the results they obtain.

Furthermore, SKB wishes to emphasize that an important reason for the relative success of the Swedish nuclear waste programme has been the clear division of roles that has been established among the various actors, based on legislation.

3.12 SKB makes a lot of claims. What are they based on?

(SKB) SKB is very careful to cite references, for example in its RD&D programmes. SKB feels it is also important to look into the motives behind each party's participation in the consultation process for a final repository. Some are motivated by a desire to stop nuclear power.

3.13 Regarding the discussion of how the environmental organizations meet the requirements of the law to obtain funding, this will now become clearer when we apply for further grants. In the consultations this spring, will SKB address both the topic of alternatives and the topic of siting (for example recharge and discharge areas) at the same meeting? Can you split the consultations, since the questions differ so much in character?

(SKB) We will give it some thought.

3.14 Would it be so difficult for SKB to include the opinions of the environmental organizations when you produce information material? Just include an excerpt. You might also explain our standpoint at the information meetings.

(SKB) When SKB participates in FKA's meetings with students, we usually urge the participants to seek out and consider the standpoints of, for example, the environmental organizations on various issues.

At SKB's own information meetings with nearby residents, the pros and cons of nuclear power are not discussed. There is no interest in topics of this nature at these meetings.

Summary of written viewpoints and questions plus SKB's replies from public meetings in Östhammar Municipality (14 November) and Oskarshamn Municipality (17 November)

Regarding questions and answers brought up at the different meetings, see the compilation for the particular meeting.

Written invitations to participate at the consultation meetings and/or to submit written viewpoints were sent to the following organizations (which obtain funds from the Nuclear Waste Fund to follow the consultations) plus government agencies. The table also shows who replied.

National Board of Housing, Building and Planning	Viewpoints expressed
Swedish Environmental Protection Agency	No reply
SKI	Abstains
SSI	No viewpoints
Swedish Energy Agency	No viewpoints
National Board of Fisheries	Abstains
National Institute of Public health	Viewpoints expressed
Swedish Armed Forces	No reply
National Rural Development Agency	Abstains
Swedish Board of Agriculture	No viewpoints
Kasam	No viewpoints
Legal, Financial and Administrative Services Agency	Abstains
National Chemicals Inspectorate	Abstains
Swedish Emergency Management Agency	No viewpoints
NUTEK	No viewpoints
National Heritage Board	No viewpoints
Swedish Rescue Services Agency	No viewpoints
SGU	No viewpoints
Swedish Maritime Administration	Abstains
National Board of Forestry	Abstains
National Board of Health and Welfare	Viewpoints expressed
National Road Administration	Viewpoints expressed
Oskarshamn Municipality	Viewpoints expressed
Östhammar Municipality	Expressed its viewpoints at the meeting
County Administrative Board in Kalmar County	Viewpoints expressed
County Administrative Board in Uppsala County	Viewpoints expressed
Environmentalists for Nuclear Power	No viewpoints
Swedish NGO Office for Nuclear Waste Review (MKG)	Viewpoints expressed
Döderhult nature conservation society	Viewpoints expressed
Swedish Environmental Movement's Nuclear Waste Secretariat (MILKAS)	Viewpoints expressed
Opinion Group for Safe Final Disposal (Oss)	Viewpoints expressed

1 Encapsulation plant

1.1 Will an EIS for the encapsulation plant be included in the permit application submitted in 2006? (Oss)

Yes, the background material for this consultation meeting was our proposal for the contents and scope of this document.

1.2 If an EIS is to be included in the permit application for the encapsulation plant submitted in 2006, will SKB AB publicly announce the EIS in keeping with the rules for EIA (environmental impact assessment)? (Oss)

An EIS for the encapsulation plant will accompany the permit application under the Nuclear Activities Act that is submitted in 2006. As far as public notification of submitted applications with appurtenant documents is concerned, it is a task for the regulatory authorities.

1.3 What is meant by this point “1.4 Delimitation of EIS” and which delimitation is SKB AB referring to? (The question refers to the draft table of contents of an EIS for the encapsulation plant included in Appendix 1 of the background material produced by SKB for the consultation meeting.)

Does SKB AB intend to delimit the EIA work regarding the encapsulation plant without this being preceded by an open delimitation process within the framework of the consultation procedure? (Oss)

The section “Scoping of EIS” is intended to describe the delimitations that were made in the existing EIS with regard to which facilities, transport activities and operations are included in the EIS, and how the geographic and temporal scope of the EIS has been defined.

Preliminary versions of the “scoping reports” – *Scope, delimitations and studies for environmental impact assessments (ELAs) for encapsulation plant and final repository for spent nuclear fuel*” (in Swedish only) – (one version for Oskarshamn and one for Forsmark) were produced in the autumn of 2003. The title clearly shows that they also include the encapsulation plant. The premises for these reports were that SKB would submit applications under both the Nuclear Activities Act and the Environmental Code for the encapsulation plant in 2006.

The reports served as a basis for public consultations in Oskarshamn in November 2003 and in Forsmark in February 2004. The reports also served as a basis for consultations with local conservation and environmental organizations, regional actors, national organizations, government agencies and the local municipality and county administrative board. Based on, among other things, the viewpoints expressed in the consultations, SKB is now planning its submission of an application under the Environmental Code for the entire final repository system in 2008. Final versions of the reports were available in November 2005, in the same week as the consultation meetings in Oskarshamn and Forsmark were held.

Work is under way to produce EISs for the permit applications in 2006 and 2008. An account of the continued work will be posted on SKB’s website. SKB welcomes viewpoints on the contents of the EISs. In cases where viewpoints are expressed on the scope of the documents, they will be dealt with in the framework of the consultation and EIA work.

1.4 What does SKB AB intend to achieve with the consultations on the encapsulation plant that are planned after 2006 if an EIS has already been submitted? (Oss)

The consultations will continue for both the encapsulation plant and the final repository leading up to the applications under the Environmental Code for the final repository system and under the Nuclear Activities Act for the final repository in 2008.

1.5 It is said that an atmosphere change will lead to “acceptable chemistry” inside the canister. What is meant by acceptable chemistry?

How will it be possible in the encapsulation plant to verify that there is acceptable chemistry in the canisters before they leave the plant?

What could unacceptable chemistry in a canister entail for long-term safety?

What might be the long-term environmental consequences of unacceptable chemistry in a large number of canisters? (Oss)

The nitrogen that is present in air can, together with water, lead to internal corrosion due to the formation of nitric acid. For this reason the fuel assemblies are dried and the atmosphere in the insert is replaced with argon. Calculations show that if 90% of the air is replaced with argon, the integrity of the canister in the final repository will not be jeopardized by internal corrosion.

The atmosphere is changed by evacuating the air through a valve in the steel lid on the insert, after which the insert is filled with argon. Then the air (mixed with argon) is once again evacuated and the composition of the atmosphere is measured.

Unacceptable chemistry could lead to internal corrosion of the canister, which could affect the integrity of the canister. This could lead to a reduction in the strength of the canisters, and some of the canisters might collapse during an ice age and start to leak.

1.6 It is said in RD&D 2004 that all canisters might not be filled completely, which according to SSI could lead to the formation of nitric acid inside the canisters. Why won't all canisters be filled completely?

How might the formation of nitric acid inside the canisters affect long-term safety? (Oss)

The answer depends on what is meant by “fill”.

If filling of the canister with fuel assemblies is what is meant, the reason all canisters may not be filled is that there is a theoretically maximum permissible decay heat in the canister. This means that in the final phase of deposition, it may be decided not to fill the canisters completely instead of waiting for the decay heat in the fuel to decline. Not filling the canisters completely with fuel does not lead to formation of nitric acid.

If, however, replacement of the air in the canister with argon is what is meant by “fill”, the reason for this is that the nitrogen present in the air can, together with water, lead to internal corrosion due to the formation of nitric acid. For this reason the fuel assemblies are dried and the atmosphere in the insert is replaced with argon.

Formation of nitric acid inside the canisters could cause internal corrosion of the canister, which could affect its integrity.

1.7 Are there differences from an environmental and a safety viewpoint between wet and dry handling of the waste in the encapsulation plant? (Oss)

A premise in KBS-3 is that the canisters are not water-filled, which means that the fuel that is kept in water-filled pools must be removed from the water and handled dry during filling of the canisters. Completely wet handling is thus not possible with KBS-3.

1.8 If the encapsulation plant is sited at Simpevarp, certain functions will be integrated with Clab. Will the planned common cooling system also include separate cooling systems for the two plants so that disturbances in for example the encapsulation plant's cooling system will not cause safety problems in Clab, and vice versa? (Oss)

The cooling systems are to some extent common in the encapsulation plant and Clab. The safety impact of this has been studied, and this system solution is not judged to have an adverse impact on safety for Clab or for the encapsulation plant. The function and safety impact of the cooling systems is described in the preliminary safety analysis report for the encapsulation plant that is included in the supporting material for the application for a permit to build the plant.

1.9 Is there a maximum limit on the decay heat that can be handled in the encapsulation plant? (Oss)

A design premise for the encapsulation plant is that the fuel to be encapsulated has been interim-stored for about 30 years. The requirement on a maximum permissible decay heat per canister stems from the function of the final repository. The radiation levels are the main limiting factor in the encapsulation plant. If for some reason fuel that has been stored for a shorter period than the design premises permit is to be encapsulated, the radiation protection in the plant must be strengthened.

1.10 An overall functional requirement on the encapsulation plant is that unusual fuel types that are currently being stored in Clab must also be able to be encapsulated in the plant. What are these unusual fuel types?

How do they differ in radiation protection terms from the rest of the nuclear fuel waste?

Do these unusual fuel types lead to other requirements in handling? (Oss)

Besides the fuel assemblies from the nuclear power plants in Forsmark, Oskarshamn, Barsebäck and Ringhals, there is also fuel from the Ägesta reactor and MOX fuel from nuclear installations in Germany. The German fuel comes from a deal between Sweden and Germany where Swedish fuel at the reprocessing plant in La Hague was exchanged for German fuel.

In terms of safety, environment and radiation protection, the unusual fuel types can be managed in the same way as other fuel. This, incidentally, is the reason Sweden got the MOX fuel.

It is slightly different from a handling viewpoint since its physical dimensions are different compared with the other fuel assemblies. The canister and the handling equipment in the encapsulation plant are being designed to handle these fuel assemblies as well.

1.11 Why isn't the encapsulation plant being designed so that it can also handle other types of radioactive waste than spent nuclear fuel?

Will another encapsulation plant have to be built for the long-lived intermediate-level waste? (Oss)

The spent nuclear fuel will be encapsulated in copper canisters, which is not the intention with other types of waste. Encapsulation of spent nuclear fuel is a relatively complicated process compared with the disposal of other radioactive material. A simpler process than the one in the encapsulation plant can be used for final disposal of this waste.

A facility for disposal of this waste will be needed in the future, but exactly how and where has not yet been decided. The waste will be embedded in moulds, and one possibility is to do this at the site of the final repository for this type of waste.

1.12 According to the background material for the consultation, in the event of horizontal deposition of the canisters in the final repository, “preparation” of the canisters will take place down in the repository. What does this preparation entail?

Does it mean that yet another component – which has not yet been described – has to be integrated in the system? (Oss)

(The questions refer to a passage in RD&D-Programme 2004, Chapter 8.1, page 97: “A possible switch to horizontal deposition will not, according to current plans, affect the design of the encapsulation plant, since preparation of the canister prior to deposition is planned to take place in the deep repository.”)

Preparation consists of providing the canisters with bentonite and a steel shell before they are emplaced in the horizontal deposition holes. Handling equipment for this purpose will be needed at the final repository.

1.13 Short- and long-lived intermediate-level operational and decommissioning waste will arise in the encapsulation plant and will have to be managed and disposed of. How will this waste be handled?

How will the handling of this waste be described in the application and in the EIS to permit an overall assessment of the total environmental load and an identification of possible environmental consequences? (Oss)

The waste that arises from the operation of the encapsulation plant will be managed in the same manner as the waste that arises from the operation of Clab. Equipment is in use there for this purpose. Depending on its activity content, the waste will be disposed of by shallow land burial, in SFR in Forsmark, or in the future final repository for long-lived low- and intermediate-level waste.

A preliminary decommissioning plan for the encapsulation plant will be included as an appendix to the application for the encapsulation plant under the Nuclear Activities Act in 2006.

1.14 The planned disposal of the low- and intermediate-level waste (LILW) is based on the same principle as SFR, in other words that the groundwater and the Baltic Sea are receiving waters for radioactive leakage. If the environmental legislation is further tightened so that releases of radioactive waste must be eliminated entirely, the encapsulation plant and the handling of the operational waste will have to meet much tougher requirements. Has SKB AB planned flexible solutions in the encapsulation plant that enable it to meet the requirement on BAT and tougher future environmental requirements? (Oss)

Various aspects have been weighed together in the choice of technology for the encapsulation plant, one of which is environmental impact. Flexibility in the plant is necessary not just from a BAT perspective, and as far as possible this is also taken into consideration. SKB's design complies with current regulations. Trying to speculate how they may change in the future and how this might affect the plant design is an impossible task. If new requirements are issued that affect the plant, SKB will of course adopt whatever measures are necessary to meet these requirements in both existing and planned plants. The regulatory authorities will make sure of this.

1.15 One problem that has come to be discussed with increasing frequency is the uncertainties involved in predicting how society will develop in the future, and the possibility that nuclear installations will be targeted by terrorists. A situation could arise in the future where the waste that is stored in Clab needs better protection, in which case the deposition of the waste in a final repository may be done earlier than planned. Will the planned encapsulation plant be able to handle nuclear fuel waste that has been stored for a shorter period than planned in Clab and therefore has a higher decay heat?

Will it be possible to increase the capacity of the plant if the global situation demands this?(Oss)

The fuel is being stored in the interim storage facility Clab today, which is situated under ground beneath a thick rock cover. One important reason why SKB wants to dispose of the fuel now and not wait for a possible alternative solution is this uncertainty regarding future developments in society and the world.

The encapsulation plant, the transportation system and the final repository are designed for fuel that has been stored for about 30 years. If fuel with higher decay heat should for some reason have to be encapsulated and disposed of, changes will have to be made.

The plant will be built for a capacity of 200 canisters per year, based on the assumption that all handling takes place during the daytime. If multiple shifts are introduced, it will be possible to increase the capacity of the plant.

2 Final repository for spent nuclear fuel

No questions or viewpoints were expressed pertaining solely to the final repository for spent nuclear fuel.

3 Common issues

3.1 The National Board of Housing, Building and Planning thinks that even though the KBS-3 method is the main method, other methods of disposing of spent nuclear fuel should not be ruled out. In the EIS that is being prepared, the KBS-3 method and the entire system should be described as a totality, along with alternative methods, alternative designs and alternative sitings for the final repository and the encapsulation plant.

Regarding the choice of sites for a final repository according to the KBS-3 method, the reasons why these two sites [Simpevarp and Forsmark] have been chosen should be given. A clear and concise comparison should be made between the proposed siting of the final repository at Simpevarp and the proposed alternative at Forsmark.

The application which SKB plans to submit in 2006 is for a permit under the Nuclear Activities Act for a siting of an encapsulation plant adjacent to Clab in Simpevarp. The alternative siting will be Forsmark. The differences between these siting alternatives for the encapsulation plant will be described. The role of the encapsulation plant in the KBS-3 system will also be described, along with the other parts of the system.

Alternative sitings of the final repository, as well as alternative methods for disposal of spent nuclear fuel, will be presented in the EIS accompanying the permit application for the final repository system under the Environmental Code in 2008. Consultation meetings during the spring of 2006 will consider how alternative methods and sitings are to be reported in the EIS in 2008.

3.2 The national and regional environmental quality objectives should be clearly described in the EIS. (National Board of Housing, Building and Planning)

Yes, SKB will describe the compatibility of the projects with the environmental quality objectives in the EISs in both 2006 and 2008.

3.3 According to the Planning and Building Act, a new detailed development plan also requires that an environmental impact assessment be done and an EIS be prepared. The possibilities of using joint consultations and material should be considered and clarified with the concerned municipality. (National Board of Housing, Building and Planning)

Planning work under the Planning and Building Act has been commenced in both Oskarshamn and Östhammar municipalities. The possibilities of coordination in various respects have been discussed and will be further considered in the contacts between the municipalities.

3.4 When it comes to the complete EIS that has to be prepared during the spring of 2006, the Institute believes it would be desirable for the EIS to be augmented with a health impact assessment (HIA). An HIA is done based on public health objectives and reflects the social dimension of sustainable development. (National Institute of Public Health)

During the spring of 2005, SKB conducted a health and complaint survey in Oskarshamn and Östhammar in cooperation with the county councils in Uppsala and Kalmar counties. In Oskarshamn, questionnaires were sent to all permanent residents of Misterhult parish 18 years or older and to all part-time residents older than 18 years in the same area. In Östhammar, questionnaires were sent to all permanent residents 18 years or older within a radius of 15 kilometres of the Forsmark nuclear power plant, and to all part-time residents older than 18 years in the same area. The control group in both municipalities consisted of a random sample of permanent and part-time residents in other parts of the municipality. The response frequency for part-time residents was 63 percent in Forsmark and 68 percent in Oskarshamn. The response frequency for permanent residents was 59 percent in Forsmark and 56 percent in Oskarshamn.

Reports on results of the health survey, one for Forsmark and one for Oskarshamn, are expected to be finished in February 2006.

The questionnaires serve as a good basis for a health impact assessment in accordance with the wishes of the National Institute of Public Health. In planning the health impact assessment and its execution, SKB has been in contact with the National Board of Health and Welfare, the county councils in the concerned counties, the concerned municipalities and several of the institutions that have environmental medical expertise and people with experience of health matters in EIA. The results will be submitted together with the permit applications in 2008.

3.5 We believe that the proposed contents of the environmental impact statement should be supplemented with regard to impact on people's health, i.e. a population-related description of the health impact. It is important to get help from psychosocial and environmental medical experts in describing how to handle people's anxiety and describe the human effect of the various environmental factors.

You should also describe the follow-up in the form of self-monitoring of the future activities involved in the final disposal of spent nuclear fuel, for example a monitoring programme for radioactive leakage.

The health impact assessment should include:

- Handling of effects of human anxiety**
- How self-monitoring will be updated in view of the long-term use of the facility (National Board of Health and Welfare)**

Material for an environmental medical assessment is being gathered, for example via the completed questionnaire survey. In planning the health impact assessment and its execution, SKB has been in contact with the National Board of Health and Welfare, the county councils in the concerned counties, the concerned municipalities and several of the institutions that have environmental medical expertise and people with experience of health matters in EIA. The results will be submitted together with the permit applications in 2008.

As far as radiation is concerned, the work is primarily regulated by the Nuclear Activities Act and the Radiation Protection Act. In the same way as for existing nuclear activities, a monitoring programme will be established by SSI in accordance with their regulations concerning protection of human health and the environment in the event of releases of radioactive substances from certain nuclear installations (SSI FS 2000:12).

SKB places great importance on openness and good information so that people will not feel anxiety. At present we are engaged in extensive local dialogue with private citizens in order to give people an opportunity to follow the site investigations and the EIA process.

The health surveys showed that residents in the areas are not worried about a possible final repository. One possible reason is that they are familiar with and accustomed to the existing nuclear activities.

3.6 In order to go further with the road transport system in the area, we propose that the National Road Administration be contracted by SKB or the municipality to prepare a road feasibility study as a basis for a decision on how the future public road system in the [Simpevarp] area should be designed. (National Road Administration – Southeast Region)

SKB has had a conceptual study done for the section of road 743, the Coast Road, between the northern entrance to Figeholm and the intersection with Kråkelunds-vägen. The Regional Council in Kalmar has decided that the fee for a feasibility study for the road can be advanced so that the study can be started immediately.

3.7 It is furthermore our view that a future investment in the public road network in the [Simpevarp] area must be included in the development costs for the total concept for the final disposal of spent nuclear fuel. (National Road Administration – Southeast Region)

The roads that are needed in the establishment area are SKB's interest and responsibility. Responsibility for maintaining the public road network does not rest with SKB.

3.8 Summary of statement of comment from Oskarshamn Municipality.

All spent nuclear fuel from the Swedish nuclear power plants is being interim-stored in Oskarshamn Municipality, in Clab – Central interim storage facility for spent nuclear fuel. SKB's (Svensk Kärnbränslehantering AB) 1992 research programme proposed that the encapsulation plant – a vital part of the nuclear waste system – should be located adjacent to Clab. The proposal initiated an active participation by Oskarshamn Municipality in the nuclear waste process.

Sweden bears producer responsibility for the nuclear power industry which, through its "waste management company" SKB, shall manage and dispose of the nuclear waste in a safe manner. The Swedish model for nuclear waste management establishes a clear division of responsibilities and roles. The municipality's experience of how the nuclear waste issue is being dealt with in the world confirms the view that the Swedish model is appropriate.

SKB will apply for a permit for the encapsulation plant under the Nuclear Activities Act in 2006 and for the entire final repository system under the Environmental Code in 2008. Under this modified scheme, the entire system will be examined simultaneously, and the Environmental Court and the Government will be able to make a coordinated decision on the entire per-

missibility question. The municipality has participated in discussions with SKB, the Swedish Nuclear Power Inspectorate (SKI) and the Swedish Radiation Protection Authority (SSI) and supports the essentials of this scheme. As the municipality sees it, the scheme provides both a more comprehensive body of material and more time to prepare the applications, ensuring a solid basis for the decision on permissibility.

According to Swedish environmental legislation, SKB is responsible for consultations and preparation of an environmental impact statement, EIS. In response to criticism from the concerned municipalities for the way it has conducted the consultations, SKB has made a number of improvements. The municipality therefore sees no reason to make changes in the division of responsibilities for consultations and EIA/EIS.

According to condition 2 in the municipal council's site investigation decision, it was assumed that only the waste quantities stipulated in the supplementary research programme (SKB Technical Report TR-01-03, 1995) would be disposed of. Extended operating time for the reactors and planned power increases have altered the premises. Oskarshamn has no fundamental objections to an increase in the volume of the final repository. However, the municipality is of the opinion that an account of the consequences is needed as a basis for a change in the municipal standpoint.

The municipality has on various occasions expressed viewpoints on SKB's account of alternative methods and the promised system analysis. SKB is supposed to submit a report in the autumn of 2006 on the system analysis, called SYSINKA. The municipality views the system analysis as an important component of the material on which its decision will be based. We also see the promised consultation on alternative methods as important and valuable.

Oskarshamn has expressed viewpoints on SKB's safety assessment, for example on the choice of scenarios and the link to the site investigations. The municipality looks forward to the safety assessment SR-Can, which is expected in the autumn of 2006. Oskarshamn Municipality has long sought greater clarity concerning the link between the safety assessment and the site investigations. The EIS should also contain a coherent description of all factors that influence the siting of a final repository in the interior versus on the coast.

The Misterhult Group identified a number of local environmental issues in conjunction with the municipality's statement of comment on SKB's draft scoping report. At this point, when the application only covers the encapsulation plant, the impact on the environment is judged to be limited. The greatest noise impact will probably occur during the construction phase. Working hours with noisy activities should be limited and determined in consultation with nearby residents and the local planning committee.

SKB has had a conceptual study done for the section of road 743, the Coast Road, between the northern entrance to Figeholm and the intersection with Kråkelundsvägen. The Regional Council in Kalmar has decided that the fee for a feasibility study for the road can be advanced so that the study can be started immediately. When a decision is made concerning an encapsulation plant, the road planning should be so advanced that the construction work can start immediately. (Oskarshamn Municipality)

As far as the quantity of spent nuclear fuel to be disposed of is concerned, it depends on the future of the nuclear power programme. This is taken into account in SKB's design work. The power increase will result in fuel with different properties, which is also taken into account in SKB's work. A main alternative will be presented in the applications. SKB will, in consultation with the municipality, define the studies that need to be done to shed light on the consequences of having to dispose of different waste quantities. Finally, it can be concluded that SKB wants to build a repository, regardless of the number of canisters.

In SR-Can, the calculations will be based on data from the initial phase of the site investigations and will be submitted to the regulatory authorities in November 2006. The viewpoints obtained after the review of SR-Can can be taken into account in the safety assessment SR-Site.

Studies are currently being conducted to shed light on an inland versus a coastal siting of the final repository. The EIS that will be prepared for the applications in 2008 will contain a coherent description of factors that influence the siting of a final repository in the interior versus on the coast.

Construction and operation of the encapsulation plant will give rise to noise. However, the noise level will lie below the official guideline values. Noisy activities will be avoided in the evenings and at night wherever possible. Nearby residents will be consulted in conjunction with the planning of the work and SKB will take their wishes into consideration even if the noise levels are below the limit values.

The roads that are needed in the establishment area are SKB's interest and responsibility. Responsibility for maintaining the public road network does not rest with SKB. The Regional Council in Kalmar County recently decided to advance money for a feasibility study and design of highway 743 so that it can be improved in time for a possible final repository in Laxemar.

3.9 ...The basic requirements on an EIS are thus the same for permit applications under both the Nuclear Activities Act and the Environmental Code. Furthermore, the scope of the EIS should be such that it covers the issues that are to be taken into account under the Environmental Code, the Nuclear Activities Act and the Radiation Protection Act, which means that safety issues are also included.

In SKB's background material for consultations under Chapter 6 of the Environmental Code leading up to a permit application under the Nuclear Activities Act for an encapsulation plant, the description of environmental impact is largely restricted to the actual encapsulation plant. The impact of the entire deep repository system is only described in general terms. The County Administrative Board thereby concludes that the material does not comprise a complete body of background material for consultations in accordance with Chapter 6, Section 7 of the Environmental Code for a deep repository system according to the KBS-3 method. (County Administrative Board in Kalmar County)

The basic requirements on an EIS that accompanies a permit application under the Nuclear Activities Act are given by the Environmental Code, but the application is examined under the Nuclear Activities Act. The 2006 EIS is being written with this in mind. In 2008, SKB will apply for permits under the Environmental Code for the entire final repository system, including the encapsulation plant, and the EIS will then cover the impact of the entire system, which will be reflected in the background material for consultations.

An account of the impact of the entire final repository system will thus be given in 2008. However, the function of the encapsulation plant in the final repository system will be described already in the application in 2006.

It is SKB's hope that the Government will make decisions on permissibility under the Environmental Code and a permit under the Nuclear Activities Act in 2010. This means that all background material will be available before the regulatory authorities and the Government are expected to make any decisions on permissibility and permits.

3.10 The County Administrative Board is also of the opinion that the impact of the activity on the possibilities of meeting the national and regional environmental quality objectives should be included in the EIS. According to the background material for consultations appended to the scoping report, R-05-64, Appendix 2, it is envisioned that the compatibility of the project

with adopted environmental objectives will be described in the 2008 applications, but not in the EIS. In the view of the County Administrative Board it is an advantage for all parties if the environmental objectives are brought into the process as early as possible. The Swedish EPA's recommendations (2001:9) regarding environmental impact statements also say, as a comment on Chapter 7, Section 7 of the Environmental Code about the contents of an EIS, that "In order for an overall assessment of the effects of a planned activity or measure to be possible, the strength and scope of effects and consequences must be quantified in such a manner that it is possible to determine whether the environmental quality objectives adopted by the Riksdag are fulfilled." The environmental quality objectives should be presented under a separate heading in the EIS with comments on how the project affects each and every one of these objectives. (County Administrative Board in Kalmar County)

Yes, it said in R-05-64 that the compatibility of the project with adopted environmental quality objectives will be described in the 2008 applications. If response to viewpoints expressed in consultations, SKB will now describe compatibility with the environmental quality objectives in the EISs in both 2006 and 2008.

3.11 The County Administrative Board finds that the EIS for the encapsulation plant, as it was presented in the background material for the consultations in November, needs to be augmented. In the draft the environmental impact statement is mainly restricted to the encapsulation plant, while the EIS for the entire deep repository system is broadly worded.

The County Administrative Board thinks that a single, common, coordinating environmental impact statement should be prepared for the final repository and the encapsulation plant along with other activities, including transportation, in conjunction with the construction and operation of these facilities, for the permissibility examinations and licensing processes that are required under the Environmental Code and the Nuclear Activities Act.

In view of this, the County Administrative Board finds that the background material for consultations in the above report relating to the EIS for the encapsulation plant needs to be augmented. In the report, the draft EIS is mainly restricted to the encapsulation plant, while the EIS for the entire deep repository system is broadly worded.

The County Administrative Board thinks that the alternative report in the EIS should describe all possible alternative sites and designs that are being or have been considered in SKB's consultations or research and development work. Such a broad account should, in the view of the County Administrative Board, be so comprehensive that it permits an overall, comparative assessment of the advantages and disadvantages of the alternatives, with special attention given to effects on human health and the environment in the light of the fundamental values embodied in Chapter 1, Section 1 of the Environmental Code. The account in the EIS shall provide a basis for assessment according to the general rules of consideration in Chapter 2 of the Environmental Code and should contain a description of the possibilities of fulfilling the national and regional environmental objectives as well as adopted environmental quality standards and guideline/limit values.

Providing that the consultations according to Chapter 6 of the Environmental Code continue until 2008, the County Administrative Board judges that the environmental impact statement which SKB has announced will accompany an application for a permit under the Nuclear Activities Act for the encapsulation plant can be regarded as preliminary, since the continued consultations with affected parties should be able to influence the contents of the final EIS. (County Administrative Board in Uppsala County)

The County Administrative Board's judgement is fully in line with SKB's intentions. The EIS for the permit application for the encapsulation plant in 2006 should be sufficient for the commencement of the review of the application under the Nuclear Activities Act.

The biggest difference between the EIA in 2006 and the one in 2008 is the scope. The EIA for the applications in 2006 focuses on the encapsulation plant, while the EIA for the applications in 2008 will include the entire final repository system. An account of the impact of the entire final repository system, along with a broad account of alternatives, will be provided in 2008.

3.12 Will the nuclear waste company change its plans for a separate application for the encapsulation plant under the Nuclear Activities Act in order to avoid tying up the resources of regulatory authorities and other actors for review and examination of this application? (MKG)

No, an important reason for submitting an application for the encapsulation plant under the Nuclear Activities Act in 2006, instead of submitting all material at once, is to give the regulatory authorities an opportunity to begin the review and thereby give them more time for the review. SKB decided to submit this application in 2006 after having vetted the idea with the concerned regulatory authorities, county administrative boards and municipalities.

3.13 Why has no scoping report been prepared for the environmental impact statement for the encapsulation plant that has to be appended to the application and that should be a topic for consultations? If the current meeting is "the last consultation meeting, according to Chapter 6 of the Environmental Code, before the submission of an application for the encapsulation plant", when does the nuclear waste company mean earlier meetings have taken place? What background material on the encapsulation plant was provided for these meetings? (MKG)

Preliminary versions of the "scoping reports" – *Scope, delimitations and studies for environmental impact assessments (ELAs) for encapsulation plant and final repository for spent nuclear fuel* (in Swedish only) – (one version for Oskarshamn and one for Forsmark) were produced in the autumn of 2003. The title clearly shows that they also include the encapsulation plant. The premises for these reports were that SKB would submit applications under both the Nuclear Activities Act and the Environmental Code for the encapsulation plant in 2006. These premises have since been changed.

The reports served as a basis for general consultations in Oskarshamn in November 2003 and in Forsmark in February 2004. The reports also served as a basis for consultations with local conservation and environmental organizations, regional actors, national organizations, government agencies and the local municipality and county administrative board. Based on, among other things, the viewpoints expressed in the consultations, SKB is now planning to submit an application under the Environmental Code for the entire final repository system in 2008. Final versions of the reports were available in November 2005, in the same week as the consultation meetings in Oskarshamn and Forsmark were held.

The early consultations focused on one facility, the encapsulation plant or the final repository. Since then the consultations have dealt with both facilities, as is evident from the invitations which announced *Consultations according to the Chapter 6 Section 5 of the Environmental Code concerning a possible encapsulation plant and final repository for spent nuclear fuel ...*

At public consultation meetings in November 2004 (Forsmark) and April 2005 (Oskarshamn), SKB's proposals regarding where a final repository and an encapsulation plant could be located in Forsmark and Oskarshamn were discussed, as well as what disturbances can be expected to arise in conjunction with, for example, rock excavation and haulage during construction and operation. The background material produced

by SKB for these meetings dealt with both the encapsulation plant and the final repository.

3.14 Won't the nuclear waste company hold consultations on the scoping report for the EIS for the entire project? (MKG)

SKB has held public consultation meetings with specially invited local conservation and environmental organizations, national organizations and government agencies and written consultations with regional actors and the relevant municipality and county administrative board on the contents of the preliminary versions of the "scoping reports". These reports have been updated to final versions based on the viewpoints expressed during the consultations. The EISs for the applications in 2006 and 2008 are now being prepared. News regarding progress on the EIS will be posted on SKB's website. SKB welcomes viewpoints on the contents of the EISs. In cases where viewpoints are expressed on the scope of the documents, they will be dealt with in the framework of the consultation and EIA work.

3.15 How does the nuclear waste company expect the regulatory authorities to treat the special EIS for the encapsulation plant under the Nuclear Activities Act when they review and examine the application when they know that a more up-to-date EIS for the same plant will be coming later? (MKG)

The EIS for the permit application for the encapsulation plant in 2006 should be sufficient for the commencement of the review of the application under the Nuclear Activities Act.

The biggest difference between the EIA in 2006 and the one in 2008 is the scope. The EIA for the application in 2006 focuses on the encapsulation plant, while the EIA for the applications in 2008 will include the entire final repository system.

3.16 *Applies only to the meeting in Oskarshamn:* Does the nuclear waste company have the same view as the County Administrative Board in Kalmar County regarding the status of the Oskarshamn EIA Forum as a part of the public consultations according to Chapter 6 of the Environmental Code? (MKG)

The County Administrative Board in Kalmar County regards the Oskarshamn EIA Forum as a part of the consultation process according to Chapter 6 of the Environmental Code. This agrees with SKB's view. The view of the County Administrative Board is that the EIA Forum is primarily intended for local and national authorities, but that private citizens have been given an opportunity to attend and ask questions.

3.17 Does the nuclear waste company intend to change its mind in this matter and support giving MKG observer status at the following meetings:

- Special meetings (concerning site investigations, system analysis and safety assessment) between SKB and the regulatory authorities, where the nuclear waste municipalities are observers**
- Joint meetings between SKB, SKI and SSI and the regulatory authorities' expert panels INSITE, OVERSITE and SIERG (MKG)**

SKB will not support opening these meetings to additional actors.

The special consultations that are held today, in accordance with the Government decision of 1 November 2001, between SKB and the regulatory authorities (SSI and SKI) concerning site investigations, system analysis and safety assessment are a part of the RD&D process, and it is important that they can take place under efficient forms. With a growing number of participants there is a risk that such efficiency will be compromised. SKB has discussed MKG's request at length with the management of SKI and SSI. SKB has reached the conclusion that the meetings between SKB and the regulatory authorities will continue to be held in the same manner as before.

The results of the meetings are reported in public minutes, and to make it even easier for the environmental organizations to follow the RD&D process, MKG and other similar actors are invited to pose follow-up questions outside these minutes and, when necessary, to meet with experts for special discussions of the topics they wish to bring up.

3.18 Why wasn't the preliminary environmental risk analysis ready by this meeting? (MKG)

The preliminary results of the environmental risk analysis for the encapsulation plant were finished and served as a basis for the background material for the consultations. The report for the entire final repository system, including the encapsulation plant, will be finished in the spring of 2006.

3.19 How will the nuclear waste company handle questions concerning the risks of terrorism and nuclear weapons proliferation in the preliminary environmental risk analysis and in the EIS for the encapsulation plant? (MKG)

Physical protection concerns, among other things, preparedness for acts of terrorism. The description of physical protection cannot be as open as other information. Physical protection will be reported to and reviewed by the regulatory authorities. Parts of the report may be included in the EIS.

3.20 Is SKB prepared to broaden its scenario work to include intentional intrusions, whether within or outside the framework of sustainable development? (MKG)

The next safety assessment, SR-Can, will be published in November 2006. Scenario selection will be given great weight there. In keeping with international practice in the area, we do not intend to include intentional intrusion in the repository. This also complies with, for example, recently published general recommendations from SSI (general recommendations to SSI FS 1998:1), where only analyses of unintentional intrusions are called for.

3.21 We find SKB's model of splitting the applications under the Nuclear Activities Act into two parts unacceptable. We believe that this approach presupposes the choice of method and furthermore ties up the resources of the regulatory authorities and others which are needed for participation in the consultations for the entire project. We wonder whether SKB will change its mind in this respect? (Döderhult nature conservation society)

An important reason for submitting an application for the encapsulation plant under the Nuclear Activities Act in 2006, instead of submitting all material at once, is to give the regulatory authorities an opportunity to begin the review. The reason this application is being submitted in 2006 instead of later is an agreement between SKB and SKI so that SKI will have more time for its review, among other things.

It is SKB's hope that the Government will make decisions on permissibility under the Environmental Code and a permit under the Nuclear Activities Act in 2010. This means that all background material will be available before the regulatory authorities and the Government are expected to make a decision.

3.22 We assume that consultations on the encapsulation plant will be included in the continued consultations on the entire final repository system according to the Environmental Code. We expect to participate in these consultations and pose questions concerning the encapsulation plant when it can be regarded in a larger context. Will SKB present two different EISs for the encapsulation plant? (Döderhult nature conservation society)

The EIS for the permit application for the encapsulation plant in 2006 should be sufficient for the commencement of the review of the application under the Nuclear

Activities Act. It is correct that the encapsulation plant will be included in the continued consultations, since applications for the final repository system, including the encapsulation plant, under the Environmental Code will be submitted in 2008. The biggest difference between the EIA in 2006 and the one in 2008 is the scope. The EIA for the applications in 2006 focuses on the encapsulation plant, while the EIA for the applications in 2008 will include the entire final repository system.

3.23 We posed quite a few written questions after the consultation in April 2005. The replies are only presented on SKB's website. We think it would be good if the replies could also be sent by post, with indication of who wrote the various replies. This would facilitate a follow-up of our questions. (Döderhult nature conservation society)

SKB notes the request and will from now on send replies to questions and viewpoints submitted after the consultation meetings, but within the framework of the meeting, to the person posing the question. SKB is responsible for the replies and individual names are not associated with individual questions. Possible follow-up questions in response to SKB's replies can be posed to SKB at the continued consultations, posted via SKB's website or sent to SKB, EIA Unit, by letter or e-mail.

3.24 The Swedish Environmental Movement's Nuclear Waste Secretariat, Milkas, does not think the encapsulation plant can be isolated from the final repository in the EIS consultations as SKB AB does, since the encapsulation plant is the first step towards a final repository. If large investments are made in the encapsulation plant, it will not be possible to approach the issue of the final repository free of bias, since it is a part of the whole in which investments have already been made, and it will be more difficult to change the plans. If, for example, there should be better biospheric conditions for a final repository at another location, it will be difficult to switch sites – the final repository will probably end up on the same site as the encapsulation plant. Since the encapsulation plant is designed for the KBS-3 method, it is also unlikely that the choice of method will be reconsidered. The viewpoint that the encapsulation plant should be treated as an integral part of a final repository system has previously been expressed by both the County Administrative Board in Kalmar County and the County Administrative Board in Uppsala County, which is evident from appendices 2 and 3 to the background material "Decision on significant environmental impact" (in Swedish). (MILKAS)

The applications under the Environmental Code and the EIS in 2008 will cover the entire final repository system. Consultations will thus be held for both the encapsulation plant and the final repository until 2008.

No investments will be made in the encapsulation plant before the Government has made a decision on permissibility under the Environmental Code for the final repository system as a whole and on permits under the Nuclear Activities Act for the encapsulation plant and the final repository. It is SKB's hope that the Government will be able to make decisions in these matters in 2010. These decisions will accordingly not be made until all supporting material for these permits has been submitted and reviewed.

SKB will apply for a permit to build the encapsulation plant adjacent to Clab in Simpevarp. There is nothing today to say that the final repository will also be sited at Simpevarp. The Forsmark alternative is just as feasible.

3.25 SKI will not issue a statement of comment until 2010, when the applications for both the encapsulation plant and the final repository have been submitted. We believe that the regulatory authorities should issue a statement of comment on the encapsulation plant in relation to the final repository now. A long break in the processing of the matter will lead to a cooling of interest in the waste management issue and a silencing of the debate. (MILKAS)

This viewpoint should be presented to the regulatory authorities. SKB does not control their review work or how they choose to express their comments. We can only submit the material as soon as it is ready to help them in their resource allocation. There will not be any pause in the work of the regulatory authorities in the final repository matter. Another slant on the matter, also argued by MILKAS, is that the encapsulation plant should not be lifted out and dealt with separately, since it is a part of final disposal according to the KBS-3 method.

3.26 A preliminary safety analysis report, PSAR, is being prepared at this time to be included in the application for both the encapsulation plant and the final repository that will be submitted in 2008. We are concerned about the fact that the safety assessment is not being included earlier in the process. Now the consultations are far too focused on discussions of noise, visual effects, road traffic and use of resources, as if it were a question of just any construction project. What is special about handling of nuclear waste is that it continues to be hazardous for an extremely long time to come, not just during the construction, operating and decommissioning phases. This should be taken into account to a much greater degree when describing environmental impact. SKB AB writes in its book "Encapsulation" that the final repository will certainly endure future ice ages. Milkas wonders how the nuclear waste company can so confidently dismiss all risk scenarios, contrary to the findings of the Department of Paleogeophysics and Geodynamics at Stockholm University. In the opinion of Milkas, the EIS material for the encapsulation plant must include scenarios describing e.g. earthquakes, ice ages and leakage of materials, since they are most definitely environmental consequences. (MILKAS)

SKB is carrying out various types of safety assessments for the encapsulation plant and the final repository. They deal with different time scales and have different purposes.

Risk and safety issues during the construction of the encapsulation plant and the final repository are included in the design work.

Risks that can lead to radiological consequences during the operation of the encapsulation plant and the final repository are described in preliminary safety analysis reports (PSAR), which will be submitted together with the applications under the Nuclear Activities Act. In other words, in 2006 for the encapsulation plant and 2008 for the final repository.

The environmental risk analysis for the final repository system clarifies the risks of nonradiological consequences during construction, operation and decommissioning of the encapsulation plant and closure of the repository. This constitutes a basis for the assessment of the impact on the natural and cultural environments and human health in the EIS as well as for risk reduction in the form of accident-preventive and damage-mitigating design measures. The final report will be presented in the spring of 2006.

Long-term (post-closure) safety will be described in several stages. The purpose is to show by means of a systematic analysis whether the risk of harmful effects on individuals in the vicinity of the repository meets the Swedish regulatory authorities' acceptance criteria. The safety assessments include a number of hypothetical scenarios of events in the repository and the evolution of the climate.

The safety assessment SR 97 was published in 1999. Geological data were obtained from three sites in Sweden to shed light on various conditions in Swedish granitic bedrock.

An interim version of SR-Can (TR-04-11) was published in the autumn of 2004 with an emphasis on methodology. The report is in English, with a Swedish summary.

The next safety assessment, SR-Can, will be published in the autumn of 2006 and will be based on data from the initial phase of the site investigations. Experimental data from the work of sealing and testing the canisters will comprise important input data for the assessment. The viewpoints received after the review of SR-Can can be addressed in the safety assessment SR-Site.

In 2008 we will publish SR-Site. This assessment will be based on the complete body of data available when the site investigations and the design of the repository are finished.

3.27 In the background material for the consultations, in the chapter “Alternatives”, there is a section on alternative sitings and a section describing the zero alternative, i.e. to continue storing the nuclear waste in Clab. This cannot be called a reporting of alternatives, since it doesn’t even describe alternative methods, such as dry storage or some form of supervised storage. Milkas is critical of the fact that the nuclear waste industry continues to be committed to the KBS-3 method without conducting serious research on alternative methods, so that a comparison can be made between different methods. (MILKAS)

Alternative methods for disposal of spent nuclear fuel will be reported in the EIS accompanying the applications for the final repository system under the Environmental Code in 2008. SKB proposes that the next consultation meeting in Forsmark and Oskarshamn should be about the contents and scope of the alternative report.

3.28 The difference between contract research and free research should also be taken seriously. Milkas is surprised that our criticism of the lack of free and independent research on different methods for managing the nuclear waste was dismissed at the consultation meetings of 14 and 17 November on the encapsulation plant. The argument was that SKB AB does not tell the researchers they contract what results they should arrive at, and that all research is critical. It is a well-known fact that researchers are influenced by various factors, including who their client is and what questions the client is interested in getting an answer to. It would be strange if the nuclear waste company’s researchers were the only exception to this general rule. SKB AB also says that the alternative to proceeding on the basis of present-day research findings would be to “wait and see” if something better turns up, i.e. they make it seem as if their action is the only alternative to passivity. Milkas believes it is important to have free and independent research on waste management before a decision is made that will have long-range consequences for hundreds of thousands of years – not just research by one party interested in finding a quick solution. At the consultation on 17 November, it was said in reply to a question from Milkas that there is no legal reason why SKB AB could not allocate some of its research grants to independent research at the universities. (MILKAS)

It is SKB’s mission to conduct whatever research and development is required for safe management and disposal of the spent nuclear fuel from the Swedish nuclear power plants. SKB does this by placing contracts with experts both in Sweden and abroad. Some of these contracts are placed with universities, where SKB has funded many doctoral theses over the years. When SKB awards contracts the questions to which we wish to have answers are defined, but the researchers who conduct the scientific work are responsible for the results. The questions that need to be answered and which SKB has had to initiate research on have in many cases been posed by regulatory authorities, reviewing bodies and independent researchers in connection with the review of SKB’s RD&D programmes.

At the meeting, SKB said that the research that is conducted must be credible and well-supported, regardless of who funds it. SKB encourages the researchers to publish in scientific journals. This enables the results to undergo independent peer review before they are published, confirming that the research is objective and of good quality.

3.29 Regardless of choice of method and the technical design of the final repository, there is a general objection to the two sitings which SKB AB and the consultations are now completely focused on: The Baltic Sea is already heavily polluted with radioactivity. Building an encapsulation plant and a final repository in Oskarshamn or Forsmark, right on the Baltic Sea, must then be regarded as a questionable enterprise. Expected releases from these facilities to the Baltic Sea will also affect all other countries around the Baltic Sea. They should therefore be informed and included in the consultation process. (MILKAS)

In the encapsulation plant the spent nuclear fuel will be encapsulated in copper canisters that will remain intact for at least 100,000 years, according to SKB's calculations.

All handling of the nuclear fuel in the encapsulation plant takes place in isolated and radiation-shielded spaces with controlled ventilation. The radioactivity of the exhaust air is monitored in the ventilation stack. The water discharged from the encapsulation plant is checked and treated if necessary. No water is discharged to the Baltic Sea if guideline values for release levels are exceeded. In an encapsulation plant located at Forsmark all handling is dry, so any radioactivity will primarily be emitted to air and not to water.

SKB expects no releases of radioactive substances from the final repository. If damaged canisters are deposited or if the canisters do not remain intact, radionuclides can escape. Possible transport pathways and receiving waters as well as the consequences of such leakage are analyzed and described in safety assessments.

SSI sets limit values on releases of radioactive substances and monitors releases from nuclear installations to, for example, the Baltic Sea. They also take samples in sediments and on land. The releases are well below the official limit values.

The countries around the Baltic Sea were recently informed by the Swedish Environmental Protection Agency of SKB's plans regarding the encapsulation plant and the final repository. They have also been asked whether they want to participate in the consultation process. Their answers are expected during the spring of 2006.

3.30 Regarding the Oskarshamn EIA Forum and the Forsmark Consultation and EIA Group, Milkas finds that the seating arrangements were disturbing for the democratic process during the meeting. The environmental organizations and private citizens were seated behind the representatives from the industry, the municipality and the County Administrative Board. The time provided for questions was too short. Milkas is pleased by the decisions that the Oskarshamn EIA Forum should be open to the public and that environmental organizations who obtain funding from the Nuclear Waste Fund should be allowed to be observers in the Forsmark Consultation and EIA Group. We are also pleased by the fact that the consultation meetings of 14 and 17 November were characterized by discussion and not so much by lectures by the nuclear power industry. (MILKAS)

SKB notes these viewpoints.

3.31 Unfortunately we have noted that SKB's representatives often have a patronizing attitude towards those who express questions and criticism and try to make it seem as if the criticism is due to ignorance and should therefore be answered with explanations. Furthermore, SKB's representatives questioned whether the environmental organizations "intend to comply with existing laws and regulations". This is because we are critical of the fact that SKB is in charge of the consultation process, which is what the law requires them to do. It is not illegal for us to have a different opinion on how the consultation process should be run, and we shouldn't be treated as if it were. Milkas furthermore thinks that the nuclear power industry should not dominate the consultation process as they do, even if they are in charge of it. For example, it is possible for the minutes to be kept by an impartial party instead of SKB AB. Another prerequisite for correct minutes of the discus-

sions is the availability of a sound recording. Regarding technical aids, Milkas thinks it is wrong for the nuclear power industry to try to stop filming of the consultations. The consultations are public national forums and should be kept open. Milkas considers this to be particularly urgent because SKB AB freely uses pictures of us in the environmental movement to illustrate its publications without giving our names, organizational affiliation or the standpoints we represent. The meeting could also have a truly independent and impartial moderator, not one who is formally an outsider but has been selected by the nuclear waste company. (MILKAS)

SKB notes these viewpoints, but observes at the same time that relevant legislation places great responsibility for the consultation process on the activity operator, which SKB tries to live up to.

At previous consultation meetings, SKB has taken photographs and some meetings have been recorded by participants. We have then pointed out that we take photographs and that we may use the pictures in our information material. However, it has been pointed out to SKB that photographing and recording of meetings could inhibit participants from speaking freely. In order to encourage everyone to participate actively in the consultations, SKB is of the opinion that recording and photographing should not take place at future meetings. So that no one need question the correctness of the records of the meetings, we have switched from writing notes to writing more formal minutes and giving the meeting an opportunity to appoint minutes checkers.

3.32 Finally I would like to point out that on several occasions I have observed an unfortunate attitude on the part of the nuclear waste company manifested in their trivializing the private citizens in attendance by claiming that they are not interested in the important future risk issues, but by less important issues such as roads, jobs and temporary noise disturbances. Representatives of SKB AB have even tried to turn private citizens against us by claiming that the issues we consider of central importance, such as radiation, are not of interest to the public. (MILKAS)

The final disposal of spent nuclear fuel includes many questions, and SKB has chosen to conduct consultations with various themes. At recent meetings, issues relating to the design of the facility have been in focus. For those who live and work locally, issues having to do with roads, traffic, jobs and disturbances in the form of e.g. noise are important issues. It is not SKB who claims that these issues are important, but rather nearby residents who ask this type of question at our consultation meetings. We must let all parties, with different types of questions, have their voices heard at our meetings. Issues relating to alternative methods, siting and safety matters will be themes at upcoming consultation meetings.

3.33 In what way does splitting the application procedure benefit the EIA process and improve the chances of obtaining a complete and comprehensive EIS? (Oss)

Since the applications under the Environmental Code in 2008, with associated EISs, will now cover the entire final repository system, this provides the best opportunities for a complete and comprehensive EIS.

An important reason for submitting an application for the encapsulation plant under the Nuclear Activities Act in 2006, instead of submitting all material at once, is to give the regulatory authorities an opportunity to begin the review. SKB decided to submit this application in 2006 after having vetted the idea with the concerned regulatory authorities, county administrative boards and municipalities.

We expect the concerned parties to make a coordinated decision on the encapsulation plant and the final repository on one occasion. It is our hope that the Government will make decisions on permissibility under the Environmental Code and a permit under the Nuclear Activities Act in 2010.

3.34 In its review of RD&D 2004, SSI pointed out that an in-depth and more detailed description of e.g. the underlying reasons for the design proposals is lacking and that the limited account provided so far makes it more difficult to review and follow up previously expressed viewpoints. How will SSI's viewpoints be reflected in the application that will now be submitted?

How will SSI's wishes for a more flexible design of the facility be handled so that the requirement on BAT can be met?

SSI has pointed out the lack of a risk assessment from a radiation protection perspective – an identification of risks during operation. How and when will such an assessment be provided? (Oss)

The layout of the facility after the preliminary design phase is documented in *Facility Description*. An account is provided of the requirements and premises that have governed the design, such as client requirements, laws and regulations and technical design premises (for example co-functions with Clab). The description will be included as an appendix to the application under the Nuclear Activities Act.

The design premises include designing the facility so that future improvements are possible.

Risks that can have radiological consequences during the operating period of the encapsulation plant are described in preliminary safety analysis reports (PSARs), which are submitted together with applications under the Nuclear Activities Act.

3.35 How does SKB AB justify that a facility that produces radioactive releases to the Baltic Sea is compatible with the goals and purposes of the environmental legislation, and how will the company report this so that it is possible to determine the choice of BAT? (Oss)

SKB will present its arguments in accordance with the Environmental Code's general rules of consideration in its permit applications. See also reply to question 3.29.

3.36 Will SKB AB explain in the application for the encapsulation plant how the plant interacts with other nuclear installations so that the combined environmental load can be determined?

Does the total release quantity lie within the limit of what is permitted by the environmental legislation in the light of the objective of sustainable development? (Oss)

The EIS for the encapsulation plant in 2006 will include a description of the technical systems that will be shared by Clab and the encapsulation plant. The environmental impact assessment is based on the present-day environmental load of existing activities, including nuclear installations. To this will be added additional pollution from the encapsulation plant.

The total environmental load for the final repository system, including the encapsulation plant, will be stated in the applications and EISs submitted under the Environmental Code in 2008.

Release quantities, effects and impact are detailed in EISs. SKB will also check estimated impacts against environmental objectives. The examination of SKB's permit applications under the Environmental Code will include an assessment of whether the total release quantity lies within what the environmental legislation stipulates as permissible for achieving the objective of sustainable development.

3.37 Will a PSAR be finished and presented in conjunction with the submission of an application in 2006?

Will the PSAR include scenarios of accidents so that it is possible to assess the possible environmental consequences? (Oss)

Yes, the preliminary safety analysis report for the encapsulation plant will be finished and presented in conjunction with the submission of an application in 2006. It is, however, not certain that all parts will be reported publicly. The preliminary safety analysis report includes scenarios for nuclear accidents, which means that possible consequences are described solely from a radiological perspective.

3.38 The background material for the consultation on 14 November 2005 says that “The compliance of the project with applicable legislation (the general rules of consideration in the Environmental Code etc.) is planned to be reported in the application but not in the EIS.” Which application is referred to by this wording – the application under the Nuclear Activities Act in 2006 or the application under the Environmental Code in 2008? (Oss)

The application referred to in the background material for the consultation is the application for the encapsulation plant under the Nuclear Activities Act in 2006, but SKB will describe the compatibility of the project with the environmental quality objectives in the EISs in both 2006 and 2008.

3.39 What legal ground does SKB AB have for claiming that questions raised in the regional meetings have the same legal status in the coming permissibility assessment and licensing process as questions raised in the extended consultations?

Does SKB AB intend to clarify the function of the statutory consultation procedure and distinguish it from other consultation forms, or to integrate these other consultation forms in the regulated extended consultations? (Oss)

Chapter 6, Sections 4 and 5 of the Environmental Code says that consultation shall also take place with “...other government agencies, municipalities, citizens and organizations that are likely to be affected. The consultation shall be carried out in good time and to an appropriate extent before submitting an application for a permit and preparing the environmental impact statement that is required in accordance with Section 1.” Furthermore, the Environmental Code makes the activity operator, in this case SKB, responsible for conducting the consultation in the manner found appropriate. The important thing is that we consult with all parties mentioned by the Environmental Code. How we do this must be our responsibility.

The consultations within the framework of the Oskarshamn EIA Forum and the Forsmark Consultation and EIA Group deal with questions in conjunction with SKB's plans to site an encapsulation plant and a final repository for spent nuclear fuel at the respective sites. Representatives of SKB, the Swedish Nuclear Power Inspectorate (SKI), the Swedish Radiation Protection Authority (SSI), and the concerned county administrative board and municipality participate in the group. The local county administrative board chairs the meetings.

SKB has always been clear about which meetings, consultations etc. are included in the formal consultation under the Environmental Code.

3.40 Why does SKB continue to oppose the idea of appointing independent monitors and persons to keep the minutes and making sound recordings? (Oss)

Relevant legislation places great responsibility for the consultation process on the activity operator, which SKB tries to live up to. A monitor had been engaged for the most recent meeting.

At previous consultation meetings, SKB has taken photographs and some meetings have been recorded by participants. However, SKB has been criticized for the fact that photographing and recording of meetings could inhibit participants from speaking freely. In order to encourage everyone to participate actively in the consultations, SKB is of the opinion that recording and photographing should not take place at future meetings. So that no one need question the correctness of the records of the meetings, we have switched from writing notes ourselves to more formal minutes, where the meeting has an opportunity to appoint two persons to check the minutes.

3.41 Why has SKB AB engaged an external consulting company for the consultation process, and why aren't the participants in the consultation process informed about this? (Oss)

SKB has previously been criticized because SKB employees have been monitors at consultation meetings. In response to this criticism, SKB engaged a consultant this time who has been a monitor in other contexts and whose principal business is not conducted with SKB, completely in line with the wishes of the conservation and environmental organizations.

3.42 Will SKB AB arrange for sound recordings to be made during the consultation meetings to guarantee accurate records of the meetings in keeping with the viewpoints expressed by the municipalities and the environmental organizations? (Oss)

SKB does not wish to arrange for sound recordings to be made at the consultation meetings. At previous consultation meetings, SKB has taken photographs and some meetings have been recorded by participants. However, SKB has been criticized for the fact that photographing and recording of meetings could inhibit participants from speaking freely. In order to encourage everyone to participate actively in the consultations, SKB is of the opinion that recording and photographing should not take place at future meetings. So that no one need question the correctness of the records of the meetings, we have switched from writing notes ourselves to more formal minutes, where the meeting has an opportunity to appoint two persons to check the minutes.

3.43 Will something be included in SR-Can, beyond what has so far been presented, that has a bearing on the assessment of the performance, safety and possible environmental impact of the encapsulation plant?

Why should an application under the Nuclear Activities Act be submitted before SR-Can and the system analysis have been presented as a basis for the consultation procedure?

What is the reason for the chosen order of events, and in what way does this order benefit long-term safety and an elucidation of possible environmental impact? (Oss)

SR-Can concerns the performance of the canister in a long-term perspective – the long-term safety of the final repository. The facility description, the preliminary safety analysis report, the EIS, the environmental risk analysis and other documents will describe the performance, safety and possible environmental impact of the encapsulation plant.

Neither SR-Can nor the system analysis are included in the application under the Nuclear Activities Act for the encapsulation plant. SKB would however like to show what the documents look like in order to obtain feedback on the documentation that will be submitted in 2008.

If you would like to read more

Some brochures and reports from SKB with a bearing on the ongoing consultations and site investigations are shown below. All are available at www.skb.se or can be obtained on request.

“Scoping reports”

Scope, delimitations and studies for environmental impact assessments (EIAs) for encapsulation plant and deep repository for spent nuclear fuel – for Oskarshamn and Forsmark (in Swedish only). SKB report R-05-63 (Forsmark) and R-05-64 (Oskarshamn). The reports contain SKB’s proposals for what the EIA work should include and how its scope can be defined.

Annual reports

Site investigations are being conducted in Oskarshamn and Forsmark. Each site publishes its own annual report describing the past year’s activities (available in English).

SKB’s social science research is available for the first time in an annual report, *Social Science Research 2005* (in Swedish only).

Other reports

RD&D-Programme 2004. Programme for research, development and demonstration of methods for the management and disposal of nuclear waste, including social science research.

Information on canisters and encapsulation is provided in the report “*Encapsulation – When, where, how and why?*” (in Swedish only)

Laws and regulations stipulate requirements on final disposal of spent nuclear fuel. SKB has previously used both terms “deep repository” and “final repository” for the repository for spent nuclear fuel. Both designations refer to the same thing. Nowadays SKB only uses the designation “final repository”. A final repository for radioactive operational waste from the nuclear power plants, SFR, already exists in Forsmark.



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