

Understanding the Choices – The Future Management of Canada’s Used Nuclear Fuel.

NWMO Discussion Session Final Summary Report

**Wednesday, December 15, 2004
Kenora, Ontario
Best Western Lakeside Inn and Conference Centre**

1.0 PARTICIPANTS

There were eighteen participants at the discussion session in Kenora.

The NWMO representative was Pat Patton and the assessment team member was John Neate. Christel von Engelbrechten and Sarita Swamy were present from DPRA Canada.

The following is a summary of comments from the Kenora discussion session.

2.0 MANAGEMENT APPROACHES

What are the strengths and limitations of each management approach?

2.1 Storage at Reactor Sites

2.1.1 Strengths

- No comments were made regarding the strengths of storage at reactor sites.

2.1.2 Limitations

- No comments were made regarding the limitations of storage at reactor sites.

2.1.3 Other Comments on Storage at Reactor Sites

- A concern was raised about the potential for planes flying into power plants or into used fuel storage repositories.
- A participant was concerned about what the process has not thought of regarding security.
- The question of “how long do current storage containers last”, was raised?
- One participant felt that Canada’s nuclear reactor sites are among the least secure in the world. The participant expressed that it is difficult to put faith in a management approach when the organization which formed the NWMO has not made adequate efforts to secure power sites.

2.2 *Deep Geological Disposal*

2.2.1 Strengths

- One participant suggested that deep geological disposal over the long-term might be the safest management option.

2.2.2 Limitations

Participants noted the following limitations:

- A fear was expressed that future generations will forget where the waste is located if it is buried underground.
- Leaks can occur in areas where monitoring is not taking place.
- If nothing is guaranteed, deep geological disposal cannot be a viable option because you need to be able to access and rebuild containers.
- Burying the waste involves less responsibility and less monitoring. If a problem develops, society would not be able to access the site immediately.
- There are still many unknowns regarding how geology works. We're dealing with an option that will involve millions of years for something that we've studied only several years. Proven facts have in the past proved to be erroneous.

2.2.3 Other Comments on Deep Geological Disposal

- Deep geological disposal could be used as storage located in close proximity to where nuclear energy is being produced.
- Will there be long-term monitoring for deep geological disposal?
- Is deep geological disposal the least expensive out of the three management options proposed?
- Consider constructing more than one deep hole. There would be fewer concerns surrounding transportation issues if there was more than one deep repository.

2.3 *Centralized Storage*

2.3.1 Strengths

There were no comments made regarding the strengths of centralized storage.

2.3.2 Limitations

- A comment was made that monitors cannot be trusted, especially over the long time period involved for the management of used nuclear fuel.

2.3.3 Other Comments on Centralized Storage

- No community will accept nuclear waste.
- If a community accepts nuclear waste, it may be for economic reasons for disadvantaged communities.
- Is it possible to have centralized storage at reactor sites?
- Monitoring should be in place all the time.
- How can safety in transporting the waste be ensured? In the Kenora area, there is only one transportation route.
- A region's tourism potential should be considered when siting a centralized storage facility.
- Since uranium came from Northern Saskatchewan, can the waste be returned there?
- A centralized storage site would probably require a lot of space, and therefore would rule out locating a site in southern Ontario.
- What would be involved in monitoring?

3.0 ASSESSMENT FRAMEWORK

Is the assessment framework comprehensive and balanced? Are there gaps, and if so, what do we need to add?

Participants made the following comments/questions regarding the assessment framework:

- Above ground storage of used nuclear fuel must ensure safety from terrorism.
- The suggestion that rock is stable is based on two to three generations. Yet decisions will be made affecting millions of years. The participant further noted that scientific facts change over time.
- The seven reactor sites are assumed to be safe. If the security of power plants cannot be ensured, it doesn't give credibility to storing nuclear waste underground.
- The Nuclear Fuel Waste Act does not provide any safeguards for not importing nuclear waste from other countries.
- Social and political structures can change over time. If nuclear waste is buried, society is less likely to explore alternatives.
- There is too much responsibility placed on future generations to monitor stored nuclear waste for such long time frames.
- It's easier to monitor nuclear waste if it is located above ground.

4.0 IMPLEMENTATION PLAN

Are there specific elements that you feel must be built into an implementation plan? What are your thoughts on what a phased approach must include?

Participants made the following comments/questions regarding an implementation plan:

- Burying the waste limits society's ability to retrieve the waste.
- How can society trust the monitors of nuclear waste?
- Responsibility should rest with the nuclear power industry.
- Transporting the waste through the North is a concern since highways in the area are in poor shape and accidents commonly take place.
- The storage site should be located far away from wilderness areas, bodies of water, and areas that depend on or have the potential for tourism.
- During the siting process, seasonal residents of an area should be included in decision-making.

5.0 Additional Comments on Discussion Document 2

No comments were made with respect to the document, "Understanding the Choices?".

6.0 Other Comments

Other comments that were received by participants at the discussion session in Kenora, which were not directly related to Discussion Document 2, have been grouped under thematic headings and are summarized below.

International Issues

- One participant asked what Japan is doing with its nuclear waste.
- A question was raised as to who benefits from uranium mining occurring in Saskatchewan.
- A concern was raised about Canada's role internationally on the management of used nuclear fuel.

- A question was raised as to whether information gathered from this process is being made available to other countries, including those countries Canada has sold nuclear reactors to.

Energy and Alternative Technologies

Participants raised the following comments/questions:

- Future technologies might prove to be a better management option for used nuclear fuel.
- More funding should be allocated to clean alternative energy sources.
- Is there another group in place that is asking the question of whether society wishes to continue nuclear energy production?
- Society must start increasing energy conservation initiatives.
- While businesses use the most energy, each individual has the responsibility to conserve energy.

The Nuclear Waste Management Organization and Public Engagement

- One participant asked the question and was concerned that if a new technology emerges, it could be implemented without going through the same rigorous review process that the NFWA requires of the three options described in the Act.
- A participant made reference to the Pembina Institute, which conducted a cost-benefit study of nuclear generation over fifteen years comparing this to energy conservation initiatives. Conservation was shown to be more cost-effective.
- A comment was made that the continued production of nuclear waste should be addressed in the NWMO's mandate. The mandate should include support of sustainable alternative solutions.
- One participant asked whether similar public consultations were held thirty years ago prior to building nuclear power plants.
- One participant commented that often there is cynicism surrounding public consultations.
- A question was raised about whether consultations were being undertaken with Aboriginal communities.
- The question, "How confident is the NWMO that the Government of Canada will accept your recommendation?", was asked.
- One participant asked, "If citizens decide that certain options are unacceptable, what options would NWMO propose?"
- A comment was made that there is not enough time given to make a recommendation on the future management of used nuclear fuel.
- The question, "What is the basis for the Nuclear Waste Act?" was raised.
- One participant asked if any of the experts that will make the recommendation on this issue live on the Canadian Shield?
- A suggestion was given for the NWMO to put together an information program on T.V before making their recommendation to the government of Canada.

Nuclear Energy and Used Nuclear Fuel

- Many participants voiced the opinion of discontinuing nuclear power generation in Ontario and Canada.
- Several participants were opposed to having a nuclear waste storage facility located in the North.
- The question of how much nuclear waste will be generated in the future was raised.
- A participant asked, "What is the material that protects the environment when nuclear fuel is moved from wet to dry storage, and how long does this material last?"

- One participant opposed nuclear waste being stored in Nishnawbe Aski Nation territory. The participant further noted that his attendance at the discussion session does not mean agreement with the process.
- A comment was made that nuclear energy was the great promise for cheap energy. However, it was noted that the true costs of nuclear energy have not been considered.
- A question regarding the amount of time left until the containers of the current fuel bundles need to be replaced was asked.

Security

- A participant asked whether the Nuclear Fuel Waste Act was created in response to the 911 attack in New York City, U.S.
- Participants asked how can we ensure the security of used nuclear fuel from potential terrorist attacks, and how can we protect nuclear waste site(s) against ballistic missiles?

Other Comments

- Will underground containers be repackaged every 300 years?
- It is better to have the used fuel stored in a facility where it's monitored constantly.
- The North is sometimes viewed as a dumping site.
- One comment expressed the need for greater personal responsibility for energy conservation.
- There needs to be assurance via legislation that Canada will not take other countries' nuclear waste.
- What was the solution for nuclear waste disposal 30 years ago?
- Over the next 40 years, society can find better management solutions versus making a decision now on a management approach to adopt.
- One participant preferred shallow underground storage and suggested that this be monitored.
- One participant made reference to a book entitled "Perils of the Peaceful Atom" by Richard Curtis and Elizabeth Hogan, 1966. The participant quoted from the book "unfortunately, mankind has practically no experience in perpetual creations, for radioactive waste containment". The book describes an accident that occurred in 1966 at the Enrico Fermi Power Plant at Lagoona Beach, Michigan.
- The following comments were submitted by one participant:
 - the public expects that their input should affect the final outcome of a decision. Too often though, public consultations do not achieve the results the public expects of them.
 - It appears that from reading the material provided regarding the three management options, deep geological storage is favoured as the best management option.
 - Deep geological disposal is based on today's costing and security information. No knowledge is available as to what the future might bring. Future generations should be able to access the material if and when a future technology provides a better management solution.
 - Nuclear waste if to be buried, should be located in eastern Ontario for the following reasons: 1) shorter distances involved to transport the nuclear waste from reactor sites; 2) expertise and resources are close enough to monitor the waste and deal with any emergencies; 3) several military bases are within this region and should be charged with protecting the site; 4) since northern Ontario communities do not benefit from nuclear energy, they should not be required to deal with the waste; 5) there will be more incentive to seek out alternative energy

sources; and 6) like most of Ontario, the north is covered with many bodies of water.

- It would be more difficult to detect and resolve problems occurring i.e. degradation of storage containers if the deep geological option is chosen. This problem should be added to future informational material for discussion.
- Security and monitoring must continue at any storage site until such a time when the waste can be neutralized.
- The suggestion of utilizing more natural gas at the previous information session would not be a viable option as it would exhaust one energy source to replace another, and would increase the price for both energy sources.
- The federal and provincial governments should spend more money on research and development of alternative energy sources at the same time this process is taking place. They should also enforce proper regulation and control regarding energy prices.
- The government would be erroneous to allow a community to accept nuclear waste for economic gain.
- The implementation timeline is too soon to make a final decision by next November 2005. More time should be set aside in order to consult with a larger portion of the Canadian population.
- If the government were to spend as much money on the science of learning how to neutralize the waste as it spends on the issue of long-term storage, society may be further ahead.

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