

UPDATE ON RADIOACTIVE WASTE MANAGEMENT IN THE UK

John Dalton, Corporate Communication Manager
Ann McCall, Head of Safety and Strategy Development,
United Kingdom Nirex Limited, Curie Avenue, Harwell, Didcot, Oxfordshire, OX 11 0RH, UK
Phone: (01235) 825 500 Fax: (01235) 820560
email: john.dalton@nirex.co.uk

ABSTRACT

This paper provides a brief background to the current position in the United Kingdom (UK) and provides an update on the various developments and initiatives within the field of radioactive waste management that have been taking place during 2002/03. These include:

- The UK Government's Department of Trade and Industry (DTi) review of UK energy policy;
- The UK Government's (Department of Environment, Food and Rural Affairs (Defra) and Devolved Administrations*) consultation programme;
- The UK Government's DTi White Paper, 'Managing the Nuclear Legacy: A Strategy for Action'; and
- Proposals for improved regulation of Intermediate Level Waste (ILW) conditioning and packaging.

These various initiatives relate, in Nirex's opinion, to the three sectors of the industry and this paper will provide a comment on these initiatives in light of the lessons that Nirex has learnt from past events and suggest some conclusions for the future.

INTRODUCTION

The Nuclear Industry Radioactive Waste Executive (NIREX) was set up in 1982 to research, develop and operate radioactive waste disposal facilities on behalf of the nuclear power industry. In 1985 it became a limited company (UK Nirex Ltd.), with shares owned by the major waste producers, and a special share held by the Government to give it safeguarding powers. The UK's Ministry of Defence (MoD) contributes funding, but is not a shareholder. Nirex is the UK organisation charged with providing the UK with safe, environmentally sound and publicly acceptable options for the long-term management of radioactive materials.

In the UK, work on finding a solution to long-lived radioactive waste has been on-going since the 1970s. The decision to focus the search for a disposal site for intermediate-level wastes at a location close to Sellafield, Cumbria took place in 1991. This led on to a public inquiry in 1995-96 into the planning application made in 1994 to build an underground laboratory or Rock Characterisation Facility (RCF). The outcome of the planning inquiry was rejection of the Nirex application, which effectively stopped any further work on finding a site.

Since the rejection of the planning application in 1997, Nirex has been considering what went wrong so that any future attempt to find a solution to this difficult problem, can benefit from the mistakes of the past (1). Nirex has not been alone in the UK in considering how we move forward and various initiatives have commenced to try and find a suitable solution to the problem.

ROLE OF NIREX

The current Nirex Mission is:

“To provide the UK with safe, environmentally sound and publicly acceptable options for the long-term management of radioactive materials”.

Our current role is to:

- carry out scientific and engineering research to help develop safe and environmentally sound options for dealing with radioactive waste in the long-term;
- maintain an inventory of radioactive waste in the UK in conjunction with Department of Environment, Food and Rural Affairs (Defra);
- set specifications, standards and advise the industry on how to treat and package radioactive waste;
- communicate with all stakeholders, including the public, to build understanding and develop ways of addressing the wide range of concerns and views surrounding the management of radioactive waste.

The waste producers are responsible for the management of radioactive waste during the periods when the plant is operational and awaiting decommissioning. Decommissioning activities can include the recovery, treatment and conditioning of raw wastes and their storage in a passive form. Nirex recognises that the pressure from regulators and Government to reduce potential hazard is increasing. Nirex is committed to helping waste producers achieve their short-term hazard reduction goals, and is actively seeking ways to streamline its own processes for helping to ensure consistency with long-term waste management policy.

Nirex is not a regulatory body. Our role has been to advise the nuclear industry, regulators and Government. Increasingly, however, we are finding that we have another important role. This is to help individuals and organisations reach decisions about the long-term management of radioactive waste. This is now a central feature of our work.

BACKGROUND

Radioactive waste exists today in the UK. We believe that dealing with this is an ethical issue that society as a whole must address. Responsibility rests with this generation, now, to take the steps necessary for creating the framework in which a publicly acceptable way forward is found.

Nirex believes that the central lesson to learn from the past and from international experience is that progress towards a legitimate radioactive waste management policy depends on **transparency**. Everybody needs to be able to see how the policy has been, is being, and will be developed and implemented. The roles, responsibilities and accountabilities of all parties need to be clear and visible. The institutional framework needs to allow society to understand and influence all aspects of this endeavour.

Developing legitimacy will, in our view lead to public acceptance. In the UK we believe that there must be legitimacy of purpose, as the waste exists. The scope must also be legitimate, as it is an ethical issue,

and there must be legitimacy of arrangements . Therefore, with transparency as a pre-requisite, lessons learned can be analysed into three themes:

- **Structure** – the organisational arrangements between the major players;
- **Process** – the way policy, plans and programmes are developed and implemented;
- **Behaviour** – how the different organisations involved interact with each other and stakeholders.

The first major theme identified by Nirex in its analysis of lessons learned from the past is that of **structure**. The structure of an industry affects:

- policy development and decision making;
- public confidence;
- visibility of issues;
- drivers and incentives;
- ability to regulate effectively.

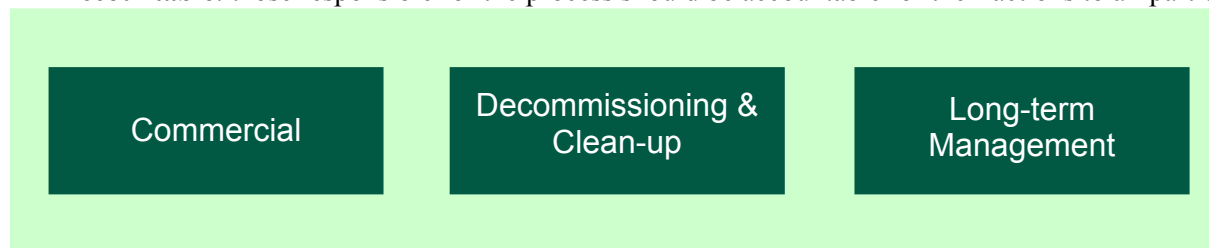
The second major theme identified by Nirex in its analysis, is that of developing a legitimate decision making **process**. This suggests that the **way** in which policy is developed and implemented in the UK is as important as the policy itself. Experience both in the UK and internationally (9,10,11,12,13) points towards certain key features of the process needing to be present if an emerging policy is to be seen as legitimate by society as a whole. Nirex believes that these include the following features:

- setting up appropriate organisations at the beginning of the programme to undertake the work;
- a clear programme, developed through consultation that addresses:
 - what work needs to be undertaken,
 - who will undertake the work,
 - how people can become involved,
 - what outcomes are required,
 - how and when decisions will be made;
- stakeholder and public involvement throughout the programme, by actively seeking of stakeholders' views by the organisations involved in waste management;
- justification of all decisions showing how stakeholders' views and the outcomes of consultation have been taken into account;
- providing feedback to all those who participate.

As well as addressing the structure and process themes previously mentioned, it is also critical not to forget the third major theme identified by Nirex as that of **behaviour**. We believe that the behaviour of all major players involved in long-term radioactive waste management must be:

- **Open**: debate must take place in the public domain and there should be free access to all relevant information. Those involved should be open to influence from people with different opinions and perspectives.
- **Transparent**: the reasoning behind actions, deliberations and decisions should be made available. It must be clear from the outset how stakeholders and the wider public can be involved and how their opinions will be taken into account and used.

- **Accountable:** those responsible for the process should be accountable for their actions to all parties.



This includes publicising the reasoning behind decisions and giving people feedback on how their views have been taken into account.

Nirex strongly recommends that transparency and whistleblower policies be maintained and developed in future initiatives.

Nirex believes that the application of these lessons could help create an environment where society would take responsibility and address the issue of the long-term management of radioactive waste. We recognise that progress would also require political support and leadership, in an area of policy that has traditionally been seen as politically difficult.

Under these themes, the very complex sets of relationships between national and local interests, science and society and the culture of different groups of people involved can be brought into focus. We believe that some very clear recommendations for ways forward, based on the lessons learned, come out of this analysis.

This paper provides a Nirex view of how the UK strategy for dealing with radioactive waste today, whilst planning for the future, is taking shape.

WIDER CONTEXT

Over the last year the UK Government has undertaken a number of initiatives that will impact on how the UK is to manage its radioactive waste. These include:

- The UK Government's Department of Trade and Industry (DTi) review of UK energy policy;
- The UK Government's (Department of Environment, Food and Rural Affairs (Defra) and Devolved Administrations) consultation programme 'Managing Radioactive Waste Safely' (2);
- The UK Government's DTi White Paper, 'Managing the Nuclear Legacy: A Strategy for Action' (3).

In responding to these various initiatives Nirex has drawn on the experience it has from attempts to implement Government policy and the lessons learnt from these activities.

Nirex sees the future UK nuclear industry as divided into three sectors, each with a different focus (see figure 1).

Figure 1: Sectors in future UK nuclear industry

The Commercial sector includes fuel fabrication, nuclear power production, plant construction and operation and other commercial services. It will be influenced by the forthcoming white paper on energy policy, particularly in considering possible replacement build for existing nuclear power plants and the role of nuclear energy as part of a diverse energy policy and this is not discussed further in this paper.

The Decommissioning and Clean-up sector will be established with the creation of the Liabilities Management Authority (LMA), or the Nuclear Decommissioning Agency (NDA) as it appears now to be called. See the section on DTi's white paper – Managing the Nuclear Legacy, for more information.

The Long-term Management sector will potentially be influenced by all the government initiatives mentioned above. For example, if new or replacement reactors were built in the UK, Nirex believes that this would affect the inventory of the wastes to be managed. It would therefore be important to involve the Long-term Management sector at the concept stage of any reactor development, so that any long-term waste management issues can be considered as part of the decision making process. Equally the relationship between the Long-term Management sector and the Decommissioning and Clean-up sector must be clearly explained.

DTi's review of energy policy

The DTi is expected to publish its white paper on energy policy in the near future. It is thought that this will be a fundamental policy document setting out the direction for the next 50 years. It will address the issues raised in the Government's Performance and Innovation Unit's (PIU) report (4) which reviewed the energy supply in the UK and recognise the long-term management of radioactive waste as a key issue.

Defra's and Devolved Administrations Consultation Programme

Defra and Devolved Administrations launched a consultation paper in September 2001. This set out proposals for developing a policy for managing solid radioactive waste in the UK and had a proposed programme of action for reaching decisions which divided the programme into stages (see figure 2). The consultation (Stage 1) was completed in March 2002 and the Government produced a report on the responses received in July 2002 (5). In addition a number of public meetings and research projects were carried out to ascertain the views of as wide range of people as possible.

One of the key messages to emerge (6,7,8) was that most respondents accepted that the Government should review the different options for managing radioactive waste so that it could decide the best long-term solution.

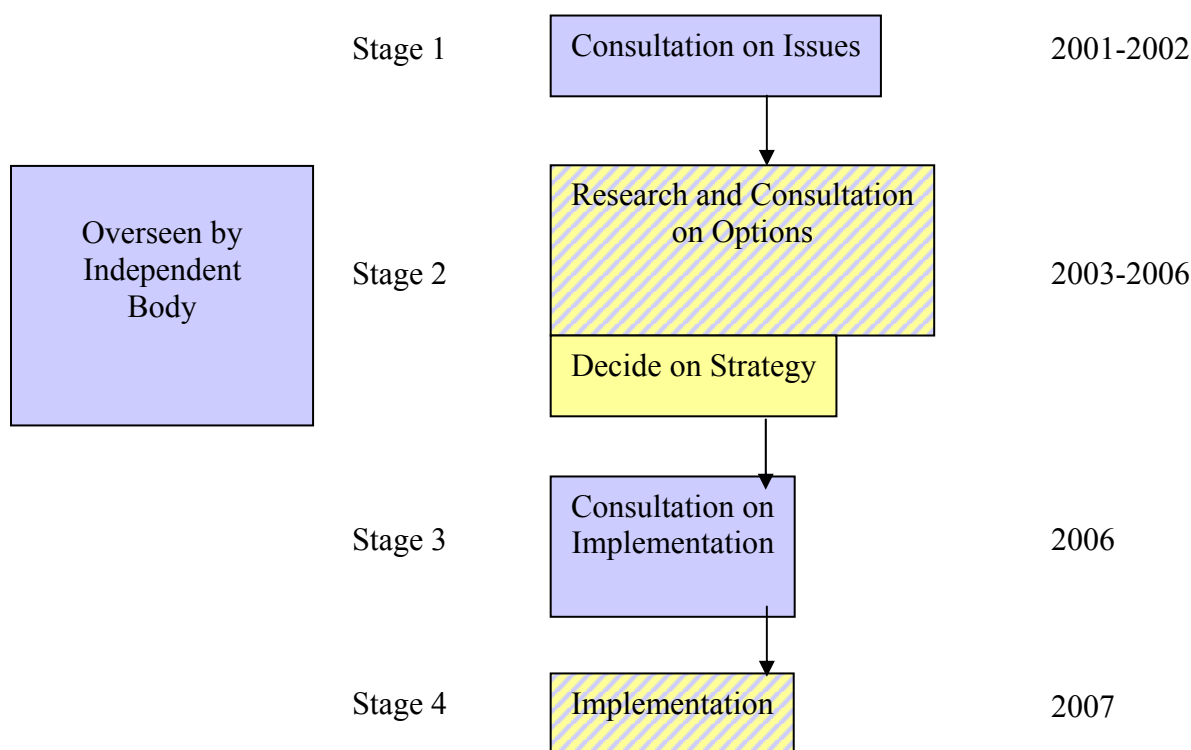


Figure 2: Stages in Defra's and Devolved Administrations programme

It was also noted that as far as public consultation is concerned, the consultation process will only work if the information given to the public is accepted by all interested parties as accurate, objective and complete.

Nirex believes that publicly acceptable long-term management of radioactive waste will require two roles to be performed. These equate broadly to that of “watcher” and “doer”, as follows:

- A review of policy (the Independent Body announced by Defra and Devolved Administrations);
- Continuing work on long-term waste management options/concepts (Nirex).

Nirex believes there needs to be a body separate from the one undertaking the review of policy to undertake detailed research on waste management options and develop these into acceptable concepts that it could implement.

Stage 2 of the programme (work on the options) is expected to start early in 2003.

DTi's White Paper – Managing the Nuclear Legacy

The UK Government's DTi produced a White Paper, 'Managing the Nuclear Legacy: A Strategy for Action' in July 2002 asking for comments by October 2002. This proposal could radically alter the structure of the nuclear industry within the UK.

The work of the Liabilities Management Unit (LMU) within the DTi, in preparing for the formation of the LMA (or NDA), will clarify how the activities of UKAEA and British Nuclear Fuels Ltd. (BNFL) split between the sectors of Commercial and Decommissioning and Clean up (alongside the MoD's activities). A separate paper 'Managing the Nuclear Legacy in the UK: Strategies and Progress in the formation of the LMA' is being presented at this conference (14).

Nirex believes the long-term management roles should be (and be seen to be) independent of the waste producers, and should not be within the LMA(15), but with safeguards to ensure that waste producers' legitimate interest in ensuring value for money and appropriate expenditures are given full consideration. Nirex's experience and the lessons learned from stakeholder feedback(16) indicate that there should be separate organisations each with a different focus, so that there is clear separation between organisations when dealing with any conflict of interests between short-term and long-term goals. Maintaining a separate organisation will ensure that the long-term issues are being addressed.

Clarity of relationships

The LMA's work is focused on the next 150 years, whereas Nirex's work also considers much longer periods of time up to 100s of thousands of years. However, decisions taken by the LMA will have an impact on the work Nirex does and the long-term waste management options available for the UK. Therefore, the relationship and interactions between Nirex and the LMA and its licensees will be very important.

Nirex supports the Government's plans to ensure there is:

- greater consistency in the treatment and management of risk and hazards;
- proportionate and cost effective delivery of public, worker and environmental protection;
- an open and transparently applied regulatory system.

We agree that strong, robust and independent regulation is fundamental to public confidence in the management of our radioactive waste legacy.

Nirex believes that there need to be clear relationships between those involved in radioactive waste management and a clear separation of roles to help to ensure effective checks and balances are built into the system. The LMA will be responsible for the conditioning, packaging and storage of most of the legacy wastes in the UK. Nirex will be involved in developing plans for the long-term management. This requires a strong direct relationship between the LMA and its licensees, Nirex and the regulators to ensure issues are clear for those making decisions.

REGULATORY INITIATIVES

Proposals for improved regulation of Intermediate Level Waste (ILW) conditioning and packaging proposals

In the UK, Nirex, as potential receiver of waste packages in the future, assess waste producers' packaging proposals against its Phased Disposal Concept (17). Where packages are found to be compatible, a 'Letter of Comfort' (LoC) is issued. This arrangement works well, but to date, has not been required by legislation.

Recently the various UK regulators, the Health and Safety Executive (HSE), the Environment Agency (EA) and the Scottish Environment Protection Agency (SEPA) have jointly been considering how improvements to existing regulation can be made, whilst preserving the best features of the current system. To this end the regulators are developing proposals with the industry and Nirex based on introducing a streamlined and effective regulatory framework over the existing 'Letter of Comfort' (LoC) arrangements.

EA/SEPA would effectively regulate long-term waste packaging issues through the Memorandum of Understanding (MoU). EA/SEPA would also need to scrutinise Nirex to satisfy themselves of the sound basis for Nirex assessments.

The regulators have stated that the new process would be staged to provide early regulatory interactions and hence early regulatory involvement. This is entirely consistent with the staged Letter of Comfort process that involves Nirex in packaging proposals from an early stage to ensure long-term issues are addressed at all stages. It is also consistent with the principles of early communications favoured by regulators, Nirex and the industry.

CONCLUSION

The various initiatives that the UK Government and others have undertaken during the last year broadly correspond with the lessons that Nirex has learnt from past events. Public consultation is underway to try and achieve support on how the UK should manage its radioactive waste and changes are expected in the organisational arrangements within the industry.

Taken together, these initiatives provide essential building blocks that hopefully will lead to a publicly acceptable solution to the issue of radioactive waste management. However, we recognise that progress would also require political support and leadership, in an area of policy that has traditionally been seen as politically difficult.

FOOTNOTE

- * Devolved Administrations means The Scottish Executive, The National Assembly for Wales, and the Department of the Environment in Northern Ireland.

REFERENCES

- 1 C. Murray, D. Wild, R. Millard, A. Littleboy and S. Tucker *Report on the Nirex Internal Inquiry January – December 2000*, July 2001.
- 2 Environmental Protection Agency (EPA) (1995), *EPA's Communication Plan for the Waste Isolation Pilot Plant*.
- 3 Future Foundation (2001), *Establishing the Value of Wider Public Consultation*, Report to Nirex.
- 4 J. Hunt (2001), *The Front of the Front End: Mapping Public Concerns about Radioactive Waste Management Issues*, Lancaster University, Report to Nirex.
- 5 E. Atherton and M. Poole (2001), *The Problem of the UK's Radioactive Waste: What Have We Learnt?*, Interdisciplinary Science Review on Nuclear Energy. Vol 26, No. 4, pp 296 - 302.
- 6 Royal Commission on Environmental Pollution (1998), *21st Report: Setting Environmental Standards*, Cm 4053.

- 7 Department of the Environment Food and Rural Affairs, The Scottish Executive, The National Assembly for Wales, and the Department of the Environment in Northern Ireland, *Managing Radioactive Waste Safely - Proposals for Developing a Policy for Managing Solid Radioactive Waste in the UK*, September 2001.
- 8 Department of Trade and Industry (DTi) White Paper, *Managing the Nuclear Legacy: A Strategy for Action*.
- 9 Performance and Innovation Unit (PIU), *The Energy Review – A PIU Report*, February 2002
- 10 DEFRA and the Devolved Administrations, *Summary of Responses to the Managing Radioactive Waste Safety (MRWS) Consultation* Sept 2001-Mar 2002, July 2002 and *Understanding and Addressing Issues of Radioactive Waste: Report of a public seminar held on 28 February 2002 at the Royal Overseas League, London*, QMW Public Policy Seminars, RW 3/34/18.
- 11 Market Research Services, *Benchmarking Public Opinion on the Management of Radioactive Waste*, Department for Environment, Food and Rural Affairs, Commissioned research for Radioactive Substances Division, July 2002.
- 12 UKCEED, *UKCEED Conference on Radioactive Waste, Reconvening of Citizen's Panel to Consider Defra's Consultation paper: Managing Radioactive Waste Safely*, March 2002.
- 13 Scottish Council Foundation, *Managing Radioactive Waste Safely: Engaging Scotland*, 2002.
- 14 A. Edwards (2003), *Managing the Nuclear Legacy in the UK: Strategies and Progress in the formation of the LMA*, Tucson Conference, February 2003.
- 15 P. Grout (2001), *The Structure of the Nuclear Power Industry with regard to Management of Radioactive Waste*, Bristol University, A Report to Nirex.
- 16 Environmental Resources Management (2001), *An independent stakeholder review of Nirex*, A Report to Nirex.
- 17 P Lock and A McCall (2001), *A Coherent Approach to the Long-term Management of Radioactive Waste*, Interdisciplinary Science Reviews, Vol 26, No. 4, p 307-312.