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HEALTH AND SAFETY COMMISSION

'Managing Radioactive Waste Safely- A framework for implementing geological disposal' – DEFRA consultation document (CD)

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Cleared by Giles Denham on 25 October 2007

Issue

1 HSC response to the DEFRA CD, 'Managing Radioactive Waste- A framework for implementing geological disposal'. The document is also issued on behalf of DTI/BERR and the Welsh and Northern Irish Devolved Administrations. While the Scottish Executive decided not to sponsor the consultation, organisations or individuals in Scotland are invited to respond.

Timing

2 For the 6 November HSC meeting. DEFRA have asked for the HSC response by 9 November.

Recommendation

3 The Commission is invited to :

- (i) Agree draft letter to DEFRA at Annex 1
- (ii) Note that HSE will continue to engage with DEFRA as these proposals go forward.

Background

4 The UK Government and the Devolved Administrations published a response to the recommendations made by the Committee on Radioactive Waste Management (CoRWM) in October 2006. They accepted CoRWM's main recommendation that geological disposal, preceded by safe and secure interim storage, was the way forward for the long term management of UK's higher activity radioactive wastes. In addition, they said they would consult on a framework for implementing geological disposal, hence the present consultation. The full CD is available at: www.defra.gov.uk/corporate/consult/radwaste-framework/consultation.pdf.

Argument

- 5 The CD follows the Government's commitment and sets out proposals for:
- a UK radioactive waste inventory;
 - the technical programme and aspects of design and delivery of a geological disposal facility;
 - the process and criteria to be used to decide the siting of that facility;
 - development of a voluntarism/partnership approach;
 - the assessment and evaluation of potential disposal sites, including the initial screening-out of areas unlikely to be suitable for geological disposal;
 - the system of regulation, especially on safety;
 - the approach to public and stakeholder engagement.

6 HSE has been involved with the development of the CD and is content with it. The document describes HSE's (including OCNS's) role accurately and contains the right messages on safety. We can therefore recommend a broadly supportive HSC response (Annex 1), to include some important points e.g. the need for the project to be properly funded and the right skilled people to be available to ensure delivery. The costs of any additional resources HSE devotes to this area in the future would be recovered from the industry.

7 The Nuclear Safety Advisory Committee (NuSAC) has also looked at the CD and commented as in Annex 2. Assuming the Commission is content, these comments can be forwarded with HSC's response. However, we recommend emphasising the point that HSC/E remains neutral on questions of nuclear new build about which NuSAC has expressed some views of its own.

Action

- 8 That HSC agrees the draft reply at Annex 1 for the Chair to send to DEFRA.

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I am writing with the Health and Safety Commission's views on your consultation document, 'Managing Radioactive Waste Safely- A framework for implementing geological disposal'.

The Commission welcomes the CD and the move towards greater clarity on the long-term management of intermediate level waste and spent fuel in the UK.

The Health and Safety at Work and Nuclear Installations Acts provide an adequate framework to control risks from managing radioactive waste. Under this framework and the established nuclear licensing system, the Health and Safety Executive (HSE) would regulate the design and construction of a deep geological facility robustly and transparently. HSE will also continue to regulate site licensees robustly to ensure safe storage of radioactive waste. As at present such regulation will be undertaken in consultation with the Environment Agency (EA) and other regulators taking into account of their views and the requirements of the legislation they enforce.

HSE will continue to work with DEFRA and other interested parties in taking these proposals forward, while of course preserving its position as an independent regulator. HSE, with other regulators, will need to engage with the NDA at an early stage in the process. It will also be important to ensure appropriate funding for the NDA's involvement in the repository programme in a way that does not compromise their existing decommissioning activities.

This is a major UK project that will of course require proper consultation and the right lead times for construction. There will be a significant skills requirement and the need for expertise from a range of technical disciplines from HSE. It will require funding over the full project period commensurate with the task. A key issue will be to ensure continuity of funding both in terms of technical resources, phased development and continued interim safe passive storage at existing sites.

Finally, I attach some observations from our Nuclear Safety Advisory Committee (NuSAC). Those observations include comments on the possibility of a UK nuclear new build programme. The Commission itself and HSE of course remain neutral on that question. And while we have no view on the Environment Agency's regulatory proposals as understood by NuSAC (Q4), HSE will continue to work closely with the Agency and other regulators to ensure that regulatory responsibilities are clear.

Judith Hackitt
Chair, Health and Safety Commission

Response of the Nuclear Safety Advisory Committee to the Public Consultation on a Framework for Implementing Geological Disposal

This is the response of the Health and Safety Commission's Nuclear Safety Advisory Committee (NuSAC) to the public consultation under the 'Managing radioactive waste safely' (MRWS) programme on a framework for implementing geological disposal. NuSAC's primary concern is that, having chosen geological disposal as the method for the long-term management of its higher activity radioactive waste, the UK implements this method in a safe and timely way. The response is arranged as answers to the questions in the consultation document¹.

Question 1: UK Radioactive Waste Inventory

- NuSAC agrees that the radioactive waste inventory should include materials that are not currently classified as waste but that may be so classified in the future. We also agree that the inventory should be updated regularly and that there should be a formal mechanism for letting potential host communities for a deep repository know that the inventory for disposal in such a repository has changed.
- There has been a tendency in the past for the compilation of the inventory to focus on details at the expense of the big picture. For example, more attention was paid to estimating the radionuclide content of some small intermediate level waste (ILW) streams than to including materials that may be classed as waste in future. It is important that the balance of effort reflects the significance of the waste or material for repository siting and design.
- It is essential that all Ministry of Defence (MoD) wastes and materials are included (for example, spent fuel from nuclear submarines, of which there is no mention in reports of the Committee on Radioactive Waste Management (CoRWM) or the Nuclear Decommissioning Authority (NDA)).
- If the government decides to allow new nuclear power stations to be built, the wastes they would produce should be added to the inventory as soon as possible. Until decisions have been taken on the design and number of new stations, a range of estimates of waste quantities should be given.
- The inventory should continue to include low level waste (LLW). Ideally, it should include all types of LLW (exempt, very low level and other) from all sources (civil nuclear industry, MoD, and medical, industrial and research establishments), so it can be used in the implementation of the government's policy on the long-term management of LLW.

Question 2: Technical Approach to Repository Development

Co-location

- The issue here is whether there should be one UK repository or two (for example, one for vitrified high level waste (HLW) and spent fuel, and one for ILW and LLW). For the reasons given in para 3.15 of the consultation document (cost, environmental impact etc), the preference is clearly for one repository. However, the reality is that it will not be known whether there has to be one repository or two until site investigations are

¹ Defra, Berr, Welsh and Northern Irish Devolved Administration, 2007. Managing Radioactive Waste Safely. A framework for implementing geological disposal. A public consultation. (Available at www.defra.gov.uk.)

underway and there is greater clarity about the inventory of wastes for disposal. This needs to be made clear at the start of the site selection process, otherwise potential host communities could feel that they have been misled.

New Build

- Neither this consultation document nor the BERR one on the future of nuclear power² are sufficiently clear about the potential implications of building new nuclear power stations for the implementation of geological disposal.
- An NDA paper³ issued with the BERR consultation document, and a Nirex report quoted in the document, show that, for an illustrative scenario of ten AP1000 reactors, with no reprocessing:
 - the activity of wastes for disposal in a deep repository would increase by a factor of 2-9, depending on the time for which spent fuel is stored prior to disposal;
 - the packaged volume of HLW and spent fuel would increase from 9,900m³ to 41,800m³;
 - a single repository for all wastes would need to be about 50% larger;
 - a repository for HLW and spent fuel would need to be about twice as large;
 - a repository for ILW and LLW would need to be about 3% larger.
- It is apparent that new build could make it more difficult to find a site for a deep repository, for technical reasons as well as those connected with stakeholder concerns. New build could also make it necessary to have two UK deep repositories rather than one. A further implication is that new build would require the repository or repositories to be open for longer, thus increasing operational accident and security risks.
- New build would increase repository costs and it is not certain that the increase could all be recovered from the owners/operators of new power stations. An increase in marginal costs (eg the 20% quoted in the BERR consultation document) could be probably recovered in a straightforward way. It is less clear whether the costs of a switch from one repository to two would be fully recoverable.

R&D

- It is unclear from the consultation document how the R&D programme on geological disposal (and alternatives) will be established and approved. The existing NDA mechanisms do not seem to be suitable because they do not involve enough people with expertise relevant to geological disposal and it is inappropriate for the NDA to specify a research programme, review and approve it, then implement it. The role of the reconstituted CoRWM in scrutinising R&D is also unclear.

Funding

- There is no mention in this consultation document or the BERR one on the future of nuclear power of how or when a mechanism for funding geological disposal will be established. Funding was a continual problem for Nirex when it existed and it is already apparent that the mechanism for funding the NDA is not suitable for very long-term projects such as siting, constructing and operating a deep repository. The BERR consultation document explains how the government proposes to recover the costs of geological disposal of new build wastes from owners/operators, but it says nothing about wastes from the existing power programme or from MoD. It is essential that an appropriate long-term funding mechanism is established before or soon after site

² BERR, 2007. The future of nuclear power. The role of nuclear power in a low carbon UK economy: consultation document.

³ Gilchrist, P, 2006. Potential waste volumes arising from new build. NDA statement.

selection begins, so that all concerned have confidence that geological disposal will be implemented in a way that meets their needs.

Question 3: Public and Stakeholder Engagement

- The proposed approach to public and stakeholder engagement seems reasonable. Too few details are given to enable further comments to be made.

Question 4: System of Regulation

- The current system of regulation would be adequate for geological disposal but some clarification is required of the responsibilities of the various regulators, especially HSE and the environment agencies.
- It is NuSAC's understanding that HSE will license a deep repository under the Nuclear Installations Act as a facility for bulk storage of radioactive wastes. A repository would be delicensed after closure and before the withdrawal of any active institutional controls. In regulating a repository HSE would focus on construction and operation (which would largely occur concurrently) but would also have an interest in post-closure safety.
- The relevant environment agency (as things stand, the Environment Agency (EA)), will focus on post-closure safety of a repository but will also have an interest in activities during the operational period. It will authorise a repository under the Radioactive Substances Act as a disposal facility. The environment agencies are developing revised guidance for authorisation (GRA) for a deep repository.
- It is NuSAC's understanding that the EA is of the view that a change of legislation is required to give it a new statutory power to regulate repository development in a staged manner⁴. There would be a number of formal regulatory decision points at which the repository owner/operator would need to seek EA approval to proceed (eg before starting detailed characterisation of a chosen site, before repository construction). Approval would be sought via an 'environmental safety case', which is developed iteratively and which focuses on post-closure safety.
- NuSAC is not convinced that such a statutory power is needed nor that there should be an environmental safety case that is separate from the nuclear safety case required by HSE. Consideration should be given to establishing an integrated HSE and EA approach to regulation of a deep repository, based on existing legislation, and with one safety case that covers all aspects.

Questions 5, 6 and 7: English Planning Reforms, Definition of 'Community', Information to Communities

No comments.

Question 8: Sub-Surface Screening Criteria

- The screening criteria are appropriate and the method of applying them seems reasonable.

Question 9: Site Assessment Criteria

- NuSAC has no comments on the proposed criteria at this stage. There should be further consultation when the criteria are defined in more detail. This consultation

⁴ Environment Agency and Scottish Environment Protection Agency, 2007. Staged Environmental Regulation of a Geological Repository – the Need for Legislative Change. Appendix 4 in the report of the 5-6 July 2007 meeting of the NDA National Stakeholder Group.

should include the methodology for use of the criteria and the mechanism for reviewing the NDA's assessments of sites against the criteria.

Question 10: Partnership Support for Voluntarism

No comments.

Questions 11 and 12: Engagement Packages and Benefits Packages

- NuSAC is in favour of government funding of communities that 'volunteer' (engagement packages) and of 'benefits packages' for host communities. Without such packages it seems unlikely that any community will volunteer to host a repository.

Question 13: Other Issues

NDA Role and Governance

- NuSAC has concerns about the NDA, as the owner of most of the waste, being the implementer of geological disposal. This is contrary to practice in many other countries, where there is a separate organisation for waste disposal. It is not clear to us how the functions of the Radioactive Waste Management Directorate (RWMD) of the NDA can be kept sufficiently separate from the NDA's other work.
- We do not understand the reasons why RWMD is to become the site licence company (SLC) for a repository (or repositories). Why should the NDA not proceed in the same model now adopted for all its other sites, ie put the construction and operation out to commercial competition whilst retaining ownership?
- The new Waste Management Steering Group within government is somehow classed as 'governance' of the NDA. This is a different type of governance to that normally referred to in the corporate world, where governance usually refers to formal mechanisms within an organisation to ensure that it behaves appropriately. The Steering Group is composed of representatives from government departments and the NDA itself, and can have no direct powers over RWMD. The advisory role of the reconstituted CoRWM adds another discussion forum without powers or decision-making responsibilities.

Voluntarism

- It is undoubtedly worth pursuing a voluntarism approach to finding a repository site (or sites) but various aspects of the proposed approach require further consideration. These are as follows.
- What is the fall back position for the situations in which no communities volunteer or all the sites that are volunteered prove unsuitable when judged against the screening criteria?
- Can a community come in at a late stage in the process, say up to Stage 3 (desk-based studies)? It is desirable to retain some flexibility.
- The process as laid out is 'convergent', ie based on all going well and gradually narrowing down to a single site. What if the final Stage 5 underground investigations came across a problem and it was necessary to revert to one of the other sites? The 'flavour' of the rejection arguments for the sites eliminated at the end of Stage 4 needs to be very carefully considered and explained so that if it is necessary to revert to one of them it is not viewed as 'second class'.

Decision-Making

- There is a need to clarify the responsibilities for taking decisions, with a view to making the various processes less diffuse and hence prone to delay. It is particularly unclear how the planning, strategic environmental assessment, sustainability assessment and environmental impact assessment procedures will fit in with HSE and EA regulatory processes, NDA processes and government decision-making.