Our ref. CoRWM doc. 2925

27 April 2011

Dear Sir or Madam,

Government Consultation on the Long-Term Management of UK-Owned Separated Plutonium

The Committee on Radioactive Waste Management (CoRWM) discussed the consultation on the long-term management of UK-owned separated plutonium (DECC, 2011) at its plenary meeting on 29 March 2011. It agreed to submit a response about radioactive waste management aspects of the long-term management of plutonium. This response is given below.

Comparisons of Plutonium Management Options

CoRWM considers that it is important that Government takes steps to ensure that its final decision on the long-term management of plutonium is based on a sufficiently comprehensive comparison of re-use with immobilisation and disposal. The Committee notes that Nuclear Decommissioning Authority (NDA) work to date (NDA, 2010, 2011) does not provide such a comparison. It is incomplete in some respects (e.g. various technical issues associated with the disposal of MOX fuel have not been explored) and the published version does not contain much quantitative information (e.g. no actual cost estimates or employment data are given). CoRWM considers that this next comparison should include all the UK's separated plutonium, not just that owned by NDA.

Optimisation of Management of Spent MOX Fuel

In CoRWM's view, it is essential that there is optimisation of the management of spent MOX fuel, from production through to and including disposal. The optimisation issues are similar to those for new build spent fuel (CoRWM docs. 2748, 2878). There is a need to assess a range of geological disposal concepts and to link these to storage times and methods, packaging and transport. The disposal concepts considered should include deep boreholes, which could have advantages for spent MOX fuel because of its high heat output. Such boreholes could form part of a geological disposal facility (GDF) for other high activity wastes. Government should recognise that arrangements will need to be made by reactor operators (in the UK and/or overseas) and NDA to undertake the necessary optimisation work.

Immobilisation and Disposal

CoRWM agrees that NDA should continue to support R&D on immobilisation processes. However, it suggests that R&D on immobilisation of separated plutonium in cement should be discontinued. The Committee emphasises that, as well as this work on immobilisation processes, R&D is required on the behaviour of the immobilisation products in a GDF. There is also a need to consider a wide range of geological disposal concepts. These should include deep boreholes, which

could be an attractive option for immobilised plutonium, perhaps as part of a GDF for other higher activity wastes.

Timing of Implementation

CoRWM notes that the assumed timing of implementation is an important factor in a comparison of re-use with immobilisation and disposal. For example, there are considerable cost advantages in delaying immobilisation until a GDF is available, because this avoids the cost of building, operating and decommissioning a new store for the immobilised product. On the other hand, a delay to MOX fabrication would increase the likelihood that it would not be possible to deal with the americium content of the plutonium by blending and that additional chemical clean up of the plutonium would be required. The Committee has included scrutiny of NDA work on the management of plutonium in its proposed work programme for 2011-12 (CoRWM doc. 2919) and intends to monitor development of Government policy.

Yours sincerely,

Robert Pickard

Chair of CoRWM

References

CoRWM doc. 2748. Response from CoRWM to the Government Consultation on the Draft National Policy Statements for Energy Infrastructure. March 2010.

CoRWM doc. 2878. Government Consultation on Revised Draft National Policy Statements for Energy Infrastructure. January 2011.

CoRWM doc. 2919. Committee on Radioactive Waste Management, Proposed Programme of Work 2011-14. March 2011.

DECC, 2011. Management of the UK's Plutonium Stocks. A consultation on the long-term management of the UK-owned separated civil plutonium. February 2011.

NDA, 2010. Plutonium Credible Options Analysis (Gate A). Version 2.0. Nuclear Materials. Doc. Ref. SMS/TS/B1-PLUT/002/A.

NDA, 2011. Plutonium Strategy, Current Position Paper, February 2011. Nuclear Materials. Doc. Ref. SMS/TS/B1-PLUT/001/A.