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Unique No: UN REG WEC 00098
Our ref DCP_JNE_000105

Reference
Date: 19th October 2009

Subject:

Generic Design Assessment – Disposability Assessment for the Westinghouse Passive Pressurized Water Reactor (AP1000) – Westinghouse Electric Company Opinion

Dear Dr. Grundy:

1. Background

As part of the Generic Design Assessment phase of the AP1000 licensing process, Westinghouse Electric Company was required to demonstrate that environmental considerations had been adequately addressed in the design. As part of that exercise, Westinghouse asked the UK Nuclear Decommissioning Authority to assess the disposal of intermediate level waste and high level waste.

The UK AP1000 Environment Report explains the nature, form and quantity of such wastes after the appropriate processing and storage at site. In order to complete the environmental and the safety overview of the higher activity wastes, including spent fuel, further work was needed to ensure that the wastes were in a form to enable them to be transferred to a final repository where they could be disposed in a safe and environmentally sound state. This exercise was beyond the capability of Westinghouse and its contractors as it required specialist knowledge of the design intent of such a repository, and the appropriate evaluation tools to carry out such an assessment. As a result, Westinghouse placed a contract with the Radioactive Waste Management Division (RWMD) of the NDA, who has such knowledge, to carry out an assessment of the disposability of potential wastes on our behalf. To enable such an evaluation, Westinghouse provided RWMD with the appropriate information concerning AP1000 wastes that allowed them to carry out such an assessment. The RWMD assessment has been placed in the eRoom (UKP-GW-GL-012) on **Row 739**.

2. Purpose of the Westinghouse Opinion

The purpose of this opinion is to demonstrate the extent to which Westinghouse agrees with, and accepts ownership of, the findings of the RWMD assessment and to highlight issues of significance which the Regulators (Environment Agency and Nuclear Directorate) may wish to consider in their respective assessment and consultation documentation.

3. Comments

- 3.1 Westinghouse is in broad agreement that the evaluations have been done to a high quality standard with appropriate reviews to ensure consistency with other RWMD activities.
- 3.2 The assessment has not identified any AP1000 issues which would compromise safety or the environment. The report concluded "...the wastes and spent fuel from the AP1000 are expected to be disposable."
- 3.3 Disposability of wastes produced by any future AP1000 reactors clearly depends upon the availability of a suitable potential repository. Whilst there may be other NDA documents that refer to this, Westinghouse believes that this document should comment on how the availability of a repository for disposal of AP 1000 wastes aligns with the timing of transportable waste production.
- 3.4 Westinghouse has concerns over the length of time that high burnup spent fuel would have to remain on site before it could be disposed in the repository design currently envisaged for the UK. Reliable, high burnup fuel is economically and environmentally beneficial, yet the projected designs of the spent fuel encapsulation containers, combined with those of the repository cells are such that they cannot accommodate such fuel without a cooling period so long that it would make the repository unavailable for some of the spent fuel. Westinghouse believes that further work would be desirable into the repository design, to ensure that it is fully compatible with both the specification of fuel from a fleet of new build AP1000 plants, and the timescales over which such fuel would be produced and sent for desposal.
- 3.5 Overall, once the above issues are resolved, Westinghouse believes that the RWMD Disposability Assessment will be wholly compatible with a BAT Radioactive Waste Management Case and Radioactive Waste Strategy for AP1000.

4. Summary of Future Activities

Westinghouse believes that further work would be desirable to develop the repository design for the UK to take account of known legacy wastes and wastes forecast to be produced by future AP1000 reactors. In particular, the design should enable the safe transfer and disposal of economically and environmentally beneficial high burnup fuels without undue site cooling periods.

Should you have any further questions or comments on this submittal, please call me at 412-374-4662.

Sincerely,

A handwritten signature in black ink, appearing to read "D.M. Popp". The signature is fluid and cursive, with the first name "D.M." being more prominent than the last name "Popp".

D.M. Popp
UK Program Manager
WESTINGHOUSE ELECTRIC COMPANY LLC

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