May 2, 2000

MEMORANDUM TO: ACRS Members

FROM: Noel Dudley, Senior Staff Engineer

SUBJECT: MEETING SUMMARY: WESTINGHOUSE PROPOSAL TO LICENSE THE AP1000 ADVANCED REACTOR DESIGN - APRIL 27, 2000

I attended a meeting on April 27, 2000, concerning a Westinghouse Electric Company proposal to license the AP1000 advanced reactor design. Westinghouse representatives included Messrs. Edward Commins, Brian McIntyre, and Michael Corletti. Messrs. Samuel Collins, Brian Sharon, and John Johnson, NRR, lead the staff discussion.

Mr. Commins stated that the environment for licensing a new design is different than for licensing previous evolutionary and advanced reactor designs. He explained that there are fewer resources available, the market for electricity is being deregulated, and vendors are merging. Mr. McIntyre presented the similarities and differences between the AP600 and AP1000 designs. Key points about the AP1000 design as compared to the AP600 design include the following:

- probabilistic risk assessments are the same;
- site “foot prints” are the same;
- pressurizer, steam generators, reactor vessel, and containment are taller;
- pipes and valves are larger;
- containment design pressure increases from 45 to 59 psi;
- thermal hydraulic codes used in the accident analyses are the same; and
- seismic, piping, and structural designs are done by the Combined Operating License (COL) applicant.

Additional design information concerning the AP1000 design is presented in the attached presentation slides. Due to design differences, 16% of the AP600 Design Control Document would have to be revised for the AP1000 design application.

Dr. Sharon questioned the expected seismic response due to the increased amount of water above a taller and heavier containment. Mr. Jared Wermiel and Dr. Farouk Eltawila questioned the ability of the thermal hydraulic codes to adequately calculate safety margins due to the higher fuel power densities and operating temperatures. Mr. John Tsao noted that the policy issue regarding having the COL complete the seismic, piping, and structural designs would have to be decided by the Commission.

The staff and Westinghouse agreed to a three phase approach. The staff will review the material presented by Westinghouse, identify any “show stoppers” such as additional testing, and calculate the cost of an initial feasibility review. The second phase would consist of Westinghouse submitting a limited amount of information and of the staff completing a

feasibility review. The third phase would consist of Westinghouse submitting the license application and the staff performing a design review. Westinghouse would have the option of continuing the review process at the beginning of each phase.

During my discussions with the staff after the meeting, it was suggested that the Committee review and comment on the staff's feasibility study conclusions. Problems identified by the ACRS at this point of the review would be important to the Commission and Westinghouse in making their decision whether to more forward with phase 3.

Attachment: Presentation Slides

cc via e-mail w/o att.:
J. Larkin
H. Larson
S. Duraiswamy
ACRS Fellows and Staff