



ARKANSAS POWER & LIGHT COMPANY

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October 10, 1984

1CAN108402

Director of Nuclear Reactor Regulation
ATTN: Mr. J. F. Stolz, Chief
Operating Reactors Branch #4
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Demonstration Steam Generator
Tube Slewing Program

Gentlemen:

In response to your letter of September 21, 1984, (1CNA098409), the attached information is provided relative to health physics measures to be taken during the installation of the subject sleeves.

Additionally, as discussed with your staff as part of the demonstration sleeving project, AP&L plans to develop an inspection program for the examination of the sleeved tubes prior to the end of the sixth refueling outage. This program will discuss inspection techniques to be employed and discuss the results of tests and analyses which demonstrate the adequacy of these techniques considering state-of-the-art limitations. This program will be submitted to the NRC by November 30, 1984.

Very truly yours,

J. Ted Enos
Manager, Licensing

JTE/DEJ/ac

Attachment

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ATTACHMENT

Item 1

Provide a discussion of the radiation protection measures which will be utilized to provide worker protection during the course of the tube sleeving effort.

Response:

In order to reduce personnel exposure the majority of the work to be performed in the steam generator, associated with the demonstration sleeving project, is planned to be performed by B&W's Remote Operated Generator Examination & Repair robot (ROGER). However, even with the use of ROGER a limited number of entries by workers will be required. To accommodate these entries health physics (HP) personnel will provide continuous coverage for personnel working the sleeving project.

After removal of the steam generator manways, an air sample will be taken and beta and beta-gamma surveys will be performed inside the steam generator with portable survey instruments and thermoluminescence-dosimeters (TLDs). The steam generator upper heads will then be decontaminated using a hydrolaser. Following the hydrolancing radiation surveys will be re-performed to determine decontaminated dose rates. Travel paths inside the steam generator upper head to tubes to be sleeved will be shielded with lead blankets if warranted. The method for determining personnel stay times in the steam generator will be established in writing prior to personnel entry. Each individual who is to enter the steam generator will be required to perform mock-up training in his assigned work functions and to attend a pre-job briefing.

Radiological protection requirements will comply with Arkansas Nuclear One Procedure 1622.026, "Health Physics Requirements for Steam Generator Entries" and the Radiological Work Permit to be written for the job.

Each individual who is to enter the steam generator will be assigned a stay time based on measured radiation levels in the steam generator and his allowable dose. A Health Physics Technician stationed outside the steam generator will use a stop watch to monitor the time spent by the individual inside the steam generator to ensure his stay time is not exceeded. Each individual entering the steam generator will be required to wear cloth anti-contamination clothing and a plastic suit. Headsets will be worn to provide communications. Airlines and double-face lens respirators for beta protection will be required. TLD's will be required for monitoring exposure to the individual's head, lens of eyes, chest, upper leg, wrist and ankle.

Item 2

Discuss those considerations and measures which will be utilized to assure that doses to workers will be kept as low as reasonably achievable (ALARA) during the tube sleeving effort. This should include a discussion of the planning and preparation efforts to included dose estimates after completion

of the task as well as design, programatic and operational ALARA considerations.

Response:

The steam generator tube sleeving project will be reviewed by the ALARA Committee because of the high radiation dose rates which will be encountered. The ALARA Committee will review each step of the work to identify methods of reducing personnel radiation exposure. The ALARA committee will assign responsibilities to ensure identified exposure reduction methods are practiced.

A representative of the vendor performing the sleeving project will be required to assist the ALARA Committee in reviewing the job. An estimate of anticipated total radiation exposure required to perform the sleeving project will be calculated by the ALARA Coordinator using estimated times supplied by the vendor to perform the sleeving steps and measured steam generator dose rates.

Exposures of individuals performing steam generator tube sleeving work will be closely monitored by the wearing of multiple TLDs and controlled by the assignment of stay time for each steam generator entry. Upon exiting containment, the current exposure status of each individual who entered the steam generator will be determined by reading his TLDs and updating his exposure records before he is allowed re-entry to controlled access. Individual exposure limits will be assigned and controlled in accordance with existing ANO Health Physics procedures. No individual will be assigned an exposure limit greater than 2500 millirem per quarter.