UNITED STATES OF AMERICA
UNITED STATES NUCLEAR REGULATORY COMMISSION

before the

ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
PUBLIC SERVICE COMPANY NEW HAMPSHIRE, et al.	)	Docket Nos. 50-443 OL-1 50-444 OL-1
(Seabrook Station, Units 1 and 2)	)	(On-site Emergency Planning Issues)

AFFIDAVIT OF GREGORY A. KANN

I, GREGORY A. KANN, being on oath, depose and say as follows:

1. I am the Program Support Manager at Seabrook Station. I am responsible for the Inservice Inspection Program, the Inservice Testing Program, and the Test Control Program. A statement of my professional qualifications is attached hereto and marked as "A".

2. Regulatory Guide 1.83 describes a method acceptable to the NRC Staff for implementing the pertinent portions of General Design Criteria (GDC)-14," Reactor Coolant Pressure Boundary", GDC-15, "Reactor Coolant System Design", GDC-31, "Fracture Prevention of Reactor Coolant Pressure Boundary", and GDC-32, "Inspection of Reactor Coolant Pressure

Boundary", of 10 CFR 50, Appendix A, by reducing the probability and consequences of steam generator tube failures through periodic inservice inspection of tubes for early detection of defects and deterioration. In addition to the periodic inservice inspection, Seabrook Station also performs visual searches of the steam generator tube sheet periphery to ensure that foreign objects are not left in the steam generators. Thus a steam generator tube inservice inspection program developed to meet the criteria set forth in Regulatory Guide 1.83 complemented by a visual examination satisfies the underlying requirements of GDC 14, 15, 31 and 32, and thereby reduces the probability and consequences of steam generator tube failure.

3. The inspection program described in Regulatory Guide 1.83 at Section C, is broken down into two basic phases; (1) a preservice inspection to establish a baseline condition of the steam generator tubing and (2) periodic inservice inspections (i.e., post Operating License issuance) to assess the condition of tubing and to plug tubes as necessary (the only prescribed corrective measure).

4. In April and May, 1985, a preservice eddy current inspection was performed on the tubing in all four Seabrook Station steam generators as provided in Regulatory Guide 1.83 at C.3 and as required by the Seabrook Station Technical Specifications 3/4.4.5.

5. The preservice inspection was performed in accordance with the ASME Boiler and Pressure Vessel Code, Section XI, (hereinafter referred to as ASME Section XI) and Regulatory Guide 1.83, Revision 1, dated July, 1975.

6. Of the approximately 22,500 tubes examined during this preservice inspection, three tubes were found to have indications exceeding the plugging limit. These tubes were subsequently plugged. Several tubes were found to have minor indications below plugging limits (i.e. 40 percent). The number, location and type of indications are typical of new steam generators. No corrective actions were required for these tubes. Additionally, six tubes exhibited indications of inadequate expansion in the tube sheet area. These tubes were subsequently re-expanded and satisfactorily re-examined in July, 1985.

7. In accordance with the Seabrook Station steam generator eddy current procedure and as required by the Seabrook Station Technical Specifications 3/4.4.5 and Surveillance Requirement 4.4.5.2b(1), any tube with preservice inspection indications greater than 20 percent will be included in the initial and subsequent inservice eddy current inspection sample.

8. Following initial criticality each inservice inspection of the steam generator tubing will be performed in accordance with the Seabrook Station eddy current inspection procedure

which is consistent with the Seabrook Station Technical Specifications 3/4.4.5, Regulatory Guide 1.83, Revision 1, and ASME Section XI. The selection criteria, frequency of inspection, acceptance criteria and reporting requirements are specified in the Seabrook Station Technical Specifications.

9. In addition to inspecting to the requirements set forth in the Seabrook Station Technical Specifications and as provided in Regulatory Guide 1.83 at C.2, paragraph f, each of the tubes in the inspection sample will be examined over its entire length, from tube sheet to the tube sheet. The Technical Specifications require inspection only from the point of entry (hot-leg side) completely around the U-bend to the top support of the cold-leg. For inspection of certain inner row tubes, examination of the entire length of the tube may require entry from both the hot and cold leg sides of the steam generator. If necessary, entry into the cold leg may be rescheduled to the next subsequent inspection of that steam generator to minimize radiation exposure to personnel consistent with the ALARA objectives.

10. As provided in the Seabrook Station Technical Specifications 3/4.4.5, Surveillance Requirements 4.4.5.2, tubes are generally selected on a random basis. However, the Technical Specifications and Regulatory Guide 1.83, also provide that the sample of tubes selected for each inservice

inspection of each steam generator shall include tubes in those areas where experience has indicated potential problems. Based on the Model F-type steam generator operating history information contained in the "Affidavit of John N. Esposito on the Ginna Tube Rupture Event and the Design of and Experience with Domestic Model F Steam Generators", paragraphs 6-8, it can be concluded that the plugging of approximately 0.02% of 150,000 steam generator tubes after more than 1000 effective full power months of steam generator operation (122 equivalent steam generator calendar years since initial startup) does not identify a potential problem area. As noted in the Affidavit of John N. Esposito on the Ginna Tube Rupture Event and the Design of and Experience with Model F Steam Generators at paragraph 8(c), some tubes have been plugged as a result of indications reported at AVB locations. Although this has not been identified as a generic potential problem area for model F steam generators, these areas will be looked at in evaluating the full length tube inspection results when the Seabrook Station steam generators are inspected.

11. Based on the "Affidavit of John N. Esposito on the North Anna Tube Rupture Event", paragraph 8, it can be concluded that the particular problem that arose at North Anna is not applicable to the Seabrook Station steam generators.

Therefore the Seabrook Station inspection program need not address this particular failure mechanism.

12. In order to prevent damage to the steam generators from foreign objects, procedural controls have been developed requiring accountability of objects (e.g., tools, etc.) when working in the steam generators and requiring an appropriate visual examination to be performed following any entry into the steam generator. This visual examination will include the tubesheet periphery to ensure that foreign objects have not been left in the steam generators. This visual examination is performed when an entry is made into the steam generator for whatever reason. At a minimum, steam generator secondary side visual inspections will be performed after secondary side repairs or modifications to steam generator internals or when eddy current examinations indicate potential fretting or wear indicative of potential loose parts.

13. Complementing the visual examination process is the loose parts monitoring system described in FSAR Section 4.4.6.4, which is capable of detecting a loose part on the steam generator tube sheet during plant operation. This equipment is required to be operable during Modes 1 and 2 and if an alert level is exceeded, diagnostic steps will be taken within 72 hours to determine if a loose part is present.

14. Prior to putting the unit into service and following hot functional testing the internals of the steam generators were visually inspected. These inspections were performed to satisfy the Class "C" cleanliness requirement of ANSI N.45.2.1-1973, for the secondary side steam generator internals.

15. The inspection locations were based on the areas that have historically been shown to be natural collection areas for foreign objects. The following areas were inspected: lower tube sheet area, separator area and downcomer annulus area.

16. The accessible areas of the lower tube sheet were inspected by inserting the sub-miniature camera (probe) through opened hand[illegible] in each of the four steam generators.

17. Probe positioning during inspection of tube center lane area was facilitated by the use of a guide tube; ½" electrical conduit with a 90 degree bend at the distal end. Probe articulation controls were used to steer the camera head to provide the best view.

18. The tube sheet annulus area and adjacent tube lanes were inspected by first inserting (pushing) the probe around the circumference while viewing forward. On retraction, the articulation controls were used to provide a view down the tube lanes. All inspections of the tube sheet area were

recorded on ½" VHS video tape. Pertinent data (e.g., distances or general identification) was entered onto the recordings though the use of an alpha-numeric character generator with time/data output.

19. The separator area and related components were inspected during a "walk through" examination of each generator. Entry has through a 16" manway opened for this purpose. The surface conditions of various internal components were photographed using a 35mm SLR camera equipped with a flash color print film.

20. Disposable protective clothing was worn during the walk through examinations to reduce the possibility of carrying contaminants into the generator internals. In addition, material/equipment inventory control was maintained by access control logs to preclude introduction of foreign objects into the generator internals.

21. The downcomer annulus areas were also directly viewed at this time; no irregularities were noted.

22. The areas viewed in each of the steam generators meet the requirements for Class "C" cleanliness under ANSI N.45.2.1-1973.

23. All debris located during these inspections was removed. The slight amount of material removed (estimate 3 to 4 ounces) was determined to be construction debris (e.g., pieces of wire). Therefore, each of the four generators is

free of any and all materials in areas inspected, which might be harmful to their useful service life. No structural abnormalities were noted. As noted in the Affidavit of John N. Esposito on the Ginna Tube Rupture Event and the Design of and Experience with Model F Steam Generators at paragraph 8(6), some tubes have been plugged as a result of indications reported at AVB locations. Although this has not been identified as a generic potential problem area for model f steam generators, these areas will be looked at in evaluating the full length tube inspection results when the Seabrook Station steam generators are inspected.

24. In addition to the above described pre-service eddy current inspections and visual examination, the Seabrook Station steam generators were hydrostatically tested in accordance with the ASME Boiler & Pressure Vessel Code, Section III. This test was conducted at a test pressure equal of 1500 psi and witnessed by the Authorized Nuclear Inspector per ASME III and by the NRC.

25. In addition to the above described inservice eddy current inspections and visual examination, an inservice leak test of the Seabrook Station steam generators will be performed in accordance with ASME Section XI. This test will be conducted during each refueling shutdown.

Gregory A. Kann

Gregory A. Kann

STATE OF NEW HAMPSHIRE

Rockingham ss. April 28, 1988

The above-subscribed Gregory A. Kann appeared before me and made oath that he had read the foregoing affidavit and that the statements et forth therein are true to the best of his knowledge.

Before me,

Notary Public
My Commission Expires: March 6 1990

GREGORY A KANN

PROGRAM SUPPORT MANAGER

EDUCATION

B.S. Nuclear Engineering, Lowell Technological Institute, June 1969.

M.A. Management and Supervision, Central Michigan University, August 1974.

PROFESSIONAL AFFILIATIONS

American Society of Mechanical Engineers

American Nuclear Society

LICENSE

USNRC Senior Operator License, License No. SOP-3349, North Anna Power Station, Unit No. 1, 1978.

Mr. Kann has participated in startup test programs and operation of commercial nuclear power facilities since 1974. Mr. Kann joined Virginia Electric and Power Company (VEPCO) as a test engineer at the North Anna Power station following his separation from the U.S. Air Force. During his time with VEPCO Mr. Kann participated in preoperational and initial startup testing required by Regulatory Guide 1.68 for North Anna Units 1 and 2. Mr. Kann's participation included the development of detailed test procedures, performance of tests, and the review and approval of test results.

At North Anna Power Station Mr. Kann held the position of Test Engineer, Lead Preoperational Test Engineer, Startup Test Engineer, Design Control Engineer and Engineering Supervisor. As Engineering Supervisor, Mr. Kann was responsible for the Reactor Engineering Section, Technical Specification Surveillance Test Section, and the Design Control Section. As a Staff Engineer at the corporate office for VEPCO, Mr. Kann developed design change packages for implementation at both North Anna Power Stations and Surry Power Stations.

Since joining Yankee Atomic Electric Company in 1981, Mr. Kann has participated in the preoperational and initial startup test program in accordance with Regulatory Guide 1.68 (Revision 2) for Seabrook Station.

Mr. Kann transferred to Public Service Company of New Hampshire (PSNH) in 1984 and continued to participate in the preoperational and initial startup test program at Seabrook Station. Presently Mr. Kann is the Program Support Manager at Seabrook Station. In this position Mr. Kann is responsible for the Inservice Inspection Program, the Inservice Testing Program, the Test Control Program and other various technical programs.