U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

Region I

Report No. 50-309/80-02

Docket No. 50-309

License No. DPR-36 Priority -- Category C

Licensee: Maine Yankee Atomic Power Company

20 Turnpike Road

Westborough, Massachusetts 01581

Facility Name: Maine Yankee Nuclear Generating Station

Inspection at: Wiscasset, Maine

Inspection conducted: January 21-25, 1980

Inspectors: L. H. Thonus, Radiation Specialist — 2/13/80 date signed

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Approved by: P. J. Knapp, Chief, Radiation Support Section, FF&MS Branch — 14 Feb 1980 date signed

Inspection Summary:

Inspection on January 21-25, 1980 (Report No. 50-309/80-02)
Areas Inspected: Routine, unannounced inspection by a regional based inspector of radiation protection during refueling including licensee action on IE circulars, procedures, advanced planning and preparation, training, exposure control, respiratory protection, posting and control, facility tours, and surveys. Upon arrival, a tour of the radiation control area was performed to observe radiation safety practices. The inspection involved 36 inspector-hours on site by one NRC regional based inspector.
Results: Of the nine areas inspected, one item of noncompliance was identified in one area (failure to establish procedures - paragraph 3).

Region I Form 12
(Rev. April 77)

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DETAILS

1. Persons Contacted

The inspector contacted the following licensee technical and supervisory personnel.

Mr. R. Arsenault, Assistant Operations Department Head
*Mr. G. Cochrane, Radiological Controls Supervisor
Mr. F. Erskine, Radiological Controls Foreman
Mr. R. Forrest, Fire Protection and Plant Services Supervisor
Mr. R. Hanley, Shift Supervisor
*Mr. C. Frizzle, Assistant Plant Superintendent
Mr. W. Paine, Operations Department Head
Mr. G. Pillsbury, Health and Safety Director
*Mr. S. Sadosky, Quality Assurance Coordinator (YAEC)
*Mr. J. Stevens, Chemistry Supervisor
*Mr. D. Sturniolo, Technical Assistant to the Plant Superintendent
Mr. M. Swartz, Training Supervisor
Mr. E. Wood, Plant Superintendent

The inspector also interviewed several other licensee and contractor employees including maintenance, security, operations and radiation protection personnel.

*denotes those individuals present at the exit interview on January 25, 1980.

2. Licensee Action on IE Circulars

The inspector reviewed licensee actions taken in response to IE Circulars 79-09 and 79-15.

-- 79-09 - The licensee does not use the models of self-contained breathing apparatus (SCBA) described in the circular. The licensee does use other models of SCBA's made by another manufacturer; the licensee examined these and found no malfunctions with regulator diaphragms. The inspector had no further questions.

-- 79-15 - The licensee does not use the equipment described in the circular or analogous equipment of another manufacturer. The inspector had no further questions.

No items of noncompliance or deviations were identified.

3. Procedures

Technical Specification (TS) 5.8.1 requires, in part, that "Written procedures shall be established, implemented and maintained covering...the applicable procedures recommended in Appendix "A" of Regulatory Guide 1.33, November, 1972."

TS 5.8.2 states that, "Each procedure of 5.8.1 above, and changes thereto, shall be reviewed by the PORC and approved by the (Plant Superintendent) prior to implementation and reviewed periodically as set forth in administrative procedures."

TS 6.11 states that, "Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure."

The inspector reviewed several licensee procedures against the above criteria including:

-- Radiation Protection Procedure 9.1.2, "Respiratory Protection Program."

-- Radiation Protection Procedure 9.1.10, "Radiation Work Permits."

-- Radiation Protection Procedure 9.1.11, "Health Physics Procedure for Refueling and Outages."

-- Radiation Protection Procedure 9.1.12, "Use of Personnel Monitoring Devices."

The inspector made several tours of the radiation control area (RCA) to observe adherence to the above procedures. While in the waste processing area, the inspector noted that the licensee had installed a new baling machine used to compact baleable waste (shoe covers, rags, paper items, etc.) in 4 ft. by 4 ft. by 8 ft. wooden boxes. The most recent radiation work permit (number 80-1-191) used to provide radiological controls on work on this machine was reviewed. The inspector discussed procedural control of the apparatus with several licensee representatives and found that the licensee had no procedure governing its use. The inspector noted that since a procedure for the operation of such equipment was listed in Appendix "A" of Regulatory Guide 1.33, November, 1972 an approved procedure had to be implemented in order to fulfill the requirements of Technical Specifications (TS) 5.8.1 and 5.8.2. The baling machine was in use during the period January 14-18, 1980. The inspector identified the failure to establish, review and implement a procedure for the baling machine as noncompliance with TS 5.8.1 and 5.8.2. (50-309/80-02-01)

4. Advanced Planning and Preparations

a. Increased Staffing

The licensee increased the radiation protection staffing for the refueling outage with the addition of approximately 20 contractor personnel. The inspector interviewed several contractor senior radiation protection technicians who were in responsible positions and reviewed their training and qualifications.

b. Access and Control Points

The licensee had established several control points for the outage, e.g. at the entrance to the containment. These points were used for access control, radiation work permit posting, logging of dosimeter results and as protective clothing check points.

c. Job and Exposure Planning

The inspector reviewed the licensee's plans for steam generator primary side inspection including, exposure control and airborne activity control. The inspector also reviewed some of the licensee's installation and planning of temporary and permanent shielding. The licensee had also put up temporary fences to exclude access to areas of the containment which would have exposure rates greater than 1 R/hr during fuel movement.

No items of noncompliance or deviations were identified.

5. Training

The inspector attended a course given to workers to fulfill the requirements of 10 CFR 19.12, "Instructions to Workers." The course consisted of video tapes followed by a lecture and a question and answer period. A written examination was then administered.

Training records of 17 contractor workers who had entered the radiation control area (RCA) or were allowed access to the RCA were examined.

No items of noncompliance or deviations were identified.

6. Exposure Control

The inspector reviewed the licensee's method of complying with 10 CFR 20.202(a) which requires the licensee to provide personnel monitoring equipment to and require the use of such equipment by certain classes of personnel. The licensee routinely issues and requires the use of thermoluminescent dosimeters (TLD's) and self-reading dosimeters (SRD) by all personnel entering the radiation control area (RCA) except tour groups.

The licensee is required by 10 CFR 20.102 to obtain exposure estimates of their current calendar quarter exposures from all incoming employees and contractors prior to their first entry into the restricted area if the employee is likely to exceed 25% of the 10 CFR 20.101(a) exposure limits. The inspector examined the exposure estimates of 11 contractors who had entered the licensee's RCA during the current refueling outage.

Whole body exposures of individuals are limited to 1.25 rems per calendar quarter by 10 CFR 20.101(a) unless the requirements of 10 CFR 20.101(b) and 10 CFR 20.102 are fulfilled. These include limiting exposure to 3 rems per quarter, limiting lifetime exposure and determining previous exposure on Form NRC-4 or equivalent. As of January 24, 1980, the exposures of two workers had exceeded 1.25 rem for the quarter. The inspector determined that the requirements of 10 CFR 20.101(b) and 10 CFR 20.102 had been fulfilled prior to the exposures of these individuals exceeding 1.25 rem. No exposures had exceeded the limits of 10 CFR 20.101(b).

No items of noncompliance or deviations were identified.

7. Respiratory Protection

a. Use of Engineering Controls

A variety of engineering controls including fuel integrity; oxygen addition to the primary coolant and extensive recirculation, demineralization, and filtration of primary coolant; and use of air filters in plant ventilation kept airborne activity concentrations below the values in 10 CFR 20, Appendix B, Table I, Column I.

b. Bioassay

The licensee maintains a chair type whole body counter onsite which has a 3" by 3" NaI crystal for counting the whole body and a 1" by 1½" NaI crystal for counting the thyroid. A multi-

channel analyzer and minicomputer are used for peak search and radionuclide analysis. The licensee routinely counts all incoming personnel prior to work assignment in the RCA and all personnel at the termination of their work assignments in the RCA. The inspector reviewed the whole body count results of 6 individuals who had terminated in January, 1980. No body burdens were observed which would exceed 2% of the 10 CFR 20.103(a)(1) limits.

c. Air Sampling

The inspector reviewed results of particulate and iodine air surveys taken during January, 1980 on all levels of the auxiliary building, fuel handling building and containment building. Beta-gamma counting indicated results less than 10% of the concentrations listed in 10 CFR 20, Appendix B, Table I, Column I. At the time of the inspection, alpha spectral analysis of January, 1980 air samples had not been performed. In that recent primary coolant samples had shown traces of Np^{239} and there had been other indicators of fuel leakage, the inspector noted that there was the possibility of transuranic elements contributing to airborne activity, particularly when the primary coolant system was opened for maintenance. The licensee's onsite counting system can count gross alpha but does not have the capability for alpha spectroscopy. The licensee normally sends samples for alpha spectroscopy to a vendor who provides approximately 10 day turnaround for analysis. On January 23, 1980, the licensee sent several samples including air samples and a disc smear of the inside of the reactor head to another counting facility which could provide rapid turnaround. On January 24, 1980, the results were received by telephone, they indicated that small quantities of transuranics (Pu^{239}, Cu^{242}) were present on the head and in air samples. The quantities present in the air samples were below the concentrations listed in 10 CFR 20., Appendix B, Column I, Table I. The inspector stated that the adequacy of the licensee's air survey program would be unresolved pending the evaluation of the results of quantitative isotopic analyses of air samples and evaluation of the licensee's ability to obtain quantitative isotopic analyses in a timely fashion with regard to work which would involve the potential for airborne transuranics. (50-309/80-02-02)

d. Respirator Training, Fitting and Usage

The inspector reviewed the portion of the licensee's training program dealing with full facepiece filter masks. The licensee's man-fit program was examined; it includes fit testing in an aerosol test booth. At the time of the inspection, very few respirators were in use due to low levels of general airborne activity and the nature of the jobs in progress was such that few had significant potential for producing airborne activity.

No items of noncompliance or deviations were identified.

8. Posting and Control

The inspector examined posting and control of radiation areas, high radiation areas, contaminated areas, and radioactive material areas against the criteria in Technical Specification (TS) 5.12, 10 CFR 20.203 and licensee procedures. Administrative control of keys to certain high radiation areas is required by TS 5.12.2. The inspector examined the keys under the control of the shift supervisor and the key issue log book. Approximately 20 locked high radiation doors were checked and found satisfactory.

No items of noncompliance or deviations were identified.

9. Facility Tour

The inspector made several tours of the radiation control area and examined several control points where dosimetry devices were stored and issued, radiation work permits prepared and personnel checked in and out of the containment and refueling building. The inspector also toured the licensee's counting facilities; and observed and interviewed technicians operating the equipment. Approximately 20 radiation and contamination survey meters were examined for calibration dates, as were approximately 50 self-reading dosimeters. Housekeeping and storage and labeling of radioactive material was observed. Personnel were observed for adherence to licensee procedures and radiation work permit (RWP) requirements. Independent measurements were made of selected licensee radiation surveys and area postings.

No items of noncompliance or deviations were identified.

10. Surveys

The inspector reviewed licensee surveys of the containment building for the period January 14-25, 1980 including radiation, contamination, and airborne activity surveys against the criteria in the licensee's survey procedures and 10 CFR 20.201. Surveys taken in support of several outage activities including inservice inspection (ultrasonic testing) of the primary loop piping and the inspection of secondary side of the steam generators were also reviewed.

No items of noncompliance or deviations were identified.

11. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. An unresolved item disclosed during the inspection is discussed in Paragraph 7.

12. Exit Interview

The inspector met with licensee management representatives (denoted in Paragraph 1) at the conclusion of the inspection on January 25, 1980. The inspector summarized the purpose and scope of the inspection and the findings. Licensee representatives stated that either onsite alpha analytical capability or a nearby laboratory with rapid turnaround time would be used for alpha analysis during the outage. The representatives also stated that air samples would be analyzed for alpha activity prior to steam generator eddy current testing.