

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

REGION I

Report No. 50-309/79-19

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: November 29 and 30, 1979

Inspectors: *K. E. Plumlee*
K. E. Plumlee, Radiation Specialist

2/15/80
date

date

date

Approved by: *H. W. Crocker*
H. W. Crocker, Acting Chief, Radiation Support
FF&MS Branch

2/16/80
date

Inspection Summary:

Inspection on November 29 and 30, 1979 (Report No. 50-309/79-19)

Special, unannounced inspection by a regional based inspector of licensee's response to IE Bulletin No. 79-19 including a review of copies of DOT and NRC regulations maintained onsite, procedures, training of personnel, records, and audits relating to the transfer, packaging, and shipping of low-level radioactive waste material. In addition the inspector reviewed licensee radiation protection training, surveys, and preparations for a scheduled refueling outage commencing January 11, 1979. This inspection involved 16 hours onsite by one NRC regional based inspector.

Results: No items of noncompliance were identified.

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DETAILS

1. Persons Contacted

- *P. Anderson, Administration Department Head
- *G. Cochrane, Radiological Controls Supervisor
- *C. Frizzle, Assistant Plant Manager
 - T. Gifford, Electrical Engineer, Plant Engineering Quality Assurance Group
 - J. Hebert, Supervisor, Engineering and Quality Assurance Group
 - W. Paine, Operations Supervisor
- *G. Pillsbury, Director of Health and Safety
- *S. Sadosky, Yankee Operational Quality Assurance
- *D. Sterniolo, Chemistry and Health Physics Supervisor
- M. Veilluex, Mechanical Engineer, Plant Engineering Quality Assurance Group
- *E. Wood, Plant Manager

*Denotes those present during the exit interview on November 30, 1979, 3:30 p.m.

2. Review of Licensee's Response to IE Bulletin 79-19

The inspector reviewed licensee's response to IE Bulletin 79-19 in office to assure that all information required by the bulletin was included, and to ascertain that corrective action commitments were also included. Further information concerning the response is given in Paragraphs 6.C, 9.C and 10, requiring additional information from the licensee.

3. Organization

The Radiological Controls Supervisor is the individual responsible for the safe transfer, packaging and transport of low level radioactive waste material.

The Director of Health and Safety acts for him in his absence.

4. Regulatory Documents

The inspector verified that the licensee has current copies of applicable NRC and DOT regulations. The licensee maintains a copy of 10 CFR from the U.S. Government Printing Office, Superintendent of Documents as part of a subscription service. This service apparently assures that the 10 CFR is maintained current.

The licensee also maintains subscription service to R. M. Graziano's Tariff; receives applicable portions of Federal Register from the Westborough Office of YAEC as these items appear; and receives timely written information from the contractor who supplies shipping containers and transports the radioactive waste to the burial site as the contractor becomes informed of changes in requirements.

Review of the above documents did not identify any omissions or out-of-date information on NRC and DOT requirements.

5. Burial Site Requirements

According to a licensee representative waste shipments are made only to the burial site in South Carolina. At the inspectors request he was shown a copy of Chem-Nuclear's License No. 097 that was issued by the State of South Carolina, and the inspector also reviewed a copy of the burial site criteria. The inspector was also shown a copy of Chem-Nuclear's License No. 46-13536-01 that was issued by NRC.

6. Procedure and Records for Processing and Shipping Radioactive Materials

a. Quality Assurance Program

Part of the inspection effort was to review the licensee's conduct of the Quality Assurance Program established, maintained and executed with regard to transport packages so as to satisfy the requirements of 10 CFR 71.51 "Establishment and maintenance of a quality assurance program".

The inspector reviewed the onsite copy of the NMSS Quality Assurance Program Approval for Radwaste Packages No. 0068, applicable to Licenses DPR-3, DPR-28 and DPR-36, dated May 4, 1979, and also the onsite copy of the Yankee Atomic Electric Operational Quality Assurance Program (YOQA-1-A), as related to radioactive material processing and shipping.

The inspector reviewed the QA verification record form that is to be completed under the above program, MY-HP-108-79 "Radioactive Quality Assurance Record". The completed forms record the QA inspector's independent verification that specific requirements have been completed including the provision of required documentation (transferee's license, certificate of compliance, and cask handling procedure); acceptance of the cask and the cask tiedown system; opening, filling and closing of the cask; surveys; vehicle placarding; container seal; notifications; Bill of lading and shipping paper completion; and driver's instructions, routing and dispatch.

The licensee representatives informed the inspector that the QA program is being reviewed to assure that the burial site acceptance criteria are fully satisfied.

No items of noncompliance were identified.

b. Operating Procedures

Written, approved plant operating procedures are provided for the following radioactive material processing. These activities are performed

by Auxiliary Operators, working under the supervision of the Plant Shift Superintendent and the Shift Operating Supervisor.

- (1) Liquid radioactive waste solidification using urea-formaldehyde (UF). The equipment in use at this site was developed by Chem-Nuclear Systems, Inc. A three-component mixing nozzle is used.

The inspector noted that the surface of the solidified material is routinely checked for any free standing liquid but there is no provision to determine any liquid remaining below the surface. The inspector identified the lack of any test for subsurface free liquid as an unresolved item. (79-19-01)

- (2) Liquid radioactive waste solification using Portland cement. The licensee representative stated that no solidification of quantities exceeding Type A quantities of radioactive materials are planned using this method and cancellation of the procedure is a possibility now that the UF equipment has been installed.
- (3) Dewatering of spent resin containers by use of a suction probe. The inspector noted that the procedure did not specify any determination of the amount of free standing water remaining in a dewatered container after the suction probe operation had been performed. The inspector identified this as an unresolved item. (79-19-01)

The licensee representative stated that before any future shipment of dewatered radioactive material there will be an evaluation of its acceptability.

c. Chemistry and Health Physics Procedures

The licensee representative stated that liquid waste sampling and analyses are performed by chemists using written, approved departmental procedures, under departmental supervision, and in coordination with the operations discussed above.

The inspector noted that the procedures stated in the licensee response letter dated September 24, 1979, to Bulletin No. 79-19, as 9.1.5 and 9.2.17 were instead those described below, actually 9.1.15 and 9.1.17.

The authorization to ship a package of radioactive materials from the site is the Radiological Controls Supervisor's responsibility, pursuant to procedure HP 9.1.15 Shipment of Radioactive Material. The Director of Health and Safety acts for him in his absence. Health physics technicians, who report to him, typically fill out records, conduct surveys, and make the required notifications. He reviews the documentation and signs a certification that the shipment is in order before it can leave the site. HP 9.1.17 "Processing Radioactive Solid Waste" gives specific directions applicable to each of the categories of radioactive waste packaged for shipment offsite.

The licensee representative stated that the certification required by the burial site criteria recently incorporated into the shipping record required by the transferee, was being executed, however, the certification specified by the above procedure, HP 9.1.15, is less detailed and it is also executed prior to any shipment. The licensee representative stated that the procedure will be reviewed to determine any changes necessary to conform to the transferee's site criteria and to eliminate duplication of effort.

Review of these procedures, records and practices showed that they incorporated in writing or by reference each of the requirements of 10 CFR 20.301 "WASTE DISPOSAL - General requirement", 10 CFR 30.41 "Transfer of Byproduct Material", 10 CFR 71.5 "Transportation of Licensed Material", and requirements by the Department of Transportation given in 49 CFR 170-179.

No items of noncompliance were identified.

d. Other Waste Handling Procedures

The inspector was informed that written approved procedures were maintained in collecting and processing discarded protective clothing and contaminated laundry, contaminated waste, and tools and equipment. Specifically none of these materials is permitted to be removed from any controlled area without a check for radioactivity or alternatively being handled as contaminated material or equipment. Actual collection of dry radioactive waste in the form of trash, and any waste compacting, is done by plant services employees who are supervised by the Plant Services Supervisor. During major outages contractor employees are also assigned to assist with this item.

Responsibility for transfer, packaging and shipping of such low level radioactive material is given by procedure HP 9.1.17 "Processing Radioactive Solid Waste" and HP 9.1.15 "Shipment of Radioactive Material", discussed above.

No items of noncompliance were identified.

7. Audit of Shipping Program

The licensee representative stated that an audit was performed, within the preceding month, of the shipping program, however, the report was not yet available onsite. The audit was conducted by YAEC Nuclear Services Division staff. Several readily correctible items necessary to satisfy recent changes in regulations and in burial site criteria were identified by the audit, according to the licensee's representative.

The audit report will be reviewed on a subsequent routine inspection. The inspector had no further questions on this item at this time. (79-19-02) Further discussion of the audit appears in Paragraph 9.

8. Inspection of a Container of Solidified Waste

The licensee representative stated that no shipment of radioactive material was being made during the inspection.

The inspector was able to view an 80 cu. ft. container of UF solidified waste evaporator bottoms (liquid waste concentrate) that was stored in a locked bunker.

No free standing liquid was evident on looking through an opening in the top of the container. The licensee representative stated that the material was beginning to harden as it was flowing into the container. The visible top surface was sloped rather than flat, indicating that solidification was fairly quick on discharge into the container.

No items of noncompliance were identified.

9. Training and Retraining

a. Routine Chemistry and Health Physics Personnel Retraining

The Technical Specifications, in Section 5.4.1, state that, "A retraining and replacement training program for the facility staff shall be maintained under the direction of the Plant Superintendent and shall meet or exceed the requirements and recommendations of Section 5.5 of ANSI N18.1-1971 and Appendix "A" of 10 CFR Part 55."

ANSI N18.1-1971, Section 5.5 "Retraining and Replacement Training", states: "A training program shall be established which maintains the proficiency of the operating organization through periodic training exercises, instruction periods, and reviews covering those items and equipment which relate to safe operation of the facility and through special training sessions for replacement personnel. Means should be provided in the training programs for appropriate evaluation of its effectiveness." Subsection 5.5.1 "Retraining", states: The retraining program should include:

* * *

7. Changes in equipment and operating procedures

8. General safety, first aid, and radiation protection...."

ANSI N18.1-1971, Section 5.6 "Documentation", states: "Records of the qualifications, experience, training, and retraining of each member of the plant organization should be maintained."

Licensee procedure 7.211 maintained in order to comply with the above requirements states:

"The Chemistry and Health Physics training program is divided into two major sections. The first section covers the training of new personnel. The second section covers the retraining of plant Chemistry and Health Physics personnel...

All employees will receive retraining in a manner that will allow for review of all subjects covered on the retraining check-off sheet at least once every two years.

The Chemistry and Health Physics Department Head may, where it is deemed appropriate, substitute off-site training schools or special on-site training programs for the whole of, or part of, the above outlined programs...."

Review of the training and retraining of Chemistry and Health Physics personnel conducted during the years 1977 and 1978, and up to November 30, 1979, showed that two and one-half to three years had elapsed since three technicians had completed all of the subjects covered on the retraining checkoff sheet. A fourth individual who was stated to have terminated during December, 1978, had not completed the subjects listed on the training checkoff sheet within 2 1/2 years prior to that date.

The inspector noted that in each of the four examples given above six or more of the items listed on the training checkoff sheet had not been completed during a period of time greater than 2 1/2 years. The inspector identified this as an unresolved item.

The licensee representative stated that a recent audit (Paragraph 7) had already identified the above but no onsite review or corrective action had been conducted by the date of the inspection, in that the audit report had not been received.

This item remains unresolved pending the review of licensee action on the audit report. (79-19-03)

b. Chemistry and Health Physics Retraining Records

The Technical Specifications state in Section 5.10.2: "The following records shall be retained for the duration of the Facility Operating License:...

h. Records of training and qualification for current members of the plant staff...."

Procedure no. 7.211 states in subsection 6.6: "A check sheet will be used to record the date, instructor and results of all retraining received by each employee."

The inspector noted that the 1977 and 1978 retraining records appeared to comply with the above record requirements but no individual employee check sheets were maintained of the training routinely scheduled during 1979. (Some of the 1978 check sheets contained delayed entries of the completion during early 1979 of training that apparently was routinely scheduled for 1978.)

This item remains unresolved pending the review of licensee action on the audit report, described above. (79-13-03)

The inspector noted that attendance rosters were maintained for 1979 training but these had not all been collected into a complete set prior to the inspection. A licensee representative had commenced a master checklist for 1979 training and four employee names were entered thereon but this checklist included less than half of the C&HP employees when it was inspected.

c. Training and Retraining Covering NRC and DOT Radioactive Shipment Requirements

The inspector noted that the licensee reply (dated September 24, 1979) to IE Bulletin No. 79-19 stated:

...."5. Training and periodic retraining covering NRC and DOT requirements, waste burial license requirements and applicable plant procedure requirements is provided for all employees involved in the transfer, packaging and transport of radioactive material. Records of this training are maintained."

The Radiological Controls Supervisor had attended a two day course on June 25 and 26, 1979, on NRC and DOT packaging and transport requirements.

The Director of Health and Safety who acts for the Radiological Controls Supervisor in his absence and at other times, had signed recent shipping records including the certification incorporated into HP 9.1.15 (Paragraph 6.C of this report). No records indicated he had attended any training on the NRC and DOT packaging and transport requirements during 1978 or 1979, and the licensee representative stated none was planned at this time.

The inspector noted that the statement in the September 24, 1979 letter, quoted above, had not been fully implemented in the training procedure. The training provided the Director of Health and Safety will be followed up on a subsequent routine inspection. (79-19-04)

10. Training/Retraining of Other Personnel

a. QA Inspectors

Discussion with two QA inspectors (one being a mechanical engineer and the other an electrical engineer) indicated they had no formal training in NRC and DOT radioactive materials shipping requirements. The inspector noted that they are required when completing form MY-HP-108-79 to verify that numerous requirements outside of their apparent areas of expertise have been satisfied; some of these areas are indicated in Paragraph 6a of this report.

The inspector noted that the licensee's letter, referenced in Paragraphs 2 and 9.C, did not appear to have been fully implemented in respect to training, by the date of the inspection. This item will be followed up on a subsequent routine inspection to determine what training the QA inspectors receive in these subjects. (79-19-04)

b. Auxiliary Operator Training on the Waste Solidification Procedure

Review of the Auxiliary Operator Training Guide, Section F, "Waste Systems", Subsection 3, "Waste Solidification", verified that training is provided in this procedure. This training is administered pursuant to Procedure No. 1-111-1 "Initial Auxiliary Operator Training". After qualification the supervisor periodically observes the performance of the individual to verify his continued qualification to perform each procedure however the training records do not indicate that entries will be made of the dates whenever waste solidification operations have been observed for this purpose.

The inspector noted that the licensee letter, referenced in Paragraph 9.C, above, states in part: "6. Training and periodic retraining is provided to the employees who operate the waste generating process equipment. Records of this training are maintained."

The inspector noted that above retraining, and records of retraining, had not yet been implemented. This item will be followed up on a subsequent routine inspection. (79-19-04)

11. License Preparations for a Refuel Outage Scheduled January 11, 1979

Part of the inspection effort was to review the preparations for a six-week refueling outage scheduled to commence on January 11, 1979.

The licensee representative stated that the supply of protective clothing, temporary shielding, respirators, and miscellaneous supplies needed in the radiation protection program had been reviewed and provided.

The licensee representative stated that in addition to routine refueling the following jobs are scheduled.

- Inservice inspection
- Eddy current test the tubes in one steam generator
- Retube two condenser water boxes
- Change a reactor coolant pump
- Review emergency sampling systems
- Review radiation monitoring system

The licensee has arranged for a remote indexing device for the steam generator eddy current test. The contractor on this job (Combustion Engineering, Inc.) trains these workers on an in-house steam generator mockup.

The licensee has preplanned each of the jobs expected to involve high man-rem radiation doses so as to minimize the radiation dose rates and working time.

The licensee has contracted for temporary radiation protection personnel for the outage including 2 supervisors, 15 senior technicians, and 10 junior technicians. These individuals will be qualified prior to any job assignment on site and will assist the plant staff.

Review of these items did not identify any problems that the licensee had overlooked. The inspector had no further questions on this subject area at this time.

12. Facility Survey Information

Part of the inspection effort was to make a confirmatory survey of parts of the facility and to observe the licensee's control of radiation and high radiation areas.

The inspector identified loose packets of drying agent, and also indicator cards, inside the PIC-6 survey instruments, which have internal detectors. The inspector noted that the above objects sometimes got under or near the detector and affected the dose rate indication of the instrument while it was in use. The loose parts were found in three of the four PIC-6 instruments that were examined.

The inspector identified this as a readily correctible problem in servicing these instruments. For example, the loose items could be secured in an appropriate location.

The licensee representative stated that the problem will be reviewed and corrected. The licensee's resolution of this item will be reviewed on a subsequent routine survey. (79-19-05)

13. Management Interview

The inspector met with the licensee's representatives, denoted in Paragraph 1, at the conclusion of the inspection, 3:30 p.m., November 30, 1979.

The inspector reviewed the scope and the findings of the inspection.