

U. S. NUCLEAR REGULATORY COMMISSION

Region I

Report No. 50-309/82-25

Docket No. 50-309

License No. DPR-36

Priority \_\_\_\_\_

Category C

Licensee: Maine Yankee Atomic Power Company

83 Edison Drive

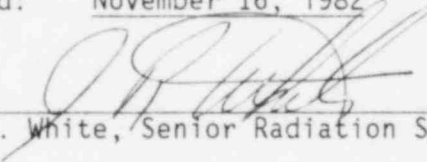
Augusta, Maine

Facility Name: Maine Yankee Atomic Power Station

Inspection At: Wiscasset, Maine

Inspection Conducted: November 16, 1982


Inspectors:

  
\_\_\_\_\_  
J. R. White, Senior Radiation Specialist

12/17/82  
date signed

\_\_\_\_\_  
date signed

Approved By:

  
\_\_\_\_\_  
M. M. Shanbaky, Chief, Facilities Radiation  
Protection Program

12/17/82  
date signed

Inspection Summary:

Inspection on November 16, 1982 (Report No. 50-309/82-25)

Areas Inspected: Special, unannounced safety inspection to review for validity, certain allegations of improper implementation of the radiation protection program. The inspection involved 8 hours onsite by one regionally based inspector.

Results: None of the allegations were substantiated. One violation was identified concerning failure to perform surveys in accordance with 10 CFR 20.201 (paragraph 3.1).

## DETAILS

### 1. Persons Contacted

- \*Mr. Edward Wood, Plant Superintendent
- \*Mr. D. Sturniola, Assistant to the Plant Superintendent
- \*Mr. George Pillsbury, Health Physicist
- \*Mr. Gary Cochrane, Manager, Health Physics and Chemistry
- \*Mr. John Garrity, Director-Nuclear Engineering and Licensing
- Mr. Gerald Morin, Maintenance, Nuclear Plant Services (NPS)
- Mr. Dennis O'Neal, Maintenance, NPS
- Mr. Mark Davidson, Health Physics, NPS
- Mr. Rocky Foster, Health Physics, NPS
- Mr. James Detrick, Site Coordinator, Nuclear Station Services (NSS)
- \*Mr. J. Brinkler, Technical Support Department Manager

\*denotes those personnel present at the exit interview on November 16, 1982.

Other technician and maintenance personnel from site and contractor organizations were also interviewed during the course of this inspection.

### 2. Purpose and Scope

On November 13, 1982, NRC Region I became aware of certain allegations of improper implementation of the licensee's Health Physics Program. In response, the NRC Senior Resident Inspector initiated an onsite review on November 14, and a Senior Radiation Specialist was dispatched to the site on November 15 to conduct a special inspection relative to these allegations.

The purpose of the special inspection was to determine the validity of the allegations, and if health and safety had been compromised.

### 3. Allegations

In a telephone discussion on November 13, 1982, with the inspector, an anonymous individual made the following allegations which were subsequently reviewed as indicated:

- 3.1 Radiation Work Permit (RWP) Number 82-11-1085, "Remove equipment for freeze seal...", was improperly modified during work performance in an effort to conceal erroneous dose rate measurements.

Finding: RWP 82-11-1085 was issued at 0740 on November 12, 1982 to provide for the radiological protection requirements associated with the removal of a freeze seal from isolation valve RC-27 (located in Loop 2 of the Reactor Containment). The RWP as originally written specified area radiation levels to be 40-200 mr/hr in the general area.

A work party consisting of four individuals signed-in on the RWP at 0815 and reported to the Health Physics (HP) control point technician in the Loop 2 area with a copy of the RWP.

NOTE: According to the Radiological Controls Supervisor, HP technicians have been instructed to perform confirmatory surveys for RWPs for which they provide coverage.

According to one of the individuals in the work party, the HP technician did not make any confirmatory measurements, but rather allowed the work party to commence work. After working about ten minutes on the RC-27 freeze seal, the individuals left the area. Upon reading their pocket ionization chambers (PIC), one of the individuals noted an exposure of 400 millirems. Subsequently, the individual's thermoluminescent dosimeter (TLD) device was processed. The TLD indicated 440 millirems.

Since such exposure rate was unexpected relative to that indicated on the RWP, the licensee conducted a survey in the actual work location occupied by the individual. The survey revealed that the freeze seal area was the source of dose rates as high as 20,000 mr/hr, contact and 2000 mr/hr, general area. Subsequently, RWP 82-11-1085 was amended to reflect this information.

While the changes to the RWP were not initialed or dated, there is no evidence to support the fact that the amendments were made for the purpose of concealing an error, but rather to correct the RWP for future work. However, it was apparent that one of the individuals received unplanned exposure, and was subjected to extremity exposure without the proper personnel monitoring equipment (such as extremity monitoring devices). These conditions and consequent requirements would have been discernable had a survey of the work area been performed and considered in the radiological protection requirements for the task. Though no regulatory limit was exceeded due to the failure to survey the actual work area, it was fortuitous and not by design.

Failure to perform such a survey is contrary to the specifications of 10 CFR 20.201, "Surveys" which requires surveys as necessary to comply with the regulations of 10 CFR 20 and are reasonable to evaluate the extent of radiation hazards that may be present.  
(82-25-01)

Upon realization that the individual's exposure was unplanned, the licensee evaluated and confirmed actual whole body exposure of 440 millirems, and calculated 1670 millirem exposure to the extremities (hands).

No other violations were noted in this area.

While a violation of 10 CFR 20.201 was found in this area, the allegation that RWP 82-11-1085 was improperly amended to conceal erroneous dose rate information is unsubstantiated.

- 3.2 An individual (an NPS contractor) received an excessive whole body exposure while performing work in the Reactor Containment. While the licensee had measured the individual's exposure to be about 600 millirems according to his TLD, an HP technician had calculated that actual exposure was 35 rems to the whole body.

Finding: From interviews with the NPS contractor and the HP technician who are the subject of this allegation, the alleged event occurred on November 5, 1982. On that date the NPS contractor had signed in on RWP 82-11-348, "Replace Studs [for valves] RC-17, 27 [and] 37," (Reactor Containment, Loops 1, 2 and 3). During performance of work on RC-37, the NPS contractor noted that his 0-500 millirem PIC had gone off-scale. He subsequently left the work site and reported to the TLD processing laboratory. His TLD was processed and indicated 550 millirem, which was assigned as actual exposure.

Later he discussed this event with an HP technician who was not associated with job, and conveyed the belief that for about an hour he may have been sitting on or very near to a "hot spot" (localized point of high radiation) while performing work on RC-37. He apparently asked the HP technician for his opinion on the exposure.

The HP technician using the assumptions stated by the NPS contractor, calculated that if the "hot spot" was the source of radiation, and the individual was in very near vicinity to that source, then the distance of the individual's TLD from that source would indicate an exposure of about 35 rems to the whole body. The HP technician stated that he conveyed this opinion to the NPS contractor, but not Maine Yankee HP management personnel.

The HP technician subsequently performed surveys of the NPS contractor's job site on RC-37 to verify the presence of the "hot spot". No such "hot spot" was found. The HP technician concluded that the NPS contractor had been wrong about the "hot spot", and therefore the calculated 35 rem exposure was baseless. He stated that he subsequently advised the NPS contractor of his findings, and that the 35 rem exposure was unfounded.

To confirm this information, the inspector made independent measurements of all possible stud replacement work locations for RC-17, 27 and 37. The only "hot spot" found was at the freeze seal location for RC-27. This spot (about 20 R/hr) had been previously identified by the licensee, was not readily accessible, was not in the work area for stud replacement operations, and was situated such that it was impossible to sit or near on the location.

These facts were confirmed when the NPS contractor returned to Maine Yankee on November 19, 1982, and showed an NRC inspector and licensee

representatives the work areas and positions he used while working. This review confirmed that the NPS contractor had worked on RC-37, and had not been in contact or near any "hot spot" while performing work.

Based on this information, the licensee's exposure assessment of 550 millirem, as measured by the individual's TLD appeared to be an accurate and correct value for the NPS contractor's exposure.

The allegation of personnel exposure of 35 rem is not substantiated.

- 3.3 Some personnel, who had skin contamination, were able to pass through the licensee's personnel monitoring equipment without detection, leave the site and return before such contamination was found on the individuals.

Finding: Information provided by the alleger was unspecific as to the time and personnel involved in this alleged occurrence. Review of the licensee's records for the outage period and discussions with several personnel who were in a position to be aware of such situations did not reveal any information confirming this event.

However, the bases of the allegation might be explained in that in some instances skin contamination was found on NPS contractors during bioassay procedures involving whole body counting. In these cases, low level skin contamination was detected by a sensitive Whole Body Counter (WBC), presumably after personnel had passed through personnel monitoring equipment. Such personnel monitoring equipment (friskers, portal monitors, etc.) is insensitive to very low-level contamination relative to the WBC, which is designed to measure internal deposits of radioactive material. Such occurrences are not abnormal and do not indicate ineffective personnel monitoring practices.

No other information was found relative to the bases of this allegation, therefore, this allegation is not substantiated.

- 3.4 Job coverage by HP technicians during the outage was limited due to the availability of personnel. Planned decreases in the HP contractor work force will compromise worker health and safety.

Finding: A representative sampling of tasks performed involving RWPs was reviewed. In these cases, radiological surveys, ALARA implementation, and job coverage were found to be adequate relative to regulatory requirements. While some instances of ineffectiveness were observed due to inadequate communication or coordination, these situations appeared to be isolated and did not compromise worker health and safety.

The planned decreases in the HP contractor work force are normal for the end of the outage. All major, high radiological hazard tasks

have been completed. Remaining work has less radiological significance. Since the reduction in the work force involves all contractor trades in addition to contracted HP personnel, it is likely that the remaining HP technicians will be able to maintain the same level of coverage as normally provided.

This allegation is not substantiated.

- 3.5 Portal monitoring devices used for personnel monitoring did not function sufficient to detect contamination on personnel as evidenced by a "test" performed by one of the HP technicians.

Finding: Portal monitoring devices are used by the licensee only to augment the implementation of personnel contamination monitoring procedures to meet the requirements of 10 CFR 20.201, "Surveys".

The equipment in question was being evaluated by the licensee for suitability as an additional personnel contamination monitoring device. Personnel had been directed to walk through the portal monitor after surveying themselves with conventional frisking devices.

Discussions with the HP technician who performed the "test" revealed that there was no formal procedure involved. A contaminated rag was held in the middle of the portal monitor to evaluate its responsiveness to contaminated objects. When the device did not alarm, it was concluded by the HP technician that the portal monitor did not function effectively.

Review of this allegation revealed, that for its intended purpose, the portal monitor did function effectively to augment procedures for personnel contamination monitoring. The "test" performed by the HP technician, did not check the performance of the monitor in manner for which it was designed. There was no evidence to suggest the personnel monitoring in this area was less than effective for the determination of personnel contamination in accordance with the licensee's procedures.

The allegation is not substantiated.

#### 4. Exit Interview

The inspector met with the licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on November 16, 1982. The purpose, scope and findings of the inspection were summarized.