

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 85-02

Docket No. 50-193

License No. R-95

Priority

Category F

Licensee: Rhode Island Atomic Energy Commission
Nuclear Science Center
South Ferry Road
Narragansett, RI 02882

Facility Name: Rhode Island Atomic Energy Commission

Inspection At: Nuclear Science Center, Narragansett, RI

Inspection Conducted: June 11-12, 1985

Inspectors: *M. Shanbaky*
for Jean A. Cioffi, Radiation Specialist

8/7/85
date

M. Shanbaky
for Percy Clemons, Radiation Specialist

8/7/85
date

Approved by: *M. Shanbaky*
Mohamad Shanbaky, Chief, PWR Radiation
Protection Section, EPRPB

8/7/85
date

Inspection Summary: Inspection on June 11-12, 1985 (Report No. 50-193/85-02)

Areas Inspected: Routine, announced inspection of previously identified items; radiological controls - including posting, labeling, and access control, contamination surveys, personnel exposure records, calibration of instrumentation; effluent monitoring, airborne effluents, liquid effluents, and transportation activities. The inspection involved twenty-one inspector hours onsite by two regionally based NRC inspectors.

Results: One violation - failure to maintain documentation of test certification for reactor building cleanup system high efficiency particulate filters (paragraph 4.1).

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DETAILS

1.0 Persons Contacted

- *M. Doyle, Director of Operations
- *N. Jacobs, Radiation Protection Officer
- E. Spring, Reactor Facility Engineer

*denotes those present at the exit interview.

2.0 Licensee Action on Previously Identified Items

- 2.1 (Closed) IE Circular (79-SC-09) Informs licensees of Scott Air Pack Respirator problems noted in IE circular 79-09. The inspector discussed the details of this item with the licensee and concluded that this was not an issue of concern at this facility. The licensee does not use the respirators.
- 2.2 (Closed) Violation (83-01-01) RIAEC failed to appoint a Health Physicist on April 5, 1983. The licensee's corrective actions, as described in Inspection Report No. 83-01, were verified by reviewing internal memoranda which discussed the reassignment of responsibilities during the period of the absence of a qualified health physicist. Additionally, the licensee modified their organization to include two individuals, a Radiation Protection Officer, and a Health Physicist, to insure adequate coverage in the event of an emergency.
- 2.3 (Closed) Violation (83-01-06). Licensee failed to post outside door into heat exchanger room with high radiation sign. The licensee's corrective action, as documented in Inspection Report No. 83-01 and verified on a tour, appears sufficient to prevent recurrence.
- 2.4 (Closed) Follow-up (84-02-11). Improve the ability of the stack sampling equipment to obtain a representative sample. The stack sampling equipment has been relocated to a point inside the reactor building, and fitted with an isokinetic probe to assure representative sampling. The licensee is gathering data to determine the effectiveness of the new sampling location and is reasonably certain, with preliminary measurements, that the new sampling location is providing more accurate data on the amount of argon being released through the reactor building stack.

3.0 Radiological Controls

The licensee's program for radiological controls was reviewed against criteria contained in:

- 10 CFR 19.11, "Posting of notices to workers"
- 10 CFR 20.101, "Radiation dose standards for individuals in restricted areas"

- 10 CFR 20.103, "Exposure of individuals to concentrations of radioactive materials in air in restricted areas"
- 10 CFR 20.201, "Surveys"
- 10 CFR 20.202, "Personnel monitoring"
- 10 CFR 20.203, "Caution signs, labels, signals, and controls"
- 10 CFR 20.401, "Records of surveys, radiation monitoring, and disposal"

The licensee's performance related to the above criteria was determined by a tour of the facility, a review of selected records, and discussions with licensee personnel.

Within the scope of this review, the following was found:

3.1 Posting, Labeling and Access Control

The "restricted area", as defined in 10 CFR 20.3(a)(14), consists of the Nuclear Science Center building. Access into the building is controlled through one door which is kept locked, or under surveillance, at all times. Keys to the door area issued only to Nuclear Science Center staff.

Section A.2 of Appendix A to the facility license states that the boundary of the three acre Nuclear Science Center is considered the restricted area for the reactor as defined in 10 CFR 20, and will be conspicuously posted to prevent unauthorized entry. The boundary, as defined in the facility license was not conspicuously posted. Furthermore this area does not constitute the "restricted area", as defined in 10 CFR 20. The inspector discussed this inconsistency with licensee representatives. The licensee stated that they will seek an amendment to the license to redefine the "restricted area" of the facility in more accurate language. This item will be reviewed in a subsequent inspection (50-193/85-02-01).

3.2 Contamination Surveys

The inspector reviewed the licensee's contamination survey records covering the period January 1983 through December, 1984. No detectable activity in any of the areas surveyed was noted.

No items of noncompliance were identified.

3.3 Personnel Exposure Records

The inspector reviewed personnel exposure records covering calendar years 1983 and 1984. The review indicated that, in general, personnel at this facility receive no detectable exposures based on film badge results. If some exposure is reported, the Health Physicist conducts an investigation into the possible reason to assure that the reported dose is accurate. All investigations are documented.

No items of noncompliance were identified.

3.4 Calibration of Instrumentation

The licensee calibrates portable survey instruments three times a year. The licensee has a calibration facility which is kept locked during periods of non-use. A flashing light signals personnel to stay clear of the area during instrument calibration. Records of survey instrument calibrations were reviewed and found to be in order.

The licensee performs a functional check of area radiation monitors daily. However, the inspector noted that no calibration of the detectors high range (10 mR/hour to 100 mR/hr) is performed. The inspector discussed with the licensee the need to ensure that the area radiation monitors' high range was operable. The licensee stated that they will establish a calibration of the high range of the area radiation monitors on a routine frequency. This item will be reviewed in a future inspection. (50-193/85-02-02).

No items of noncompliance were identified.

4.0 Effluent Monitoring

4.1 Reactor Building Cleanup System

The licensee has a cleanup ventilation system which is designed to activate when the reactor building evacuation button is pressed, isolating the building ventilation and routing the air through a high efficiency filter bank.

The cleanup system is required by the technical specifications to contain two absolute filters which have been individually tested and certified by the manufacturer to have an efficiency of not less than 99.97% when tested with 0.3 micron diameter dioctylphthalate smoke. However, the licensee could not provide the documentation to verify that the cleanup filter system met the requirements stated in the technical specifications. This is an apparent violation of the technical specifications (50-193/85-02-03).

There has been no subsequent in-place filter test performed on the clean-up system filters to ensure that the filter bank will perform as stated in the technical specifications.

The inspector asked the licensee if any periodic evaluation was made of the cleanup system's integrity, such as is found in ANSI N510-1975, "Testing of Nuclear Air-Cleaning Systems". The licensee stated that in-place filter testing was performed in October of 1971.

In a telephone conversation on June 24, 1985, with Dr. Shanbaky of the Region I NRC staff, and Mr. Doyle, the director of Operations for the research reactor, Mr. Doyle stated that in-place testing of the reactor building clean-up system with DOP penetrant, will be performed in the near future.

This item will remain unresolved pending further review by the NRC (50-193/85-02-04).

4.2 Airborne Effluents

The inspector reviewed airborne release data for 1983 and 1984. The licensee monitors for gaseous and particulate releases, as required by the technical specifications, however, only argon is released to the environment. The yearly average of argon released in 1983 was 1.49×10^{-4} uCi/cc. In 1984, the yearly average of Argon released was 1.92×10^{-4} uCi/cc. The inspector noted that these releases were less than 1% of the limits specified in the technical specifications.

No items of noncompliance were identified.

4.3 Liquid Effluents

The inspector reviewed the licensee's liquid effluent release records for 1983 and 1984. In 1983, the licensee released 19856 microcuries of activity (primarily H-3). This amount of activity was higher relative to previous years. The licensee stated that the increased amount of activity discharged was due to extensive pool cleanup activities in an effort to locate and isolate a reactor pool leak. In 1984, the amount of activity released was 1520 microcuries of activity. All releases were within the limits specified in 10 CFR 20, Appendix B, Table II, Column 2.

No items of noncompliance were identified.

5.0 Transportation Activities

The inspector reviewed the documentation for a shipment of dry solid and absorbed aqueous waste made on April 26, 1985. The waste shipment consisted of approximately 90 cubic feet of spent resins and dry active waste. The manifest reviewed met all the requirements specified in 10 CFR 61.55, 61.56, and 20.311.

No items of noncompliance were identified.

6.0 Exit Interview

The inspector met with licensee management (denoted in Section 1.0) at the conclusion of the inspection on June 12, 1985, to discuss the scope and findings of the inspection as detailed in this report.

At no time during this inspection effort was written material provided to the licensee by the NRC inspector.