

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-333/88-09
Docket No. 50-333
License No. DPR-59 Priority - Category C I
Licensee: Power Authority of the State of New York
P. O. Box 41
Lycoming, New York 13093

Facility Name: James A. FitzPatrick Nuclear Power Plant

Inspection At: Scriba, New York

Inspection Conducted: May 2-6, 1988

Inspector: *W. Paschak* date 5/26/88
H. Bicehouse, Radiation Specialist

Approved by: *W. Paschak* date 5/26/88
W. Paschak, Chief, Effluents Radiation
Protection Section

Inspection Summary: Inspection on May 2-6, 1988 (Report No. 50-333/88-09)

Areas Inspected: Routine, unannounced safety inspection of the licensee's solid radioactive waste (radwaste) processing and preparation and radioactive materials packaging and shipping programs including previously identified items, management controls, quality assurance/quality control and implementation of the programs.

Results: No violations or deviations were identified. The licensee was implementing generally effective programs within the scope of the review.

DETAILS

1. Persons Contacted

1.1 Licensee Personnel

- *R. Converse, Resident Manager
- *W. Fernandez, Superintendent of Power
- *D. Grodi, Quality Assurance (QA) Engineer
- *D. Johnson, Waste Management Supervisor
- *D. Lindsey, Operations Superintendent
 - A. McKeen, Assistant Superintendent, Radiological and Environmental Services (RES)
- *E. Mulcahey, Superintendent, RES
 - R. Patch, General Supervisor, QA
 - S. Smith, RES Technician
 - J. Solini, Health Physics General Supervisor
- *K. Szeluga, Radiation Protection Supervisor
- *G. Vargo, Radiological Engineering General Supervisor
- *V. Waltz, Technical Services Superintendent

Other licensee personnel were contacted or interviewed.

1.2 Contractor Personnel

J. Grey, Solidification Technician, LN Technologies Corporation

1.3 NRC Personnel

- *A. Luptak, Senior Resident Inspector
- R. Plasse, Resident Inspector

*Denotes those present at the exit interview on May 6, 1988.

2. Scope of the Inspection

This routine safety inspection reviewed the licensee's solid radioactive waste (radwaste) processing and preparation and radioactive materials packaging and shipping programs as implemented by the licensee from February 1, 1986 through May 6, 1988. During that period, the licensee made 110 solid radwaste and other radioactive materials shipments. A sample of eleven radwaste shipments and another nonradwaste radioactive materials shipment was selected and reviewed relative to criteria in the licensee's technical specifications, radwaste generation requirements (under 10 CFR 20.311 and 10 CFR 61.55-56), and radioactive materials requirements (under 10 CFR 71 and 49 CFR 170-189). In addition, the licensee's actions regarding previously identified items were also reviewed.

During the period reviewed, the licensee shipped solid radwaste materials typical of an operating boiling water reactor (i.e., evaporator bottoms, bead and powder demineralizer resins, dry active waste, control rod drive filters and waste oils). No special radwaste shipments (e.g., control rod blades, decontamination resins, etc.) were made during the period reviewed although the licensee planned to ship control rod blades in the near future.

3. Previously Identified Items

3.1 (Closed) Followup Item (50-333/85-30-02): Complete provisions for onsite low-level radwaste storage including safety evaluation review

The licensee has not used the designated onsite low-level radwaste storage facility for solid radwaste storage and has converted the building to other uses (shop). The licensee's Final Safety Analysis Report (FSAR, Volume 1, Section 2.4.3.7) showed the maximum probable flood elevation to be nearly 12 feet below the level of the facility. Evaluation of the potential for organic materials (e.g., resins) in radwaste containers in storage to provide pressure sufficient to breach the container and/or lead to flammable gas mixtures showed that the activity limits on potential storage minimized these risks. In view of the circumstances, this item is closed.

3.2 (Closed) Followup Item (50-333/86-03-02): Increase QA/QC participation in radwaste solidification and shipping

Quality Assurance/Quality Control (QA/QC) participation in audits, surveillances and process inspections was evident in the solidification and shipping of radwaste materials. This item is closed (see related items in Details 5 and 6).

3.3 (Closed) Followup Item (50-333/86-12-02): Review RETS Appraisal Audit

The results of the 1986 appraisal (JAF 86-01) were reviewed. The review showed that radiological environmental monitoring was included and that all findings had been closed by the licensee. This item is closed.

3.4 (Closed) Followup Item (50-333/86-12-03): Revise procedures and perform study

Review of three procedures (i.e., ESP-5, ESP-11 and ESP-12) showed that appropriate corrections were made to them by the licensee. The licensee performed a study to determine the optimum use of the four-liter Marinelli beaker for gamma spectroscopy of water and modified procedures in accordance with the results of that study. This item is closed.

3.5 (Closed) Followup Item (50-333/86-21-01): Perform audit of vendor performing analyses of composited samples of radioactive effluents in 1987

Comprehensive reviews of the vendor laboratory (i.e., Teledyne Isotopes, Inc.) were conducted by technically-qualified licensee representatives in 1987. This item is closed.

4. Management Controls

The licensee's management controls were reviewed to determine if clear designations of responsibilities had been made, controlled procedures were in place, training/retraining programs were being implemented and vendor-supplied solidification/dewatering activities were controlled (NRC Information Notice No. 87-07).

4.1 Organization/Responsibilities

Solid radwaste processing and preparation activities are the responsibility of the licensee's Operations Department. Within the Operations Department, the Waste Management General Supervisor manages the solid radwaste program including onsite vendor-provided solidification and dewatering activities. Solid radwaste packaging and shipping activities are shared by the Operations and Radiological and Environmental Services (RES) organizations. Within the RES Department, the Radiation Protection Supervisor provides supporting surveys, maintains records and conducts calculations using the RADMAN computer program. Supporting analyses for hard-to-identify radio-nuclides are provided by contracted vendors and evaluated/incorporated into the RADMAN program by the Radiation Protection Supervisor. The Quality Assurance organization provides quality control inspections, quality assurance surveillances and audits of all aspects of the processing, preparation, packaging and shipping activities. Within the scope of this review, the licensee had clearly defined responsibilities including interfaces between departments and oversight of vendor activities.

4.2 Procedures

The inspector reviewed nine operations (i.e., OP-48 series) and two RES (i.e., PSP-8 and RPOP-3) procedures to determine if adequate instructions to process and prepare solid radwaste materials and package and ship radioactive materials had been provided. In addition, vendor solidification and dewatering procedures were reviewed. Within the scope of this review, no weaknesses relative to regulatory requirements were noted.

The licensee uses the RADMAN computer code to support solid radwaste classifications, prepare waste manifests and maintain the waste stream specific database. The computer code relies on a waste-specific database to characterize and classify packaged solid radwaste materials. The licensee routinely obtained waste stream samples for inhouse gamma spectroscopy and more detailed radiochemical analyses by a vendor laboratory. The data were reviewed and incorporated to update the scaling factors for hard-to-identify radionuclides by the licensee. Licensee supervisory personnel reviewed all data inputs and computer outputs routinely before shipment. Review of database and radionuclide library showed them to be current and complete. Within the scope of this review of the licensee's computer program management, no weaknesses relative to regulatory requirements were identified.

4.3 Training/Retraining

In response to NRC IE Bulletin No. 79-19, the licensee committed to initial training and periodic retraining for personnel involved in solid radwaste packaging and shipping activities. The inspector interviewed selected supervisory, RES technician and operators to determine if training and retraining had been completed.

Within the scope of this review, no deviations were noted.

5. Radwaste Generator Quality Control

Specific quality control (QC) requirements are specified in 10 CFR 20.311 to assure compliance with 10 CFR 61.55-56. A process control program for solidification and dewatering activities is required by the licensee's Technical Specifications. The licensee's radwaste generator QC program was reviewed and discussed with cognizant quality assurance personnel and its implementation during eleven solid radwaste shipments was verified. The licensee established a matrix for radwaste shipments in Quality Assurance Instruction (QAI) 11.0, "Quality Assurance Program for Radioactive Waste Shipments." (Revision 2, March 27, 1987), which described implementation of each of 10 CFR 50, Appendix J criteria to these licensed activities. QC requirements in the QAI included 10 CFR 20.311 radwaste generator requirements including (but not limited to):

- establishment and verification of witness points in procedures for solidification and dewatering;
- independent determinations of waste class under 10 CFR 61.55;
- audits of requirements by technically qualified QA personnel (including the Process Control Program) and management review of those audits;
- vendor evaluations (audits) for radioanalytical and solidification/dewatering services; and
- receipt inspections of high integrity containers (HICs).

Within the scope of this review, the licensee had established and implemented an effective QC program under 10 CFR 20.311.

6. Radioactive Materials Shipper Quality Assurance/Quality Control

The provisions of 10 CFR 71, Subpart H, require the establishment of a quality assurance program for the packaging and transportation of radioactive materials. A Commission-approved quality assurance program which satisfies the applicable criteria of 10 CFR 50, Appendix B and which is established, maintained and executed for transport packages is acceptable to meet the requirements of 10 CFR 71, Subpart H. The licensee elected to apply the currently established 10 CFR 50, Appendix B quality assurance program to the packaging and shipment of radioactive materials. As noted in Detail 5, the licensee had developed a matrix to address each 10 CFR 50, Appendix B criterion. Twelve radioactive materials shipment records were reviewed and discussed with licensee personnel to determine if the licensee had implemented the matrix requirements of the QAI. The inspector reviewed receipt of shipping containers, vehicle and package inspections, assurance of vendor-supplied package maintenance, tests and inspections, audits and other aspects of the application of the quality assurance program.

Within the scope of the review, the licensee was implementing an effective quality assurance program for radioactive materials packaging and shipping activities.

7. Radiochemistry

The inspector reviewed recent fuel performance, activation product behavior and general demineralizer management to determine the general adequacy of the licensee's sampling and vendor analysis program for difficult-to-identify radionuclides. The inspector noted that recent fuel performance was excellent, significant changes in activation products weren't evident and demineralizer resins weren't regenerated. In addition, the licensee samples each waste stream for each batch and composites the samples on a continuous quarterly basis for vendor analyses. Since only Class A radwaste materials had been shipped by the licensee, sampling and vendor analyses were more frequent than suggested by guidance provided in the Low-Level Waste Branch Technical Position on Waste Classification.

8. Solid Radwaste Processing

The licensee's solid radwaste processes were reviewed and discussed with the licensee. The licensee's solid radwaste processing equipment (including vendor-supplied solidification/dewatering operations) are located in the Radioactive Waste Building with the exception of the cleanup phase separator tanks (in the Reactor Building). Licensee processes for evaporator bottoms, bead and powdered demineralizer resins, compacted and uncompact dry active wastes and waste oils were reviewed and discussed with the licensee's operations and solidification vendor

personnel and work areas were toured. The following aspects of the operations were reviewed:

- valve operation for resin transfer from holding tanks to the contracted vendor solidification/dewatering operation;
- sorting and compacting dry active waste;
- communications, ventilation, radiological controls and spill confinement during resin transfer operations;
- vendor process control program parameter measurement;
- waste stream sampling and compositing;
- sample calculations for four solidified shipments; and
- quality assurance involvement in the processes.

Within the scope of this review, no violations were noted.

9. Radwaste Generator Requirements

The eleven solid radwaste shipments were reviewed against each of the following requirements:

- waste manifests under 10 CFR 20.311(d)(4) and 20.311(b) and (c);
- waste classification under 10 CFR 20.311(d)(3) and 10 CFR 61.55;
- waste form and characterization under 10 CFR 20.311(d)(3) and 10 CFR 61.55;
- waste shipment labeling under 10 CFR 20.311(d)(2) and 10 CFR 61.55;
- tracking of shipments under 10 CFR 20.311(d), (e), (f) and (h); and
- adherence to disposal site license conditions for Agreement State licensees under 10 CFR 30.41.

The basis for determination of waste class, (e.g., sampling, inhouse and vendor radiochemical analyses, scaling for difficult-to-identify radionuclides, dose-rate-to-curie calculations and RADMAN data input/output) was also reviewed for each shipment relative to the guidance in the Low-Level Waste Licensing Branch Technical Position.

Within the scope of this review, no violations were noted. Adequate technical bases were noted for the shipments reviewed. Waste manifest, classification, form, labeling and tracking and adherence to disposal site license conditions were evident for each shipment reviewed.

10. Radioactive Materials Shipping Requirements

Twelve radioactive materials shipments were reviewed relative to criteria in 10 CFR 71 and 49 CFR 170-189 to determine if transportation requirements had been met.

10.1 Selection of Packages

By review of records for the shipments, examination of applicable procedures and discussions with RES personnel, the inspector examined the following aspects of the licensee's selection of packages:

- The licensee maintained controlled copies of required documents for NRC-certified packaging (under 10 CFR 71.12(c)(1), 49 CFR 173.413, 173.416 and 173.471);
- The licensee was a registered user of NRC-certified packaging;
- The licensee had obtained written certification from the package vendor prior to initial use of the package (10 CFR 71.85 and 49 CFR 173.475);
- Routine reviews were completed before each use of the package (10 CFR 71.87 and 49 CFR 173.475);
- An adequate analytical procedure was provided for determining A1 and A2 values for radionuclides (49 CFR 173.433); and
- The licensee's procedures included verification that activity limits for Type A packages were not exceeded (49 CFR 173.416, 173.431 and 173.435).

Within the scope of this review, no violations were identified. The licensee had established and implemented an adequate program for selection of packages.

10.2 Preparation for Shipment

The following aspects of the licensee's preparation of packages for shipment were reviewed by examination of shipping records and discussions with RES personnel:

- packages were properly marked (49 CFR 172.304-310);
- packages were correctly labeled (49 CFR 172.403 and 172.436-438);
- procedures for securing NRC-certified packaging were in accordance with suggested procedures of the package owner; and
- quality control activities for "strong-tight" (low specific activity or LSA) containers assured that those packages would meet conditions incidental to transport.

Within the scope of this review, no violations were identified. The licensee had established and implemented an adequate program for the preparation of packages for shipment.

10.3 Delivery to Carriers

The following aspects of the licensee's delivery of radioactive materials packages to carriers were examined by review of procedures and records, discussions with RES personnel and observation of work in progress on May 3, 1988:

- The licensee had adequate procedures and implemented those procedures for exclusive use LSA shipments (49 CFR 173.425(b)(1)-(9));
- Loading, bracing and placarding were properly conducted;
- Advance notices to the consignees were made and exclusive use instructions were given to the carrier; and

- Proper shipping documentation was provided and maintained by the licensee (49 CFR 173.444(c) and 173.425(b)(9)).

Within the scope of the review, no violations were identified. The licensee had established and implemented an adequate program in these areas.

10.4 Transportation Incidents

The licensee reported that no violations or warnings from the Agreement States had been received during the period covered by this inspection. NRC Region I hadn't received any indication of problems with the licensee's shipments.

11. Exit Interview

The inspector met with the licensee's representatives (denoted in Detail 1) at the conclusion of the inspection on May 6, 1988. The inspector summarized the scope and findings of the inspection as described in this report and discussed the upcoming special shipments and previous regulatory problems associated with other licensees' shipments of similar materials.

At no time during the inspection was written material provided to the licensee by the inspector. No information exempt from disclosure under 10 CFR 2.790 is discussed in this report.