

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-277/84-42
50-278/84-34

Docket No. 50-277
50-278

License No. DPR-44
DPR-56 Priority -- Category C

Licensee: Philadelphia Electric Company
2301 Market Street
Philadelphia, PA 19101

Facility Name: Peach Bottom Atomic Power Station

Inspection At: Delta, PA

Inspection Conducted: December 17-21, 1984

Inspectors: H. J. Bicehouse 1/16/85
H. J. Bicehouse, Radiation Specialist date

Approved by: W. J. Pasciak 1/17/85
W. J. Pasciak, Chief, BWR Radiation Safety date
Section

Inspection Summary: Inspection on December 17-21, 1984 (Combined Inspection Report Number 50-277/84-42; 50-278/84-34)

Areas Inspected: Routine unannounced inspection of the licensee's radioactive waste management program including: previously identified items, administrative controls, changes in waste processes, identification and correction of deficiencies, solid waste operations and liquid waste operations. The inspection involved 40 hours onsite by a regionally-based inspector.

Results: Of the Areas inspected, one violation, (i.e. failure to provide a quality control program to assure compliance with 10 CFR 61.56(a)(5), Detail 7.3) was noted.

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Details

1. Persons Contacted

During the course of this routine inspection, the following personnel were contacted or interviewed:

1.1 Licensee Personnel

D. Ahmuty, Training Instructor
D. Altman, Senior Engineer-Chemistry
F. Crosse, Radioactive Materials Coordinator
T. Donell, Quality Control Supervisor
*R. Fleischman, Station Superintendent
*A. Hilsmeir, Senior Health Physicist
J. McElwain, Quality Control Engineer
C. Nelson, Support Health Physicist
P. Pauly, Radwaste Supervisor
R. Slater, Quality Control Supervisor
*D. Smith, Assistant Station Superintendent
R. Smith, Physicist
G. Stenclik, Training Instructor
H. Watson, Chemistry Supervisor
J. Wilson, Quality Assurance Supervisor

1.2 NRC Personnel

J. Williams, Resident Inspector

*Attended the exit interview on December 21, 1984.

Other licensee employees were also contacted or interviewed during this inspection.

2. Purpose

The purpose of this routine inspection was to review the licensee's radioactive waste (radwaste) program with respect to the following elements:

- Status of Previously Identified Items
- Administrative Controls
- Audits and Appraisals
- Changes in Radwaste Operations
- Solid Radwaste Operations
- Liquid Radwaste Operations

3. Status of Previously Identified Items

(Closed) Violation (50-277/83-19-03; 50-278/83-19-03) Failure to perform safety review of solidification operations. Actions described in the licensee's letter dated October 19, 1983 were reviewed and determined to be acceptable.

(Closed) Violation (50-277/84-09-01; 50-278/84-09-01) Failure to properly label waste as Class B. As described in the licensee's letter dated May 30, 1984, Procedure HPO/CO-71-F-1, ("Burial Site Criteria for Barnwell, South Carolina"), was revised to provide clearer instructions to operating personnel. Discussions with operations personnel showed that they were aware of the changes in the procedure.

(Closed) Violation (50-277/84-09-02; 50-278/84-09-02) Failure to train Radioactive Materials Coordinator in DOT and NRC Regulations. The Radioactive Materials Coordinator has completed training as described in the licensee's letter dated May 30, 1984.

(Closed) Unresolved Item (50-277/84-09-03; 50-278/84-09-03) Non-licensed operations personnel were not trained in DOT and NRC Regulations and appropriate procedures. The possible deviation from the licensee's commitments in response to IE Bulletin No. 79-19 was resolved. Non-licensed operations personnel completed training in the appropriate regulations and procedures during 1984.

(Closed) Violation (50-277/84-09-04; 50-278/84-09-04) Shift Supervisor certified that transported materials were properly classified when they were not. Revisions to Procedure No. HPO/CO-71F-1 and completion of retraining by shift supervisors should prevent recurrence of this violation. The licensee completed actions as described in the letter dated May 30, 1984.

4. Administrative Controls

The licensee's administrative controls in radwaste management were reviewed against criteria provided in Section 6 of the Station's Technical Specifications and descriptions in the Peach Bottom Atomic Power Station Updated Final Safety Analysis Report (PBAPS-UFSAR) Chapter 13, "Conduct of Operations."

4.1 Organization and Responsibilities

The authorities and responsibilities of the Operations, Health Physics, Chemistry, Quality Control and Quality Assurance organizations in the processing and disposal of radwaste were reviewed against the criteria and descriptions above. The review was conducted by discussions with cognizant members of the various sections and examination of applicable procedures governing radwaste activities.

Within the scope of this review, the inspector noted that the Radwaste Supervisor within the Operations Section had responsibility for the operation of systems and processes which generate, transfer and package radwaste. Non-licensed operators provided liquid and solid radwaste processing using installed plant equipment. Contractors provided specialized radwaste treatment operations including compaction and solidification. The Radioactive Materials Coordinator (within the Health Physics Section) performed the Radwaste Supervisor's functions during the supervisor's absence when other Operations Section supervision was not available. Within the scope of this review, no violations or deviations were noted.

4.2 Selection, Training and Qualification

The selection, training and qualification of personnel assigned radwaste responsibilities were reviewed relative to criteria and recommendations provided in the following:

- Technical Specification 6.3, "Facility Staff Qualifications,"
- Technical Specification 6.4, "Training;"
- ANSI N18.1-1971, "Selection and Training of Nuclear Power Plant Personnel;"
- Procedure No. A-50, "Training Procedure;"
- Procedure No. A-56, "General Requirements for Radwaste Q.C. Inspectors;"
- Quality Assurance Division Procedure (QADP) No. 14, "Q.A. Division Personnel Qualification Program;" and
- Institute of Nuclear Power Operations (INPO) Guideline 82-007, "Chemistry Technician Training."

The licensee's performance relative to these criteria and recommendations was determined by:

- discussions with cognizant representatives of the Operations, Health Physics, Chemistry, Quality Control and Quality Assurance staffs;
- examinations of training programs for non-licensed operators, chemical technicians, Q.C. inspectors and professional personnel assigned to radwaste activities;
- review of training records for selected members of each group; and
- interviews of selected representatives from each group.

Within the scope of this review, the following item was noted:

ANSI N18.1-1971 requires a training program to maintain the proficiency of the operating organization through periodic training exercises, instruction periods and reviews covering those items related to the safe operation of the facility. ANSI N18.1-1971 recommends that means be provided to determine the effectiveness of the training. Chemistry technicians in the Surveillance Test Group perform surveillance tests under Technical Specification 3.8/4.8 related to liquid radwaste operations. The chemistry technicians were trained in the surveillance tests several years ago. However, the licensee did not have a program for periodic retraining and evaluation of the effectiveness of that training.

At the Exit Interview, the licensee's representative stated that the Institute of Nuclear Power Operations (INPO) had identified this item during the 1984 INPO Appraisal. The inspector stated that the licensee's actions in response to the INPO Appraisal finding would be reviewed in a subsequent inspection. 50-277/84-42-01; 50-278/84-34-01

5. Changes

Changes in the licensee's radwaste program, (as described in the PBAPS-UFSAR, Section 9.3, "Solid Radwaste System"), were reviewed with respect to criteria and guidance in:

- 10 CFR 50.59 "Changes, Tests and Experiments;"
- Technical Specification 6.5, "Review and Audit;" and
- I&E Circular No. 80-18, "10 CFR 50.59 Safety Evaluations for Changes to Radioactive Waste Treatment Systems."

Safety evaluations for low level waste solidification with cement and waste processing during the chemical decontamination, removal and replacement of the Recirculation System and Residual Heat Removal System piping were reviewed and discussed with cognizant members of the licensee's staff.

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

6. Identification and Correction of Deficiencies

The licensee's program for identifying and correcting deficiencies in the radwaste program was reviewed against criteria provided in:

- 10 CFR 50, Appendix B, Criterion X, "Inspection;"
- 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action;"
- 10 CFR 50, Appendix B, Criterion XVIII, "Audits;"

- Technical Specification 6.5, "Review and Audit;"
- Technical Specification 6.8, "Procedures;" and
- Licensee's Quality Assurance Plan, Volume III, Program Section, Paragraph 16.1, "Corrective Action."

The licensee's performance relative to these criteria was determined by discussions with onsite quality assurance and quality control personnel and examination of quality control monitoring reports and quality assurance audit reports for the period 1982-1984.

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

7. Solid Radwaste Operations

The licensee's program for collection, processing, preparation for offsite shipment and temporary storage of solid radwastes was reviewed against criteria and commitments provided in:

- 10 CFR 20.207, "Storage and Control of Licensed Materials In Unrestricted Areas;"
- 10 CFR 20.301, "Waste Disposal - General Requirement;"
- 10 CFR 20.311, "Transfer for Disposal and Manifests;"
- 10 CFR 20.401, "Records of Surveys, Radiation Monitoring, and Disposal;"
- 10 CFR 61.55, "Waste Classification;"
- 10 CFR 61.56, "Waste Characteristics;"
- 10 CFR 61.57, "Labeling;" and
- PBAPS-UFSAR, Volume 4, Section 9.3, "Solid Radwaste System."

7.1 Waste Class Determination

The licensee's procedural and technical determination of solid waste classification was reviewed and discussed with cognizant members of the licensee's staff. Procedure No. HPO/CO-17C, "Compliance with 10 CFR Part 61," provides the measurements and correlations used to convert isotopic analyses and other measurements into activity content determinations. The bases for the calculations and correlations used were reviewed. Selected waste class determinations using the licensee's methods were also reviewed.

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

7.2 General Low-Level Operations

The licensee's procedures for collecting, compacting and packaging dry solid low specific activity radwaste were reviewed and discussed with cognizant members of the licensee's staff. Operation of the compactor used to reduce the volume of the materials was reviewed. The licensee's program for minimizing low level waste generation was also reviewed.

The licensee's procedures and quality control measures for ensuring that wet solid radwastes were dewatered prior to packaging for shipment were reviewed. The processing of spent demineralizer resins and filter sludges in the licensee's centrifuges was reviewed and discussed with cognizant operations personnel.

Within the scope of these reviews, no violations or deviations were noted.

7.3 Unit No. 2 Outage Waste Operations

The solid radwaste processes associated with Unit No. 2 piping replacement were reviewed and discussed with cognizant representatives of the licensee and the various piping replacement contractors. Within the scope of this review, the following violation was noted:

10 CFR 20.311(d)(3) requires a quality control program to assure compliance with 10 CFR 61.56. 10 CFR 61.56(a)(5) requires, in part, that waste not be capable of generating fumes or vapors harmful to persons transporting, handling or disposing of the waste.

Contrary to these requirements, on December 13, 1984, Cask No. 6-80-2 released a flammable gas and a radioactive aerosol fume during final preparation for shipment. In August 1984, the cask was loaded with resins from the decontamination of Unit No. 2's piping. The resins were solidified with cement under a Process Control Procedure developed by the solidification contractor. The cask was stored while awaiting completion of waste characterization analyses by another contractor.

On December 13, 1984, a pipefitter loosened the bolts restraining the cask lid to enable the waste handlers to label the liner in accordance with 10 CFR 61.57. As the fourth bolt was loosened, pressurized gas escaped past the double "O" ring seals. The gas, (subsequently determined by the licensee to be hydrogen), caused the expulsion of radioactive materials resulting in measureable contamination and intake of radioactive materials by two workers.

Although the intake of radioactive materials did not exceed 10 CFR 20.103 requirements, the licensee's quality control program failed to properly evaluate the generation of hydrogen and its release during handling preparatory to shipment. I&E Information Notice No. 84-72, ("Clarification

of Conditions for Waste Shipments Subject to Hydrogen Gas Generation," (dated September 10, 1984), to all nuclear power reactor licensees clearly indicated a potential existed for the generation of combustible quantities of hydrogen in waste forms (including resins). The licensee's quality control program failed to utilize this information in evaluating the hazards associated with the waste shipment. Failure to provide a quality control program to assure compliance with 10 CFR 61.56(a)(5) constitutes a violation of 10 CFR 20.311(d)(3). 50-277/84-42-02

During the exit interview, the licensee's representative stated that the generic requirements in Information Notice No. 84-72 for precluding the possibility of significantly reducing packaging effectiveness in use would be met. These licensee actions will be reviewed during a subsequent inspection. 50-277/84-42-03.

8. Liquid Radwaste Operations

The licensee's program for collection, processing, storage, monitoring and disposal of aqueous radwastes was reviewed against criteria and commitments contained in:

- 10 CFR 20.206, "Radioactivity in Effluents to Unrestricted Areas;"
- 10 CFR 20.401, "Records of Surveys, Radiation Monitoring, and Disposal;"
- Technical Specification 3.8/4.8, "Radioactive Materials;" and
- PBAPS-UFSAR, Volume 4, Section 9.2, "Liquid Radwaste System."

8.1 Routine Operations

The licensee's procedures for collecting, storing, processing and release of aqueous radwaste were reviewed and discussed with cognizant members of the operations staff. Procedures for the handling and disposal of contaminated oils and organic liquids were also reviewed. Records related to liquid radwaste releases were examined for releases from July 1983 through November 1984.

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

8.2 Process and Effluent Monitors

The calibration, alarm setpoints and functional testing of the licensee's liquid process and effluent monitoring systems were reviewed with respect to the criteria above and ANSI N42.18-1980, "Specification and Performance of Onsite Instrumentation for Continuously Monitoring Radioactivity in Effluents." Batch sampling procedures were also reviewed.

The licensee's performance relative to these criteria was determined by:

- interviews of the Senior Engineer-Chemistry and members of his staff;
- review of 15 Surveillance Test Procedures used in monitoring and calibration and functional testing of monitoring systems;
- examination of functional testing and calibration records for each of the operating liquid monitoring systems; and
- observation made during plant tours.

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

9. Exit Interview

The inspector met with the licensee's representatives (denoted in Paragraph 1) at the conclusion of the inspection on December 21, 1984. The inspector summarized the purposes and scope of the inspection and findings as described in this report.

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