

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos. 50-387/89-12
50-388/89-12

Docket Nos. 50-387
50-388

License Nos. NPF-14 Priority _____ Category C
NPF-22 C

Licensee: Pennsylvania Power and Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Facility Name: Susquehanna Steam Electric Station, Units 1 and 2

Inspection At: Berwick, Pennsylvania

Inspection Conducted: May 15-19, 1989

Inspector: RL Nimitz 6/16/89
R. L. Nimitz, Senior Radiation Specialist date

Approved by: RL Nimitz for 6/16/89
W. Pasciak, Chief, Facilities Radiation Protection Section date

Inspection Summary: Inspection Conducted on May 15-19, 1989 (Combined
Inspection Report Nos. 50-387/89-12 and 50-388/89-12)

Areas Inspected: Routine, unannounced radiological controls inspection of the following: radiological controls organization and staffing; personnel qualifications and training; corrective action system, performance monitoring and audits; ALARA; external and internal exposure controls, and radioactive and contaminated material control.

Results: One violation was identified (Failure to adhere to radiation protection procedures, Details Section 7).

DETAILS1.0 Individuals Contacted1.1 Pennsylvania Power and Light Company

- *R. Byram, Plant Superintendent
- *J. Blakeslee, Assistant Plant Superintendent
- *H. Riley, Health Physics/Chemistry Supervisor

1.2 NRC Personnel

- *S. Barber, Senior Resident Inspector

Other licensee and contractor personnel were also contacted or interviewed during the course of this inspection.

*denotes those personnel attending the exit meeting on May 19, 1989.

2.0 Purpose and Scope of Inspection

The inspection was a routine, unannounced radiological controls inspection during the Unit 1 refueling outage. The following areas were reviewed:

- organization and staffing;
- training and qualifications;
- corrective and action system, performance monitoring and audits;
- external and internal exposure controls;
- radioactive and contaminated material control and, ALARA.

In addition, the inspector also reviewed the licensee's implementation of corrective actions taken to address Radiological Controls Program weaknesses identified in the NRC's May 18, 1988, Systematic Assessment of Licensee Performance (SALP) evaluation. (Reference NRC Report Nos. 50-387/86-99 and 50-388/86-99)

3.0 Licensee Actions on Previous Findings

- 3.1 (Closed) Violation (50-387/87-19-01): The licensee's Radiological Operations Supervisor did not meet minimum qualification requirements specified in Technical Specification 6.3. The individual did not possess the appropriate years of experience. The inspector reviewed this matter with respect to the licensee's corrective actions outlined in his letters dated January 8, 1988 and June 15, 1988. The licensee implemented the corrective actions outlined therein. The current Radiological Operations Supervisor meets qualification requirements. This item is closed.

- 3.2 (Closed) Unresolved Item (50-387/87-19-02): NRC to review licensee control of contaminated material. The inspector reviewed the circumstances and licensee corrective actions associated with three instances of licensee identification of contaminated cleaning cloths found outside the Controlled Zone. The inspector's review indicated that contaminated cleaning cloths were found outside the Controlled Zone on April 8, 1987, on September 23, 1987 and on October 2, 1987. The cloths measured greater than 1000 disintegrations per minute (dpm) when measured with a frisker.

The first two instances involved improper surveys of sorted trash. The third instance involved removal of a contaminated cloth from the Controlled Zone exit point by a worker. Licensee procedure AD-QA-765 requires in section 6 that no trash be transferred out of the Controlled Zone unless it has been frisked checked and found to be less than 1000 dpm. Procedure HP-TP-602 requires that material removed from the Controlled Zone be frisked checked at the Controlled Zone exit and only released if it is found to be less than 1000 dpm. The inspector concluded that failure to follow radiation protection procedures was a violation of Technical Specification 6.11 which requires adherence to such procedures.

The inspector's review indicated that the licensee took progressively more vigorous corrective action to address the instances. The licensee's corrective action included reinstruction of all appropriate personnel in the proper method for frisking material, prohibiting exit of personnel and material from the Controlled Zone except through the Main Control Point, suspension of release of potentially contaminated trash pending purchase and installation of a new monitor to survey trash prior to release as clean waste, development and implementation of special procedures to control use of the newly purchased equipment and distribution of memoranda to station personnel regarding proper methods of removal of potentially contaminated material from the Controlled Zone. The inspector concluded that although the three instances represent a violation of procedures, the violation should not be cited because the criteria for non-issuance of a Notice of Violation, specified in Section V.G. of the NRC's Enforcement Policy, were satisfied.

Therefore, this Unresolved Item is closed for administrative purposes and will be changed to a non-cited violation. (NCV 50-387/89-12-01; 50-388/89-12-01)

4.0 Organization and Staffing

The inspector reviewed the organization and staffing of the onsite Radiation Protection Group with respect to criteria contained in the following:

- Technical Specification Section 6, Administrative Controls;

- Regulatory Guide 8.8, Information Relevant to Ensuring that Occupational Radiation Exposure at Nuclear Power Stations Will Be As Low As Is Reasonably Achievable;
- Procedure AD-QA-100, Station Organization and Responsibility;
- Procedure AD-QA-700, Conduct of Health Physics.

Evaluation of licensee performance in this area was based on discussions with cognizant personnel, review of ongoing work and review of documentation.

Within the scope of the review no violations were identified. The licensee reorganized the onsite Radiation Protection Technical Group in November, 1987 to provide a technical counterpart for each functional area of the onsite Radiation Protection Operations Group. This action was taken to improve coordination and communication within the onsite Radiation Protection Group. In addition, the licensee recently established the position of Radiological Controls Consultant. This individual will be responsible for increasing worker involvement in the station radiation protection program. The licensee also filled vacant Radiation Protection Group positions with qualified personnel.

5.0 Training and Qualifications

The inspector reviewed the qualification and training of members of the Radiological Controls Organization with respect to criteria contained in Technical Specification 6.3, Facility Staff Qualification. Licensee performance in this area was evaluated by review of resumes and training records and discussions with cognizant personnel.

The inspector's review in this area focused on the qualification and training of contractor radiological controls personnel hired to augment the organization during the outage. The inspector also reviewed the adequacy and effectiveness of the performance of these personnel during review of work activities.

Within the scope of this review, no violations were identified. Contractor personnel appeared to have received adequate training and qualification.

Inspector review indicated the licensee enhanced a number of aspects of the radiation protection personnel training program. Recent enhancements included: establishment of a defined list of procedures personnel were to receive training in, establishment of a training program for personnel who provide on-the-job training, establishment of defined criteria for evaluating on-the-job training and establishment of a defined continuing training program.

The enhancements indicated good licensee attention to the area of training.

6.0 Corrective Action System, Performance Monitoring and Audits

The inspector reviewed selected radiological controls aspects of the licensee's corrective action system, self-assessment and performance monitoring program and audit program.

The inspector evaluated the licensee's performance in this area by holding discussions with cognizant personnel, reviewing applicable documentation and observing on-going activities..

Within the scope of this review, no violations were identified. The following positive observations were made by the inspector:

- The Technical Specification required audits of the radiation protection program were found to be of good quality.
- The licensee's corporate radiological controls group was found to be performing extensive self-assessments of the onsite radiation protection group.
- The licensee hired contractors to evaluate radiation protection program upgrades.
- Licensee radiation protection management performed off-hours, unannounced inspections. Inspection results were provided to station management.
- The licensee's corporate oversight committee monitored radiation protection program performance and requested special areas to be audited by the station QA audit group.
- The licensee implemented corrective actions for the radiation protection program weaknesses identified in SALP reports.
- The licensee closely monitored station radiation protection program performance relative to industry performance.

The inspector noted good overall licensee performance in the area of self-assessment and performance monitoring, corrective actions and auditing.

7.0 External and Internal Exposure Controls

The inspector toured the radiological controlled areas of the plant and reviewed the following elements of the licensee's external and internal exposure control program:

- posting, barricading and access control, as appropriate, to Radiation, High Radiation, and Airborne Radioactivity Areas;
- high radiation area access point key control;
- control of radioactive and contaminated material;
- personnel adherence to radiation protection procedures, radiation work permits and good radiological control practices;
- use of personnel contamination control devices;
- use of dosimetry devices;
- use of respiratory protective equipment;
- timeliness of analysis of airborne radioactivity samples including supervisory review of sample results;
- installation, use and periodic operability verification of engineering controls to minimize airborne radioactivity;
- bioassays and personnel airborne radioactivity intakes;
- records and reports of personnel exposure;
- adequacy of radiological surveys to support pre-planning of work and on-going work; and,
- hot particle controls.

The review was with respect to criteria contained in applicable licensee procedures and 10 CFR 20, Standards for Protection Against Radiation.

Inspector review indicated good overall performance in the area of external and internal exposure controls.

The following matters were brought to the licensee's attention:

- A formal program, which provides guidance for performance of periodic operability checks of installed portable ventilation systems, was not in place.

- Some radiological surveys were found to contain unexplained/undefined data (i.e., contamination levels measured in millirad/hour).
- The licensee did not have in place guidance for performing hot particle surveys in High Radiation Areas. Such procedures provide the necessary guidance but also at the same time ensure radiation exposure of personnel is kept to a minimum.

The licensee indicated the above matters would be reviewed.

Within the scope of this review, one violation was identified:

The inspector reviewed the circumstances associated with the licensee identified release of contaminated tools from the Controlled Zone on April 27, 1989. The review indicated several tools including 2 grinding wheels, 3 nylon slings, 2 hammers and a tape measure, measuring between 200-400 counts per minute (CPM) fixed contamination above background were released to the clean tool room outside the Controlled Zone. A radiation protection technician had allowed the tools to leave after he had been told that the tools were surveyed inside the Controlled Zone at another control point. Some of the tools had been spray painted purple. The purple paint indicates that the tools are only to be used in the Controlled Zone. The licensee immediately returned the tools to the Controlled Zone.

Licensee procedure HP-TP-602, Surveys and Release of Tools, Equipment and Material, requires in section 9.2 that all material shall be surveyed by Health Physics prior to release from a Controlled Zone. The material may be released provided it is less than 100 counts per minute above background fixed contamination and less than 1000 dpm removable or there is no indication of contamination when the material is placed in a tool monitor.

The inspector reviewed this matter with respect to the NRC criteria for non-issuance of a violation contained in Section V. G. of the NRC's Enforcement Policy. In particular the inspector reviewed the similarity of this event with the release of contaminated material discussed in Section 3.2 of this report. The inspector concluded that the above matter was a licensee identified violation, however the licensee did not meet all criteria for non-issuance of a violation. Specifically the licensee did not meet criterion e. of the non-issuance policy which states that the violation should not be one that could have reasonably been prevented by the licensee's corrective action for a previous violation. The licensee's corrective action for the violation discussed in Section 3.2 of this report could have reasonably prevented this violation. These corrective actions included retraining of personnel and wide distribution of memoranda reminding personnel that material leaving the Controlled Zone must be properly surveyed.

The inspector indicated that failure to follow radiation protection procedures was a violation of Technical Specification 6.11 which requires adherence to such procedures. (50-387/89-12-02; 50-388/89-12-02)

The licensee immediately counseled the involved radiation protection technician upon identification of the problem. The licensee also reinstructed all radiation protection technicians in the proper procedure for release of material from Controlled Zone.

8.0 ALARA

The inspector reviewed selected aspects of the licensee's ALARA Program. The review was with respect to criteria contained in the following:

- Regulatory Guide 8.8, Information Relevant to Ensuring that Occupational Exposure At Nuclear Power Stations Will Be As Low As Is Reasonably Achievable;
- Regulatory Guide 8.10, Operating Philosophy for Maintaining Occupational Radiation As Low As Is Reasonably Achievable;
- NUREG/CR-3254, Licensee Programs for Maintaining Occupational Exposure to Radiation As Low As Is Reasonably Achievable;
- NUREG/CR-4254, Occupational Dose Reduction and ALARA at Nuclear Power Stations; Study on High-Dose Jobs, Radwaste Handling and ALARA Incentives

Within the scope of this review, no violations were identified. Inspector observation on on-going work indicated good overall ALARA controls to be in place for in-field work. Licensee planning and preparation for major work tasks appeared good. Exposure accrued was within goals established by the licensee.

The following positive observations were identified by the inspector:

- A shutdown plan was established and implemented for the Unit 2 outage. The purpose of the plan was to provide for a slow and controlled shutdown in order to minimize crud bursts and provide for optimum clean-up of any released crud.
- The licensee initiated accelerated changeout of control rod blades that contain stellite.

9. Exit Meeting

The inspector met with licensee representatives denoted in Section 1 of the report on May 19, 1989. The inspector summarized the purpose, scope and findings of the inspection. No written material was provided to the licensee.