U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos. 50-387/85-14 and 50-388/85-14

Docket Nos. 50-387 and 50-388

License No. NPF-14 Priority -- Category C

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

Facility Name: Susquehanna Steam Electric Station

Inspection At: Berwick, Pennsylvania

Inspection Conducted: April 30 - May 3, 1985

Inspectors: I. Cohen, Team Leader — 5/20/85 date

D. Vito, Region I — 5/20/85 date

R. Smith, Region I — 5/24/85 date

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Approved by: T. Hampster, Chief
Emergency Preparedness Section — 5/24/85 date

Inspection Summary: Inspection on April 30 - May 3, 1985
(Report Nos. 50-387/85-14; 50-388/85-14).

Areas Inspected: Routine announced emergency preparedness inspection and observation of the full scale annual emergency exercise conducted on May 1, 1985. The inspection involved 240 inspector hours by a team of seven NRC Region I and NRC Contractor personnel.

Results: The licensee's emergency response actions for this exercise were adequate to provide protective measures for the health and safety of the public. No violations were identified.

DETAILS

1. Persons Contacted

The following licensee representatives attended the exit meeting on May 3, 1985.

S. H. Cantone, Manager Nuclear Support
J. H. Lex, E. P. Instructor - Nuclear Training Group
H. Woodeschick, Special Assistant to President - SSES
F. Gruscavage, Superintendent Nuclear Safety Assessment
E. Heckman, Superintendent Nuclear Operations Support
R. L. Doty, Radiation and Environment Services Supervisor
M. R. Buring, Radiation Protection Supervisor
D. G. Sutton, Materials Supervisor
R. Schwarz, Supervising Engineer
C. Wike, Supervisor Nuclear Emergency Planning
G. W. Boughman, Nuclear Operations Support Coordinator
B. W. Graham, H. P. Environment Group
S. Laser, Nuclear Operations Engineer Emergency Planning
P. Taylor, Plant Staff Emergency Plan Coordinator
H. J. Palmer, Jr., Supervisor Operations
J. M. Minneman, Senior Project Engineer
H. L. Webb, Modification Superintendent
A. Iorfida, Plant Engineer Supervisor

In addition the inspectors interviewed or observed the actions of numerous licensee personnel during the conduct of the exercise.

2. Emergency Exercise

The Susquehanna Steam Electric Station full participation exercise was conducted on May 1, 1985, from 1:00 P.M. until 10:30 P.M.

2.1 Pre-Exercise Activities

Prior to the emergency exercise, NRC Region I representatives had telephone discussions with licensee representatives to review the scope and content of the objectives and scenario. As a result, minor revisions were made by the licensee of certain scenario data. In addition, NRC observers attended a licensee briefing for licensee controllers and observers on April 30, 1985, and participated in the discussions of emergency response actions expected during the various phases of the scenario.

The exercise scenario included the following events:

- Initial slightly elevated Reactor Coolant Activity
- Injured and contaminated individuals

- Control structure chiller failure
- A control rod drop accident leading to extensive fuel damage
- A steam leak in the drywell
- A steamline break of RCIC piping and an isolation valve failure
- Stuck open containment isolation valves
- Large off-site releases of radioactivity

The above events caused the activation of all the licensee's emergency response facilities.

2.2 Exercise Observation

During the conduct of the licensee's exercise, NRC team members made detailed observations of the activation and augmentation of the emergency organization; activation of emergency response facilities; and actions of emergency response personnel during the operation of the emergency response facilities. The following activities were observed:

(1) Detection, classification and assessment of scenario events;

(2) Direction and coordination of the emergency response;

(3) Notification of licensee personnel and off-site agencies;

(4) Communications/information flow, record keeping, and sample distribution;

(5) Assessment and projection of radiological doses and protective action recommendations;

(6) Off-site and in-plant radiological surveys;

(7) Technical support to operations;

(8) Repair and corrective actions;

(9) First Aid and rescue;

(10) Radiological controls for emergency workers;

(11) Security and access controls.

(12) Activities at the Media Center and News Releases.

The NRC team noted that the licensee's activation and augmentation of the emergency organization and activation of the emergency response facilities were generally consistent with their emergency plan and implementing procedures. The team also noted the following areas where the licensee's activities were thoroughly planned and efficiently implemented:

- The objectives and scenario package were submitted to the NRC in a timely manner for their review. Appropriate changes were made to reflect NRC concerns.

- There was no evidence of a failure to demonstrate any of the exercise objectives nor was there evidence of prompting on the part of the controllers - evaluators who performed in a professional manner throughout the exercise.

- It was readily apparent within the response facilities (e.g. Control Room (CR) Technical Support Center (TSC) and Emergency Operations Facility (EOF)) as to who was in charge of the operations.

- The transfer of responsibilities to facilities as the emergency escalated was performed in an effective manner and response facilities were activated in a timely manner.

- Emergency levels were promptly identified based upon initiating conditions.

- Communications to and control of offsite monitoring teams were generally excellent. Offsite monitoring teams were knowledgeable, dispatched in a timely manner and were able to effectively monitor the plume.

- Offsite dose calculations were scrutinized and checked against offsite monitoring results.

- Forward planning and positioning of offsite teams were very good. Teams were directed in a manner to maximize their effectiveness and minimize dose.

- Plant conditions and projected changes in weather were used to develop protective action recommendations.

- Inplant teams were adequately briefed and equipped prior to dispatch.

- ALARA was considered and proper radiological controls and practices were implemented during inplant activities.

- Operational support provided continuous accountability for all inplant corrective action teams.

- News releases were timely and accurately prepared. Briefings at the Media Center were conducted in an effective manner.

- The initial briefing to observers and NRC and the conduct of the critique were conducted in an effective manner.

The following are the NRC Team findings in areas requiring additional licensee attention. Most of these findings were also identified by the licensee as part of their critique.

- Dose assessment status sheets were not transmitted to Allentown regularly early in the event.

- The offsite monitoring director did not warn the offsite teams of an expected large jump in dose rates when the containment vent valves stuck open.

- When the DER/BRP representative asked for a correlation between the measured offsite iodine readings and thyroid dose, the Radiological Support Manager provided him a graph of I-131 concentration vs. mrem/hr to the thyroid. The graph was inaccurate and apparently not a part of an approved procedure. A back calculation using the Dose Program should have been done.

These concerns are collectively designated as an open Item (50-387/85-01; 50-388/85-01) and will be reviewed during a subsequent NRC:RI inspection.

Certain practices related to operational support or inplant activities that could have contributed to a degraded response were:

- During the contaminated injury exercise, contamination control wasn't adequately maintained in that contaminated articles and clothing passed freely over the step off pad.

- One security individual and one chemistry technician came into the PASS sample area without an RWP and without proper protective equipment.

- Radio communication between inplant teams and the TSC was not always understood. Some discussions had to be repeated several times. In one case a chemist went to the Chemistry Lab to relay a message that wasn't heeded when delivered by radio.

- During the taking of the first PASS sample insufficient care was taken in the placement of the liquid sample bottle. One of the needles were bent causing the system to malfunction.

These concerns are collectively designated as an Open Item (50-387/85-14-02; 50-387/85-14-02) and will be reviewed during a subsequent NRC:RI inspection.

Certain practices related to offsite monitoring that could have contributed to a degraded response were:

- An offsite team remained in the plume after the taking of air samples had been completed.

- Offsite monitoring teams did not obtain open and closed window measurements with the RO-2 radiation monitoring instrument to determine if the plume was at ground level or overhead.

- Offsite monitoring teams were not equipped with respirators.

These concerns are collectively designated as an Inspector Followup Item (50-382/85-14-03; 50-388/85-14-03) and will be reviewed during a subsequent NRC:RI inspection.

Certain practices conducted within the Emergency Operation Facility (EOF) that could have contributed to a degraded response were:

- The EOF Technical Status Board was not maintained with adequate technical information regarding the emergency classification reason and the recommended protective actions.

This concern is designated as an Open Item (50-387/85-14-04; 50-388/85-14-04) and will be reviewed during a subsequent NRC:RI inspection.

2.3 Review Of Improvement Items Identified During The Previous Exercise

The inspectors did not detect a repetition of any of the improvement items that were identified during the previous exercise (Report No. 50-387/84-15).

2.4 Exercise Critique

The NRC team attended the licensee's post-exercise critique during which strengths and improvement item were presented by the evaluators. In addition, the NRC team members were given a copy of the licensee's findings.

3. Exit Meeting and NRC Critique

Following the licensee's self-critique, the NRC team met with the licensee representatives listed in Section 1 of this report. The team leader summarized the observations made during the exercise and discussed the areas described in Section 2 of this report.

The licensee was informed that no violations were observed. Although there were areas identified which required additional licensee attention, the NRC team determined that within the scope and limitations of the scenario, the licensee's performance demonstrated that they could implement their Emergency Plan and Emergency Plan Implementing Procedures in a manner which would adequately provide protective measures for the health and safety of the public.

Licensee management acknowledged the findings and indicated that appropriate action would be taken regarding the identified improvement areas.

At no time during this inspection did the inspectors provide any written information to the licensee.