U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-528/87-33, 50-529/87-33, and 50-530/87-34

Docket Nos. 50-528, 50-529, and 50-530

License Nos. NPF-41, NPF-51, and NPF-65

Licensee: Arizona Nuclear Power Project
P.O. Box 52034
Phoenix, Arizona 85072-2034

Facility Name: Palo Verde Nuclear Station
Units 1, 2, and 3

Inspection at: Palo Verde Site, Wintersburg, Arizona

Inspection Conducted: December 7-11, 1987

Inspectors: G. A. Brown 1-13-88
G. A. Brown, Emergency Preparedness Analyst Date Signed
Team Leader

Team Members: R. A. Meck, Emergency Preparedness Specialist, NRC
G. Fiorelli, Resident Inspector, NRC
G. Martin, Senior Research Scientist, Batelle

Approved By: R. F. Fish 1/14/88
R. F. Fish, Chief Date Signed
Emergency Preparedness Section

Summary:

Inspection conducted on December 7-11, 1987 (Report nos. 50-528/87-33, 50-529/87-33, and 50-530/87-34

Areas Inspected:

Announced inspection of the emergency preparedness exercise and associated critiques. Inspection procedures 82301 and 30703 were covered.

Results:

No significant deficiencies or violations of NRC requirements were identified.

DETAILS

1. Persons Contacted

*M. DeMichele, President, Arizona Public Service
*E. Van Brunt, Executive Vice President
*J. Haynes, Vice President, Nuclear Production
*J. Driscoll, Assistant Vice President, Nuclear Production
*J. Allen, Director, Engineering and Construction
J. Arnold, Telecommunications Engineer
*R. Baron, Compliance Manager
*T. Barsuk, Lead Site Emergency Planner
*H. Bieling, Supervisor, Emergency Planning
*R. Butler, Director, Standards and Technical Support
*P. Coffin, Compliance Engineer
*J. Kirby, Director, Site Services
*L. Papworth, Director, Quality Assurance
S. Roberts, Telecommunications Engineer
*C. Rogers, Manager, Licensing
J. Rowland, Supervisor, I&C Engineering
*D. Yows, Manager, Emergency Planning and Fire Protection

* Indicates attendance at the December 11, 1987 exit interview

2. Emergency Preparedness Exercise Planning

The Emergency Preparedness and Planning (EP&P) staff has the overall responsibility for developing and conducting the emergency preparedness exercise. The licensee issued a contract to HMM Associates which provided for scenario development. Persons involved in the scenario development were not participants in the exercise.

The scenario package was controlled so that players were not allowed access to it prior to the exercise. Prior access was given only to authorized agencies, such as the NRC and the Federal Emergency Management Agency (FEMA), who reviewed the exercise objectives and scenario, and others with a need to know the information. The exercise was intended to meet the requirements of Section IV.F.3 of Appendix E to 10 CFR Part 50.

3. Exercise Scenario

The exercise scenario began with an event classified as a Notification of Unusual Event (NOUE) and escalated in steps to the General Emergency classification. The initial classification resulted from a contaminated injury to a worker, followed by a helicopter crash on site as it was descending to pick up the injured worker. The crash resulted in an Alert declaration. Subsequently the scenario called for the plant to experience a spurious turbine trip with a resulting system pressure spike which caused gross failure of one main steam header. When several valves failed to operate properly, the steam pressure in the containment increased to the point where it challenged the containment barrier and a Site Area Emergency was declared. Events then progressed to a General

Emergency declaration due to the development of a loss of coolant accident (LOCA) greater than 50 gpm.

4. Federal Evaluators

Four NRC inspectors evaluated the licensee's response. Inspectors were located in the Control Room, Technical Support Center (TSC), Operations Support Center (OSC), and the Emergency Operations Facility (EOF).

Federal Emergency Management Agency (FEMA) evaluators observed those portions of the exercise that involved State and local agencies, including the interface occurring at the EOF. The results of FEMA's evaluation will be described in a separate report issued by FEMA.

5. Control Room

The NRC observer evaluated the Control Room crew's ability to detect and classify emergency events, formulate protective actions, perform required notifications, analyze plant conditions and take corrective actions.

The Control Room crew's responses were satisfactory but the following observations, which are intended to be suggestions for improving the program, were noted.

a. Some records were made on tablets and table notes rather than the appropriate log forms. As the exercise progressed these notes sometimes became scattered and difficult to sequence.

b. The Emergency Response Facility Data Acquisition and Display System (ERFDADS) was not available in the simulator for hands-on use by the participants. Absence of this system precluded an evaluation of the Control Room personnel's ability to utilize this source of data.

c. A lack of direct communication with the responders resulted in considerable time being spent in determining the condition of the injured worker.

6. Technical Support Center

The NRC observer evaluated the TSC staff's ability to activate in a timely manner, assess and classify accidents, make dose assessments, decide on appropriate protective action recommendations, make proper and timely notifications, support the Control Room, and maintain radiological monitoring.

The TSC actions were satisfactory but the following observations, which are intended to be suggestions for improving the program, were noted:

The TSC experienced several communication types of problems. Valve numbers reported to the TSC were reversed. There were questions regarding the operability of some equipment. The reporting of some plant actions (e.g. plant cooldown via MSW bypass to the condenser and ESF actuations) were slow.

7. Operations Support Center

The NRC observer evaluated the OSC staff's ability to timely activate and staff the facility to support the Control Room and TSC with appropriate skills and craftsmen.

The OSC staff's actions were satisfactory, but the following observations, which are identified as Open Items, were noted. Open Items are observations of sufficient importance to warrant NRC examination during a future inspection.

a. An inexperienced crew was dispatched as Field Monitoring Team RFAT #4. This team consisted of two new employees, neither of whom had worked in the area longer than four months. Upon being dispatched they did not take adequate equipment with them, taking only a ratemeter and a grab air sampler. Having no map and being unfamiliar with the area, the team members, on at least one occasion, incorrectly stated their position when they transmitted data to the EOF. Also, they improperly took open and closed window radiation readings from inside instead of outside the cab. Based on the above observations, the team did not appear to be adequately trained for the mission and there was no method for advising the OSC Coordinator of the qualifications of field team members prior to dispatching them. The licensee's response to this observation will be evaluated during a future inspection and will be tracked as Open Item No. 87-33-01.

b. Inadequacies in the radio transmissions were observed. The following were noted:

- the EOF transmitted frequent briefings to the field teams but did not verify that all teams actually received the messages.
- the RFAT-4 team actually missed a communication from the EOF that directed them to report to a different position and stand by for 10 minutes. Since receipt of the transmission was not verified, the EOF couldn't know that the team did not comply with their direction.
- the RFAT-4 team transmitted data several times but did not verify that the EOF had received the information.
- The EOF transmitted a notification of a change in wind direction to the field teams but did not verify that all teams had received the communication.

The licensee's response to this item will be evaluated during a future inspection and will be tracked as Open Item 87-33-02,

8. Emergency Operations Facility

The NRC observer evaluated the EOF staff's ability to timely activate the facility with appropriate skills and disciplines, provide offsite dose assessment capabilities, make appropriate and timely notifications,

implement protective actions onsite, make protective action recommendations offsite, interface with offsite officials, and issue information to the media.

Performance of the EOF staff was satisfactory, however, the following observation, which is intended to be a suggestion for improving the program, was noted:

> Following the start of the radiological release, dose calculations were performed assuming a filtered release path when, in fact, the release was unfiltered. This fact was not discovered until very near the termination of the release.

9. The Satellite Technical Support Center Drill

During an emergency the emergency plan calls for the Satellite Technical Support Center (STSC) to be activated and manned by personnel from the unaffected units. A shift supervisor serves as the Emergency Coordinator (EC) and a designated radiation protection technician serves as the Radiation Protection Monitor (RPM) with an auxiliary operator performing the communication and notification tasks. Functions of the regular TSC are to be performed at this facility until the regular TSC is activated. Since the exercise scenario did not provide for fully testing the capabilities of this facility, a separate drill of the STSC, concurrent with the exercise, was conducted by the licensee and evaluated by the NRC.

The following are observations noted during the drill, and are intended as suggestions for improving the program:

a. The EC was unfamiliar with the mechanics of communicating PARs to the offsite authorities. Although a communicator is normally assigned to operate the communications equipment, the EC is responsible for the overall operations and should be familiar with the functions required by his staff.

b. The EC did not always utilize available procedures on matters of which he was unfamiliar. For instance:

   - Upon declaring a Site Area Emergency, he independently issued a protective action recommendation that was in conflict with those in the procedure.

   - He did not recognize that, in a Site Area Emergency with an ongoing release, assembly and accountability of personnel are required by procedures.

The following item is of sufficient importance to warrant NRC examination during a future inspection, and will be identified as an Open Item:

- Procedure EP-11 contains inconsistent protective action recommendations which also conflict with the protective action recommendations generated by the computer software, MESORAD JR.

- Appendix B, page 7 of 7, where dose rates at the site boundary are >1 rem whole body or >5 rem thyroid, recommends shelter for 2 mile radius and evacuation from 0-10 miles in affected sectors. Also, for the same situation, the MESORAD JR program recommends only sheltering in specified sectors out to 10 miles.

Licensee response to this procedure conflict will be evaluated during a future inspection and will be tracked as Open Item No. 87-33-03.

10. Critiques

Immediately following the exercise, a critique was held with all controllers. This was followed by a formal presentation on December 10, 1987 to summarize for management consideration and disposition the exercise observations. The Vice President of Nuclear Operations and the Unit 3 Manager were in attendance at the formal presentation. The following represent the types of comments made at the December 10th meeting:

- The staff did not meet the objective to activate the EOF in a timely manner. The goal was to activate the facility in 60 minutes and it took 71 minutes to activate. (It should be noted that 71 minutes activation time is an acceptable variance from the 60-minute goal).

- EPIP-21 has been deleted but some of the procedures still contain references to it.

- The TSC Support Group is not large enough.

- It took too long to set up a portable monitor in the TSC (over one hour).

- Security delayed the response of the medical emergency team by requiring them to exit the vehicle and pass though the searching equipment before entry.

- The hospital was not properly prepared to receive a contaminated patient. There was no protective covering on the floor.

- The EOF library needs to be enlarged.

11. Followup On Loss of ENS Sirens Event

At about 8:03 PM on October 29, 1987, a thunderstorm with winds in excess of 85 mph damaged 26 of 39 Emergency Notification System (ENS) sirens. The licensee notified the Maricopa County Sheriff's office at about 8:10 PM to make provisions to implement the backup notification plan, if needed. The backup plan provides for dispatching Sheriff's Office vehicles with sirens and loudspeakers to affected areas to alert the residents. No actions were required during the period and by November 2, 1987 all sirens were back in service.

12. Exit Interview

An exit interview was held on December 11, 1987 with licensee representatives. Attendees of this interview are denoted in paragraph 1 of this report. The licensee was advised that no violations, deviations or weaknesses were identified during this inspection, but that their responses to three open items would be evaluated during future inspections. The items described in Paragraph Nos. 5, 6, 7, 8, and 9 were also discussed during this interview.