U.S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos.	50-528/89-14, 50-529/89-14, and 50-530/89-14
License Nos.	NPF-41, NPF-51 and NPF-65
Licensee:	Arizona Public Service Company P. O. Box 21666 Phoenix, Arizona 85836
Facility Name:	Palo Verde Nuclear Generating Station Units 1, 2 and 3
Inspection at:	Palo Verde Site, Wintersburg, Arizona
Inspection dates:	May 2-5, 1989
Inspector:	R. F. Fish for Kent M. Prendergast Emergency Preparedness Analyst 5/22/89 Date Signed
Team Members:	Larry Cohen, Emergency Preparedness Specialist, NRC Doug Coe, Resident Inspector, NRC Greg Martin, Pacific Northwest Laboratories
Approved by:	R. F. Fish R. F. Fish, Chief, Emergency Preparedness Section 5/22/89 Date Signed

Summary:

Areas Inspected: Routine announced inspection of the emergency preparedness exercise and followup on open items. Inspection procedures 82301, 92701, and 30703 were covered.

Results: No violations of NRC requirements were identified. Item VI.B.5.c, RP monitors capability to perform dose assessment, in AIT report No. 50-530/89-13 was evaluated during this inspection and found to be acceptable (see paragraph 7). No weaknesses were identified during the exercise observation.

DETAILS

1. Persons Contacted:

D. Karner, Vice President
J. Allen, Relief Plant Manager
B. Adney, Plant Manager Unit 3
H. Bieling, Emergency Planning and Fire Protection
N. Willsey, Emergency Planning Supervisor
M. Pioggia, Emergency Planning Coordinator
T. Barsuk, Lead Site Emergency Planner

2. Action on Previous Inspection Findings

(Closed), Open Item 88-16-01, Command and control in the OSC. Based upon the observations made during the 1989 annual emergency preparedness exercise, significant improvement in command and control was demonstrated in all emergency response facilities. This item is considered closed.

(Closed) Open Item 88-16-02, Communication logs were not maintained in the OSC. During the conduct of the 1989 exercise it was observed that the OSC communications log, as well as all other logs, were well maintained throughout the course of the exercise. This item is closed.

(Closed), Open Item 88-16-03, Problems in the Field Teams capabilities to identify their actual location to the EOF. The licensee has acquired new vehicles with mounted spot lights, acquired new maps, and placed signs around the plant to aid the field teams in accurately identifying their location to the EOF. This item is closed.

(Closed) Open Item (87-33-03), Inconsistencies between EP-11 and MESOREM. This item originally identified an inconsistency between protective action recommendations (PARs) generated using MESOREM and EPIP-11. EPIP-11 has been revised and no longer addresses PARs. EPIP-15, Protective Action Guidelines, was created to specifically address PARs. During a subsequent inspection (Report Nos. 50-528/88-16, 50-529/88-17, and 50-530/88-16) a minidrill was conducted in which PARs were determined using MESOREM and EPIP-15. The resulting PARs were different leading to the belief that there was still an inconsistency. However, as reported in APS internal memo (ID # 248-00017-GAS) it was later determined that the difference was due to human error and that EPIP-15 and MESOREM produce consistent PARs based on EPA guidance. As a result the individual committing the error has received training and all qualified personnel will be made aware of the occurrence. This item is closed.

3. Emergency Preparedness Exercise Planning (82301)

The Emergency Preparedness and Fire Protection 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 Appendix E to 10 CFR Part 50.

The NRC Region V Base Team was a participant in the licensees exercise.

4. Exercise Scenario

The exercise scenario started with an event classified as an unusual event and ultimately escalated to a general emergency classification. The initiating condition for the unusual event was a fire in the unit lasting more than 10 minutes. The alert was declared due to a fuel damage accident releasing radioactivity to the Fuel Handling Building. A site area emergency was declared upon RCS leakage greater than 50 gallons per minute and a failure of both trains of ESF to actuate when required. A general emergency, the most severe emergency classification, was declared upon the occurrence of significant fuel damage with a direct pathway to the atmosphere.

5. Federal Evaluators

Four NRC inspectors evaluated the licensee's response to the scenario. Inspectors were stationed in the Control Room (simulator), Technical Support Center (TSC), Operations Support Center (OSC), and in the Emergency Operations Facility (EOF). The NRC inspectors in the OSC and EOF also accompanied onsite repair and offsite monitoring teams to evaluate their performance in responding to the scenario.

FEMA Region IX evaluators observed those portions of the exercise that involved state and local agencies, including the interface occurring in the EOF. The results of the FEMA evaluation will be described in a separate report issued by FEMA.

6. Control Room/Simulator

The NRC observer evaluated the Control Room (CR) Crew's ability to detect and classify emergency events, formulate protective actions, make notifications to state, local and federal agencies, analyze plant conditions and take corrective actions to mitigate the accident. The following observations were made.

a. The turnover of the Emergency Coordinator responsibilities from the CR to the Satellite Technical Support Center (STSC) included thorough briefings and was well executed.

b. Logs were well maintained and the Control Room crew's response to the scenario was proactive with regards to plant equipment.

The other activities observed in the CR appeared satisfactory. No significant findings were identified.

7. Technical Support Center

The NRC observer evaluated the TSC staff's ability to activate in a timely manner, assess and classify the accident, perform dose assessment, confer on protective action recommendations, analyze plant conditions and provide innovative solutions to support the Control Room. The following observations were made.

a. The TSC was activated expeditiously and command and control were effectively demonstrated. Briefings and turnover of responsibilities were thorough and well done.

b. Logs and status boards were well maintained.

c. The TSC staff did a good job of analyzing and trending plant events and providing innovative solutions to mitigate the accident.

e. The licensee utilized their manual dose assessment procedure EP-14 to perform a backup dose assessment to their computer code (Mesorem Jr.) as a minidrill during the exercise. The manual method was accomplished in the EOF and TSC. The results of the manual method were comparable to the computerized method within a factor of 2.0, which is considered satisfactory.

The other activities observed in the TSC appeared satisfactory. No significant findings were identified.

8. Operations Support Center

The NRC observer evaluated the OSC staff's ability to activate in a timely manner, brief and track repair teams, maintain communication logs, and support the CR and TSC with appropriate skills and craftsmen.

a. The OSC was staffed and activated in a timely manner. Command and control were effectively demonstrated.

b. The process of team briefings, dispatch, tracking and debriefing was smoothly and efficiently handled.

c. OSC logs, including the communication logs were well maintained throughout the course of the exercise.

d. Habitability was also established early in the exercise and well tracked throughout the course of the exercise.

e. Emergency response vehicles/teams were allowed rapid access into the protected area.

The other activities observed in the OSC appeared satisfactory. No significant findings were identified.

9. Emergency Operations Facility

The NRC observer evaluated the EOF staff's ability to activate the facility in a timely manner with appropriate skills and disciplines, provide offsite dose assessment, perform appropriate and timely notifications, make protective action recommendations, interface with the corporate emergency organization, and establish the recovery organization. The following observations were made in the EOF.

a. The EOF was fully staffed within 24 minutes of the alert declaration and was declared activated within 40 minutes.

b. Command and control in the EOF was effectively demonstrated and the facility was well organized and equipped to perform its function.

c. Offsite notification was carefully monitored and performed as required. The EOF staff was kept informed of plant conditions via the use of frequent Public Address announcements and status boards.

d. The recovery organization, established after the exercise, appeared well organized and capable of performing their responsibilities.

e. The utilization of offsite thermoluminescent dosimeters(TLDs) was not addressed in the licensee's activities for dose assessment during the exercise. As a recommendation for improvement, the use of offsite TLDs should be factored into the licensee's methodology for dose assessment to aid in assessing the impact of a release to the environment.

The other activities observed in the EOF appeared satisfactory. No significant findings were identified.

10. Critiques

Immediately following the exercise, licensee critiques were held in each of the emergency response facilities (ERFs). The controllers and players did a good job of evaluating and identifying areas for improvement. A formal critique involving site and management personnel was conducted on June 4, 1989. The purpose of the formal critique was to summarize the findings of the earlier critique sessions and to present them to plant and corporate management. The following represent some of the findings discussed during this meeting.

a. Some improvement in the flow of information to the field teams might be beneficial. The field teams were unaware of the plant status, event classification, or protective action recommendations made to offsite agencies.

b. A radiation monitor should have been placed at the entrance to the TSC to ensure the habitability of the TSC. Also, personnel sent on errands to other facilities from the TSC did not receive the same consideration for briefings and accountability as did the field teams.

c. The establishment of the team captain concept for the medical response team may improve the response by providing command and control over the operation. This action should also improve the flow of communication, which was notably delayed during the exercise regarding the contamination of workers and the fuel handling accident. The application of this concept should also eliminate redundant operations, and improve the coordination between security, radiation protection, and first aid.

d. The simulator's capability to portray the position of the containment isolation valves as they would in a real event could be improved. The simulator's portrayal of the containment isolation valves on the SSES panels was inaccurate and therefore confusing as to whether a release path to the environment existed.

e. Some human factoring of the manual dose assessment procedure (EP-14) is being considered. The licensee successfully demonstrated the the manual method for dose assessment as a back-up during the exercise. However, because of the complexity of the procedure methodology to simplify EP-14 appears necessary to reduce the possibility of human error.

f. The core damage calculation appeared to take a long time. This was attributed to waiting for the chemistry samples.

10. Exit Interview

An exit interview to discuss the preliminary NRC findings was held on May 5, 1989. Licensee Personnel present at this meeting are identified in the Attachment to this report. The licensee was informed that no violations were identified during the inspection and was complimented on their efforts regarding this exercise. Other items discussed during this meeting are described in Sections 2 through 9 of this report.

ATTACHMENT

Exit Interview Attendees

M. De Michele, President, Corporate Executive Officer
D. Karner, Vice President, PVNGS
J. Haynes, Vice President, Nuclear Production
W. Marsh, Plant Director
W. Ide, Unit 1 Plant Manager
L. Papworth, Site Services Director
D. Heinicke, Unit 2 Plant Manager
B. Adney, Unit 3 Plant Manager
J. Allen, Relief Plant Manager
B. Page, Management Services
R. Bernier, Lead Licensing Engineer
W. Quinn, Director, Nuclear Safety and Licensing
D. Stover, Manager, Nuclear Safety
C. Rogers, Manager, Licensing
J. Kirby, NPS Director
H. Bieling, Emergency Planning and Fire Protection Manager
N. Willsey, Emergency Planning Supervisor
T. Barsuk, Lead Emergency Planner