U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-528/84-37 (IE-V-652)

Docket No. 50-528 License No. CPPR-141

Licensee: Arizona Public Service Company
P. O. Box 21666
Phoenix, Arizona 85836

Facility Name: Palo Verde Nuclear Generating Station - Unit 1

Inspection at: Palo Verde Site - Wintersburg, Arizona

Inspection conducted: September 24-27, 1984

Inspectors: G. M. Temple — 10/12/84
G. M. Temple, Emergency Preparedness Technician, NRC Team Leader — Date Signed

R. F. Fish — 10/12/84
R. F. Fish, Emergency Preparedness Analyst — Date Signed

K. M. Prendergast — 10/12/84
K. M. Prendergast, Emergency Preparedness Analyst — Date Signed

Other Team Members: E. E. Hickey, Pacific Northwest Laboratories
G. F. Martin, Pacific Northwest Laboratories
P. J. Brown, Comex Corporation

Approved By: R. F. Fish — 10/12/84
R. F. Fish, Acting Chief, Security Licensing and Emergency Preparedness Section — Date Signed

Summary:

Inspections on September 24-27, 1984 (Report No. 50-528/84-37)

Areas Inspected: An announced inspection of the emergency preparedness exercise and associated critiques, and an inspection of open items and improvement items identified during inspections of April 11-22, 1983, May 11, 1983 and January 16-20, 1984. The inspections involved about 186 hours of onsite time by three NRC inspectors and three contractor team members.

Results: No significant deficiencies or violations of NRC requirements were identified. Four of the seven open items are still considered to be open.

Should you have any questions concerning this inspection, we will be glad to discuss them with you.

Sincerely,

/S/

M. D. Schuster, Acting Chief
Safeguards and Emergency
Preparedness Branch

Enclosure:
Inspection Report
No. 50-528/84-37 (IE-V-652)

cc w/enclosure:
D. Karner, Asst. V.P., Nuclear Production, APS
J. Bynum, Dir., Nuclear Operations, APS
R. Page, Mgr., Emergency Planning and Preparedness, APS
S. Frost, Supervisor, Station 4080, APS
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bcc: RSB/Document Control Desk (RIDS)
Mr. Martin
Resident Inspector (2)
Project Inspector

RV GTT	RF.	KMP	MCS	LM
G.Temple:dh	R.Fish	K.Prendergast	M.Schuster	L.Miller
10/12/84	10/12/84	10/12/84	10/15/84	10/15/84

DETAILS

1. Persons Contacted

A. Arizona Public Service

J. Allen, Manager, Operations
G. Anderson, I&C Systems Engineer
T. Barsuk, Engineer III, Site Emergency Planning
L. Brown, Manager, Radiation Protection and Chemistry
T. Burton, Computer Systems Lead Engineer
D. Callaghan, Shift Supervisor, Unit 1
M. Cates, Emergency Planning Coordinator II
L. Clyde, Supervisor (Acting), Shift Technical Advisor
D. Craig, Senior Nuclear Instructor
J. Dennis, Shift Supervisor, Unit 1
W. Durham, Senior Fire Protection Analyst
L. Florence, Reactor Operator
W. Gardner, I&C Startup Supervisor
W. Garrett, Shift Technical Advisor
T. Haggard, Radiation Protection Technician
E. Hayes, Supervisor, Computer Systems
W. Hollon, Reactor Operator
D. Karner, Assistant V.P., Nuclear Production
M. Lantz, Supervisor, Radiological Protection Support
J. Malik, Day Shift Supervisor, Unit 3
R. Page, Manager, Emergency Planning and Preparedness
G. Perkins, Manager, Radiological Services
D. Phillips, Manager, Computer Systems
S. Roberts, Auxiliary Operator
M. Roettger, Emergency Planning Coordinator I
W. Rudolf, Senior Nuclear Instructor
J. Schlag, Superintendent, Radwaste Support
J. Self, Transition/Operations Representative
R. Selman, Supervisor, ALARA
L. Sewell, Radiological Engineer
J. Sims, Engineer III, Site Emergency Planning
W. Sterns, Reactor Operator
T. Stoller, Reactor Operator
C. Trusiak, Radwaste Technician
S. Wackenstat, Auxiliary Operator
D. White, Assistant Shift Supervisor, Unit 1
R. Younger, Superintendent, Unit 1 Operations
D. Yows, Supervisor, Site Emergency Planning

B. Other Personnel

P. Frascino, HMM Associates
K. Hodge, REMS
R. Merlino, HMM Associates
F. Mettler, REMS
M. O'Hare, HMM Associates
R. Zimmerman, Senior Resident Inspector, NRC

2. Licensee Action on Previously Identified Items

(Open) Open Item (83-14-04): The present Emergency Plan (Revision 3) and staff augmentation capability were not consistent with Table B-1 of NUREG-0654, Revision 1. The matter of augmenting the emergency organization was discussed between representatives of the NRC Emergency Preparedness Branch (EPB) and the applicant during a meeting on July 30 and 31, 1984. By letter dated August 20, 1984, the applicant requested temporary deviations from the emergency organization augmentation goals shown in Table B-1 of NUREG-0654. A supplemental letter from the applicant is required to document additional information necessary to support an acceptable deviation. This item remains open.

(Open) Open Item (83-14-14): The Control Room (CR), Technical Support Center (TSC), Operations Support Center (OSC) and Emergency Operations Facility (EOF) had not been completed and the required equipment installed. The monitors in the ventilation systems of the TSC and EOF had been installed; however, at the time of this inspection they had been returned to the supplier for recalibration. The CR, TSC, OSC and EOF facilities have been completed. The Emergency Response Facility Data Acquisition Display System (ERFDADS), Chemical and Radiological Acquisition Computer System (CRACS) and Radiation Monitoring System (RMS) have not been completely installed, tested (including calibration where applicable) and declared operational. The HEPA filters for the EOF have been received, but not installed and tested. Presently the applicant is using IBM personal computers in the TSC, EOF and Satellite Technical Support Center (STSC) to make the dose projection calculations, rather than CRACS which is not operational. The applicant was informed that the NRC should be formally notified of the use of the IBM personal computer to perform the dose projection calculations. According to the applicant, their present schedule shows: (1) the EOF HEPA filters will be installed and testing completed by the end of October 1984, (2) ERFDADS will be operational by the end of November 1984, (3) CRACS will be operational and demonstrated by the third week in January 1985 and (4) the preoperational testing of the RMS and verification of the acceptability of the calibration documentation by November 1, 1984. The applicant stated that they expect the monitors in the EOF and TSC ventilation systems will be completed and operational in about one week. This item remains open.

(Closed) Open Item (83-14-17): The offsite, backup laboratory had not been fully equipped, licensed and appropriate procedures had not been prepared. The applicant intends to use the Unit 2 laboratory as the primary backup for the Unit 1 laboratory. The NRC Project Manager has stated that this is possible. During an October 4 telephone call, the applicant stated that they will be formally requesting the Unit 2 lab be included in the Unit 1 operating license. Open Item 83-12-20, being followed by the Region V Reactor Radiation Protection Section, will assure the Unit 2 laboratory is capable of performing the assigned emergency function. Region V has examined the intended amendment to the Arizona State University (ASU) Byproduct License and found it will provide authorization for ASU to act as an alternate backup laboratory. This item is considered closed.

(Open) Open Item (83-14-22): The non-radiation monitors had not been installed, operationally checked and calibrated. The status of the seismic instrumentation remains as described in Inspection Report No. 50-528/84-26 (paragraph 2). According to the applicant, their schedule shows this equipment will be operational by November 1, 1984. This item remains open.

(Open) Open Item (83-14-25): The meteorological data acquisition system had not been installed and tested. The software problems related to the time averaging capability were identified and have been corrected. The problem was associated with the loss of clock time due to a cutoff in power and the failure to synchronize the clock time when power was restored. At the time of this inspection neither data link for transferring the meteorological data into the plant was operational. One link was still being repaired after suffering fire damage a few weeks ago. The other link has a noise problem. According to the applicant, both data links should be operational by the end of October 1984. This item remains open.

(Closed) Open Item (83-14-32): The card reader system, used for accountability of personnel during an emergency, was not operational. A personnel assembly and accountability drill was conducted on September 19, 1984. This drill involved the use of the Security Access Control System (ACAD card). The drill was performed in accordance with Emergency Plan Implementing Procedure No. EPIP-37A, Emergency Preparedness Drills. The Drill Report showed four problems were identified during the drill. The corrective actions, corrective action due date and person assigned responsibility for the corrective action were also in the Drill Report. All of the documentation related to this drill was examined. This item is considered closed.

(Closed) Open Item (84-01-01): Post-accident grab sampling procedures needed to cross reference the safety precautions related to high activity samples. Revision 2 to EPIP-27, Post Accident Sampling and Analysis, includes appropriate (radiological) safety precautionary statements as well as references to other safety EPIPs. This item is considered to be closed.

3. Emergency Action Levels (EALs) and Implementation

Incident to this inspection, walkthrough interviews were conducted with two (2) Shift Supervisors, two (2) Assistant Shift Supervisors and one (1) Shift Technical Advisor. Hypothetical emergency situations were posed from NRC prepared scenarios involving all emergency classifications. Tested areas of knowledge included emergency detection and protective action decision making. The principle goal was to assess the operator's familiarity with the Emergency Plan (EP), implementing procedures (in particular EPIP-02) and emergency classification. During both walkthrough interviews the operators displayed familiarity with the symptomatic classification procedure and verified its ease of use. The operators displayed adequate knowledge of the Emergency Plan and all implementing procedures which were included in the scenarios.

4. Emergency Preparedness Exercise Plan

The Arizona Public Service (APS) Emergency Planning and Preparedness (EP&P) staff had the overall responsibility for developing and conducting the emergency preparedness exercise. Implementation of this responsibility was assigned to a committee which was composed of people with the appropriate disciplines, including State and county representatives. The applicant had issued a contract to HMM Associates which provided for the evaluation of the scenario, formulation of the data and an evaluation of the exercise. NRC Region V and Federal Emergency Management Agency (FEMA) personnel also reviewed the exercise objectives and scenario during the planning stage.

The EP&P manager acted as Senior Controller with the responsibilities of establishing the exercise objectives, developing the scenario package and directing the exercise. The scenario package included the objectives, participant guidelines, exercise scenario, information and contingency messages, initial and subsequent plant parameters, meteorological and radiological data, controller assignments and instructions, and exercise evaluation forms. The scenario package was tightly controlled and only distributed to controllers, NRC and FEMA observers, and other persons having a specific need. Players, including those of offsite agencies, did not have access to the scenario package or information on the scenario events. This emergency planning exercise satisfied the initial exercise required by Section IV.1.b of Appendix E, 10 CFR Part 50.

5. Observers

The exercise was observed and evaluated by several organizations. The applicant provided controllers/evaluators for all onsite areas, near site areas where environmental monitoring activities were being performed by APS personnel and the Joint Emergency News Center (JENC). HMM provided controllers/evaluators in the CR/STSC and in the TSC. The simulator was utilized during this exercise and functioned as the CR and STSC. REMS, a consulting firm, provided evaluators to observe the medical response. Provisions had been established for the observers to alter the scenario details if it became necessary.

NRC and FEMA Region IX observers were also present during the exercise. The FEMA team of observers were evaluating those portions of the exercise that involved State and local agencies as well as the interface occurring at the EOF. The NRC observed activities in the CR, STSC, TSC, OSC and EOF. The NRC also observed the activities of teams dispatched into the plant to respond to the fire, the contaminated, injured employee and the inoperable Main Steam Safety Valve (MSSV).

On September 25, 1984, the Senior Controller held a briefing for the controllers and evaluators, including NRC evaluators and lead government controllers. Copies of the scenario package were distributed at this briefing. The briefing covered the participating agencies, the exercise objectives, extent of play (simulation), duties of controllers and players, contingency messages and when to use them, the extent of pre-staging, a discussion of the scenario events and the timing of the post-exercise critiques. It had been determined that these would take

place before the recovery discussions. Controllers were cautioned about the safety significance of prefacing communications with "This is a drill" and were asked to remind players of this if necessary. Additionally, the Senior Controller re-emphasized the confidentiality of the scenario.

6. Exercise

The exercise started at 7:15 a.m. on September 26, 1984 with a "Notification of Unusual Event" caused by a fire in the Auxiliary Boiler area. This was followed by a Reactor Coolant System (RCS) leak greater than 50 gallons per minute. Based on the excessive RCS leakage, an "Alert" was declared. A series of events then followed that escalated the situation into a "Site Area Emergency" and ultimately to a "General Emergency". These events included indications of failed fuel (loss of fuel cladding), the inability to re-seat one MSSV, a Steam Generator Tube Rupture and projected Site Boundary doses greater than Environmental Protection Agency Protective Action Guidelines (EPA PAGs). Several emergency teams, including medical response, repair, onsite and offsite monitoring teams, were assembled and dispatched during the course of the exercise. The meteorological conditions were changed during the scenario to permit exercising all offsite aspects of the EP. After the release was terminated, and the level of emergency was de-escalated to the "Alert" level, the time was advanced eight hours in order to initiate onsite recovery operations discussions. The exercise was terminated at about 3:40 p.m. when recovery discussions were completed and the Senior Controller had determined that all of the exercise objectives had been met.

7. Critique

Immediately following the main part of the exercise (prior to recovery discussions), critiques were held in each of the Emergency Response Facilities (e.g., CR/STSC, TSC, OSC and EOF). The players, controllers and evaluators participated in this critique session. After the recovery discussions, the lead controllers held a critique. A formal debriefing was conducted the morning of September 27, 1984. This debriefing included APS controllers, emergency facility directors and lead government controllers. The purpose of the debriefing was to summarize the earlier critique sessions and to discuss problem areas in need of corrective actions. The following represent the types of comments made at this meeting.

a. The scenario had some inconsistencies (e.g., the data programmed into the simulator indicated that the RCS leak had stopped (correct), but the message form stated that it had not, and the field monitoring team data did not agree with dose projections because of a difference in stability class).

b. EPIP-02, Emergency Classification, needs to be reviewed and modified with respect to including dose projection information.

c. EPIPs-03, 04, 05 and 06 should be considered from a human factors (workability) standpoint.

d. The series of procedures dealing with dose assessment (EPIPs - 14A, B, C and D) need to be verified and validated.

e. Problems were experienced getting two emergency vehicles offsite.

f. EPIP-31, Recovery, could be improved and a checklist added.

g. The coordination and release of media information could be improved.

h. The organization of the TSC and EOF needs to be reviewed.

i. At the beginning of the exercise there was some confusion over telephone numbers (CR/STSC and OSC noted).

j. The instrument used to make notifications from the STSC (manual telephone) could be more sophisticated (e.g., automatic ring-down or touch-tone telephone).

k. The Radiation Protection response to the medical emergency was too slow.

l. No entry contamination control points exist for personnel returning from the field.

m. The Public Address system in the OSC could be improved.

n. The information on the Plant Status Board in the OSC is not really pertinent to OSC functions.

EPIP-37B, Emergency Preparedness Exercises, requires that a written report, which includes critique results, be issued. The written report will be reviewed and action items tasked to the appropriate department. The Exercise Report cannot be signed off until appropriate corrective actions have been completed.

8. Exit Interview

An exit interview was held in the afternoon of September 27, 1984. The attachment to this report identifies those applicant and contractor personnel who attended this meeting. The NRC was represented by six (6) observer team members and R. P. Zimmerman, Senior Resident Inspector. The applicant was informed that no significant deficiencies or violations of NRC requirements were identified. The applicant presented a summary of their findings during this meeting. The following NRC observations, in addition to the findings presented in paragraphs 2 and 3, were discussed or emphasized when the applicant had identified the item during their critique.

a. Data inconsistencies were noted in the scenario.

b. It appeared that, in some cases, too much simulation may have prevented the identification of potential problems. For instance, no radiological control points were established for returning field monitoring teams. If the teams had been wearing (rather than

simulating) Protective Clothing (PCs), they might have recognized the need to set up certain controls before entering "clean" areas, such as the counting lab. Additionally, if the maintenance person repairing the MSSV had been wearing Self Contained Breathing Apparatus (SCBA), the time needed to repair the valve could have been tripled due to the tight work space.

c. There is always a need to be diligent about the problems created by controller prompting during drills or exercises.

d. Some difficulties during communications with field teams were observed. Dead spots were noted as the reason.

e. Although the nurse responding to the medical emergency requested Radiation Protection (RP) assistance twice, the RP team did not arrive until the contaminated, injured employee was being settled into the ambulance. There appeared to be some problems identifying the actual location of the accident. Attendance to a medical emergency is recognized as a priority, however, it is possible to apply radiological controls without detracting from medical attention.

f. It appeared that the dosimetry worn by the injured person was not handled appropriately, possibly a result of "e" above. This inhibited the estimation of the employee's exposure and may have caused erroneous results. The applicant might want to consider addressing dosimetry as part of an applicable procedure.

g. There seemed to be some delay involved in obtaining authorization from the Emergency Coordinator (EC), to allow the injured person to be transported to the hospital, prior to decontamination.

h. There appeared to be a need for a formalized method to ensure that procedure revisions are incorporated into the emergency operations diagnostic flowchart in the CR.

i. In the event of a lengthy "Notice of Unusual Event", it might be more prudent to have a qualified relief available so that the unaffected unit's Shift Supervisor may return to his responsibilities in the unaffected plant.

j. EPIP-02 needs to be examined and possibly revised to make it easier to classify certain events.

k. Status boards within the EOF were noted to contain the time the message was received, but not the time of the event. This could hamper the documentational aspects of reconstruction after an accident.

l. During the recovery discussions, it appeared that the time needed to evaluate plant status was underestimated.

The applicant expressed appreciation for the above comments and said they would be considered along with the other items developed by their critique process.

Attachment

Exit Interview Attendees

H. Bieling, Lead Coordinator, EP&P
J. Bynum, Director, Nuclear Operations
D. Canady, Manager, ANPP Communications
G. Clyde, Operations Licensing Engineer
M. Crusa, Government Liaison, EP&P
J. Dennis, Shift Supervisor, Unit 1
V. Elish, General Training Instructor
P. Frascino, HMM Associates
M. Gerdes, Training Administrator, EP&P
D. Karner, Assistant V.P., Nuclear Production
C. Losinger, HMM Associates
R. Merlino, HMM Associates
M. O'Hare, HMM Associates
R. Page, Manager, EP&P
M. Roettger, Emergency Planning Coordinator I
E. Van Brunt, Jr., V.P., Nuclear Production
J. Wilson, Director, Consumer and Corporate Communications
T. Woods, Executive Vice President
D. Yows, Supervisor, Site Emergency Planning