

March 19, 2004

Mr. Gregg R. Overbeck
Senior Vice President, Nuclear
Arizona Public Service Company
P. O. Box 52034
Phoenix, AZ 85072-2034

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION (PVNGS), UNITS 1, 2,
AND 3 - EMERGENCY PLAN CHANGE TO REDUCE THE NUMBER OF SHIFT
TECHNICAL ADVISORS IN THE EMERGENCY RESPONSE ORGANIZATION
STAFFING (TAC NOS. MB7822, MB7823, AND MB7824)

Dear Mr. Overbeck:

In the letter dated February 14, 2003 (102-04890), as supplemented by the letter dated March 11, 2004 (102-05069), you requested a change to Table 1, "Minimum Staffing Requirements for PVNGS for Nuclear Power Plant Emergencies," of the Emergency Plan for PVNGS, Units 1, 2, and 3. The proposed change would reduce the number of shift technical advisors (STAs) required to be on-shift in the emergency response organization from three to two.

Based on the enclosed safety evaluation, the staff concludes that the proposed change is consistent with the planning standards of 10 CFR 50.47(b), and meets the requirements in Appendix E of 10 CFR Part 50 and NUREG-0737, Item I.A.1.1 and, therefore, the proposed reduction in the number of STAs from three to two onsite is an acceptable alternative for meeting the regulations.

If there is any questions concerning this letter and safety evaluation, please contact me at 301-415-1307, or through the internet at jnd@nrc.gov.

Sincerely,

/RA/

Jack Donohew, Senior Project Manager, Section 2
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

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

Enclosure: Safety Evaluation

cc w/encl: See next page

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Senior Vice President, Nuclear
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Docket Nos. STN 50-528, STN 50-529,
and STN 50-530

Enclosure: Safety Evaluation

cc w/encl: See next page

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JAnderson

EWeiss

* See previous concurrence

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NAME	JDonohew	EPeyton	EWeiss*	SDembek
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Palo Verde Generating Station, Units 1, 2, and 3

cc:

Mr. Steve Olea
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, AZ 85007

Douglas Kent Porter
Senior Counsel
Southern California Edison Company
Law Department, Generation Resources
P.O. Box 800
Rosemead, CA 91770

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P. O. Box 40
Buckeye, AZ 85326

Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
Harris Tower & Pavillion
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011-8064

Chairman
Maricopa County Board of Supervisors
301 W. Jefferson, 10th Floor
Phoenix, AZ 85003

Mr. Aubrey V. Godwin, Director
Arizona Radiation Regulatory Agency
4814 South 40 Street
Phoenix, AZ 85040

Mr. Craig K. Seaman, Director
Regulatory Affairs/Nuclear Assurance
Palo Verde Nuclear Generating Station
P.O. Box 52034
Phoenix, AZ 85072-2034

Mr. Hector R. Puente
Vice President, Power Generation
El Paso Electric Company
340 E. Palm Lane, Suite 310
Phoenix, AZ 85004

Mr. John Taylor
Public Service Company of New Mexico
2401 Aztec NE, MS Z110
Albuquerque, NM 87107-4224

Ms. Cheryl Adams
Southern California Edison Company
5000 Pacific Coast Hwy Bldg DIN
San Clemente, CA 92672

Mr. Robert Henry
Salt River Project
6504 East Thomas Road
Scottsdale, AZ 85251

Terry Bassham, Esq.
General Counsel
El Paso Electric Company
123 W. Mills
El Paso, TX 79901

Mr. John Schumann
Los Angeles Department of Water & Power
Southern California Public Power Authority
P.O. Box 51111, Room 1255-C
Los Angeles, CA 90051-0100

Brian Almon
Public Utility Commission
William B. Travis Building
P. O. Box 13326
1701 North Congress Avenue
Austin, TX 78701-3326

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO EMERGENCY PLAN CHANGE TO REDUCE THE REQUIRED NUMBER
OF SHIFT TECHNICAL ADVISORS ONSHIFT FOR EMERGENCY RESPONSE
ARIZONA PUBLIC SERVICE COMPANY, ET AL.
PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3
DOCKET NOS. STN 50-528, STN 50-529, AND STN 50-530

1.0 INTRODUCTION

By application dated February 14, 2003, as supplemented by the letter dated March 11, 2004, Arizona Public Service Company (the licensee), requested a change to Table 1, "Minimum Staffing Requirements for PVNGS for Nuclear Power Plant Emergencies," of the Emergency Plan (EP) for the Palo Verde Nuclear Generating Station (PVNGS), Units 1, 2, and 3. The proposed change would reduce the number of shift technical advisors (STAs) required to be on-shift in the PVNGS emergency response organization (ERO) from three to two.

2.0 BACKGROUND

The NRC staff's review of the proposed change was based on Revision 27 of the PVNGS EP, which was submitted by the licensee's letter dated September 26, 2002. The following description of the ERO and the role of the STAs in the organization is based on the review of this revision of the EP.

As described in EP Section 4.2, the ERO is comprised of three distinct organizations: onshift, onsite, and offsite EROs. EP Table 1, "Minimum Staffing Requirements for PVNGS for Nuclear Power Plant Emergencies," provides the minimum ERO staffing for emergencies declared as Unusual Events, Alerts, Site Area Emergencies, or General Area Emergencies.

The onshift ERO is made up of the control room supervisor, emergency coordinator (affected shift manager or designee), emergency repair team, fire team, operations shift personnel, radiation monitoring personnel, radiation monitoring technician, radiation protection monitor, Satellite Technical Support Center (STSC) communicator, security director, security force, shift manager, and STAs. The STSC is located in each unit adjacent to the control room and functions as an extension of the TSC to provide direct technical support to the control room.

The onsite ERO is made up of the following support that is in addition to the above onshift EO: administrative support, chemistry coordinator, electrical engineer, emergency coordinator technical assistant, emergency maintenance coordinator, facility advisor (optional), mechanical engineer, operations advisor, operations coordinator, Operations Support Center (OSC)

coordinator, plant status technician (optional), radiological protection coordinator, reactor analyst, repairs coordinator, radiation protection support technician, safety analysis engineer, and technical engineering manager.

The offsite ERO is made up of the following support that is in addition to the above onshift and onsite EROs: emergency operations director, assistant emergency operations director (optional), administrative and logistics coordinator, dose assessment health physicist, facility advisor (optional), plant status technician (optional), information coordinator, radiological assessment communicator, radiological assessment coordinator, security coordinator, systems engineering, technical analysis manager, and offsite technical representative.

The emergency facilities are the control room, OSC, STSC, technical support center (TSC), and emergency operations facility (EOF).

There are currently three STAs for the PVNGS site, one for each unit. There is the STA for the affected unit (i.e., the unit with the emergency) and two STAs for the two unaffected units. Only one unit is assumed to be in an emergency.

In EP Section 4.2.1.2 and in the licensee's letter of February 14, 2003, it is stated that the STA responds to the control room or the STSC of the affected unit, and reports to the shift manager. The STA will do the following: advise the shift manager on activities that impact the operation of the unit, monitor various data displays throughout the emergency, assist the control room personnel, assume the position of reactor analyst until relieved by the reactor analyst of the onsite ERO, and provide electrical and mechanical technical support until relieved by electrical and mechanical engineers of the onsite ERO.

In the letter of February 14, 2003, the licensee stated that EP Implementing Procedure EPIP-01, "Satellite Technical Support Center Actions," provides more detail on STA responsibilities. The procedure lists the following for the onshift STA of the affected unit:

Initial Actions:

- On a continuing basis, independently verify the current emergency classification, assess the status of plant systems and critical plant parameters as directed, and communicate the findings to the Shift Manager.
- For an Alert or Higher Emergency Classification, activate the Emergency Response Data System.
- Contact technical support personnel as required.

Subsequent Actions:

- Continue independent verification of any changes to emergency classifications and communicate the findings to the Shift Manager/Emergency Coordinator.

- Continue assessments and assist Control Room personnel.
- Periodically brief the Shift Manager concerning plant status, availability of support personnel, and corrective action recommendations.

For the onshift STAs at the unaffected units, the procedure states the following:

Initial Actions:

- When duties have been assumed and an informational briefing has been received, assess the status of plant systems and core thermohydraulic parameters on a continuing basis.
- Establish contact with the Plant Status Technicians in the Technical Support Center and Emergency Operations Facility, if activated, and arrange a 3-way conference call for communicating 15-minute plant system status updates.

Subsequent Actions:

- Continue assessments of plant systems and core thermohydraulic parameters.
- Perform Core Damage Assessment.
- Provide a status of plant conditions to the Emergency Coordinator and Radiation Protection Monitor on a periodic basis.
- Complete the Event Notification Worksheet and within 1 hour of initial, upgraded, or downgraded emergency classification, notify the USNRC Operations Center via the ENS [emergency notification system] NRC telephone.
- Maintain contact with the USNRC until relieved by the USNRC Liaison Operations in the Technical Support Center.
- Maintain assessments of plant systems and core thermohydraulic parameters until relieved by the Reactor Analyst in the Technical Support Center.
- Provide support to the on-shift STA as required.

3.0 REGULATORY EVALUATION

The applicable regulations and guidance on the requirements that licensees must meet for the EPs at their plants are the following:

3.1 Regulations

- Item (b) of 10 CFR 50.47, "Emergency plans," includes the following planning standards:
 - 10 CFR 50.47(b)(1) states, in part: "... the emergency responsibilities of the various supporting organizations have been specifically established, and each principal response organization has staff to respond and to augment its initial response on a continuous basis."
 - 10 CFR 50.47(b)(2) states, in part: "...adequate staffing to provide initial facility accident response in key functional areas is maintained at all times; timely augmentation of response capabilities is available; and ..."
 - 10 CFR 50.47(b)(8) states: "Adequate emergency facilities and equipment to support the emergency response are provided and maintained."
- Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities," to 10 CFR Part 50 provides requirements on the emergency organization (Section IV.A), assessment of radiological releases (Section IV.B), activation of the emergency organization (Section IV.C), notification procedures (Section IV.D), emergency facilities and equipment (Section IV.E), training (Section IV.F), and maintaining emergency preparedness (Section IV.G).

3.2 Guidance

- Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," Revision 4, states, in part:

The criteria and recommendations contained in Revision 1 of NUREG-0654/ FEMA-REP-1 are considered by the NRC staff to be acceptable methods for complying with the standards in 10 CFR 50.47 that must be met in on-site and off-site emergency response plans.

- NUREG-0654/FEMA-REP-1, Rev 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," states in part:

B. Onsite Emergency Organization

5. Each licensee ... the emergency. These assignments shall cover the emergency functions in Table B-1 entitled "Minimum Staffing Requirements for Nuclear Power Plant Emergencies." The minimum on-shift staffing shall be as indicated in Table B-1. The licensee must be able to augment on-shift capabilities within a short period after declaration of an emergency. This capability shall be as indicated in Table B-1

Table B-1 lists the major functional areas, position title or expertise, and the number of personnel onshift and the capability to add personnel at 30 and 60 minutes.

H. Emergency Facilities and Equipment

1. Each licensee shall establish a Technical Support Center ... in accordance with NUREG-0696, Revision 1.
2. Each licensee shall establish an Emergency Operations Facility ... in accordance with NUREG-0696, Revision 1.

- NUREG-0696, Revision 1, "Functional Criteria for Emergency Response Facilities," states, in part:

2.3. Upon activation of the TSC, ... achieve full functional operation within 30 minutes.

4.3. Upon EOF activation, ... achieve full functional operation within 1 hour.

- NUREG-0737, Supplement 1, "Clarification of TMI [Three Mile Island] Action Plan Requirements," states, in part:

8.2.1.a. The TSC will perform EOF functions for the Alert Emergency classification, Site Area Emergency classification, and General Emergency classification until the EOF is functional.

8.2.1.j. TSC - ... be fully operational within approximately 1 hour after activation.

8.4.1.j. EOF - Staffed using Table 2 (previous guidance approved by the Commission) as a goal. Reasonable exceptions to goals for the number of additional staff personnel and response times for their arrival should be justified and will be considered by NRC staff.

- NUREG-0737, dated November 1980, "Clarification of TMI [Three Mile Island] Action Plan Requirements," states, in part:

Item I.A.1.1, Shift Technical Advisor, that each licensee shall provide an on-shift technical advisor to the shift supervisor. The shift technical advisor (STA) may serve more than one unit at a multiunit site if qualified to perform the advisor function for the various units.

In the matter of a licensee making changes to an EP of a nuclear power plant, 10 CFR 50.54(q) states that licensees may change their EPs without Commission approval only if the changes to these plans do not decrease the effectiveness of the plans and the plans, as changed, continue to meet the planning standards of Paragraph 50.47 and the requirements of Appendix E to 10 CFR Part 50.

The licensee stated that the proposed reduction in the STA positions immediately available during emergencies involves a reduction in a commitment without a commensurate reduction in the bases for commitment and, therefore, constitutes a decrease in the effectiveness of the EP and prior NRC approval is required. The licensee also stated that the reduction is minimal because the requested change to the EP staffing maintains compliance with the staffing levels recommended by NUREG-0654 and required by NUREG-0737.

The staff has reviewed this proposed change to the EP as an acceptable alternative for meeting the requirements of 10 CFR 50.47 and Appendix E to 10 CFR Part 50, as stated in Regulatory Guide 1.101.

4.0 TECHNICAL EVALUATION

In its application, the licensee proposed to make the following two changes to EP Table 1, "Minimum Staffing Requirements for PVNGS for Nuclear Power Plant Emergencies":

1. For Notification of Unusual Events (NOUEs), reduce the number of STAs in the STSC from 3 to 2.
2. For Alerts, Site Area Emergencies, and General Area Emergencies, reduce the number of STAs in the STSC from 3 to 2.

EP Table 1 in the PVNGS EP is equivalent to Table B-1 of NUREG-0654 in that it provides the minimum staffing requirements for a radiological emergency at PVNGS.

4.1 Description and Evaluation of Proposed EP Change

The licensee has proposed to reduce the number of STAs in the onshift EO to respond to emergencies from three to two. Because the current three STAs are either (1) the STA for the affected unit or (2) the two STAs at the two unaffected units, the proposed change will not change the number of STAs for the affected unit (i.e., one), but will reduce the number of STAs at the unaffected units from two to one. Therefore, the licensee has one more STA in the ERO than specified in NUREG-0737, Item I.A.1.1.

Not counting the STA proposed to be removed from EP Table 1, the remaining personnel given in EP Table 1 add up to 13 personnel for NOUEs, and 44 personnel for Alerts, Site Area Emergencies, and General Area Emergencies. This is not counting the personnel for firefighting and security. Comparing this number to Table B-1 of NUREG-0654, the EP has more personnel identified as the minimum ERO staffing than specified in Table B-1 of NUREG-0654.

The licensee has stated that before an Alert or higher emergency classification is made, the emergency coordinator has the responsibility and authority to immediately and unilaterally activate other parts of the ERO or call in personnel with specific expertise as required. At the Alert or higher classification, after the EOF is activated, requests for additional personnel are made to the administrative and logistics coordinator (ALC) at the EOF. This position is in the offsite ERO of EP Section 4.2.3. As stated in EP Section 4.2.3.3, the ALC "mobilizes offsite

resources and obtains logistical support for the ERO." Therefore, at any time, the ERO is able to get additional expertise from the onsite and offsite ERO if it is needed.

Also, there is a mechanism for the licensee to assess deficiencies found in drills or exercises conducted of the EP and the ERO, and then to correct the EP if that is needed. In EP Sections 8.1.2 and 8.1.3 on exercises and drills, respectively, there are the following statements:

- As soon as practicable after the conclusion of joint exercises, USNRC, FEMA, PVNGS, and state/county observers hold critiques. The critiques result in formal evaluations of these exercises which are published by Federal or State authorities and are analyzed by PVNGS management. Areas found to be weak are noted and corrective actions to improve deficiencies are implemented. The Program Leader, Emergency Planning, monitors corrective actions and assures their implementation. (EP Section 8.1.2)
- Drill performance is critiqued by personnel acting as drill controllers who offer on-the-spot corrections to erroneous performance. Each controller is assigned a specific area for evaluation and receives written drill instructions. Written evaluations of drill performance are provided to appropriate management personnel. Follow-up action is then taken by the responsible Department Leaders to upgrade areas where shortcomings are noted; they report their progress to the Program Leader, Emergency Planning. Following all drills, a drill controller critique is held and all aspects of drill performance are discussed. All significant deficiencies are incorporated into action items and tasked to the affected department. (EP Section 8.1.3)

The licensee stated that the Condition Report Disposition Request (CRDR) process, the licensee's corrective actions program, is the administrative means by which the significant deficiencies and weaknesses identified in EP exercises and drills are corrected. As stated above, the Program Leader, Emergency Planning, would monitor the corrective actions to ensure their implementation.

4.2 STSC Communicator

Revision 28 to the EP, submitted to the NRC on February 21, 2003, inserted a footnote in EP Table 1 next to the STA and STSC Communicator positions, which states "One STSC Communicator position may be provided by one Shift Technical Advisor." Based on this footnote, the staff concludes that the EP change to reduce the number of on-shift STAs required from 3 to 2 would in addition further reduce the staff available to perform the on-shift communicator function.

Guidance provided in Table B-1 to NUREG-0654/FEMA-REP-1 establishes specific functions and staffing levels for emergency response purposes. As part of the previous EP change in the letter dated February 25, 1994, the staff approved the use of the two STAs from the unaffected PVNGS units to perform core/thermal hydraulic, electrical and mechanical engineering functions prior to the arrival of designated engineering staff within 60 minutes during normal working hours and 120 minutes during off-hours. The staff did not approve, as part of this

change, the reduction in STSC (on-shift) communicators from 2 to 1 or the use of an STA to perform STSC communicator functions.

Upon reviewing the proposed EP change, the staff concurs with the licensee's conclusion that based on technical and program enhancements made, the proposed reduction in on-shift STAs from 3 to 2 would not impact the licensee's ability to perform normal STA functions and initial core/thermal hydraulic, electric and mechanical engineering functions, as required, until staff augmentation occurs. However, the staff does not approve of the concurrent reduction in STA staffing from 3 to 2 and the addition of the footnote to EP Table 1 of the EP which would allow an STA to also perform the role of STSC Communicator.

EP Table 1 is unique in that it designates a 120 minute augmentation requirement during off-hours, which is a significant difference from the 30 and 60 minutes augmentation goals in Table B-1 to NUREG-0654/FEMA-REP-1. It is the staff's judgment that on-shift engineering support and other functions assigned to the second STA, as designated in the licensee's implementing procedures, would impact the ability of the licensee to effectively communicate with the NRC Operations Center prior to staff augmentation.

The staff also identified during its review of the proposed change that EP Sections 4.2.1.8 (Satellite TSC Communicator) and 4.2.1.12 (Shift Technical Advisor - STSC) only refers to a single STA and a single STSC communicator. These EP sections are inconsistent with EP Table 1, and in the case of the on-shift STAs, as described in the implementing procedures.

Based on a conference call with the licensee on March 3, 2004, the licensee submitted a supplemental letter dated March 11, 2004. In the supplemental letter, the licensee revised the EP in the following manner.

EP Section 4.2.1.8

EP Section 4.2.1.8 will be revised by adding the phrase "to licensee ERO and state and local agencies" as the groups the initial notifications will be made to. EP Section 4.2.1.8 will also be revised to add the following sentences:

A second STSC Communicator is filled by an individual knowledgeable of the plant (e.g., RO, SRO, STA, previously licensed individual, etc.). The communicator maintains an open line of communications with the NRC, as requested. This communicator should not have any other E-Plan [PVNGS EP] collateral duties (or other duties that interfere with the communicator function).

EP Section 4.2.1.12

EP Section 4.2.1.12 will be revised by adding the following that will clearly describe the roles of the STAs for the affected unit and the unaffected units:

- The affected unit STA advises the shift manager on activities that impact the safe and proper operation of the unit, and independently verifies emergency classifications.
- For events classified as an Alert or higher, the affected unit STA activates ERDS.

- The unaffected STA monitors various data displays throughout the course of the emergency and provides assistance to control room personnel including performing core damage assessments and ongoing assessments of plant systems and core thermohydraulic parameters until relieved by the TSC reactor analyst.
- The unaffected STA provides electrical and mechanical technical support until relieved by the onsite ERO.

EP Table 1

Footnote 1 to EP Table 1 states that "One STSC Communicator position may be provided by one Shift Technical Advisor." The footnote is deleted from EP Table 1 and the superscript "1" is removed from the number of STAs for NOUEs and Alerts or higher emergency events in the table.

Based on the above revisions of the EP, the licensee has agreed to (1) eliminate the footnote in EP Table 1 which would have allowed one STA to serve as one STSC communicator, and designate that two personnel, without collateral EP duties, will be designated as on-shift STSC communicators, and (2) revise EP Sections 4.2.1.8 and 4.2.1.12 to reflect the responsibilities assigned to each of the two STAs and two STSC communicators. Based on these changes, the staff concludes that the reduction in on-shift STAs from 3 to 2 is acceptable.

4.3 Previous NRC Inspections

There have been 11 NRC inspections, in the past 72 months, of the ERO organization that are documented in inspection reports (IRs) issued by NRC Region IV. These IRs are the following:

- IR 50-528/03-02; 50-529/03-02; 50-530/03-02, dated April 21, 2003
- IR 50-528/02-04; 50-529/02-04; 50-530/02-04, dated October 21, 2002
- IR 50-528/01-06; 50-529/01-06; 50-530/01-06, dated January 24, 2002
- IR 50-528/01-02; 50-529/01-02; 50-530/01-02, dated May 1, 2001
- IR 50-528/00-02; 50-529/00-02; 50-530/00-02, dated February 23, 2000
- IR 50-528/99-14; 50-529/99-14; 50-530/99-14, dated August 9, 1999
- IR 50-528/99-01; 50-529/99-01; 50-530/99-01, dated April 6, 1999
- IR 50-528/98-07; 50-529/98-07; 50-530/98-07, dated November 4, 1998
- IR 50-528/98-04; 50-529/98-04; 50-530/98-04, dated July 10, 1998
- IR 50-528/97-21; 50-529/97-21; 50-530/97-21, dated August 7, 1997
- IR 50-528/97-10; 50-529/97-10; 50-530/97-10, dated June 24, 1997

The findings of the inspectors are discussed in the attachment to this safety evaluation. The findings (1) show that the critiques to identify EP deficiencies and weaknesses after exercises and drills and the corrective actions program to address these deficiencies and weaknesses are effective, and (2) did not identify problems with the STAs at PVNGS. The only inspection findings that the self-critique process was not fully effective in identifying issues in need of corrective action was in IR 50-528/97-10; 50-529/97-10; 50-530/97-10, issued June 24, 1997. This is the oldest IR, seven years old, of the eleven IRs reviewed in the attachment to this safety evaluation, and was not considered significant at this time.

4.4 Conclusion

Because (1) the reduction in the number of STAs will still leave two STAs, one for the unit in the emergency and one for the remaining unaffected units, and this meets NUREG-0737, Item I.A.1.1, (2) the reduction in the number of STAs will still leave the minimum staffing for emergencies given in EP Table 1 and meet the guidelines in Table B-1 of NUREG-0654, and (3) the deletion of Footnote 1 to EP Table 1 to remove the provision that an STA can perform the STSC communicator function before augmentation of the onshift personnel, the staff concludes that the proposed EP change meets NUREG-0737, Item I.A.1.1, and the 10 CFR 50.47(b)(2) planning standard requirements that the licensee must provide "adequate staffing to provide initial facility accident response in key functional areas is maintained at all times; timely augmentation of response capabilities is available." No other key functional areas are being changed by the proposed EP change. Therefore, the staff concludes that the EP for PVNGS continues to meet the 10 CFR 50.47(b)(1) and 50.47(b)(8) planning standard requirements, and is, therefore, consistent with 10 CFR 50.47(b), and meets the requirements of Appendix E of 10 CFR Part 50 and NUREG-0737, Item I.A.1.1. Based on this and because, as stated in Regulatory Guide 1.101, the staff may review alternative methods for complying with the regulations, the staff concludes that the proposed change is an acceptable alternative to meeting the requirements of 10 CFR 50.47(b)(2).

It should be noted that there is additional assurance that this EP change will not cause an unsafe condition in that:

- The ERO can at any time in an emergency request additional personnel with the required expertise to respond to the emergency.
- If any deficiency is identified in an EP exercise or drill, such as a problem in the control room communicator task by the licensee or by an NRC inspection involving the control room communication task, the licensee would identify the deficiency in its self-critique process and correct that deficiency in its corrective actions program.
- The inspections conducted since 1997 did not identify any problems with the STAs in performing their responsibilities in the ERO.

Based on the IRs discussed above, the emergency preparedness inspections have identified that overall the licensee's self-critique process was effective in identifying issues in need of corrective action and areas of improvement in the EP. The licensee's CRDR process would correct the issues in need of correction and the Program Leader, Emergency Planning, would monitor the corrective actions to ensure their implementation.

Attachment: NRC Inspection Reports Related to Emergency Preparedness Plan

Principal Contributor: Joseph Anderson
Jack Donohew

Date: March 19, 2004

NRC INSPECTION REPORTS

RELATED TO EMERGENCY PREPAREDNESS PLAN

There have been 11 NRC inspections in the past 72 months of the emergency response organization (ERO) that are documented in inspection reports (IRs) issued by NRC Region IV. These reports, in the order of the most recent inspection reports first, are discussed below:

- IR 50-528/03-02; 50-529/03-02; 50-530/03-02, dated April 21, 2003: The inspectors evaluated the licensee's performance of the exercise by focusing on the risk-significant activities of classification, notification, protective action recommendations, and offsite dose consequences in the simulator control room, and in the dedicated emergency response facilities (ERFs). This included assessing personnel recognition of abnormal plant conditions, transfer of emergency responsibilities between facilities, communications, protection of emergency workers, emergency repair capabilities, and overall implementation of the emergency plan (EP). No findings of significance were identified.
- IR 50-528/02-04; 50-529/02-04; 50-530/02-04, dated October 21, 2002: The inspectors interviewed EP staff members and reviewed EP documents to determine (1) the adequacy of the alert and notification system, (2) the licensee's ability to staff the ERFs, and (3) the licensee's ability to identify and correct problems in the EP. The only finding involved with the licensee's ability to staff the ERFs was the following: "Off-hours exercises are only conducted once every 6 years, and off-hours quarterly pager and autodialer tests conducted over the past year were only functional tests that did not establish response times to the emergency facilities."
- IR 50-528/01-06; 50-529/01-06; 50-530/01-06, dated January 24, 2002: The inspectors conducted an in-office review of changes made to emergency action levels, observed the performance of the operations crew in the simulator and the technical support center (TSC) which included activities involving event classification, notification, and protective action recommendations. No findings of significance were identified.
- IR 50-528/01-02; 50-529/01-02; 50-530/01-02, dated May 1, 2001: The inspectors evaluated exercise performance by focusing on the risk-significant activities of classification, notification, protective action recommendations, and offsite dose consequences in the simulator control room, and in the ERFs. This included assessing personnel recognition of abnormal plant conditions, transfer of emergency responsibilities between facilities, communications, protection of emergency workers, emergency repair capabilities, and overall implementation of the EP. During the February 15, 2001, drill, the inspectors observed the performance of the operations crew in the simulator, as well as the licensee's performance in the TSC and emergency operations facility (EOF). No findings of significance were identified.

- IR 50-528/00-02; 50-529/00-02; 50-530/00-02, dated February 23, 2000: The inspector evaluated the EP facilities, equipment, and resources. The inspector toured the control room, satellite technical support center (STSC), operations support center (OSC) for Unit 1, and the EOF and backup EOF for the station to determine their operational readiness. The only deficiency identified was in area offsite notification circuit testing.

The inspector evaluated the performance of two control room crews in the control room simulator to classify events, perform offsite notifications, assess the dose consequences of radiological releases, and make protective action recommendations. The ability of the crews and the licensee performance evaluators to critique the crew performance was also evaluated. The conclusions were that the performance of the two crews was generally good. Critiques were effective in identifying deficiencies needing correction. Offsite dose assessment was performed properly and projections were consistent with predicted values for the scenario. With only one exception, the emergency classifications were accurate.

The inspector reviewed training records for 22 individuals selected from the ERO to determine if EP training followed the EP and its implementing procedures. Software that caused false reports that individuals were not qualified was found to have been identified by the licensee and documented in the corrective action program. The finding was that ERO members were being properly trained in accordance with the EP and its implementing procedures.

The inspector reviewed the two most recent annual audits of the EP by the licensee's Nuclear Assurance Division and 11 condition reports. The findings were that (1) the audits were performed by qualified personnel, were thorough and highly critical, and met the requirements of the NRC regulations and (2) the EP corrective action program effectively captured problem areas and root cause determinations were appropriately performed for the most significant problems, although there were a few instances where corrective actions were incomplete or ineffective. These instances were, however, identified in the licensee's audits.

- IR 50-528/99-14; 50-529/99-14; 50-530/99-14, dated August 9, 1999: The inspectors reviewed the radiological protection on-shift staff performance during the June 14, 1999, drill and reviewed the EP revision that reduced the number of on-shift ERO staff positions from 10 to 8 individuals and increased by 2 the number of positions that are required to augment the on-shift staff within 2 hours of an emergency. The NRC staff approved the changes in its letter dated February 5, 1999. The June 14, 1999, drill was to demonstrate that the on-shift ERO staff could adequately respond to an event during the two hours before the arrival of off-sited ERO personnel. The conclusions were that the drill sufficiently challenged the reduce staffing, the licensee effectively demonstrated that the reduced staffing did not adversely affect the response of the on-shift ERO staff, and the drill critique was effective in identifying areas for improvement.

- IR 50-528/99-01; 50-529/99-01; 50-530/99-01, dated April 6, 1999: The inspectors evaluated the control room staff perform tasks in the simulator in response to scenario conditions for the full-scale, biennial drill started on March 9, 1999. The tasks included event detection and classification, analysis of plant conditions, off-site agency notifications, internal and external communications, and adherence to the EP and procedures. The off-site agency notifications were correct and timely. However, communications within the control room, while acceptable, did not always meet expectations in that the inspectors observed instances where relevant information was not communicated, although it did not affect the response effort. Command and control, and conduct of operations were also not always effective, although these instances did not affect the response effort. Log keeping was incomplete. The conclusion was that the control room staff's performance was satisfactory.

The inspectors also evaluated the TSC staff as they performed tasks necessary to respond to the exercise scenario conditions. These tasks included off-hours staffing and activation, accident assessment and event classification, NRC notifications, personnel accountability, facility management and control, on-site protective action decisions and implementation, internal and external communications, assistance and support to the control room, and prioritization of mitigating actions. The findings were that the TSC staff's performance was generally good. Classifications and notifications to the NRC were correct and timely. An exercise weakness was failure, except for the engineering group, to establish and communicate facility priorities to the OSC to ensure that mitigation activities were properly accomplished. This weakness was entered into the licensee's corrective action program.

The inspectors also evaluated the OSC staff as they performed tasks in response to the exercise. These tasks included facility staffing and in-plant emergency response team dispatch and coordination in support of the control room and TSC. The findings were that the OSC staff performance was generally good, the OSC was activated with appropriate personnel, equipped properly, and with briefings being concise and regularly conducted; however, methods for ensuring personnel used accountability key card readers were inconsistently implemented, OSC priorities were not discussed, and work team status boards were not maintained. Radiological controls were generally good, but a post-accident sample was not handled prudently when it was brought into the OSC.

The inspectors also evaluated the EOF staff as they performed tasks in response to the exercise. These tasks included facility activation, notification of State and local response agencies, development and issuance of protective action recommendations, dose assessment and coordination of field monitoring teams, and direct interactions with representatives of off-site agencies. The findings were that the EOF staff performance was generally very good. Briefings were frequent and timely, and included input from key managers. Off-site protective action recommendations were developed and communicated in a timely manner.

The inspectors also evaluated the licensee's post-exercise facility critiques and the informal management critique on March 11, 1999, to determine whether the process would identify and characterize weak or deficient areas in need of corrective action. The finding was that the overall critique process was effective in identifying issues in need of corrective action and areas of improvement. Overall, the exercise performance of the licensee was considered good.

- IR 50-528/98-07; 50-529/98-07; 50-530/98-07, dated November 4, 1998: On September 10, 1998, the Unit 1 sulfuric acid day tank ruptured and the licensee declared a Notice of Unusual Event (NOUE). The finding was that the NOUE declaration was not immediate in that the shift manager left the control room to assess the scene instead of implementing his emergency response responsibilities; however, the recovery plan following the incident was prompt and appropriate.
- IR 50-528/98-04; 50-529/98-04; 50-530/98-04, dated July 10, 1998: The licensee conducted an annual EP exercise on May 27, 1998, to test the licensee, State, and county capability to respond to an emergency. The inspectors observed and evaluated OSC and TSC staff as they performed tasks necessary to respond to the exercise, observed the post-exercise critique and debrief on May 28, 2003, and reviewed EP procedures, including training records. The findings were that (1) corrective actions for improvement of the EP exercise scenario development process in response to a previous exercise weakness were not fully effective in preventing problems from occurring in the 1998 exercise, (2) performance of the TSC staff was very good demonstrating effective communications with frequent and informative briefings and good access control and accountability established, (3) relocation of the OSC to an alternate facility was disorganized and extended because of poor communications, (4) the critique process was effective in identifying areas in need of corrective action although the severity of identified weaknesses was not accurately reflected in the exercise report, and (5) the training program for the ERO is effectively implemented as demonstrated from the 50 records reviewed.
- IR 50-528/97-21; 50-529/97-21; 50-530/97-21, dated August 7, 1997: The inspectors reviewed event notifications made since November 27, 1995, to determine if the events were properly classified; reviewed the status of the ERFs as to the state of their operational readiness; reviewed EP procedures to determine if the EP and procedures were being maintained; evaluated two operating crews in dynamic simulator walkthroughs, including the self-critique following each walkthrough; reviewed training records to ensure personnel were receiving the required training; reviewed changes to the ERO organization and offsite support organization agreements; and examined the latest EP audit reports to determine compliance with requirements. The findings were that (1) the events were correctly classified; (2) the ERFs, equipment, instrumentation, and supplies were operationally maintained, however, emergency kit inventory checks were not always performed; (3) program changes were appropriately incorporated in the EP and procedures, emergency action levels were reviewed with offsite agencies, and documentation was appropriately detailed and retrievable; (4) overall the operating crew performance was good and the self-critique was effective; (5) ERO personnel were trained in accordance with the EP and required drills were performed; (6) changes to the ERO did not adversely impact the program and all offsite support agreements were current; and (7) the audit scope met requirements and was performed by knowledgeable personnel, with the offsite interface being effectively evaluated and the 1997 audit being critical in that it identified ineffective corrective actions. Non-cited violations were identified which were related to the inventory of the soil sampling kit and to the licensee's failure to submit EP procedures to the NRC within 30 days of their change.

- IR 50-528/97-10; 50-529/97-10; 50-530/97-10, dated June 24, 1997: The inspectors observed and evaluated the licensee's full-scale EP exercise on May 21, 1997, including the post-exercise critiques on May 23, 1997. The findings were that the (1) overall control room staff's performance was satisfactory, although an exercise weakness was identified for not promptly recognizing and declaring the NOUE; (2) overall TSC staff's performance was good, although some plant announcements contained unclear information; (3) overall OSC staff's performance was good, although habitability surveys were not sufficiently comprehensive to characterize the potential exposure received by personnel; (4) overall EOF staff's performance was generally good, although an exercise weakness was identified for a failure to notify offsite agencies of a protective action recommendation upgrade, default values used in dose projections were not always accurate and could have adversely affected protective action recommendations, and communications with field teams and dose assessment form completion were inconsistent; (5) final exercise scenario was sufficiently challenging to test ERO capabilities and exercise control was sufficient, although the initially submitted scenario appeared minimally challenging; and (6) critique process was not fully effective in identifying issues in need of corrective action, tended to focus on strengths and positive observations, and, except for the TSC, did not include input from exercise participants.