UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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ARLINGTON, TEXAS 76011-4005

January 19, 2005

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

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 - NRC EXAMINATION REPORT 05000528/2004-301; 05000529/2004-301; 05000530/2004-301

Dear Mr. Overbeck:

On December 15, 2004, the U. S. Nuclear Regulatory Commission (NRC) completed an examination at Palo Verde Nuclear Generating Station, Units 1, 2, and 3. The enclosed report documents the examination findings, which were discussed on December 15, 2004, with Messrs. Craig Seaman, Fred Riedel, and other members of your staff.

The examination included the evaluation of seven applicants for senior operator licenses limited to fuel handling. The written and operating examinations were developed using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9. The license examiners determined that all seven of the applicants satisfied the requirements of 10 CFR Part 55, and the appropriate licenses have been issued.

During the examination, the NRC identified one finding that was evaluated under the Significance Determination Process as having very low safety significance (Green). The NRC has also determined that a violation is associated with the finding. Consistent with Section VI.A of the Enforcement Policy, the violation is being treated as a noncited violation because it has been entered into your corrective action program. The violation is described in the subject inspection report. If you contest the violation or its significance, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Palo Verde Nuclear Generating Station facility.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Anthony T. Gody, Chief
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Division of Reactor Safety

Dockets: 50-528; 50-529; 50-530
Licenses: NPF-41; NPF-51; NPF-74

Enclosure:
NRC Examination Report
05000528/2004-301; 05000529/2004-301; 05000530/2004-301

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EXAMINATION REPORT
U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Dockets:	50-528, 50-529, 50-530
Licenses:	NPF-41, NPF-51, NPF-74
Report :	05000528/2004-301, 05000529/2004-301, and 05000530/2004-301
Licensee:	Arizona Public Service Company
Facility:	Palo Verde Nuclear Generating Station, Units 1, 2, and 3
Location:	5951 S. Wintersburg Tonopah, Arizona
Dates:	December 13-15, 2004
Inspectors:	M. S. Haire, Chief Examiner, Operations Branch G. E. Werner, Senior Project Engineer
Approved By:	Anthony T. Gody, Chief Operations Branch Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

ER 05000528/2004-301, 05000529/2004-301, 05000530/2004-301; 12/13-15/2004; Palo Verde Nuclear Generating Station, Units 1, 2, and 3; Initial Operator Licensing Examination Report, Emergency Action Level and Emergency Plan Changes.

NRC examiners evaluated the competency of seven applicants for senior operator licenses limited to fuel handling at Palo Verde Nuclear Generating Station, Units 1, 2, and 3. The facility licensee developed the examinations using NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," Revision 9. The written examination was administered by the facility to all applicants on December 13, 2004. NRC examiners administered the operating tests on December 13-15, 2004. The license examiners determined that all seven applicants satisfied the requirements of 10 CFR Part 55, and the appropriate licenses have been issued. One Green non-cited violation was identified. The significance of this finding is indicated by its color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, “Significance Determination Process.” The NRC’s program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, “Reactor Oversight Process,” Revision 3, dated July 2000.

NRC-Identified and Self-Revealing Findings

Cornerstone: Emergency Preparedness

- Green. The examiners identified a noncited violation of 10 CFR Part 50, Appendix E, IV.B, for inadequate procedures for implementation of an emergency action level. Emergency Action Level 3-13 requires that an Alert be declared if “major damage to irradiated fuel” is accompanied by a “valid high radiation alarm on the associated radiation monitor.” However, the phrase “major damage to irradiated fuel” is not defined in any site procedure, nor is it defined, clarified, or addressed through operator training such that operators would know when conditions meet the threshold for declaring an Alert as a result of damage to irradiated fuel. This deficiency was evidenced during the examination by the fact that the examination authors, examination reviewers, and five of the seven license applicants taking the examination did not recognize conditions that warranted declaring an Alert using Emergency Action Level 3-13. The licensee was evaluating a clarifying change to Emergency Action Level 3-13 and its bases documents and has documented this issue in Condition Report/Disposition Request 2761670.

  The finding is a performance deficiency in that the licensee failed to identify that Emergency Action Level 3-13 would not be properly implemented without objectively defining the phrase “major damage to irradiated fuel” in either plant procedures or operator training. The finding is more than minor because it affects the Emergency Preparedness Cornerstone of procedural quality in that it could result in a failure to declare an Alert emergency classification when conditions warrant. The finding is of very low safety significance since it was a failure to comply with a regulatory requirement associated with a Risk-Significant Planning Standard that did not result in the loss or degradation of that Risk-Significant Planning Standard function. (Section 1EP4)

REPORT DETAILS

1. REACTOR SAFETY

Cornerstone: Emergency Preparedness

1EP4 Emergency Action Level and Emergency Plan Changes

b. Inspection Scope

The examiners reviewed an emergency classification examination task - administrative Job Performance Measure A3 - against relevant portions of the license's emergency plan - Appendix A of Procedure EPIP-99, Revision 2 - to verify that there was exactly one clear correct answer to the examination task, in that, only one emergency action level clearly applied to the conditions established in the examination task.

b. Findings

Introduction. A Green noncited violation of 10 CFR Part 50, Appendix E IV.B, was identified for inadequate procedures for implementation of an emergency action level.

Description. On December 14, 2005, while administering the operating test portion of an initial license examination to seven candidates for senior operator licenses limited to fuel handling, the examiners noted that two of the seven candidates disputed the previously validated answer to Job Performance Measure A3. The job performance measure required the candidates to classify a postulated event involving damage to irradiated fuel concurrent with a valid local area radiation monitor high alarm. The event conditions met the criteria of Emergency Action Level 3-2, "Unusual Event." Based on a review of the emergency action level basis document, NUMARC/NESP-007 dated May 1999, the event also satisfied the criteria of Emergency Action Level 3-13, "Alert" and, therefore, the conditions warranted declaration of the higher classification according to Emergency Action Level 3-13. However, neither the training staff, the validation team (two licensed operators), five of the seven fully trained license applicants, nor members of the emergency preparedness staff (who were initially consulted when the question was raised during examination administration) recognized that the conditions of Job Performance Measure A3 warranted declaring an "Alert" based on Emergency Action Level 3-13. An "Alert" declaration based on Emergency Action Level 3-13 requires two conditions - "major" damage to irradiated fuel and a valid corresponding radiation monitor high alarm. Since Job Performance Measure A3 did not use the word "major," site personnel concluded that the conditions for Emergency Action Level 3-13, "Alert," were not met. Further inspection revealed that there was no definition or guidance to differentiate between "fuel damage" and "major fuel damage" in implementing procedures or operator training. Review of the licensee's basis documents support that it is the intent of Emergency Action Level 3-13 that any fuel damage which causes a corresponding radiation monitor high alarm warrants an "Alert" declaration under Emergency Action Level 3-13.

Analysis. The finding is a performance deficiency, in that, the licensee failed to identify that Emergency Action Level 3-13 would not be properly implemented without objectively defining the phrase "major damage to irradiated fuel" in either plant procedures or operator training. The finding is more than minor because it affects the Emergency Preparedness Cornerstone of procedural quality, in that, it could result in a failure to declare an alert emergency classification when conditions warrant. This finding was evaluated using the Emergency Preparedness Significance Determination Process. The finding is of very low safety significance since it was a failure to comply with a regulatory requirement associated with a risk-significant planning standard that did not result in the loss or degradation of that risk-significant planning standard function.

Enforcement. Failure to provide adequate procedures to ensure that conditions that could require the declaration of an alert are recognized and evaluated is a violation of 10 CFR Part 50, Appendix E IV.B, which requires that the licensee's emergency plan describe "the means to be used for determining . . . the impact of the release of radioactive materials . . . including emergency action levels . . . . " This violation is being treated as a noncited violation (05000528; 05000529; 05000530/2004-301-01) in accordance with Section VI.A of the NRC Enforcement Policy and is in the licensee's corrective action process as Condition Report/Disposition Request 2761670.

4. OTHER ACTIVITIES

4OA4 Cross-Cutting Aspects of Findings (Human Performance - Initial Operator License Examination)

1. Operator Knowledge and Performance

c. Examination Scope

On December 13, 2004, the licensee proctored the administration of the written examinations to all seven applicants. The licensee staff graded the written examinations, analyzed the results, and presented their analysis to the NRC on December 13, 2004.

The NRC examination team administered the various portions of the operating examination to all seven applicants on December 13-15, 2004. The seven applicants for senior operator licenses limited to fuel handling participated in a control room and facilities walkthrough test consisting of four system tasks and three emergency/abnormal plant evolution tasks, and an administrative test consisting of three administrative tasks.

b. Findings

All seven of the applicants passed all parts of the operating test. For the written examinations, the applicant's average score was 96.1 percent and ranged from 87.5 to 100 percent. The text of the examination questions may be accessed in the ADAMS system under the accession numbers noted in the attachment.

Chapter ES-403 and Form ES-403-1 of NUREG 1021 require the licensee to analyze the validity of any written examination questions that were missed by half or more of the applicants. There were no examination questions that were missed by half or more of the applicants, so no additional analysis is included in this report.

The examiners noted one specific program weakness during the exit meeting. Each of the seven applicants were examined on five job performance measures, which presented opportunity for the applicants to implement the licensee's event recovery checklist procedure. The event recovery checklist had been added as an appendix to each of the fuel handling procedures as a corrective action to previous fuel handling events, and its basic purpose was to force fuel handling supervisors to respond to abnormal conditions by consistently placing priority on putting fuel in a safe condition and soliciting involvement from other licensee management and operational staff in formulating a deliberate plan of action. However, the examiners observed that all seven candidates were inconsistent in implementing the event recovery checklist when conditions warranted and, overall, the candidates missed more than half of the opportunities to implement the event recovery checklist during the examination. Although this did not directly cause any individual applicant to fail to complete a job performance measures successfully, it did call into question the effectiveness of the corrective action, which created the event recovery checklist, and of the training program charged with ensuring effective utilization of the event recovery checklist.

No findings of significance were identified.

2. Initial Licensing Examination Development

a. Examination Scope

The licensee developed the examinations in accordance with NUREG-1021, Revision 9. All licensee facility training and operations staff involved in examination preparation and validation were on a security agreement. The facility licensee submitted the integrated examination outlines on September 9, 2004. The chief examiner reviewed the outlines against the requirements of NUREG-1021, Revision 9, and provided comments to the licensee. The facility licensee submitted the draft examination package on October 12, 2004. The chief examiner reviewed the draft examination package against the requirements of NUREG-1021, Revision 9, and provided comments to the licensee on the examination on November 17, 2004. The NRC conducted an onsite validation of the operating examinations and provided further comments during the week of November 29, 2004. The licensee satisfactorily completed comment resolution on December 9, 2004.

b. Findings

The NRC approved the initial examination outline and advised the licensee to proceed with the operating examination development.

The examiners determined that the written and operating examinations initially submitted by the licensee were within the range of acceptability expected for a proposed examination. The examination changes agreed upon between the NRC and the facility were made according to NUREG-1021.

During the administration of the examination, it was discovered that Administrative Task A3 did not have one clearly correct answer. Task A3 required the applicants to classify an event described in the cue using the emergency plan. Two applicants pointed out confusing and vague language that prevented a clear distinction between Emergency Action Level 3-2, which would have classified the event as an Unusual Event, and Emergency Action Level 3-13, which would have classified the event as an Alert. Task A3 was immediately replaced with an alternative event classification task and the new Taks A3 was administered to all seven candidates. However, further analysis of Emergency Action Level 3-13 revealed that its vague language would have prevented it from being properly implemented in an actual event similar to the one postulated in the original Task A3. This resulted in the green noncited violation found in Section 1EP4 of this report.

3. Simulation Facility Performance

a. Examination Scope

Since the plant-referenced simulator was not utilized during the administration of this examination, the examiners made no observations with regard to simulator performance or plant fidelity during the examination validation and administration. All examination tasks were simulated while in proximity of the relevant in-plant equipment.

b. Findings

No findings of significance were identified.

4. Examination Security

a. Examination Scope

The examiners reviewed examination security both during the onsite preparation week and examination administration week for compliance with NUREG-1021 requirements. Plans for examination security and applicant control were reviewed and discussed with licensee personnel.

b. Findings

While the examination team considered examination security to be adequate, one event occurred that had the potential to compromise examination security. The NUREG 1021, Revision 9, allows examination material to be sent via e-mail if it is password protected. However, when the licensee e-mailed the final written examination to the NRC the week before examination administration, they failed to password protect the attached final written examination.

The examination team reviewed this occurrence to determine if examination security was compromised. The team noted the following mitigating actions by the licensee:

- The messages were sent from the examination room, a secure location;
- No one had access to the messages;
- There were no concurrences or blind concurrences sent with the messages;
- The messages were immediately deleted from all mailboxes following completion of the transmittal; and,
- The licensee's network administrators were contacted immediately, placed on the security agreement. The administrators also identified and isolated the residual examination file image that remained in the licensee's network system, and verified that no other site personnel had accessed the unprotected file.

Based on these activities, the team concluded that an examination security compromise did not occur. No other findings of significance were identified.

4OA6 Meetings, Including Exit

The chief examiner presented the examination results to Messrs. Craig Seaman, Director of Nuclear Fuels Management, Fred Riedel, Director of Operations Training, and other members of the licensee's management staff on December 15, 2004. The licensee acknowledged the findings presented.

The licensee did not identify any information or materials used during the examination as proprietary.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

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ITEMS OPENED AND CLOSED

Opened and Closed

05000528; 05000529; 05000530/2004-301-01	NCV	Inadequate procedures for implementation of an Emergency Action Level (1EP4)

ADAMS DOCUMENTS REFERENCED

Accession No. ML043520375 - Written examination for senior reactor operators limited to fuel handling

Accession No. ML043520376 - Operating examination for senior reactor operators limited to fuel handling