

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No: 50-528/87-41, 50-529/87-40, 50-530/87-42
Docket No: 50-528
License No: NPF-41, NPF-51, NPF-65
Licensee: Arizona Nuclear Power Project
P. O. Box 52034
Phoenix, Arizona 85072-2034
Facility Name: Palo Verde Nuclear Generating Station Units 1, 2
and 3

Inspection Conducted: October 22 and 23, 1987

Inspectors:

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R. Pate, Chief, Reactor Safety Branch	Date Signed
<u>Paul M. Morrill</u>	<u>11/25/87</u>
P. Morrill, Licensing Examiner	Date Signed
<u>J. Crews</u>	<u>11/25/87</u>
J. Crews, Senior Reactor Engineer	Date Signed
<u>Robert J. Pate</u>	<u>11/25/87</u>
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Approved By:

Summary:

Inspection on July 15, 1987, through July 17, 1987
(Report No. 50-528/87-41, 50-529/87-40, 50-530/87-42)

Areas Inspected: A special reactive inspection on the requalification training program. Inspection procedure 41701 was used for this inspection.

Results: Of the areas inspected, no violations were identified.

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DETAILS

1. Persons Contacted

- *E. E. Van Brunt, Jr., Executive Vice President (by telephone)
- *J. Kirby, Unit 3 Project Manager
 - D. Craig, Training Supervisor, License Operators
- *W. Fernow, Training Manager
- *T. Shriver, Compliance Manager
- *O. Zeringue, Technical Support Manager
 - B. Simmons, Instructor, Training Department
 - J. Turner, Instructor, Training Department
 - J. Michler, Analyst, Training Department

The inspectors also talked with other licensee personnel during the course of the inspection.

*Attended the Exit Meeting on October 23, 1987.

2. Assessment of Regualification Training Program

Region V personnel were advised by the Palo Verde staff on October 20, 1987, that an unusually high number of licensed personnel had failed (14 of 35) the regualification training examination administered on September 23, 1987. The PVNGS regualification program had previously been evaluated as marginal (see NRC Report 50-528/OL-87-01) and subsequently found to be satisfactory (see NRC Report 50-528/OL-87-03). This inspection was conducted to assess the reasons for the excessive failure rate on the September 23, 1987, and to determine whether previous finding that the regualification program rating of "satisfactory" is still valid. The inspection included a review of the regualification training examinations, a review of the licensee's preliminary analysis and interviews of selected personnel that took the regualification examinations as described below.

3. Review of Regualification Examinations

The two regualification training examinations administered to part of the PVNGS licensed staff on September 2 and 23, 1987, were reviewed and compared with the regualification training examinations administered to the licensed personnel in August and September of 1986.

The results of the reviews are summarized below:

- a. The 1987 examinations were more operationally oriented. More of the questions (65% vs. 39%) were judged to be operational on the 1987 examinations.
- b. The 1987 examinations had fewer open ended questions, e.g., questions that used words like describe, explain, list, etc. (15% vs. 39% on prior year exams)

- c. Approximately 70% of the questions for the 1987 examinations were new questions (not from the Palo Verde Exam. Bank). These were also more operationally oriented and required more specific answers.
- d. There was no duplication between the September 2 and the September 23, 1987 examinations. The prior year examinations had as much as 30% overlap between examinations.

4. Review of Training Staff Analysis

The facility training staff had started an analysis of the September 23, 1987 examination. The questions that the licensed personnel had scored low on as a group were identified by totaling the individual scores on each question. The questions with low total scores were then reviewed by the training analyst, examination authors and examination graders to verify that the questions was written clearly, covered appropriate material and the answer key was consistent with the call of the question. Through this process the facility training staff recommended that three questions be deleted from the examination and the key included additional acceptable answers for some questions. The inspectors agreed that these actions would improve the examination. Based on these improvement, the failure rate change from 14 of 35 to 10 of 35.

The training personnel stated that the September 23, 1987 examination was not reviewed by the training analyst (educational technologist) nor anyone from the operations department prior to administration. These reviews completed prior to administration of the examination may have identified the poor quality questions that were subsequently deleted and may have resulted in a better answer key. Also, the Lead Instructor, who was the author of part of the examination, stated that some of the low scoring questions had been approached differently in the question than during the training for that area. To correct this problem the training lessons will need to revised to ensure that training and examinations are consistent in the way the material is presented.

5. Interviews with Selected Personnel

Discussions were held with individuals who had taken the requalification examinations administered in September 1987. The purpose of these discussions was to assess, from their perspective, circumstances which may have contributed to a higher than usual failure rate on the examinations. Five individuals were interviewed covering a spectrum of personnel which included operations management, shift supervision and control room operator positions.

Comments by those interviewed reflected a general feeling that there had been a substantial change in the structure of questions from previous requalification examinations as well as a much stricter, more rigid, grading criteria. With regard to the latter, a frequently expressed comment by those interviewed was "they seemed to be looking for 'keywords', or phrases" in the grading of the examination. All of those interviewed stated that the apparent shift in both the way in which questions were worded, and particularly the more rigid grading criteria, had not been conveyed to them prior to the examination being administered



and graded. As a result, many felt that time spent in self study, including a review of past examinations and training materials, had not served to prepare them as well for the current examination as in the past.

In response to questioning, none of those interviewed expressed an opinion that the examination was unfair. Some individuals did express the view that the past year's requalification training sessions emphasized to a great extent communication skills and teamwork among members of the operating crews as well as diagnostics skills. These, it was explained, were areas where INPO had identified needs for improvements in training. Others stated that although the requalification training program had covered Licensee Event Reports and operational experiences at other facilities, there were few, if any, examination questions on these events.

In response to questioning by the NRC inspector, operations management and supervision did express a need for more effective participation, in terms of expressing to the training department specific training needs of the operations department, to make the training programs more operationally performance oriented. They expressed, in particular, current plans for new, or updated, job/task analysis with much improved participation by operations personnel.

6. Summary of Findings

- A. An excessive number of the plant operators failed the facility administered requalification examination. Weaknesses in the Palo Verde Requalification Training Program were identified as follows:
- (1) Mismatch between the training delivered and examinations administered. Examinations had been upgraded but the training materials had not been upgraded. The need to upgrade both the examinations and the training materials had been previously discussed with the NRC.
 - (2) Non-shift personnel had not received structured training consistently. A major portion of the training for the non-shift personnel has been self study from previous examinations and training materials.
 - (3) Examinations were not reviewed by training analyst nor operations staff prior to being administered.
 - (4) On some questions, the examination key had not been evaluated and revised as appropriate to include all correct answers. Therefore, the plant staff scored lower when the graders correctly accepted only the answers on the answer key.
 - (5) Examination questions for most of the examination (sections 2, 3, 4, 6, 7, 8) were not derived from the job task analysis.
- B. Improvement in the Palo Verde Requalification Program were identified as follows:



(1) Examination improvements.

- Questions were more operationally oriented on 9/2/87 and 9/23/87 examinations as compared to prior year examination. (65% vs. 38%)
- Fewer open ended questions were used on the 9/2/87 and 9/23/87 examinations compared to prior year examinations. (15% vs. 39%)
- Grading to the examination key was much improved over prior year exams, but key must be further improved to include all correct answers. (see above)

- (2) There is no duplication between the 9/2/87 and the 9/23/87 examinations. This is much improved over approximately 30% duplication between the requalification examinations administered in 1986.

7. Licensee Corrective Actions

During discussion with the licensee management personnel, the follow corrective actions were discussed.

A. Short term corrective actions taken or planned.

- (1) All personnel who failed the 9/2/87 or 9/23/87 examination except one have received appropriate retraining and have been re-examined. All but one of the those re-examined passed the exam. All shift personnel passed the re-examination and have been assigned to licensed duties. The remaining two people will not be assigned licensed duties until they have received additional training and have passed an examination.
- (2) The results of the 9/2/87 and 9/23/87 examination will be analyzed for areas that need additional training based on the results of the examination. All areas identified for additional training will be included in the next two 6 week training cycles. All licensed personnel at Palo Verde will be trained and re-examined in these identified areas.
- (3) Overlap between examinations used during each requalification cycle will be 10% or less.

B. Long term corrective actions planned.

- (1) The training department, with active participation by operation's department, will update the job task analysis to establish new learning objects as necessary. The lesson plans will be revised to be consistent with the new learning objectives.
- (2) The examination question bank will be expanded and all questions will be derived from learning objectives. Also all

questions will be reviewed by a training analyst and a SRO from the Operations Department staff.

- (3) Examination question quality will be improved by maximizing the use of operationally oriented questions and minimizing the use of open ended questions.
- (4) The simulator scenarios will be derived from the learning objectives and reviewed by a SRO from the Operation Department prior to use.

8. Conclusions

- a) The previous finding of "satisfactory" for the PVNGS requalification program appears to still be valid. Although, there are some weakness that need to be addressed.
- b) The licensee's proposed corrective actions should ensure all the licensed personnel are sufficiently trained and additional program enhancements are implemented.

9. Exit Meeting

The inspectors met with licensee management representatives denoted in paragraph 1 on October 23, 1987. The inspection findings as summarized in paragraph 7 were discussed. In subsequent telephone discussions with licensee management on October 27 and 30, 1987, the corrective actions taken and planned were discussed.

