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EXECUTIVE VICE PRESIDENT
NUCLEAR

102-01606-WFC/TRB/JJN
February 21, 1990

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Reference: Letter from R. Zimmerman, Director, Division of Reactor Safety and Projects, NRC to W. F. Conway, Executive Vice President Nuclear, Arizona Public Service, dated January 23, 1990

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 1
Docket No. STN 50-528 (License No. NPF-41)
Reply to Notices of Violation - 50-528/89-50-01 and 528/89-50-02
File: 90-070-026

This letter is provided in response to the inspection conducted by Messrs. D. Coe, T. Polich, J. Ringwald, J. Sloan, W. Wagner, T. Meadows, and W. Ang. Based upon the results of the inspection, two (2) violations of NRC requirements were identified. The violations are discussed in Appendix A of the referenced letter. A restatement of the violations and PVNGS's responses are provided in Appendix A and Attachment 1 respectively, to this letter.

The referenced letter noted that the violation involving failure to document completion of steps of a procedure is similar to previously identified violations and requires additional management attention. APS has taken additional actions since this occurrence to assure that personnel adhere to procedures. These actions are described in Attachment 1.

The referenced letter also noted that the events that occurred during the Unit 1 refueling operations demonstrated the need to improve communications between the various levels of APS management. In response to the event, a Human Performance Evaluation was conducted and the following corrective actions were implemented. The Unit 1 guideline "Communication of Unit 1 Status and Events" was revised to include additional guidance for potential refueling events which would require immediate notification of the Plant Manager or designee. The Unit 1 Plant Manager discussed this event and importance of prompt, accurate communication with the Unit 1 managers.

Should you have any questions regarding this response, please contact me.

Very truly yours,

WFC/TRB/JJN/kj

Attachments

cc: J. B. Martin
D. H. Coe
T. L. Chan
E. E. Van Brunt
A. C. Gehr
J. R. Newman

APPENDIX A

NOTICE OF VIOLATION

Arizona Nuclear Power Project
Palo Verde Unit 1

Docket Number 50-528
License Number NPF-41

During an NRC inspection conducted on November 13 through December 17, 1989, several violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (1989), the violations are listed below:

A. Technical Specification 6.8.1 states, in part: "Written procedures shall be established, implemented and maintained covering . . . the recommendations in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978 . . ."

Regulatory Guide 1.33, Revision 2, February 1978 recommends "Procedures for Performing Maintenance."

Regulatory Guide 1.33, Revision 2, February 1978, is implemented in part by ANPP procedure 30DP-9MP01, Revision 0, entitled "Conduct of Maintenance," Section 3.8, which states in step 3.8.6: "Work instruction steps, sections of steps and data sheets shall be properly documented at the time of performing the step or as soon thereafter if conditions do not permit."

Contrary to the above, on November 14, 1989, Unit 1 Train "B" containment spray pump motor maintenance work order 362320 had progressed from Step 3.2.1 to Step 4.5 without corresponding documentation at the time of performing the step, under conditions which permitted such documentation.

This is a Severity Level IV violation applicable to Unit 1 (Supplement I).

B. 10 CFR Part 50, Appendix B, Criterion V, states in part that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings.

Contrary to the above, on September 30, 1989, the licensee issued Special Nuclear Material Transfer Set 1-3-1 to reload the Unit 1 reactor core, which was not appropriate to the circumstance in that it contained an error which directly resulted in partially inserting a fuel assembly in the core in other than its analyzed location.

This is a Severity Level IV violation applicable to Unit 1 (Supplement I).

ATTACHMENT 1

Reply to Notice of Violation 50-528/89-50-01

A.I. REASON FOR VIOLATION

On November 14, 1989, work to inspect motor terminal lugs on the Unit 1 "B" train safety injection pumps.began in accordance with Work Orders 362318 and 36320. Since the work areas were potentially contaminated, working copies of the original work orders were made. After the assistant shift supervisor's approval was obtained to start work, the original work orders were left in the electric shop and the electricians and a QC inspector proceeded to the work area with the working copies. Terminal lug inspection was in progress and almost complete on Work Order 362320 when the NRC inspectors observed that both the electrician and the QC inspector had not been signing off completed work instruction steps as the steps were performed on the working copy.

The reason for the violation was cognitive error by the personnel involved. The electricians were interviewed following the event. Both electricians had thoroughly reviewed the work order preceding the actual work. The electricians were aware of the requirement to sign-off the steps in the work order while performing the work however, contrary to APS administrative requirements, the electricians periodically "checked-off" the steps on the working copy

of the work order.

The QC inspector was interviewed following the event. The QC inspector had completed the General Inspector Indoctrination Training, which included discussions of APS's requirement to sign-off steps as work was completed. However, the QC inspector had been on site for only three weeks and was unsure of the procedural requirements to sign-off work steps as they are completed.

A.II CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

The NRC inspectors informed the responsible Work Group Supervisor about the violation of APS administrative requirements. The Work Group Supervisor immediately directed the electricians to stop work on Work Orders 362318 and 362320. Prior to continuing with the lug inspection, the work orders were amended to require a complete re-performance of the work. The work was re-performed and properly documented.

No discrepancies were identified indicating improper performance of previous work. The steps in the amended work orders were properly signed-off as each step was completed. No further discrepancies were identified during the performance of the work.

The individual electricians involved in the event were disciplined for not adhering to APS administrative control requirements (i.e., signing off on the work order as each step was complete). Additionally, maintenance personnel were briefed on the use of 30DP-9MP01, "Conduct of Maintenance," which, in part, requires proper documentation of completed steps at the time of performance.

An effectiveness review of QC Inspector indoctrination training was performed immediately following the event. Interviews were conducted with other new QC Inspectors. These inspectors stated that training adequately addressed the procedural requirement to document the completion of the work steps after the work step had been completed. An examination was administered to another group of new QC Inspectors regarding proper documentation of work and administrative controls for conduct of maintenance. Based upon the test results, APS concluded that the requirements discussed above were adequately emphasized.

As a result of the training effectiveness review, APS concluded that training was adequate and the problem was an isolated occurrence limited to the QC Inspector. The QC inspector (contractor) was released from his duties with the PVNGS QC Department. Additionally, applicable indoctrination QC training was enhanced to include testing to validate effectiveness of the indoctrination training and the competence of the individual.

In addition to the corrective actions taken specifically in response to the event, APS has taken a number of steps to reemphasize to plant personnel the importance of strict adherence to procedures. A number of such steps are described in a letter to the NRC from J. N. Bailey, APS, dated November 17, 1989.

A.III. CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

APS believes the actions taken as described above are adequate to prevent recurrence.

A.IV. DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance was achieved on November 14, 1989, when Work Orders 362318 & 362320 were completed with the appropriate steps signed.

Reply to Notice of Violation 50-528/89-50-02

B.1. REASON FOR VIOLATION

On September 29, 1989, PVNGS/APS Reactor Engineering personnel completed and approved the Material Balance Area (MBA) transfer sheet for movement of fuel and ultimately, the reload of the Unit 1 reactor core. The Reactor Engineering personnel reviewed the planned core loading pattern to determine the appropriate assembly for each location in the core, and entered the assembly designator on the MBA transfer sheet. They also identified the location of the assemblies on the Spent Fuel Pool (SFP) map and entered the SFP location designator on the MBA transfer sheet.

During the preparation of the MBA transfer sheet, the SFP location of one assembly was improperly transcribed. Assembly P1D303 was stored in SFP location P28. However, during the preparation of the MBA transfer sheet for step 667, the SFP location of PID003 was entered as P38. The completed MBA transfer sheets were reviewed and approved by the responsible Reactor Engineer. However, the Reactor Engineer did not verify every entry on the MBA transfer sheets. The applicable procedure did not specifically require such detailed verification.

B.II. CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

On November 16, 1989, while fuel loading was in progress, mimic boards of the SFP and reactor core in the control room were updated to reflect current assembly position. When the assembly from SFP location P38 (P1E004) was being inserted into the reactor core, reactor engineering personnel observed that the mimic placard on the mimic board represented a new fuel assembly and should have been located on the periphery of the core. Reactor engineering personnel immediately directed that the fuel movement be stopped.

An immediate review of core loading pattern, the MBA transfer sheet, and the Spent Fuel Pool map was conducted. The transcription error on the MBA transfer sheet was identified as the cause of this event. The MBA transfer sheets were revised to place assembly P1E004 into an intermediate location outside of the reactor core. Assembly P1D303 was retrieved from the SFP and inserted into the proper core location. Following discussions of the event, the cause and the additional procedural steps with the Operations Shift Supervisor, fuel movement recommenced.

Subsequent to the event, on November 27, 1989, procedure 72AC-NF01 "Control of SNM Transfer and Inventory" was revised to require independent verification of the MBA transfer sheets. This

requirement was added to clarify that the existing requirement for approval included a 100 percent independent verification.

To assess the potential safety significance if the fuel transfer error had not been detected promptly, an analysis was performed assuming that the fuel assembly had been completely inserted. The analysis demonstrated that adequate shutdown margin would have existed. Additionally, the PVNGS Updated Final Safety Analysis Report provides the analysis for the misloading of two assemblies in the event that the final fuel loading verification process did not identify a misloading of fuel assemblies. Therefore this event had no adverse effect on the health and safety of the public.

The Unit 1 Plant Manager discussed this incident with the Unit 1 Managers to reemphasize management's intention that senior management be promptly advised of such occurences.

B.III. CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

APS believes the actions taken as described above are adequate to prevent recurrence.

B.IV. DATE WHEN FULL COMPLIANCE WAS ACHIEVED

Full compliance was achieved on November 16, 1989 when the MBA transfer sheets were revised and the fuel assemblies were placed in the proper locations.