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SUBJECT: Responds to NRC 940718 ltr re violations noted in insp rept
50-528/94-01, 50-529/94-01 & 50-530/94-01. Correction action:
training was provided on control of work, scheduling, teamwork
& communication.

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WILLIAM L. STEWART
EXECUTIVE VICE PRESIDENT
NUCLEAR

102-03084-WLS/AKK/KR
August 12, 1994

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
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Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket Nos. STN 50-528/529/530
Reply to Notice of Violation 50-529/94-23-01
File: 94-070-026

Arizona Public Service Company (APS) has reviewed NRC Inspection Report 50-528/529/530/94-23 and the Notice of Violation (NOV), dated July 18, 1994. Pursuant to the provisions of 10 CFR 2.201, APS' response is enclosed. Enclosure 1 to this letter is a restatement of the NOV. APS' response is provided in Enclosure 2.

APS has embarked on an effort to simplify key processes and align the site organization to those processes. This effort is intended to eliminate unnecessary steps and reduce work fragmentation, thereby, improving individual accountability and nuclear safety. As part of this effort, three maintenance teams were formed to use the revised processes before their incorporation across the site. However, one of these teams' failure to follow procedures directly resulted in a reactor trip.

Several opportunities were missed by the maintenance team and by the control room operators that could have averted or mitigated the event. APS recognizes the essential need for maintenance activities to be properly controlled and the importance of control room operators maintaining both a thorough understanding and control of ongoing evolutions, as well as the ability to mitigate problems caused by work in the field. In order for process controls to work effectively, all team members must have strong work habits such as self-checking, thorough communications, and a continuous questioning attitude. When these fail, most process control mechanisms tend to fail.

The root cause for this event was a cognitive, personnel performance error due to the lack of self-checking, poor communication, and poor teamwork among the maintenance and operations team members. As corrective action, APS has redoubled its effort to instill the STOP, THINK, ACT and REVIEW (STAR) principle and used this event as an example in PVNGS employee communication meetings. In addition, in order to improve

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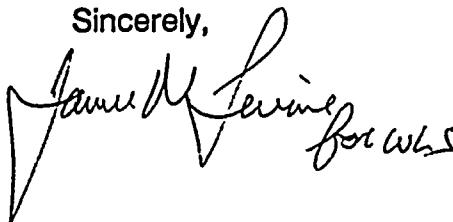
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communications, improve the control and awareness of work activities, address management concerns, and establish site priorities, a site status meeting is conducted by the Director of Operations and attended by site management. This morning meeting is expected to improve the dissemination of management's expectations, and to improve the awareness and understanding of the significance of ongoing evolutions and their affect on the plant to key personnel.

Should you have any questions, please contact Angela K. Krainik at (602) 393-5421.

Sincerely,

A handwritten signature in cursive script that reads "James M. Levine" followed by "for WLS".

WLS/AKK/KR/rv

Enclosures:

1. Restatement of Notice of Violation
2. Reply to Notice of Violation

cc: L. J. Callan
K. E. Perkins
B. E. Holian
K. E. Johnston

ENCLOSURE 1

RESTATEMENT OF NOTICE OF VIOLATION 50-529/94-23-01

NRC INSPECTION CONDUCTED MAY 28 THROUGH

JUNE 3, 1994

INSPECTION REPORT NOs. 50-528/529/530/94-23



Restatement of Notice of Violation 50-529/94-23-01

During an NRC special inspection conducted on May 28 through June 3, 1994, one violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C, the violation is listed below:

Unit 2 Technical Specification 6.8.1 requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978.

Regulatory Guide 1.33, Appendix A, requires, in part, that maintenance that can affect the performance of safety-related equipment should be performed in accordance with written procedures.

Work Order 00661592 provided instructions to replace safety-related Relay K111 and described the location of the relay to be in the Unit 2 Train A engineered safety features actuation system Cabinet J-SAA-C01. In addition, Step 3.2.3 of the Work Order states to "document the orientation of the relay as it is mounted in the cabinet. The relay is mounted in J-SAA-C01 (bay 1) and the coil terminations are located in J-SAA-C01 (bay 8)."

Contrary to the above, on May 28, 1994, instrument and control technicians using Work Order 00661592 inadvertently worked on safety-related Relay K111 in the Train B engineered safety features actuation system Cabinet J-SAB-C01, rather than in cabinet J-SAA-C01 specified by the work order.

This is a Severity Level IV violation (Supplement I) applicable to Unit 2.

This was a violation of Technical Specification 6.8.1 for the failure of the technicians to follow the work order instructions (Violation 529/94-23-01).

ENCLOSURE 2

REPLY TO NOTICE OF VIOLATION 50-529/94-23-01

NRC INSPECTION CONDUCTED MAY 28 THROUGH

JUNE 3, 1994

INSPECTION REPORT NOs. 50-528/529/530/94-23



Reply to Notice of Violation 50-529/94-23-01

Reason for the Violation

The reason for the violation was cognitive personnel error on the part of two Instrumentation and Control (I&C) technicians, who replaced a K111 relay in the Train B Engineered Safety Features Actuation System (ESFAS) cabinet, instead of the Train A ESFAS cabinet. Both I&C technicians failed to verify that work authorized by Work Order (WO) 00661592 was being conducted in the correct cabinet.

The incident investigation, conducted by Arizona Public Service Company (APS), identified personnel weaknesses in self-checking, communication, and teamwork and pre-job briefing practices. In addition, management weaknesses were identified in establishing consistent expectations for communication across the organization and for use of the Sensitive Issues Manual.

The more significant personnel contributing factors included:

- Good teamwork practices, such as independent checks, were not followed.
- The STAR (Stop, Think, Act, and Review) principle was inadequately applied.

- The I&C technicians did not thoroughly review WO 00661592 prior to starting the job.

The more significant management contributing factors included:

- The pre-job briefing and communication practices conducted between the technicians and the control room operators was not formal or detailed enough to prevent the technicians from working on the wrong train.
- Guidance provided in the Sensitive Issues Manual (SIM) was not followed. The SIM is a tool used by PVNGS to sensitize employees to evolutions, components, and systems that have the potential to cause a plant transient or adversely affect important safety-related equipment and establish controls to ensure the evolution or activity is conducted successfully.



Corrective Actions Taken and Results Achieved

APS initiated a Category 2 Incident Investigation of the event. Corrective actions resulting from the investigation that address the cognitive personnel error and the contributing factors are as follows:

- Maintenance stand-downs were conducted in Units 1, 2, and 3 to reemphasize the need to follow procedures and management expectations with regard to proper written and verbal communications, good teamwork practices, use of the Sensitive Issues Manual (SIM), and use of the STAR principle.
- Training was provided on control of work, scheduling, teamwork, communication, and accountability, to the Maintenance section leaders and representatives from System Engineering, Nuclear Assurance, Outage Management, Operations, and Nuclear Regulatory Affairs.
- A pre-job briefing worksheet was developed to give team members a tool to aid in ensuring that the scope of work is clearly understood and that important issues are not overlooked when evaluating work and its impact.
- The requirement to include an equipment verification step in work instructions was re-evaluated and added back into the Work Instruction Writer's Guide.

- Cross-discipline communication standards were formalized using the previously existing Operations Communication Standard as a guide.

In addition, APS contracted Failure Prevention Incorporated (FPI) to perform an independent analysis to determine if redesigning the process contributed to the occurrence of the event. A quantitative management analysis technique, known as Work Process Optimization and Failure Rate Analysis, was employed. The examination concluded that the redesigned process, if followed, would result in fewer wrong train events than the previous process, and that some important requirements present in both the redesigned and previous process were bypassed. The independent analysis supports the view that APS is achieving the appropriate balance between the process changes and the need to assure that sufficient safeguards are in place for appropriate control over the new processes.

Corrective Actions That Will Be Taken To Avoid Further Violations

Notice of Violation 529/94-23-01 and Incident Investigation 240197 will be evaluated by the Training Department for inclusion in appropriate training by December 31, 1994.

Date When Full Compliance Will Be Achieved

Full compliance was achieved on May 28, 1994 when the K111 relay replacement in the Train B ESFAS cabinet was completed under WO 00661592.

