



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

September 29, 2006

MEMORANDUM TO: Michael Hay, Senior Project Engineer,
Project Branch D, Division of Reactor Projects (DRP)

Dr. Scott Rutenkroger, Reactor Inspector,
Engineering Branch 1, Division of Reactor Safety

Michael Bloodgood, Reactor Inspector,
Project Branch D, DRP - Training

FROM: Arthur T. Howell III, Director, DRP **/RA/ AVegel for**

SUBJECT: SPECIAL INSPECTION CHARTER TO EVALUATE THE PALO VERDE
NUCLEAR GENERATING STATION UNIT 3 EMERGENCY DIESEL
GENERATOR FAILURE

A Special Inspection Team is being chartered in response to the Palo Verde Nuclear Generating Station Unit 3 Emergency Diesel Generator (EDG) failure. The diesel failed to develop an output voltage when started for a surveillance test. The licensee determined that a modification to the field flashing relay caused the failure. You are hereby designated as the Special Inspection Team members. Mr. Hay is designated as the team leader. The assigned SRA to support the team is Mike Runyon.

A. Basis

On July 25, 2006, Unit 3, Train A, EDG failed to develop output voltage during a surveillance test. The licensee's root cause determined plastic debris potentially prevented auxiliary contacts from properly functioning resulting in shorting out of the generator field during startup preventing a proper field flash. Two replacement relays obtained from the licensee warehouse exhibited the same degraded condition. A third relay was satisfactorily tested and installed. The diesel was subsequently tested and declared operable on July 26, 2006.

On September 22, 2006, Unit 3, Train A, EDG failed to develop output voltage during a surveillance test. The licensee determined that the same auxiliary contact which failed in July 2006 was faulty. The licensee identified that this failure was attributed to a bent metal actuator arm that is used to actuate the auxiliary contacts associated with the field shorting circuit. Additionally, the licensee determined this bent metal actuator arm potentially exists in all six EDG's at the facility. Based on previous failures it appears this bent arm is the underlying root cause for the field shorting auxiliary contacts failure to operate reliably, and this condition is transportable to all operating EDG's at the facility.

This Special Inspection Team is chartered to review the generic impact of the relay's bent arms on the other Palo Verde Emergency Diesel Generators as well as any potential impact on other nuclear plants. The team is also to review the design change method and reviews that the licensee used when making the relay modifications. The team will also review the licensee's operability determination and corrective action program for determining the root cause and correction of the diesel's failure.

B. Scope

The team is expected to address the following:

1. Develop a complete scope of the failures of all Palo Verde Emergency Diesel Generators to develop an output voltage.
2. Review the extent of condition determination for this condition (current and prior K1 relay failures) and whether the licensee's actions are comprehensive. This should include potential for other diesel failures.
3. Review the licensee's determination of the cause of any design deficiencies. Independently verify key assumptions and facts. If available, determine if the licensee's root current and prior cause analysis and corrective actions have addressed the extent of condition for problems with the emergency diesel generators K1 relays.
4. Determine if the Technical Specifications were met when the diesel failed.
5. Review and assess the corrective actions for current and past similar failures.
6. Review the licensee's EDG operability determination to evaluate the emergency diesel generator's operability.
7. Collect data as necessary to support a risk analysis.
8. Determine if this issue has generic implications to other nuclear facilities.

C. Guidance

Inspection Procedure 93812, "Special Inspection," provides additional guidance to be used by the Special Inspection Team. Your duties will be as described in Inspection Procedure 93812. The inspection should emphasize fact-finding in its review of the circumstances surrounding the event. It is not the responsibility of the team to examine the regulatory process. Safety concerns identified that are not directly related to the event should be reported to the Region IV office for appropriate action.

The Team will report to the site, conduct an entrance, and begin inspection no later than October 4, 2006. While on site, you will provide daily status briefings to Region IV

management, who will coordinate with the Office of Nuclear Reactor Regulation, to ensure that all other parties are kept informed. A report documenting the results of the inspection should be issued within 30 days of the completion of the inspection.

This Charter may be modified should the team develop significant new information that warrants review. Should you have any questions concerning this Charter, contact me at (817) 860-8248.

- cc via E-mail:
- B. Mallett
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- D. Terao
- A. Vogel
- G. Warnick

SUNSI Review Completed: FLB ADAMS: Yes No Initials: FLB
 Publicly Available Non-Publicly Available Sensitive Non-Sensitive

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