



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO FIRE DAMPER INSTALLATION

PACIFIC GAS AND ELECTRIC COMPANY

DIABLO CANYON NUCLEAR POWER PLANT, UNITS 1 AND 2

DOCKET NOS. 50-275 AND 50-323

I. INTRODUCTION

In November 1985, an Appendix R team inspection was conducted by the NRC staff at the Diablo Canyon Nuclear Power Plant, Units 1 and 2 (Ref. 1). During the inspection, the team observed that in a number of plant locations fire damper assemblies were not installed in accordance with the manufacturer's installation requirements. This finding was documented in Region V Inspection Report Nos. 50-275/85-36 and 50-323/85-04 as Unresolved Item 50-275/85-36-04 (Ref. 1).

The NRC staff met with representatives of Pacific Gas and Electric Company (PG&E), the licensee for the Diablo Canyon Plant, on March 20, 1986 to discuss the fire damper installations in further detail and requested additional information (Ref. 2). By letter dated May 13, 1986, the licensee provided its response to this issue (Ref. 3).

An industry-wide concern that many fire rated damper assemblies had not been installed in accordance with manufacturer's recommendations had been identified in Bechtel Problem Alert M-82-06 and NRC IE Information Notice 83-69. To determine if such situation existed at the Diablo Canyon Plant, the licensee conducted an examination of all as-built installation details. This examination indicated that the manufacturer's installation instructions were not explicitly adhered to for certain fire damper assemblies. In its response to the above examination, the licensee categorized these installation discrepancies into the following four groups:

1. Damper assemblies installed within ducts protected by a fire rated barrier material.
2. Damper assemblies installed in concrete walls with less than the manufacturer's specified gap between the damper assembly sleeve and wall.
3. Damper assemblies installed in stud walls and suspended ceilings with less than the manufacturer's specified gap between the damper assembly sleeve and wall or ceiling opening.
4. Damper assemblies in areas without safe shutdown components installed at variance with the manufacturer's recommendations.



In accordance with its procedures for evaluating potential nonconformances, the licensee stated that two nonconformance reports were generated to address the cause and safety significance of the identified discrepancies. On the basis of its review, the licensee determined that the variances from the manufacturer's recommendations would not prevent the safe shutdown of the plant.

II. EVALUATION

GROUP 1: Fire Dampers in Fire Protected Ducts/Sleeves

In Attachment A to the May 13, 1986 letter, the licensee identified 42 fire damper assemblies installed outside the plane of the wall. The ductwork and sleeves containing these damper assemblies are protected by an approved material that affords a 1-hour fire resistance to the ducts and damper assembly sleeves.

By letter dated November 13, 1978 (Ref. 4), the licensee committed to protect the ducts in several rooms in this manner. In Supplement 8 to the Diablo Canyon, Units 1 and 2 Safety Evaluation Report, the staff found these fire damper installations acceptable (Ref. 5). As stated in Generic Letter 86-10 (Ref. 6), if a fire area boundary was described in the fire hazards analysis and was evaluated and accepted in a published Safety Evaluation, then the boundary remains acceptable, and it need not be reviewed as part of the licensee's reanalysis for compliance with Appendix R. On this basis, those fire damper assemblies that are installed in this manner and that are explicitly identified in the licensee's November 13, 1978 letter, are acceptable.

However, this approval applies only to those fire damper assemblies that were explicitly identified and not to any other assembly. The staff could not establish, on the basis of the licensee's May 13, 1986 letter, whether or not each of the 42 damper assemblies identified in the letter was subject to this previous staff approval. Therefore, the licensee should review the fire damper assemblies and evaluate those that were not subject to this previous staff approval in accordance with Interpretation 4, "Fire Area Boundaries," of the interpretations document attached to Generic Letter 86-10. In accordance with the Generic Letter, an additional licensee submittal on these fire damper assemblies is not required. Therefore, the staff considers the concerns with Group 1 dampers resolved.

GROUPS 2 and 3: Fire Dampers in the Plane of the Wall or Ceiling

Fire damper assemblies in Groups 2 and 3 are installed in the plane of the wall or ceiling, but with less than the manufacturer's specified expansion gap between the damper assembly sleeves and the wall or ceiling. In Attachments B and C to the May 13, 1986 letter (Ref. 3), the licensee identified 43 such fire damper assemblies. The licensee also provided a summary engineering



evaluation for each of the individual dampers. On the basis of these evaluations, the licensee concluded that the 43 fire damper assemblies are acceptable. In summary, the licensee has justified these damper assemblies on one or more of the following basis:

- A. The fire load in each of the fire areas separated by the damper assemblies yields an equivalent fire severity less than the ASTM E-119 standard time-temperature fire used to test the fire damper assemblies.
- B. Failure of the dampers would not adversely affect safe shutdown capability because the dampers do not separate redundant safe shutdown components.
- C. An automatic fire suppression system has been installed on one or both sides of the damper assembly.

GROUP 4: Fire Dampers without Safe Shutdown Components

The fire damper assemblies identified above as Group 4 dampers were not installed to protect the safe shutdown capability, but to minimize property damage in the event of fire. Therefore, the staff has not evaluated these fire damper assemblies.

CONCLUSION:

The staff has reviewed the licensee's summary engineering evaluation and finds them acceptable. The staff concurs with the licensee's assessment that the subject fire damper assemblies provide an adequate level of fire safety for the areas in which they are installed. In the staff's judgement, modification of the damper assemblies would not significantly increase the level of plant fire safety. Use of the fire damper assemblies identified in the licensee's May 13, 1986 letter is, therefore, acceptable.

PRINCIPAL CONTRIBUTOR:

S. West



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REFERENCES:

1. U.S. Nuclear Regulatory Commission, Region V Inspection Report Nos. 50-275/85-36 and 50-323/85-34, dated December 24, 1985, transmitted by letter from D. Kirsch (NRC) to J. D. Shiffer (PG&E) by letter dated December 30, 1985.
2. U.S. Nuclear Regulatory Commission, "Meeting Summary - Fire Protection", by H. Schierling, dated April 30, 1986.
3. Letter from J. D. Shiffer (PG&E) to S. A. Varga (NRC), "Fire Dampers", DCL 86-133, dated May 13, 1986.
4. Letter from P. H. Crane (PG&E) to J. F. Stolz (NRC), dated November 13, 1978.
5. U.S. Nuclear Regulatory Commission, "Safety Evaluation of the Diablo Canyon Nuclear Power Station, Units 1 and 2", NUREG-0675, Supplement 8 (SSER-8), November, 1978.
6. U.S. Nuclear Regulatory Commission, "Generic Letter 86-10: Implementation of Fire Protection Requirements", Letter from D. G. Eisenhut (NRC) to Licensees and Applicants, dated April 24, 1986.



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