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U.S. Nuclear Regulatory Commission
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Gentlemen:

Special Report Revision

Limiting Condition for Operation 3.7.9, "Penetration Fire Barriers", of the Trojan Technical Specifications (TTS) requires the submittal of a Special Report within 30 days if a 3-hour fire barrier is non-functional for greater than seven days.

Previously, Portland General Electric Company (PGE) had identified, in Special Reports dated September 16, 1988; September 27, 1989; December 1, 1989; and December 21, 1989 that 29 fire dampers could not be confirmed to meet all design specifications and were thus inoperable. These problems were identified during the course of a program to identify deviations from the manufacturer's installation details for fire dampers. Upon completing the initial portion of the program, which focused on those fire dampers identified as fire barriers per TTS 3.7.9, a review of the remaining fire dampers was conducted. As a result of this review, completed on July 10, 1990, 99 fire dampers were classified as TTS fire barriers. Since PGE uses the same surveillance program and action statements for both TTS and non-TTS fire barriers, including fire dampers, the only concern from a TTS viewpoint is reportability if a fire damper was out-of-service for greater than seven days. One damper, FD-318, was declared inoperable on November 27, 1989 due to a broken latch. FD-318 was not classified as a TTS fire damper at that time. On July 10, 1990, FD-318 was reclassified as a TTS fire damper. The scheduled replacement date is shown in Table 2. Problems identified with previously reported fire dampers fall into the categories defined in Table 1.

Additionally, a Quality Assurance audit had identified, in the Fall of 1989, that existing installation arrangements for fire dampers did not necessarily permit testing to ensure the closure of the dampers under full airflow conditions. Based on the review completed on July 10, 1990, problems identified with fire dampers fall into the categories defined in Table 2.

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On October 9, 1990 Damper FD-424 failed its 18-month surveillance test when it failed to close under airflow and was declared inoperable. The subsequent investigation determined that FD-424 had inadvertently not been identified, in the review completed on July 10, 1990, as a damper whose installation arrangement did not permit testing under full airflow conditions. Additionally, the investigation identified that Dampers FD-449, FD-450, FD-451, FD-452, and FD-453 had not been identified as not being tested under full airflow conditions. Although installation arrangements would permit testing under full airflow, personnel safety concerns did not permit a dynamic test. Past testing of these dampers (FD-424, FD-449 through FD-453), under static or partial airflow conditions, may have contributed to the reviews not correctly identifying that these dampers were inoperable.

A summary of inoperable fire dampers is given in Table 2. Immediate corrective action, upon identifying these problems, was to declare the affected fire dampers inoperable, and to comply with the action statement for TTS 3.7.9 which requires verifying the operability of fire detection devices and the establishing of a roving fire patrol for the affected dampers. These fire dampers have been inoperable for more than seven days.

The cause for not previously identifying that the fire dampers were TTS fire barriers was a difference in how two design groups (Civil and Mechanical) applied the TTS in determining what constituted a TTS fire barrier. The Mechanical design group, responsible for fire dampers, determined that fire dampers which separated one safety-related train's equipment from the opposite safety-related train's equipment were TTS fire barriers. The Civil design group, responsible for identification of fire areas and fire barriers other than fire dampers, determined that a fire barrier was any barrier (wall, penetration seal, etc.) which protected a safety-related area from a fire.

The cause for not meeting the manufacturer's installation details for the fire dampers was that PGE's Engineering Instructions for installing the fire dampers contained conflicting instructions regarding the gap between the fire damper frame and the wall in which the fire damper is installed. Personnel involved in the design modification to add the fire dampers did not identify that conflicting instructions existed regarding a gap around the fire damper. The gap allows for thermal expansion of the fire damper when exposed to fire temperatures. Lack of the gap does not prevent the fire damper from closing, but without the gap the fire damper may buckle during a fire and create an opening which could allow propagation of the fire.

The cause of not testing fire dampers under full airflow was that the design did not adequately provide for testing under full airflow. In some cases testing under full flow with the existing design would subject personnel to a safety hazard in observing the test, or the opening of an access door to observe damper movement during the test would divert a portion of the airflow from flowing through the fire damper and thus a full-flow test would not be achieved. In some other cases equipment

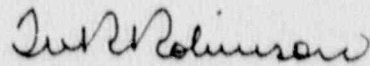
damage could result from performance of the test. These conditions led to a decision not to test these dampers under flow, but rather to statically test them.

Long-term corrective actions to restore the fire dampers to an operable status will include replacement, engineering evaluation, design modifications, or a combination of these actions. The schedule for restoring the fire dampers is given in Table 2.

Fire Dampers which were identified as being TTS fire barriers have been so designated on the design drawing (FP-900).

To avoid future differences in the application of the TTS criteria on what constitutes a fire barrier only the Civil design group will make such determinations in the future.

Sincerely,



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TABLE 1
PREVIOUSLY REPORTED INOPERABLE
TROJAN TECHNICAL SPECIFICATION (TTS) FIRE DAMPERS

| <u>Fire Damper Number</u> | <u>Building</u> | <u>Room</u> | <u>Type of Deviation</u> | <u>Restore to Operable Status</u> |
|-------------------------------|-----------------|--|------------------------------|---------------------------------------|
| 49 | Control | East Battery | 1 | December 31, 1990 |
| 49A | Control | East Battery | 1 | December 31, 1990 |
| 50 | Control | West Battery | 1, 3 | December 31, 1990 |
| 52 | Turbine | Turbine-Driven Auxiliary Feedwater (AFW) Pump | 1, 2 | 1991 Refueling Outage |
| 57 | Turbine | West Emergency Diesel Generator (EDG) | 1 | December 31, 1990 |
| 58 | Turbine | West EDG | 1 | December 31, 1990 |
| 59 | Turbine | East EDG | 1 | December 31, 1990 |
| 60 | Turbine | East EDG | 1 | December 31, 1990 |
| 61 | Turbine | East EDG | 4 | 1991 Refueling Outage |
| 62 | Turbine | East EDG | 4 | December 31, 1990 |
| 63 | Turbine | East EDG | 4 | December 31, 1990 |
| 90 | Turbine | Diesel-Driven AFW Pump | 1 | 1991 Refueling Outage |
| 90A | Turbine | Diesel-Driven AFW Pump | 1 | 1991 Refueling Outage |
| 94 | Turbine | Electrical Switchgear | 1 | December 31, 1990 |
| 95 | Control | Electrical Switchgear | 1 | December 31, 1990 |
| 96 | Control | Mechanical | 1 | Restored |

NOTE: The dampers listed above are from September 16, 1988; September 27, 1989; December 1, 1989; and December 21, 1989 Special Reports.

TABLE 1

| <u>Fire Damper Number</u> | <u>Building</u> | <u>Room</u> | <u>Type of Deviation</u> | <u>Restore to Operable Status</u> |
|-------------------------------|-----------------|---|------------------------------|---------------------------------------|
| 98 | Control | Electrical Switchgear | 1 | Restored |
| 99 | Control | Electrical Switchgear | 1 | Restored |
| 104 | Control | Mechanical | 1, 2 | December 31, 1990 |
| 137A | Control | Electrical Switchgear | 1, 3 | Restored |
| 137B | Control | Electrical Switchgear | 1, 3 | Restored |
| 139 | Turbine | Diesel-Driven AFW Pump | 1 | 1991 Refueling Outage |
| 56 | Turbine | Turbine-Driven Auxilliary Feedwater (AFW) Pump | 1 | 1991 Refueling Outage |
| 380 | Turbine | West Emergency Diesel Generator (EDG) | 1 | 1991 Refueling Outage |
| 311 | Control | Cable Spreading | 1 | Restored |
| 93 | Control | Train B Electrical Switchgear | 1 | 1991 Refueling Outage |
| 97 | Control | Train B Electrical Switchgear | 1 | Restored |
| 308 | Control | West Battery | 1 | Restored |
| 309 | Control | West Battery | 1 | Restored |

NOTE: The dampers listed above are from September 16, 1988; September 27, 1989; December 1, 1989; and December 21, 1989 Special Reports.

TABLE 1

Types of Deviation

| <u>Deviation</u> | <u>Possible Effect</u> |
|--|---|
| 1. Inadequate or unknown mounting sleeve to structure clearance. | Damper frame may bind during fire opening a larger than acceptable gap, therefore not meeting UL 555 criteria. |
| 2. No approved breakway connection where required. | Damper may open larger than acceptable gap during fire due to failure of attached duct work, therefore not meet-UL 555 criteria. |
| 3. Insufficient or missing retaining angles. | Gaps may be present between the fire damper assembly and the structure, therefore not meeting UL criteria. The fire damper assembly may fall out of the wall. |
| 4. Missing fire damper sleeve or missing UL label. | Missing sleeve may cause damper to fall out of wall during a fire. Missing UL label questions listing of damper. |
| 5. Closure under full airflow not tested. | Damper may not close during a fire, therefore not meeting UL 555 criteria. |

TABLE 2

INOPERABLE TROJAN TECHNICAL SPECIFICATION DAMPERS

| <u>Fire Damper Number</u> | <u>Building</u> | <u>Room</u> | <u>Type of Deviation</u> | <u>Restore to Operable Status</u> |
|-------------------------------|-----------------|------------------------------------|------------------------------|---------------------------------------|
| 21 | Auxiliary | Stairwell 12 | 1, 5 | 12/31/93 |
| 22 | Auxiliary | Stairwell 12 | 1, 5 | 12/31/93 |
| 24 | Control | Radiation Chemistry Lab | 1, 5 | 12/31/93 |
| 28 | Auxiliary | Valve Gallery | 1, 5 | 12/31/93 |
| 29 | Auxiliary | Valve Gallery | 1, 5 | 12/31/93 |
| 33 | Auxiliary | Valve Compartment | 1, 5 | 12/31/93 |
| 34 | Auxiliary | Valve Compartment | 1, 5 | 12/31/93 |
| 37 | Auxiliary | Valve Gallery | 1, 5 | 12/31/93 |
| 51 | Turbine | Acid Tank Area | 1, 5 | End of 1991 Outage |
| 84 | Fuel | Concentrate Holding Tank T-318A | 1, 5 | 12/31/93 |
| 105 | Control | Mechanical | 1, 5 | 12/31/91 |
| 106 | Control | Mechanical | 1, 5 | 12/31/91 |
| 107 | Control | Mechanical | 1, 5 | 12/31/91 |
| 108 | Control | Mechanical | 1, 5 | 12/31/91 |
| 109 | Control | Mechanical | 1, 5 | End of 1993 Outage |
| 110 | Control | Mechanical | 1, 5 | End of 1993 Outage |
| 111 | Control | Mechanical | 1, 5 | End of 1993 Outage |
| 120 | Control | Shift Supervisor Office | 1, 5 | End of 1992 Outage |

NOTE: The dampers listed above are not installed in accordance with the manufacturer's requirements, and their associated access doors will not permit testing of the dampers under full airflow condition.

TABLE 2

INOPERABLE TROJAN TECHNICAL SPECIFICATION DAMPERS

| <u>Fire Damper Number</u> | <u>Building</u> | <u>Room</u> | <u>Type of Deviation</u> | <u>Restore to Operable Status</u> |
|-------------------------------|-----------------|-------------------------|------------------------------|---------------------------------------|
| 121 | Control | Shift Supervisor Office | 1, 5 | End of 1992 Outage |
| 122 | Control | Vestibule Area | 1, 5 | End of 1992 Outage |
| 123 | Control | Vestibule Area | 1, 5 | End of 1992 Outage |
| 125 | Control | Vestibule Area | 1, 5 | End of 1992 Outage |
| 128 | Control | Mechanical | 1, 5 | End of 1992 Outage |

NOTE: The dampers listed above are not installed in accordance with the manufacturer's requirements, and their associated access doors will not permit testing of the dampers under full airflow condition.

TABLE 2

INOPERABLE TROJAN TECHNICAL SPECIFICATION DAMPERS

| <u>Fire Damper Number</u> | <u>Building</u> | <u>Room</u> | <u>Type of Deviation</u> | <u>Restore to Operable Status</u> |
|-------------------------------|-----------------|--|------------------------------|---------------------------------------|
| 26 | Auxiliary | Letdown Heat Exchanger | 1 | 12/31/93 |
| 53 | Turbine | Acid Tank Area | 1 | 12/31/91 |
| 54 | Turbine | Acid Tank Area | 1 | 12/31/91 |
| 83 | Fuel | Clothes Change | 1 | 12/31/93 |
| 85 | Fuel | Chemical and Volume Control System (CVCS) Holding Tank T-223 | 1 | 12/31/93 |
| 92 | Control | Mechanical | 1 | 12/31/91 |
| 100 | Control | Elevator Machine | 1 | 12/31/91 |
| 102 | Control | Computer | 1 | 12/31/91 |
| 103 | Control | Computer | 1 | 12/31/91 |
| 118 | Control | Viewing Gallery | 1 | End of 1993 Outage |
| 119 | Control | Stair 4 | 1 | End of 1993 Outage |
| 316 | Control | Mechanical | 1 | 12/31/91 |

NOTE: The dampers above are not installed per the manufacturer's specifications. (The ability to test these dampers under full airflow conditions is not a concern.)

TABLE 2
 INOPERABLE TROJAN TECHNICAL SPECIFICATION DAMPERS

| <u>Fire Damper Number</u> | <u>Building</u> | <u>Room</u> | <u>Type of Deviation</u> | <u>Restore to Operable Status</u> |
|---------------------------|-----------------|----------------------------|--------------------------|-----------------------------------|
| 410 | Control | Mechanical | 5 | 12/31/91 |
| 424 | Auxiliary | Controlled Area Corridor | 5 | 12/31/92 |
| 428 | Auxiliary | General | 5 | 12/31/92 |
| 429 | Auxiliary | General | 5 | 12/31/92 |
| 435 | Fuel | Railroad Bay | 5 | 12/31/92 |
| 439 | Fuel | General Area | 5 | 12/31/92 |
| 440 | Fuel | Boric Acid Tanks and Pumps | 5 | 12/31/92 |
| 442 | Fuel | Valve Compartment | 5 | 12/31/92 |
| 444 | Fuel | Corridor | 5 | 12/31/92 |
| 448 | Fuel | Laydown Area | 5 | 12/31/92 |
| 449 | Auxiliary | Ventilation Filter | 5 | 12/31/92 |
| 450 | Auxiliary | Ventilation Filter | 5 | 12/31/92 |
| 451 | Auxiliary | Ventilation Filter | 5 | 12/31/92 |
| 452 | Auxiliary | Ventilation Filter | 5 | 12/31/92 |
| 453 | Auxiliary | Ventilation Filter | 5 | 12/31/92 |
| 454 | Auxiliary | Ventilation Filter | 5 | 12/31/92 |
| 455 | Auxiliary | Valve Gallery | 5 | 12/31/92 |
| 36 | Auxiliary | Controlled Area Corridor | 5 | 12/31/92 |

NOTE: The dampers above have access doors that will not permit testing of fire dampers under full airflow conditions, or whose testing presents a personnel safety hazard. (The installation of these dampers is in accordance with the manufacturer's requirements.)

| | | | | |
|-----|---------|------------|--------------|----------|
| 318 | Control | Mechanical | Broken latch | 12/31/91 |
|-----|---------|------------|--------------|----------|

TABLE 2

Types of Deviation

| <u>Deviation</u> | <u>Possible Effect</u> |
|--|---|
| 1. Inadequate or unknown mounting sleeve to structure clearance. | Damper frame may bind during fire opening a larger than acceptable gap, therefore not meeting UL 555 criteria. |
| 2. No approved breakway connection where required. | Damper may open larger than acceptable gap during fire due to failure of attached duct work, therefore not meeting UL 555 criteria. |
| 3. Insufficient or missing retaining angles. | Gaps may be present between the fire damper assembly and the structure, therefore not meeting UL criteria. The fire damper assembly may fall out of the wall. |
| 4. Missing fire damper sleeve or missing UL label. | Missing sleeve may cause damper to fall out of wall during a fire. Missing UL label questions listing of damper. |
| 5. Closure under full airflow not tested. | Damper may not close during a fire, therefore not meeting UL 555 criteria. |

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