

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

December 11, 1992

United States Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, D. C. 20555

Serial No. 92-603B  
NL&P/CGL RC  
Docket Nos. 50-338  
50-339  
License Nos. NFP-4  
NFP-7

Gentlemen:

**VIRGINIA ELECTRIC AND POWER COMPANY**  
**NORTH ANNA POWER STATION UNITS 1 AND 2**  
**ADDENDUM TO APPENDIX R REPORT - EXEMPTION REQUEST NO. 1**  
**PENETRATIONS IN CHARGING PUMP CUBICLE SOUTH WALL**

Inspection Report No. 50-338, -339/92-18 for North Anna Power Station Units 1 and 2 identified a Level IV Violation relative to non-functional penetration fire barriers on the south wall separating the charging pump cubicles from a common pipe chase. Fire watches were established in the affected areas and, subsequently, the non-functional penetrations were sealed. However, for those penetrations that could not be sealed to a rating of three hours, an addendum to the existing Appendix R Exemption Request No. 1 is required. The existing Appendix R Exemption Request No. 1 was approved by the NRC in a November 6, 1986 Safety Evaluation Report (SER).

This letter provides the addendum to the existing Appendix R Exemption Request No. 1 (Attachment 1) and the justification for the addendum (Attachment 2).

Pursuant to 10CFR50.12(a), you are requested to review and approve the attached addendum to the existing Appendix R Exemption Request No. 1 addressing fire penetration barriers on the south wall of the charging pump cubicles. Subsequent to your approval, this addendum will be included in the next update of the North Anna Appendix R report.

If you have questions or require further information, please contact us.

Very truly yours,



W. L. Stewart  
Senior Vice President - Nuclear

Attachments:

1. Addendum to Exemption Request No. 1 - Appendix R Report - North Anna Power Station
2. Justification for Addendum - Exemption Request No. 1 - North Anna Power Station

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cc: U. S. Nuclear Regulatory Commission  
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Mr. M. S. Lesser  
NRC Senior Resident Inspector  
North Anna Power Station

ADDENDUM TO EXEMPTION REQUEST # 1  
APPENDIX R REPORT  
NORTH ANNA POWER STATION

The following changes are being made to Exemption Request # 1, Auxiliary Building - Partial Area Fire Suppression and Detection.

1. On page 1-7, the first and second paragraph are replaced with the following three paragraphs:

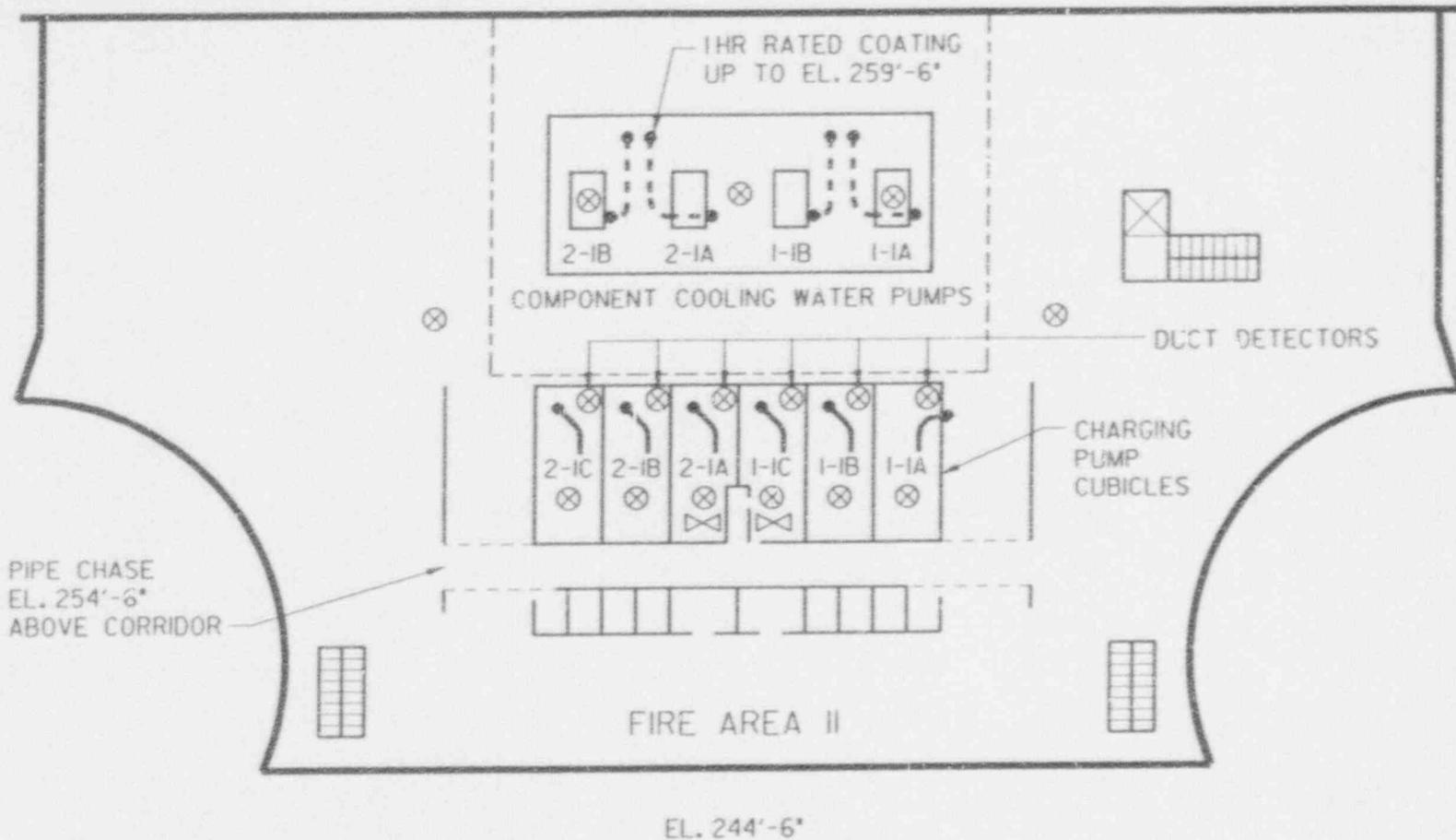
"three on the east end are for Unit 1, and the remaining three are for Unit 2. The cubicles are constructed of heavy concrete walls on three sides, and the fourth side is a removable wall made of concrete beams. These walls have an inherent fire rating in excess of 3 hours (see Exemption Request 7 concerning the removable wall). The charging pump cubicle walls extend from floor to ceiling on Elevation 244 ft-6 in. Openings at the floor of the 259 ft-6 in. elevation for each cubicle are diked and include a hatch for personnel entry, ventilation ducts, cable trays, and conduit. The walls extend from floor to ceiling on elevation 244 ft.-6 in., and penetrations through the walls are sealed to a rating of 3 hours. In the south wall of the charging pump cubicles there are some openings that are not sealed to a 3 hour fire rating. These openings lead to the corridor and the horizontal pipe chase adjacent to the south wall of the cubicles. The openings into the corridor consist of valve stems (with valve handles located in the corridor) covered with metal plates. The pipe penetrations into the pipe chase are covered with metal plates and 1 inch thick panels of Thermo-Lag. Cubicle 1-1C also has, on the south wall and at the southwest corner of the ceiling, unsealed blockouts with pipes leading into the horizontal and vertical pipe chases. Except for the unsealed openings in cubicle 1-1C, the metal plates cover the openings and provide a non-fire rated seal against the passage of smoke and hot gasses."

"The horizontal pipe chase is located south of the charging pump cubicles and extends along the south wall of each pump cubicle (See Figure 1.3). The pipe chase is open ended at the pipe penetration areas adjacent to the

Unit 1 and 2 Containments, and has openings into the adjacent cubicles (seal water filters, heat exchangers, ...etc.) located on the south side of the pipe chase. The vertical pipe chase is located between cubicles 2-1A and 1-1C and extends vertically to the Volume Control Tank (VCT). This vertical chase has an unsealed opening into cubicle 1-1C and is open ended at the VCT with no intermediate openings. The vertical and horizontal pipe chases are not expected to create a fire exposure to the cubicles due to the lack of combustible material in the chases. A fire in cubicle 1-1C would not be expected to enter the pipe chases due to the negligible amount of combustibles in the chases. If the fire did enter the chases, it would travel out and away from the adjacent cubicles which have penetrations sealed with metal plates."

"It is not considered credible, based on the configuration described above, for a fire in an individual charging pump cubicle to expose an adjacent cubicle or to propagate out of the cubicle. A fire in cubicle 1-1C would not be expected to enter the pipe chases due to the negligible amount of combustibles in the chases. If the fire did enter the chases, it would travel out and away from the adjacent cubicles which have penetration seals. The metal plates will provide an adequate seal against the passage of smoke and hot gasses based on the configuration and lack of combustibles in the corridor and pipe chase. It is not considered credible for a fire in the open areas of the 259 ft.-6 in. elevations to expose a charging pump (although it may affect the power feeds) or valves within a cubicle since the floor openings have dikes. It is not credible for a fire to spread from the general areas of the 244 ft-6 in. elevation into the pipe chase due to the negligible combustible loading in the area and long travel distance from the open ends of the chase to the cubicles."

2. Figure 1-3 is replaced with the revised Figure 1-3 (attached).



KEY

- AUTOMATIC FIRE SUPPRESSION SYSTEM BOUNDARY
- CHARGING PUMP POWER FEED
- CCW PUMP<sup>9</sup> POWER FEEDS
- ⊗ SMOKE DETECTORS
- ⊗ MANUAL VALVES FOR CHARGING PUMP DISCHARGE CROSSCONNECT

VIRGINIA ELECTRIC & POWER COMPANY  
NORTH ANNA POWER STATION  
UNITS 1&2

AUXILIARY BUILDING  
ELEVATION 244'-6"

FIGURE NO.

1.3

CAD NO. NAFIG72.APR

JUSTIFICATION FOR ADDENDUM  
EXEMPTION REQUEST # 1  
NORTH ANNA POWER STATION

Exemption Request No. 1 of the Appendix R Report discusses compliance with Appendix R, Section III.G.3, to obtain separation of redundant trains. In particular, the charging pumps are credited with having 3 hour rated fire walls, and penetrations in these walls are sealed to a rating of 3 hours. This statement is repeated in the NRC's Safety Evaluation Report addressing Exemption Request No. 1. Contrary to this statement, the cubicle for pump 1-CH-P-1C has unprotected openings into the horizontal and vertical pipe chases. In addition, the remaining openings from the charging pump cubicles into the horizontal pipe chase are sealed with 1 inch Thermo-Lag over a steel plate (credited as less than a 3 hour fire rated seal).

There are six charging pumps arranged side by side in individual cubicles on the 244 ft.-6 in. elevation of the Auxiliary Building. A minimum of one charging pump per unit is needed to bring the units to and maintain shutdown. In order to provide an alternative shutdown configuration, a cross-connection was added between the discharge headers of the two units' charging pumps. This arrangement physically permits one unit's charging pumps to supply makeup flow to the other unit.

The horizontal pipe chase is located south of the charging pump cubicles and extends along the south wall of each pump cubicle. The pipe chase is open ended at the pipe penetration areas adjacent to the Unit 1 and 2 Containments, and has openings into the cubicles located on the south side of the pipe chase. The vertical pipe chase is located between cubicles 2-1A and 1-1C and extends vertically to the Volume Control Tank (VCT). This vertical chase has an unsealed opening into cubicle 1-1C and is open ended at the VCT with no intermediate openings. The pipe chases are not expected to create a fire exposure to the cubicles due to the lack of combustible material in the chases. Each charging pump cubicle is provided with one ceiling-mounted and one duct smoke detector.

The charging pump cubicle walls extend from floor to ceiling on Elevation 244 ft-6 in. Openings at the floor of the 259 ft-6 in. elevation for each cubicle are diked and include a hatch for personnel entry, ventilation ducts, cable trays, and conduit. It is not considered credible, based on the configuration described, for a fire in an individual cubicle to expose an adjacent cubicle or to propagate out of the cubicle. A fire in cubicle 1-1C would not be expected to enter the pipe chases due to the negligible amount of combustibles in the chases. If a fire did enter the chases, it would travel out and away from the adjacent cubicles which have penetrations sealed. The loss of pump 1-CH-P-1C would not create an unreviewed safety question since the technical specifications allow operation with one pump inoperable.

It is not credible for a fire to spread from the general areas of the Auxiliary Building, elevation 259 ft., into the cubicles, since the floor openings have dikes. It is also not credible for a fire to spread from the general areas of the Auxiliary Building into the cubicles through the pipe chases due to the following:

- Negligible combustible loading in the pipe chases.
- Negligible combustible loading in the cubicles on the south side of the pipe chase.
- Long travel distance from the open ends of the pipe chases.
- Metal plate with Thermo-Lag barriers installed on the openings into all cubicles except 1-1C.

Smoke spread into cubicle 1-1C is possible but would not prevent operator actions due to the following:

- Operator access is addressed in Evaluation 7, which states the operator can use SCBA if needed.
- Low combustible loading in the areas of the Auxiliary Building at the ends of the pipe chases.
- The orientation of the chases is such that a significant quantity of smoke would not be likely to travel the length of the chases and enter cubicle 1-1C.

In summary, the lack of 3 hour rated seals for the openings into the pipe chases does not create an unreviewed safety question since the configurations meet the intent of Appendix R requirements.