

SSER

Task: Allegation A-129

Reference No.: 4-84-A-06/24

Characterization: It has been alleged that the installation, inspection, and acceptance of waterstop splicing activities were performed by personnel of the J. A. Jones Construction Company who were not certified for these activities. It is further alleged that the review of the waterstop quality control documentation is incomplete and that those records that were inspected showed failure to implement requirements of specifications and procedures relative to testing frequency, recording of applicable information, and splice location.

Assessment of Allegation: In assessing this allegation, the NRC staff reviewed the Waterford Final Safety Analysis Report (FSAR) which states that to protect against floods all seismic Category I structures, safety-related systems, and components necessary for safe shutdown are to be located within the nuclear plant island structure (NPIS). The NPIS is a reinforced concrete structure designed to minimize water intrusion and the waterstops are one of the design features included for this purpose. The NPIS also has a floor drainage system capable of disposing of water that may be accumulated through leaking cracks in exterior structures, leaking waterstops and surface collection. In addition to the FSAR statements the NRC staff noted in the review that since the early stages of the Waterford project, there has been a listing of items related to the facility which undergo interdisciplinary review for safety classification. This list was first issued in January 1973 and has been under periodic review, resulting in 20 revisions up through March 1984. Waterstops have been noted on the list as non-safety class material. Therefore, although it is desirable to have a high level of quality assurance for the waterstops, a mitigative system for drainage of potential inleakage exists. Accordingly, waterstops are designated as non-safety class material, which EBASCO has confirmed.

The FSAR does not assign a specific safety category to the waterstop. As stated above, the Waterford QA staff considered neither waterstop material nor the installation nuclear safety-related or seismic Class I. The justification for this categorization is that there is no structural function for the waterstop since it is provided only to reduce ground water inleakage to the building through construction joints so as not to add to the water volume to be handled by the radwaste system or present housekeeping problems. Waterstops were, however, shown on a drawing which was designated as Seismic Category I, which apparently has led some to believe all items shown on the drawing are Seismic Category I. This

was an error on the drawing. The waterstop material should have been highlighted by a special note on the drawing as not being safety-class material then the confusion would not have arisen during the QA review of documents.

The NRC staff reviewed waterstop records to determine if the installation, testing, and surveillance were performed in accordance with the existing specifications and procedures. In order to perform this review, LP&L was asked to provide waterstop records for the NPIS (which contains all Category I structures where waterstops were used): reactor containment building (RCB); fuel handling building (FHB); and the reactor auxiliary building (RAB). The only records they could produce were for the RAB and the portion of the common foundation mat under the RAB. LP&L could not locate the waterstop splicing records for the RCB, FHB, and other portions of the foundation mat.

The NRC staff review of the records indicated some specific problems of the installation and testing procedures. Some of these specific problems are listed below.

- o Some splicers made over ten splices without making a test splice, per requirements.
- o In some cases a few of the test splices were not marked off as acceptable. However, cross checking with the waterstop splice tensile test reports showed that these test splices did in fact meet the specifications for strength.
- o One inspector who signed off five test splices (this inspector signed off no other test splices or production splices in the records reviewed) was not certified on the date the test splices were signed.
- o One of the splices made by a splicer for his certification test did not meet the required tensile properties and the records do not indicate that he was retested.

Review of the certifications of the splicers and inspectors showed no deficiencies other than those noted above.

A large majority of the records the NRC requested could not be provided by LP&L and only the projects own internal procedures required the records since the material is not safety related. The records which were produced showed a small number of minor deficiencies with respect to LP&L's requirements. The deficiencies noted in the records reviewed are not considered significant with regard to plant safety.

A review of 20 basemat preplacement concrete packages, conducted as part of the NRC staff's assessment of allegations 104, 111, and 190 confirmed that the waterstops were included in the placements.

[Potential Violations: None.]

Actions Required: None.

References: The following documentation was reviewed as part of the evaluation of this allegation:

1. Letter from B. Grant (EBASCO) to A. Cutrona (EBASCO) dated December 13, 1983, subject: NUCLEAR SAFETY CLASSIFICATION OF WATERSTOPS (Attachment 1).
2. LP&L Waterford SES Unit 3 Interdisciplinary Review List (Attachment 2).
3. WSES-FSAR-Unit 3, Section 3.4.1, Flood Protection and Figures 3.4.1 and 3.4-2 (Attachment 3).
4. EBASCO Specification for polyvinylchloride waterstops (Attachment 4).
5. J. A. Jones Construction Company site inspection and test procedure for waterstop inspection (Attachment 5).
6. J. A. Jones Construction Company construction work procedures for handling, installation, and field repair of waterstops (Attachment 6).
7. Waterstop splicing logs.
8. Waterstop splicers training records and certifications.
9. Waterstop tensile test records.

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