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Docket Nos.: 50-352
and 50-353

JUL 8 1981 016 Phillips,

MEMORANDUM FOR: Stefan S. Pawlicki, Chief
Materials Engineering Branch

FROM: A. Schwencer, Chief, LB#2, DL

SUBJECT: PIPE STORAGE PRACTICES AT LIMERICK GENERATING STATION

- References:
1. Memo from Carlson to Seyfrit, "Request for Transfer of Lead Responsibility to NRR - Pipe Storage Practices at Limerick Generating Station (AITS#F12126H1)" March 31, 1977.
 2. Memo from Pawlicki to Kniel, "Limerick Generating Station U Units Nos. 1 and 2, Pipe Storage Practices", May 23, 1977.
 3. Letter to Philadelphia Electric Company from NRR, "Pipe Storage Practices at the Limerick Generating Station", July 14, 1977.
 4. Letter to NRR from Philadelphia Electric Company, November 4, 1977.
 5. Memo from Carlson to Reinmuth, "Pipe Storage Practices at Limerick Generating Station", December 5, 1977.
 6. Memo from Seyfrit to Kniel, "Pipe Storage Practices at Limerick Generating Station, Units No. 1 and 2, February 15, 1978.



The References summarize an open item concerning the pipe storage practices at Limerick. NRR letter of July 14, 1977, Reference 3, stated that we found the outside storage of carbon steel pipe without end caps unacceptable. In

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Stefan S. Pawlicki

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response the Applicant submitted a letter on November 4, 1977, Reference 4, with data to support his practice. However, I&E pointed out, Reference 5, that additional data were available which made the storage practice questionable.

We have not responded to the Applicant's letter of November 4, 1977, Reference 4. Your support is requested to evaluate the applicant's position expressed in that letter of storing the subject pipe uncapped followed by inspections after cleaning before use. If the practice is still unacceptable what needs to be done to qualify the pipe that is already installed or that has been stored uncapped but not installed?

A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing

Enclosure:
As stated

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UNITED STATES
/ NUCLEAR REGULATORY COMMISSION
REGION I
631 PARK AVENUE
KING OF PRUSSIA, PENNSYLVANIA 19406

March 31, 1977

DN 50-352
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MEMORANDUM FOR: K. V. Seyfrit, Chief, Reactor Technical Assistance
Branch, IE:HQ *NOV 02*

FROM: R. T. Carlson, Chief, Reactor Construction and
Engineering Support Branch, NRC:I *NTRIC*

SUBJECT: REQUEST FOR TRANSFER OF LEAD RESPONSIBILITY TO NRR
- PIPE STORAGE PRACTICES AT LIMERICK GENERATING
STATION (AITS#F12126H1)

An amendment to Appendix A, Paragraph 3.5.3, of the Limerick PSAR was submitted by the Philadelphia Electric Company in October 1975 wherein they stated the use of end caps on stored pipe was only applicable to austenitic stainless steel pipe. Their purpose in this amendment was to permit outside storage of carbon steel pipe without end caps. The licensee is of the view, based on a study performed by Bechtel at the Limerick site, that uncapped storage of carbon steel pipe is less deleterious than capped storage.

We performed an inspection of this item in mid-1976 to review the study and its results. At that time, the information was not on-site. The licensee stated the study showed that capped carbon steel pipe accumulated water from condensation resulting in greater internal corrosion rates than that experienced with uncapped pipe stored at a slight tilt to permit draining. This matter was considered to be unresolved pending the inspector's review of the study results. As you know, contrary to the licensee's practice, the capped pipe storage technique is generally practiced in the nuclear industry and is advocated by ANSI Standard N45.2.2 which is endorsed by the NRC.

During a recent reinspection of this matter, our inspector reviewed the study results provided by the licensee. He found that controls for the study and the data obtained did not provide a sound basis to support the licensee's conclusion that uncapped pipe storage is desirable. The study involved a limited sample size and there was a lack of correlation of the data. Specifically, 14 pipe spools were involved with corrosion rate data taken over a 50-month period. Corrosion rates were determined by wall thickness measurements and "weight loss" coupons. Provisions had not been made to assure that comparative wall thickness measurements were made at the same point on the pipe and, as a result, the data was scattered (some data indicated increasing wall thickness). The weight loss coupons appeared to have been handled more precisely and they indicated about a factor of two higher corrosion rate in uncapped pipe.

CONTACT: J. P. Durr
488-1292

TRANSMITTED VIA FACSIMILE

MAR 31 1977

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The coupon data disclosed the capped pipe exhibited a projected 37 mil wall thickness loss over a two-year period and uncapped pipe a 72 mil loss. This was contrary to the licensee's conclusions which were based on the wall thickness measurements. Also, since some of this pipe is stored outside for up to four years, the pipe wall thickness loss could encroach on the minimum required wall thickness. It is also noteworthy that the licensee's program does not require post storage measurements and evaluation of pipe wall thickness.

Based on the licensee's studies as reported to our inspector, we find that the licensee's current practice of outside storage of carbon steel pipe has not been appropriately justified. Also, our inspector observed that the open pipe storage practice has resulted in contaminants (dirt) being deposited inside of the pipes. Although the licensee's practice is to clean (sand blast) and inspect the pipe internally prior to installation, we are of the view that detrimental contaminants could remain in the piping which may not be removed during the final cleaning/flushing operation prior to start-up.

Our view is that this storage practice has not been demonstrated to prevent deterioration of piping materials in storage and thus appears to be contrary to 10 CFR 50, Appendix B, Criterion XIII and ASME B&PV Code, Section III, 1971 Edition, Paragraph NA-4460 which are applicable to the Limerick facility. However, NRR's acceptance of the PSAR change permitting outside storage of uncapped safety related carbon steel pipe makes IE enforcement action difficult at best and establishes a generic precedent which will be difficult to correct.

You are therefore requested to consider a transfer of lead responsibility for resolution of this item to NRR so that they can determine if the observed practice is consistent with their requirements and within the intent of their understanding when they accepted the aforementioned PSAR amendment.

for R.C. Carlson

Robert T. Carlson, Chief
Reactor Construction and
Engineering Support Branch

cc: F. A. Dreher, IE:HQ

bcc: Durr ✓
Toth
McGaughy
O'Reilly
