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BBS Ltr. #78-75

Dresden Nuclear Power Station
R. R. #1
Morris, Illinois 60450
February 6, 1975

Mr. James G. Keppler, Regional Director
Directorate of Regulatory Operations-Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

SUBJECT: REPORT OF ABNORMAL OCCURRENCE PER SECTION 6.6.A OF THE TECHNICAL SPECIFICATIONS
CORE SPRAY INJECTION LINE THROUGH-WALL CRACKS

Reference: 1) Regulatory Guide 1.16 Rev. 1 Appendix A
2) Notification of Region III of NRC Regulatory Operations
Telephone: Mr. P. Johnson, 0930 hours on January 28, 1975
Telegram: Mr. J. Keppler, 1600 hours on January 28, 1975

Report Number: 50-237/1975-11

Report Date: February 6, 1975

Occurrence Date: January 27, 1975

Facility: Dresden Nuclear Power Station, Morris, Illinois

IDENTIFICATION OF OCCURRENCE

On January 27, 1975 at approximately 1900 hours, through wall cracks were discovered on lines 2-1403-10"-A and 2-1404-10"-A, which are A and B core spray injection lines to the reactor vessel. This represents an abnormal degradation of a boundary designed to contain radioactive materials.

CONDITIONS PRIOR TO OCCURRENCE

Prior to the occurrence, the reactor was locked in the refuel mode with the CRD overhaul program in progress.

DESCRIPTION OF OCCURRENCE

At 1900 hours on January 27, 1975, Unit 2 was shutdown for its third refueling outage. With inservice inspection underway, five through wall cracks were

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discovered on A and B Core Spray injection lines, 2-1403-10"-A and 1404-10"-A respectively. The cracks were discovered in an area between the reactor vessel nozzle to safe end weld and the core spray pipe section adjacent to the dutchman weld (See attachments 1 and 2 for detailed location of visible cracks). Subsequent ultrasonic examinations revealed a number of indications that start from the I.D. of the dutchmandand safetend sections.

DESIGNATION OF APPARENT CAUSE OF OCCURRENCE (Equipment Failure)

At this time, the apparent cause of the failure is unknown. Once the sections of piping are removed an investigation will be performed to determine the mode of failure. This report will be submitted as a followup letter.

ANALYSIS OF OCCURRENCE

At the time of discovery, the small leaks found did not compromise the safety of the public or plant personnel. The reactor has been shutdown since November 1974 and the leaks were detected during performance of the inservice inspection program.

During the operating period since the last inspection in early 1972 through November 1974, the station has operated in accordance with the Technical Specifications which requires availability of emergency core cooling systems. At the time of discovery, the LPCI system was available to provide core cooling in the event of a LOCA had the core spray system become non-functional.

CORRECTIVE ACTION

The remaining welds in A and B core spray systems out to the second isolation valve are being ultrasonically examined. As a result of the examinations to date, additional welds have been noted to have indications which must be resolved. All welds in the core spray system that cannot be fully resolved by ultrasonic testing will be radiographed.

The safe end-dutchman sections of pipe that exhibited ultrasonic and visual indications will be removed in the next several weeks. If the additional ultrasonic indications in the core spray lines are determined not to meet ASME code requirements, these pipe sections will also be replaced.

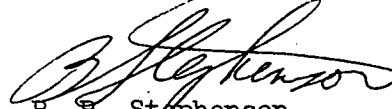
The corrective action to be taken to prevent recurrence will be contingent upon the result of analyses performed on the removed sections of cracked piping. This will also be discussed in a followup letter.

FAILURE DATA

The previous failures of austenitic pipe of similiar nature were discovered on September 13, 14 and December 13, 1974 involving the four inch recirc bypass lines, 2-0203B-4"-A and 2-0203A-4"-A.

The four inch piping material was of 304 stainless steel with a thickness of 0.337 inches.

The sections of piping (dutchman) involved in the recent failures are of 316 stainless steel with a thickness of approximately 0.60 inches. This is the first occurrence of this nature where a transition piece connected to the safe end has failed.



B. B. Stephenson
Superintendent

BBS:RLW:smp

File/AEC

10" CORE SPRAY NOZZLE

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"A" LOOP

CENTERLINE OF PIPE TO DUTCHMAN WELD
CENTERLINE OF DUTCHMAN TO SAFE END WELD
CENTERLINE OF SAFE END TO NOZZLE WELD

VESSEL

CLADDING

THERMAL SLEEVE

11:00

10:00

3:00

8:00

-PIPE-

DUTCHMAN

-SAFE END-

-NOZZLE-

A

B

C

PIPE

NOZZLE

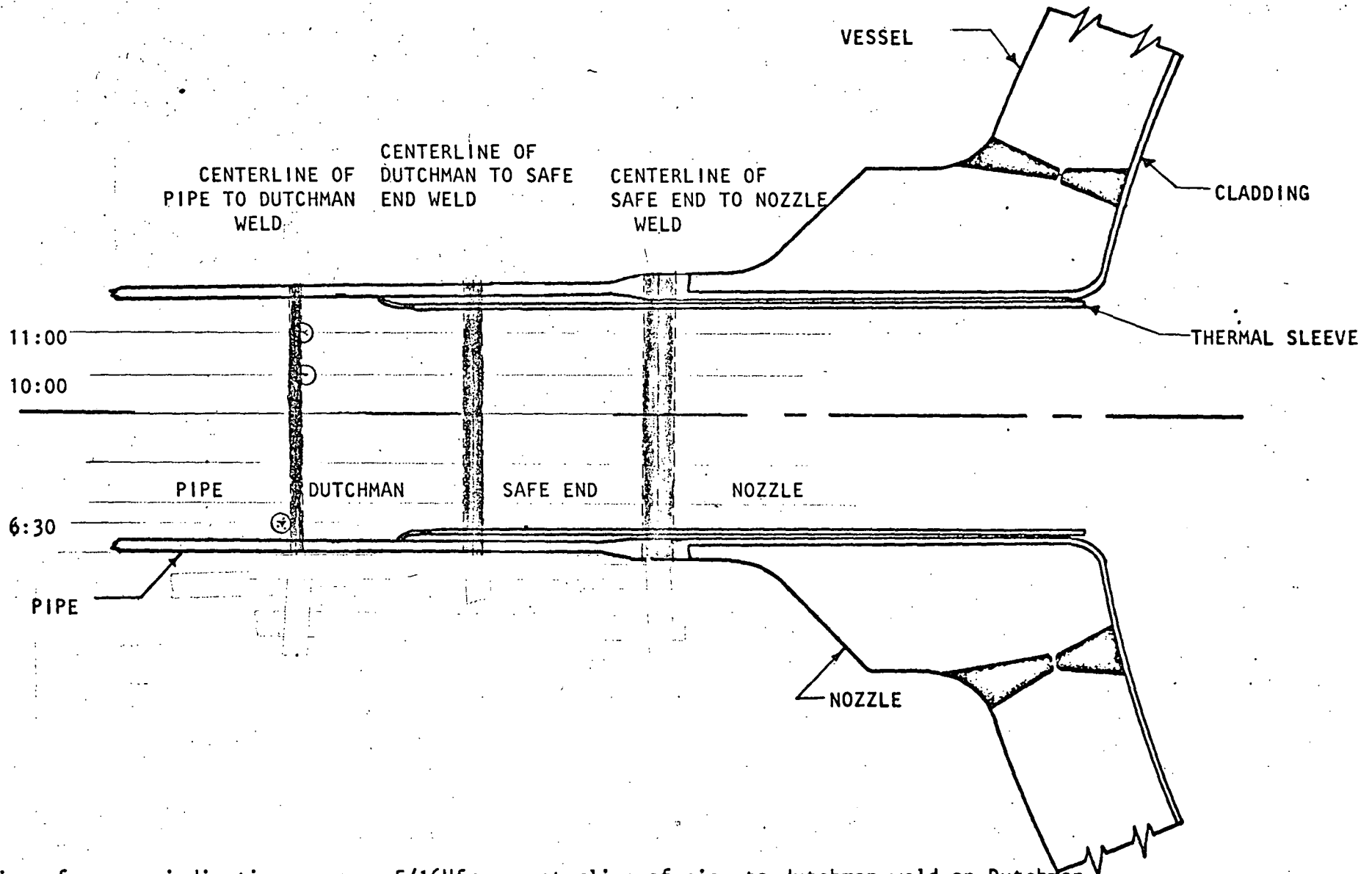
- A ⊙ - Location of weeper approx. 1/8" on pipe side of weld at 11:00
- B ⊙ - Location of crack approx. in centerline of Dutchman to Safe End weld at 3:00-9/16" in Length.
- C ⊙ - Location of crack approx. in centerline of Dutchman to Safe End weld at 8:00-5/8" in Length.

Attachment #1

10" CORE SPRAY NOZZLE

18" LOOP

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Attachment #2

⊗ Location of weeper indication approx. 5/16" from centerline of pipe to dutchman weld on Dutchman.

⊙ Location of PT indications approx. 5/8" from centerline of weld on pipe side.