

January 17, 1992

Docket No. 50-440

Centerior Service Company
ATTN: Mr. Mike Lyster
Vice President
Nuclear - Perry
c/o The Cleveland Electric Illuminating
Company
10 Center Road
Perry, OH 44081

Dear Mr. Lyster:

The enclosed report refers to a special onsite review by an NRC Augmented Inspection Team (AIT) on December 22 through 29, 1991, relative to the auxiliary circulating water pipe break at the Perry Nuclear Power Plant on December 22, 1991, the subsequent flooding of some areas in the plant, and the failures of equipment that occurred during the event. The AIT was composed of Messrs. R. A. Westberg, J. H. Neisler, R. B. Landsman, J. F. Schapker, A. Vogel, of this office; and J. E. Tatum of the Office of Nuclear Reactor Regulation (NRR). The report also refers to the followup activities of your staff and to the discussion of our findings with Mr. R. A. Stratman and others of your staff at the conclusion of the inspection.

The enclosed copy of our Augmented Inspection Team report identifies areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel.

The AIT was formed to gather information on the event. Specifically, the AIT examined licensee response to the event, effects of flooding, root causes of the pipe break and other equipment failures, and proposed corrective actions.

The consequences of the event posed no threat to public health and safety. A minor radiological release occurred, but it was a small fraction of regulatory limits. Response to the event required a manual plant scram and consequent unnecessary actuation of safety equipment. However, no significant operational safety parameters were approached or exceeded. Internal plant flooding was limited and did not reach a level that could affect safety related equipment.

The AIT concluded that the root cause of the failure was inadequate design of a support adjacent to the auxiliary circulating water system pipe elbow that failed. The licensee did not implement recommendations in a 1982 consultant report relative to the repair and modification of this pipe support. In 1982, a temporary repair was made to address problems experienced during construction and was allowed to become a permanent modification without adequate design analysis. The specific failure mechanism involved a loosening of the pipe support anchor bolts which, in turn, permitted excessive movement of the fiberglass circulating water pipe elbow. Potential contributors to failure may also have been a manufacturing flaw which existed in the fiberglass elbow or an incorrectly installed fiberglass pipe splice. Catastrophic failure of the pipe prevented drawing definitive conclusions on this point.

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Licensee recovery from the event was thorough. Corrective actions were generally good; however, modifications made to correct pipe support design deficiencies were not adequately evaluated. No consideration was given to the long-term affects of the dynamic forces on the fiberglass piping and pipe supports which had led to the recent failures. In response to NRC concerns, the licensee committed to perform a more rigorous piping analysis and special monitoring of the affected piping. The NRC's understanding of these commitments was documented in the January 3, 1992 Confirmatory Action Letter (CAL).

The AIT concluded that the operators safely responded to a challenging plant event and that their actions were indicative of a strong knowledge of plant systems and procedures.

No violations of NRC requirements were identified during the course of this inspection; however, issues identified by the AIT may be examined for possible regulatory violations in subsequent inspections.

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC Public Document Room.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

Hubert J. Miller, Director
Division of Reactor Safet

Enclosure: AIT Report
No. 50-440/91026(DRS)
See Attached Distribution

<p><u>YES</u></p> <p>RIII <i>mc</i> Westberg/lc 1/17/92</p> <p>Neisler 1/ /92</p>	<p>RIII Gardner</p> <p>Landsman 1/ /92</p>	<p><u>Yes</u></p> <p>RIII <i>ROF</i> Lanksbury 1/17/92</p> <p>Schapker 1/ /92</p>	<p><u>Yes</u></p> <p>RIII <i>ROF</i> Knop 1/17/92</p>	<p><u>YES</u></p> <p>RIII <i>Martin</i> 1/17/92</p>	<p><u>YES</u></p> <p>RIII <i>Miller</i> 1/17/92</p>
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Licensee recovery and investigation of root causes were thorough. Corrective actions were generally good; however, modifications made to correct pipe support design deficiencies were not adequately evaluated. Inadequate consideration was given to the long-term affects of the dynamic forces on the fiberglass piping and pipe supports which had led to the recent failures. In response to NRC concerns, the licensee committed to perform a more rigorous piping analysis and special monitoring of the affected piping. The NRC's understanding of these commitments was documented in the January 3, 1992 Confirmatory Action Letter (CAL).

The AIT concluded that the operators satisfactorily responded to a challenging plant event and that their actions were indicative of a strong knowledge of plant systems and procedures.

No violations of NRC requirements were identified during the course of this inspection; however, issues identified by the AIT may be examined for possible regulatory violations in subsequent inspections.

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC Public Document Room.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

Hubert J. Miller, Director
Division of Reactor Safety

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RIII yes
CW
Westberg/lc
1/17/92
Neisler
1/17/92
Yes

RIII yes
RM
Gardner
1/17/92
Landsmar
1/17/92

yes
RIII
Lanksbury
1/17/92
Schapker
1/17/92
RW Sr J. Schapker

yes
RIII
Knop
1/17/92

See other copy for
concerns
RIII
Martin Miller

Distribution:

cc w/enclosure

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Perry Nuclear Power Plant

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