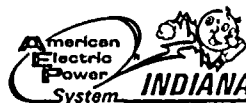


DSB



**INDIANA & MICHIGAN ELECTRIC COMPANY**

DONALD C. COOK NUCLEAR PLANT  
P.O. Box 458, Bridgman, Michigan 49106  
(616) 465-5901

December 31, 1979

Mr. J.G. Keppler, Regional Director  
Office of Inspection and Enforcement  
United States Nuclear Regulatory Commission  
Region III  
799 Roosevelt Road  
Glen Ellyn, IL 60137

Operating License DPR-74  
Docket No. 50-316

Dear Mr. Keppler:

Pursuant to the requirements of the Appendix A Technical Specifications  
the following report/s are submitted:

RO 79-049/01T-0

Sincerely,

D.V. Shaller  
Plant Manager

/bab

cc: J.E. Dolan  
R.S. Hunter  
R.W. Jurgensen  
R.F. Kroeger  
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R.E. Masse RO:III  
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G. Charnoff, Esq.  
G. Olson  
J.M. Hennigan  
PNSRC  
J.F. Stietzel  
E.L. Townley  
Dir., IE (40 copies)  
Dir., MIPC (4 copies)

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$\frac{1}{\sqrt{\pi}} \int_{-\infty}^{\infty} f(x) e^{-x^2} dx = \frac{1}{\sqrt{\pi}} \int_{-\infty}^{\infty} f(x) e^{-x^2} dx$

1. 2. 3.

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During the field inspection of seismic Class 1 Safety Related piping systems, done to comply with IE Bulletin 79-14 requirements, a significant discrepancy was noted in the as-built condition of a 1" diameter auxillary pipe in D. C. Cook Unit #2. This 1" pipe is connected between the reactor coolant piping at the discharge nozzle of the reactor coolant pump and the excess letdown heat exchanger. The significant non-conformance was near the 1" pipe connection to the primary piping. Its cause was that the "as-built" length of the pipe was about 3.0 feet longer than that specified in the mathematical model.

An analysis showed that the 1" pipe connection to the primary piping would be overstressed during both OBE and DBE seismic events. More precisely, the stress levels in the pipe/nozzle connection were above the allowable limit during an OBE and above the yield limit during a DBE. Considering this, there was a probability that a small LOCA could have occurred in case of a DBE taking place. The failure of this line would entail a breach of primary coolant pressure boundary.

The piping system was re-analyzed with two horizontal restraints along the pipe run and all the stresses were within the code allowable limits. The modification, i.e., the additional two restraints, were installed in Unit No. 2. This completes the evaluation of the significant noncompliance and the corrective action, and thus the integrity of the reactor coolant pressure boundary is assured in case of DBE taking place.

A similar problem does not exist in Unit #1 since the pipe was installed in agreement with the math model.



The details of the stress analysis are shown in Table 1.

TABLE 1

DONALD C. COOK PLANT UNIT #2Stress Analysis of 1" Pipe (Excess Letdown System)

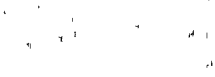
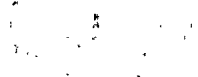
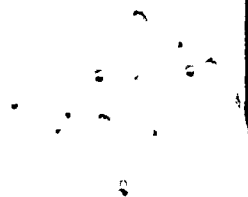
|                           |                                 |
|---------------------------|---------------------------------|
| Computer Code Used        | - Dynaflex                      |
| Applicable Code           | - B31.1, 1967 Edition           |
| Flow Diagram              | 1-2-5128<br>1-2-5129A           |
| Normal Operating Pressure | 2510 Psig                       |
| Pipe Material             | ASTM-A376, TP304 (Schedule 160) |
| Yield Stress              | 30,000 Psi                      |

| Loading Case          | Allowable Stress | Calculated Stress<br>(As built Cond.) | Calculated Stress<br>After Modification |
|-----------------------|------------------|---------------------------------------|---|
| D.W. + Pressure + OBE | 19080 Psi        | 22939 Psi                             | 11081 Psi (OK)                          |
| D.W. + Pressure + DBE | 28620 Psi        | 43423 Psi                             | 19408 Psi (OK)                          |
| Thermal               | 27350 Psi        | -                                     | 20501 Psi (OK)                          |

SAFETY EVALUATION

The overstress condition of the one inch diameter excess letdown line was reviewed for its impact on plant safety. An event causing the failure of the subject pipe could have resulted in a one inch diameter loss of coolant accident (LOCA). This range of break sizes is typical of the small LOCA and is analyzed for Cook Plant. FSAR Chapter 14 (yellow pages) section 14.3.2 presents the analysis results for the worst case of small LOCA's. Recent break analyses contained in WCAP-9600 provide similar results for a standard 4 loop Westinghouse NSSS plant (RESAR-3 type). This range of break sizes is well analyzed from many aspects, including core uncover phenomena. Specifically, a one inch diameter LOCA would result in an actuation of the Emergency Core Cooling System (ECCS).

Adequate protection is afforded by the ECCS, in the event that a one inch



~diameter LOCA would have occurred. Thus this overstress condition did not compromise, at any time, the health and safety of the public.

