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NUCLEAR REGULATORY COMMISSION  
REGION IV  
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ARLINGTON, TEXAS 76012

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December 31, 1979

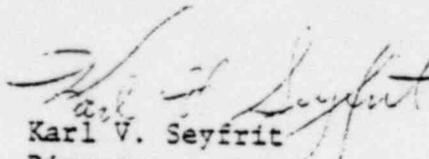
Docket No. 50-285

Omaha Public Power District  
ATTN: W. C. Jones, Division Manager -  
Production Operations  
1623 Harney Street  
Omaha, Nebraska 68102

Gentlemen:

The enclosed IE Information Notice No. 79-36 provides information on a computer code defect which can result in incorrect stress values for piping elbows.

Sincerely,

  
Karl V. Seyfrit  
Director

Enclosures:

1. IE Information Notice  
No. 79-36
2. List of Recently Issued  
Information Notices

cc: S. C. Stevens, Manager  
Fort Calhoun Station  
Post Office Box 98  
Fort Calhoun, Nebraska 68102

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DUPLICATE

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT  
WASHINGTON, D.C. 20555

SSINS No.: 6870  
Accession No:  
7910250519

IE Information Notice No. 79-36  
Date: December 31, 1979  
Page 1 of 1

COMPUTER CODE DEFECT IN STRESS ANALYSIS OF PIPING ELBOW

Description of Circumstances:

The NRC was informed on December 17, 1979 that a computer code, NUPIPE, used in the stress analysis of piping systems contained a defect which could result in incorrect stress values at one end of piping elbows. This defect was identified from discussions with a user of NUPIPE and the NUPIPE code developers. The stress calculation error can occur when a flexible joint is modeled at the end of an elbow (ELBOW-ELASTOJT connection in NUPIPE terminology). This defect in the NUPIPE code is in the transformation of the loads in the ELASTOJT coordinate axis to the piping ELBOW coordinate axis. The incorrect coordinate axis transformation may incorrectly interchange the torsion and bending moment loads on the piping elbow. This can result in the incorrect assignment of the stress intensification factor for the individual moments. The correct stress may be higher or lower than calculated by NUPIPE, depending on the loading condition.

Four conditions must exist for the possibility of the calculation of an incorrect stress in the NUPIPE code:

1. an USAS B31.1.0 - 1967 Code analysis is being done, and
2. an ELBOW-ELASTOJT connection exists, and
3. an absolute sum of two load cases is being calculated, and
4. the ELBOW torsional moment axis does not align with the ELASTOJT local x-axis.

Possible users of the NUPIPE code include the code developer, Stone and Webster, EG&G (Idaho Falls), and those using the Cybernet system. The NRC is currently reviewing the extent of usage of the NUPIPE code and the generic implications for other facilities. There is a potential for a similar defect to occur in other piping analysis computer codes.

This Information Notice is provided as early notification of a possible significant matter. It is expected that recipients will review the information for possible applicability to their facilities. No specific action is requested in response to this Information Notice. If NRC evaluations so indicate, further licensee actions may be requested or required. If you have any questions regarding this matter, please contact the Director of the appropriate NRC Regional Office.

No written response to this IE Information Notice is required.

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LISTING OF RECENTLY ISSUED  
IE INFORMATION NOTICES

Information Notice No.	Subject	Date Issued	Issued To
79-31	Use of Incorrect Amplified Response Spectra (ARS)	12/13/79	All power reactor facilities holding Operating Licenses (OLs) and Construction Permits (CPs)
79-32	Separation of Electrical Cables for HPCI and ADS	12/21/79	All power reactor facilities holding Operating Licenses (OL) and Construction Permits (CPs)
79-33	Improper Closure of Primary Containment Access Hatches	12/21/79	All power reactor facilities holding Operating Licenses (OL) and Construction Permits (CPs)
79-34	Inadequate Design of Safety-Related Heat Exchangers	12/27/79	All holders of power reactor Operating Licenses (OLs) and Construction Permits (CPs)
79-35	Control of Maintenance and Essential Equipment	12/31/79	All power reactor facilities with an Operating Licenses (OLs) and Construction Permits (CPs)
79-36	Computer Code Defect Stress Analysis of Piping Elbow	12/31/79	All holders of power reactor Operating Licenses (OLs) and Construction Permits (CPs)

Enclosure