



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION III  
799 ROOSEVELT ROAD  
GLEN ELLYN, ILLINOIS 60137

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JAN 2 1980

State of Illinois  
Department of Public Health  
ATTN: Mr. Gary N. Wright, Chief  
Division of Nuclear Safety  
535 West Jefferson Street  
Springfield, IL 62761

Gentlemen:

The enclosed IE Information Notice No. 79-36 titled "Computer Code Defect in Stress Analysis of Piping Elbow" was sent to the following licensees on December 31, 1979.

American Electric Power Service Corporation  
Indiana and Michigan Power Company  
D. C. Cook 1, 2 (50-315, 50-316)

Cincinnati Gas & Electric Company  
Zimmer (50-358)

Cleveland Electric Illuminating Company  
Perry 1, 2 (50-440, 50-441)

Commonwealth Edison Company  
Braidwood 1, 2 (50-456, 50-457)  
Byron 1, 2 (50-454, 50-455)  
Dresden 1, 2, 3 (50-10, 50-237, 50-249)  
La Salle 1, 2 (50-373, 50-374)  
Quad-Cities 1, 2 (50-254, 50-265)  
Zion 1, 2 (50-295, 50-304)

Consumers Power Company  
Big Rock Point (50-155)  
Midland 1, 2 (50-329, 50-330)  
Palisades (50-255)

Dairyland Power Cooperative  
LACBWR (50-409)

Detroit Edison Company  
Fermi 2 (50-341)

Illinois Power Company  
Clinton 1, 2 (50-461, 50-462)

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Iowa Electric Light & Power Company  
Duane Arnold (50-331)

Northern Indiana Public Service Company  
Bailey (50-367)

Northern States Power Company  
Monticello (50-263)  
Prairie Island 1, 2 (50-282, 50-306)

Ohio Edison Company  
Erie 1, 2 (50-580, 50-581)

Public Service of Indiana  
Marble Hill 1, 2 (50-546, 50-547)

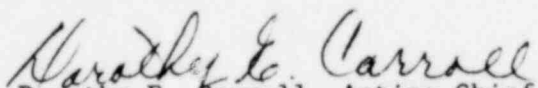
Toledo Edison Company  
Davis-Besse 1 (50-346)

Union Electric Company  
Callaway 1, 2 (50-483, 50-486)

Wisconsin Electric Power Company  
Point Beach 1, 2 (50-266, 50-301)

Wisconsin Public Service Corporation  
Kewaunee (50-305)

Sincerely,

  
Dorothy E. Carroll, Acting Chief  
Administrative Branch

Enclosure: IE Information Notice  
No. 79-36

cc w/encl:  
Mr. D. W. Kane,  
Sargent & Lundy  
Central Files  
Reproduction Unit NRC 20b  
Local PDR  
NSIC  
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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT  
WASHINGTON, D.C. 20555

SSINS No.: 6870  
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7910250519

December 31, 1979

IE Information Notice No. 79-36

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.

Enclosure: List of Recently  
Issued Information Notices

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RECENTLY ISSUED  
IE INFORMATION NOTICES

| Information Notice No. | Subject   | Date Issued | Issued To   |
|------------------------|---|-------------|---|
| 79-35                  | Control of Maintenance and Essential Equipment                                    | 12/31/79    | All power reactor facilities with an OL or CP                                   |
| 79-34                  | Inadequate Design of Safety-Related Heat Exchangers                               | 12/27/79    | All holders of power reactor OLs and CPs  |
| 79-33                  | Improper Closure of Primary Containment Access Hatches                            | 12/21/79    | All power reactor facilities holding OLs and CPs                                |
| 79-32                  | Separation of Electrical Cables for HPCI and ADS                                  | 12/21/79    | All power reactor facilities holding OLs and CPs                                |
| 79-31                  | Use of Incorrect Amplified Response Spectra (ARS)                                 | 12/13/79    | All holders of power reactor OLs and CPs  |
| 79-30                  | Reporting of Defects and Noncompliance, 10 CFR Part 21.                           | 12/6/79     | All power reactor facilities holding OLs and CPs and vendors inspected by LCVIP |
| 79-29                  | Loss of NonSafety-Related Reactor Coolant System Instrumentation During Operation | 11/16/79    | All power reactor facilities holding OLs or CPs                                 |
| 79-28                  | Overloading of Structural Elements Due to Pipe Support Loads                      | 11/16/79    | All power reactor facilities with an OL or CP                                   |
| 79-27                  | Steam Generator Tube Ruptures At Two PWR Facilities                               | 11/16/79    | All power reactor facilities holding OLs and CPs                                |
| 79-12A                 | Attempted Damage To New Fuel Assemblies   | 11/9/79     | All Fuel Facilities, research reactors, and power reactors with an OL or CP     |
| 79-26                  | Breach of Containment Integrity   | 11/5/79     | All power reactor facilities holding OLs and CPs                                |