



**Consumers  
Power  
Company**

**James W Cook**

*Vice President - Projects, Engineering  
and Construction*

General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-0453

December 8, 1983

Harold R Denton, Director  
Office of Nuclear Reactor Regulation  
US Nuclear Regulatory Commission  
Washington, DC 20555

MIDLAND ENERGY CENTER  
MIDLAND DOCKET NOS 50-329, 50-330  
EQUIPMENT QUALIFICATION  
FILE: B3.11 SERIAL: 26462

REFERENCE: LETTER FROM M A Miller (NRC) TO APPLICANT DATED 9/29/83

The NRC informally requested information regarding the location of safety-related equipment with respect to local break zones at the Midland Plant. The request and a preliminary response to the question was given in a telephone conversation with the NRC as noted in the brief and generalized summary provided in the referenced letter. This letter is provided to augment that informal response by providing a detailed description of the Midland licensing position on the subject. The following discussion documents the Midland position.

The failure of piping containing high energy fluid as defined in FSAR Section 3.6.1.a could lead to damage to surrounding systems, structures and equipment. The effects of such piping failures including pipe whip, fluid jet impingement, steam and/or water flooding, asymmetric cavity pressures, compartment pressurization and environmental effects have been analyzed to assure the following:

- a. The ability to safely shut down the reactor and maintain it in a safe shutdown condition.
- b. A high energy pipe break which does not constitute a loss of reactor coolant must not cause an unisolable loss of reactor coolant.
- c. A steam or feedwater line break must not cause a reactor coolant system pipe break or vice versa (ie, there shall be no simultaneous primary system and secondary system loss of fluid pressure boundary).
- d. A main steam line, auxiliary steam line, main feedwater line, or auxiliary feedwater line break in one steam generator system must not

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cause a main steam line, auxiliary steam line, main feedwater line, or auxiliary feedwater line break in the other steam generator system.

- e. Seismic Category I structures necessary to safely shut down the reactor and maintain it in a safe shutdown condition or to mitigate the consequences of postulated piping failures must be adequately designed to withstand (or be protected against) pipe whip and environmental effects of the rupture of high energy piping located in the near vicinity.
- f. Resultant doses are below the guideline values of 10 CFR 100.

The safety-related structures/equipment have been identified and categorized with respect to presence within a local break zone. Those safety-related structures/equipment identified as potential targets (ie, found to be subjected to jet impingement, pipe whip) were subjected to failure analyses which included such considerations as:

- a. redundancy of safety-related channels
- b. ability to withstand jet impingement force and temperature
- c. protective measures

For those subsequent failures that are adequately compensated by redundant equipment or auxiliary supporting features, no protective measures were initiated. Those safety-related structures/equipment which have been determined to withstand the jet impingement forces and temperatures with no effects, no protective measures were required.

In some cases, preliminary evaluations have shown that the safety-related structures/equipment will be subjected to jet-impingement forces that result in failures that are not consistent with the six aforementioned acceptance criteria. In these cases, protective measures are being evaluated in accordance with the protective measures defined in FSAR section 3.6.1.1.5 which includes:

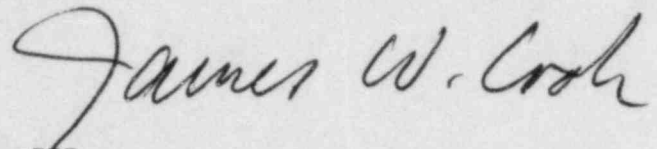
- a. separation
- b. barriers, shields and enclosures
- c. piping restraint protection

The protective measure evaluations are being performed on a case by case basis to assure compliance with Branch Technical Position APCSB 3-1 with exceptions as noted in FSAR section 3.6.1.1.5.

It is intended that this detailed information should augment and clarify CPCo's previous informal response to the NRC on the location of safety-related equipment with respect to local break zones. Should any further questions on

CPCo's position on this topic arise, please feel free to contact us for resolution.

JWC/MFC/bjw

A handwritten signature in cursive script that reads "James W. Cook". The signature is written in dark ink and is positioned to the right of the typed distribution list.

CC RJCook, Midland Resident Inspector  
JGKeppler, Administrator, NRC Region III  
DSHood, USNRC, Licensing Branch No 4  
MAMiller, USNRC, Licensing Branch No 4

CONSUMERS POWER COMPANY  
Midland Units 1 and 2  
Docket No 50-329, 50-330

Letter Serial 26462 Dated December 8, 1983

At the request of the Commission and pursuant to the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974, as amended and the Commission's Rules and Regulations thereunder, Consumers Power Company submits information regarding the location of safety-related equipment with respect to local break zones at the Midland Plant.

CONSUMERS POWER COMPANY

By JW Cook  
J W Cook, Vice President  
Projects, Engineering and Construction

Sworn and subscribed before me this 12 day of December, 1983

Barbara R. Ransom  
Notary Public  
Jackson County, Michigan

My Commission Expires September 8, 1984