

# GENERAL ELECTRIC

NUCLEAR ENERGY  
PROJECTS DIVISION

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KWC-019-79

MFN-186-79

July 19, 1979

US Nuclear Regulatory Commission  
Division of System Safety  
Office of Nuclear Reactor Regulation  
Washington, DC 20555

Attention: Dr. Fuat Odar

Gentlemen:

SUBJECT: VOID FRACTION INFORMATION REQUESTED BY  
THE STAFF FOR ODYN REVIEW

Reference: Letter, MFN123-79, K. W. Cook to R. L. Tedesco,  
"Clarification of Odyn Model Uncertainties,"  
Dated April 30, 1979

The void fraction information contained in the attachment to this letter was telecopied to the staff on June 26, 1979. This information was provided in response to the staff request for additional clarification of the uncertainty in the neutron effective void correlation discussed in the reference letter.

If you have any questions regarding this transmittal, I would be pleased to review the information with you.

Very truly yours,

*K. W. Cook*

K. W. Cook, Sr. Licensing Engineer  
Special Projects Licensing  
Safety and Licensing Operation

KWC:vm/1259

Attachment

cc: L. S. Gifford

(4) 457 022 X601  
7907250320  
R. TEDESCO !!  
F. COFFMAN !!  
M. MONTAGNA !!

ATTACHMENT

The following table and figure provide void fraction data for three cases:

- 1) The base case is the NEV fraction using the current correlation. The axial power distribution for this case is the one labeled "Neutron Effective  $C_0$ " in the reference letter.
- 2) The second case shows the void fraction which results from using the base case axial power shape with the constant  $C_0$  to generate the void fraction.
- 3) The altered void fraction will change the axial power distribution, as shown in Figure 3 of the reference letter, which will converge to a new void fraction distribution. The third case lists the void fraction using the constant  $C_0$  and the axial power shape labeled "Constant  $C_0$ " in Figure 3 of the reference letter.

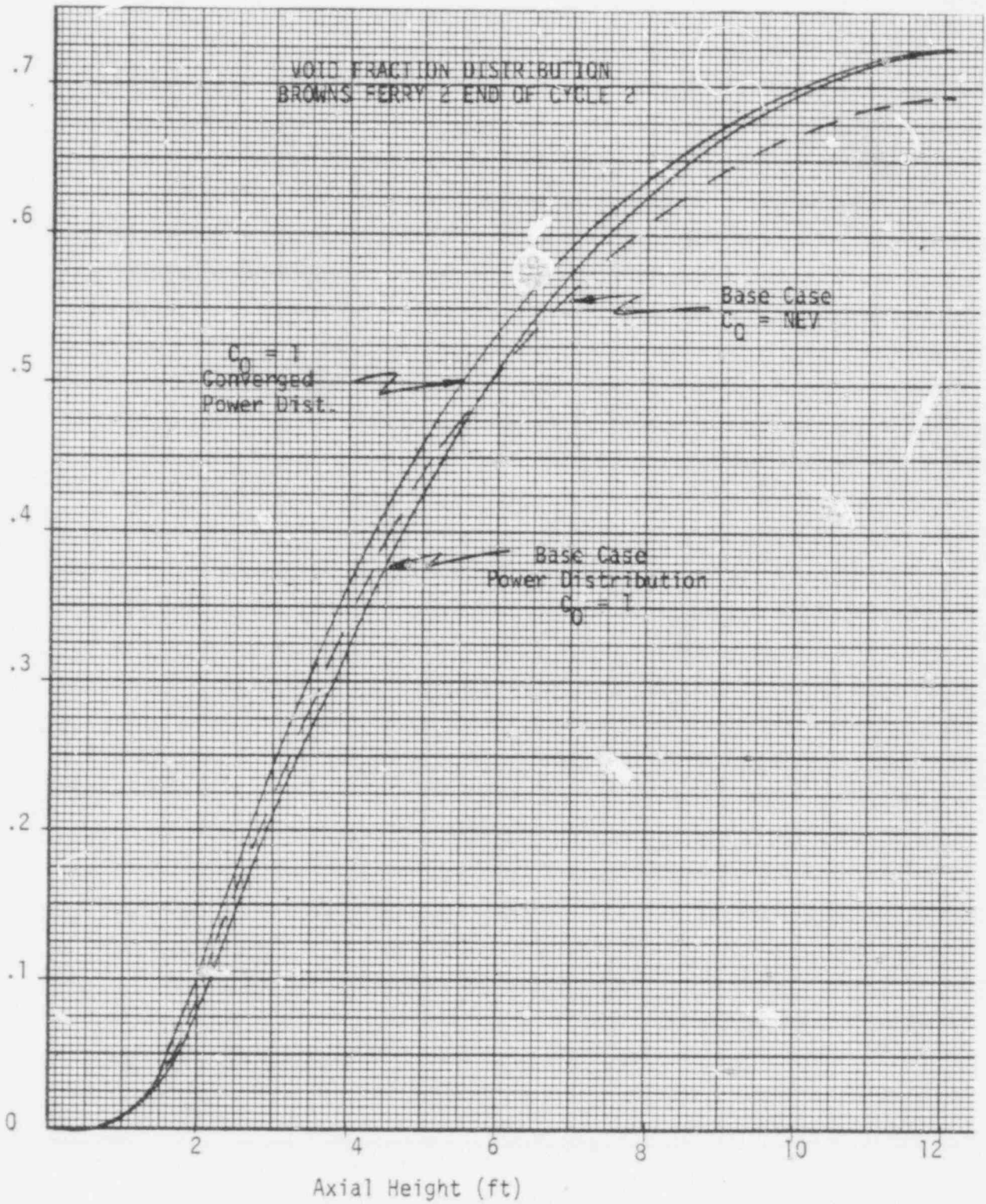
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"NEUTRON EFFECTIVE" VOID FRACTIONS

Node	Base Case NEV Co Converged Power Shape		Co = 1.0 Base Case Power Shape	Co = 1.0 Converged Power Shape
1	0.		0.	0.
2	.0019		.0010	.0028
3	.0212		.0142	.0238
4	.0671	2 ft.	.0519	.0732
5	.1291		.1092	.1402
6	.1949		.1748	.2109
7	.2582		.2410	.2781
8	.3167	4 ft.	.3039	.3394
9	.3697		.3621	.3943
10	.4168		.4144	.4428
11	.4583		.4607	.4852
12	.4946	6 ft.	.5012	.5222
13	.5263		.5366	.5542
14	.5539		.5672	.5820
15	.5779		.5490	.6062
16	.5991	8 ft.	.6174	.6274
17	.6178		.6380	.6461
18	.6345		.6564	.6627
19	.6494		.6726	.6774
20	.6626	10 ft.	.6869	.6905
21	.6741		.6993	.7018
22	.6837		.7096	.7112
23	.6911		.7176	.7180
24	.6958	12 ft.	.7227	.7229

457 024

VOID FRACTION



POOR ORIGINAL

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