

AUG 16 1983

Mr. E. P. Rahe, Jr., Manager
Westinghouse Electric Corporation
Box 355
Pittsburgh, Pennsylvania 15230

Dear Mr. Rahe:

Subject: Request Number 2 for Additional Information on WCAP-10079,
"NOTRUMP, A Nodal Transfer Small Break and General Network
Code"

We are currently reviewing the Westinghouse Electric Corporation Licensing
Topical Report WCAP-10079 entitled "NOTRUMP, A Nodal Transfer Small Break
and General Network Code".

The initial review reveals the need for the additional information indicated
in the enclosure. In order to complete this review within the current
scheduled time, responses to all questions should be received by NRC by
October 10, 1983. Please advise D. H. Moran at (301) 492-9777 if this date
is unacceptable.

Sincerely,

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Cecil O. Thomas, Chief
Standardization & Special
Projects Branch
Division of Licensing

Enclosure:
As stated

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OFFICE	DL:SSPB	DL:SSPB	DL:SSPB				
SURNAME	PAnderson:cc	DH Moran	C Thomas				
DATE	8/10/83	8/15/83	8/16/83				

REQUEST FOR ADDITIONAL INFORMATION
RELATING TO WCAP-10079, "NOTRUMP,
A NODAL TRANSIENT SMALL BREAK NETWORK CODE,"
November 1982

440.68 The staff has detected several errors which may only be typographical in nature, but which require assurances that they have not been programmed as such within the code. Identify each of the following comments as being typographical errors and that they were not programmed as such. For those items which may have been programmed incorrectly, verify that appropriate corrections have been made.

440.68.1 Page 2-2, Eqn. 2-1

The comma at the right end should be removed.

440.68.2 Page 2-2, Eqn. 2-2

A summation sign is missing. (See Eqn. 2-40.)

440.68.3 Page 6-16, Eqn. 6-74

The second equal sign should be a minus.

440.68.4 Page G-16, Eqn. G-76

The first and third $a=b^2$ expressions should read $a \neq b^2$. The second radical sign should not extend farther than c.

440.68.5 Page G-18, Eqns. G-85 and G-86

The numbers are different than in the April 1982 version of WCAP-10079. Furthermore, the coefficients 1.925 and 1.239 are different from those in eq. G-82.

440.68.6 Page L-2, Eqns. L-7 and L-8

The fs and gs should all be subscripts.

440.68.7 Page L-9, Eqn. L-41

The last line lacks brackets that similar Eqn. L-17 has.

440.68.8 Pages L-7 and L-8

X stands for quality whereas on page L-12 it stands for volume fraction.

Neither is in App. A, Nomenclature.

440.68.9 Page L-9, Eqn. L-42

The third line does not have a $k-1$ superscript as similar Eqn. L-18 has, but has a 1 that Eqn. L-18 lacks.

440.68.10 Page L-12, Eqns. L-57 and L-58

α should be δ .

440.68.11 Page L-13, Eqn. L-63

$+$ should be $=$.

440.68.12 Pages L-14 to L-20, Eqns. L-67 to L-75, L-82 to L-85, L-87, L-93 to L-96, L-100, L-101, L-103, L-107 to L-110, L-114, L-115

Many α s should be δ s, and parens, brackets, and/or horizontal bars are missing. (Refer to April 1982 version of WCAP-10079.)

440.68.13 Page L-21, 2nd paragraph

"to fluid the pressure" is meaningless.

440.68.14 Page L-23, Eqn. L-129

U_V should be U_M ; h_M should be h_V .

440.68.15 Page L-27, Eqn. L-163

U_V should be M_V .

440.68.16 Page L-28, Eqn. L-168

αM_M should be αU_M .

440.68.17 Page L-28, after Eqn. L-171, and page L-29, after Eqn. L-179

$M_M = 0$ and $M_V = 0$ should be $M_M \neq 0$ and $M_V \neq 0$, respectively.

440.68.18 Page L-29, Eqn. L-176

The first term in the parens should be negative to agree with Eqn. L-131.

440.68.19 Page L-31, Eqn. L-190

∂U_M should be ∂U_V .

440.68.20 Page M-5, Eqn. M-12

2nd term before end, a paren is missing in the denominator.

440.68.21 Page M-9, last sentence

The M_s should be a_s .

440.68.22 Page M-21, Eqn. M-97

∂W should be ∂W_k .

440.68.23 Page P-9, Eqn. P-63

The - should be +.

440.68.24 Page T-20, Eqn. T-69

The second 2 should be $\sqrt{2}$.

440.68.25 Page U-2, Eqn. U-1

The last minus sign and bracket are interchanged.

440.68.26 Page U-3, Eqn. U-21 (1st line)

A radical sign over the last two terms inside the brackets is missing.

440.68.27 Page U-9, Eqn. U-49

The radical sign should only cover the numerator.

440.69 As noted by the above questions, and those previously submitted, there appears to be some need for improving the quality assurance program applied to Topical Reports submitted by Westinghouse. We request you address what efforts will be taken to correct this deficiency such that future submittals will have minimal errors.

440.70 Equations L-17 and L-18, as documented on pages L-4 and L-5 respectively, are equations for the thermodynamic fluid properties during subcooled conditions. Provide the derivation to these equations, or if obtained from national standards, provide the references from which these equations were obtained.

440.71 As stated on page L-24, the algebra required for deriving equations L-132 through L-139 are complex. These equations are used for determining the fluid equation of state. Provide the derivations to these equations.