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February 28, 1990

Director of Nuclear Reactor Regulation
Attention: Dr. W. R. Butler, Project Director
Project Directorate I-2
Division of Reactor Projects
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION
CONTAIN CODE SUPPORT REQUEST
FILE R41-2
PLA- 3353

Docket Nos. 50-387
50-388

Dear Dr. Butler:

This letter is a follow up of our recent telephone conversation with Mr. Farouk Eltawila of the NRC Research Branch.

We have planned to use the CONTAIN code to perform severe and design basis accident analyses for the Susquehanna primary containment. To date we have not been able to make a successful CONTAIN computer run with our model, although the input deck has been carefully checked and debugged. We are confident that the input deck is now in strict conformance with the input instructions in the User's Manual. The cause of the interruptions in our latest CONTAIN computer run is presumably either code errors or deficiencies in input instructions. We have discussed this problem with Mr. Washington of the Sandia National Laboratories. His conclusion is that this problem is probably due to some code errors and it may require one man-week's effort for his staff to resolve this problem. At present they can not work on this problem unless they obtain authorization from the NRC.

From our experience in large and complex computer codes, it is conceivable to us that we will encounter more code errors and difficulties other than those already found. This is expected because CONTAIN is a relatively new code which has not been used extensively in the industry yet. In order for a new user of CONTAIN code to efficiently use it and obtain satisfactory results, it is essential that support from the code authors be available in addition to the User's Manual.

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P PNC

Add: F. ELTAWILA A001
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By copy of this letter to Mr. Eltawila, we would be very grateful if he would authorize the staff of the Containment Modeling Division at the Sandia National Laboratories to support us, as one of the CONTAIN code users, on an as-needed basis for the next six months. We will limit our requests to support for eliminating code errors leading to a successful CONTAIN computer run.

A portion of the error file in the printout of our latest CONTAIN computer run is enclosed for your reference.

Very truly yours,



H. W. Keiser

Attachment

TSY/law
lt0208a.tsy

cc: NRC Document Control Desk (original) ;
NRC Region I
Mr. G. S. Barber, NRC Sr. Resident Inspector
Mr. M. C. Thadani, NRC Project Manager
Mr. Farouk Eltawila, NRC Chief, Branch of Research

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INPUT CARD      ++++++      && OF MATERIAL SOURCES TO THE POOL.      ++++++
INPUT CARD      ++++++      && PROVIDE DATA; SEE REF. 2      ++++++
INPUT CARD      ++++++      &&      ++++++
INPUT CARD      ++++++      && Q-VOL ** THIS ACTIVATES THE PARAMETER      ++++++
INPUT CARD      ++++++      && TABLE OPTION FOR DEFINING A      ++++++
INPUT CARD      ++++++      && VOLUMETRIC HEAT SOURCE IN POOL      ++++++
INPUT CARD      ++++++      && LAYER. SEE REF 3, PG 3-66.      ++++++
INPUT CARD      ++++++      && PROVIDE DATA.      ++++++
INPUT CARD      ++++++      && EOI TERMINATOR FOR Q-VOL      ++++++
INPUT CARD      ++++++      &&      ++++++
INPUT CARD      ++++++      && HT-COEF ** THIS ACTIVATES PARAMETER TABLE      ++++++
INPUT CARD      ++++++      && OPTION TO OVERRIDE THE DEFAULT      ++++++
INPUT CARD      ++++++      && HEAT TRANSFER COEF BETWEEN THIS      ++++++
INPUT CARD      ++++++      && LAYER & THE ONE ABOVE IT.      ++++++
INPUT CARD      ++++++      && REF 3, PG 3-66. PROVIDE DATA.      ++++++
INPUT CARD      ++++++      && EOI TERMINATOR FOR HT-COEF      ++++++
INPUT CARD      ++++++      &&      ++++++
INPUT CARD      ++++++      && EOI **      ++++++
INPUT CARD      ++++++      && TERMINATOR FOR PHYSICS BLOCK      ++++++
INPUT CARD      ++++++      &&      ++++++
INPUT CARD      ++++++      && EOI      ++++++
INPUT CARD      ++++++      && TERMINATOR FOR POOL BLOCK      ++++++
INPUT CARD      ++++++      &&      ++++++
INPUT CARD      ++++++      BC = 328.72 && INITIATES SPECIFICATION OF      ++++++
INPUT CARD      ++++++      && SUBSTRUCTURE BOUNDARY CONDITION      ++++++
INPUT CARD      ++++++      && REF 3, PG 3-48 & REF 1, PG2-39      ++++++
INPUT CARD      ++++++      &&      ++++++
INPUT CARD      ++++++      && EOI      ++++++
INPUT CARD      ++++++      && TERMINATOR FOR LOWER CELL OF CELL # 2      ++++++
INPUT CARD      ++++++      &&      ++++++
INPUT CARD      ++++++      && START OF ENGINEERING SYSTEMS SPECIFICATIONS FOR CELL # 2.      ++++++
INPUT CARD      ++++++      && SEE REF 3, PG 3-68 & 2-134      ++++++
INPUT CARD      ++++++      &&      ++++++
INPUT CARD      ++++++      ENGINEER      ++++++
INPUT CARD      ++++++      && ONMSYS NUMCOM ICLIN ICLOUT DELEV      ++++++
INPUT CARD      ++++++      FAN2 1 2 2 0.0000 && REF 1, PG 2-44      ++++++
INPUT CARD      ++++++      &&      ++++++
INPUT CARD      ++++++      FANCOOL CONDENSE && SEE REF 3, PG 3-71, 72 & 2-140      ++++++
INPUT CARD      ++++++      FCQR = 152412.0 && REF 1, PG2-45      ++++++
INPUT CARD      ++++++      FCTCLI = 283.167 && REF 1, PG2-45      ++++++
INPUT CARD      ++++++      FCHNTR = 1500.      ++++++
INPUT CARD      ++++++      FCCLMD = 442.167      ++++++
INPUT CARD      ++++++      && EOI      ++++++
INPUT CARD      ++++++      && TERMINATOR FOR FAN COOLER      ++++++
INPUT CARD      ++++++      &&      ++++++
INPUT CARD      ++++++      && EOI      ++++++
INPUT CARD      ++++++      && TERMINATOR FOR ENGINEERING SYSTEM      ++++++
>
>>>> ABORT CALLED BY SUBROUTINE <ICELL1 >
>
>>>> THE LAST WORD READ-IN WAS <EOI >
>
>>>> THE OUT OF SEQUENCE WORD IS EOI
>
INPUT CARD      ++++++      &&      ++++++
INPUT CARD      ++++++      ENGINEER      ++++++
INPUT CARD      ++++++      && ONMSYS NUMCOM ICLIN ICLOUT DELEV      ++++++
INPUT CARD      ++++++      EXCESS2 1 2 3 3.0519 && REF 1, PG 2-44      ++++++
INPUT CARD      ++++++      &&      ++++++
INPUT CARD      ++++++      OVERFLOW && SEE REF 3, PG 3-76 & REF 1, PG 2-44      ++++++
INPUT CARD      ++++++      2 3 .0005      ++++++
INPUT CARD      ++++++      &&      ++++++
INPUT CARD      ++++++      && EOI      ++++++
INPUT CARD      ++++++      && TERMINATOR FOR ENGINEERING SYSTEM      ++++++
INPUT CARD      ++++++      &&      ++++++
INPUT CARD      ++++++      && *****      ++++++
INPUT CARD      ++++++      && *      ++++++
INPUT CARD      ++++++      && * CELL 3 - DRYWELL IN-PEDESTAL REGION : 703'11" TO 714' 1/2" *      ++++++
INPUT CARD      ++++++      && *      ++++++
INPUT CARD      ++++++      && *****      ++++++
INPUT CARD      ++++++      && *      ++++++
INPUT CARD      ++++++      CELL = 3      ++++++
INPUT CARD      ++++++      CONTROL && SEE REF 3, PG 3-31      ++++++
INPUT CARD      ++++++      NHTM = 5 MXSLAB = 10 && SEE REF 1, PG 3-01&02      ++++++
INPUT CARD      ++++++      && FOLLOWING RUN DEPENDENT VARIABLES AREN'T USED IN THIS DECK      ++++++
INPUT CARD      ++++++      && NSOPL = NSPPL = ** SEE REF 1, PG 3-03      ++++++
INPUT CARD      ++++++      && NSOATM = NSPATM = ** SEE REF 1, PG 3-03      ++++++
INPUT CARD      ++++++      && NSOSPR = NSPSPR = ** SEE REF 1, PG 3-03      ++++++

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INPUT CARD **** && *****
INPUT CARD **** && *
INPUT CARD **** && * CELL 5 - DRYWELL EX-PEDESTAL REGION : 703'11" TO 714' 1/2" *
INPUT CARD **** && *
INPUT CARD **** && *****
INPUT CARD **** CELL = 5
INPUT CARD **** CONTROL && SEE REF 3, PG 3-31
INPUT CARD **** NHTM = 4 MXSLAB = 20 && SEE REF 1, PG 5-01&02
INPUT CARD **** && FOLLOWING RUN DEPENDENT VARIABLES AREN'T USED IN THIS DECK
INPUT CARD **** && NSOP1 = NSPP1 = ** SEE REF 1, PG 5-02
INPUT CARD **** && NSOATH = NSPATM = ** SEE REF 1, PG 5-02
INPUT CARD **** && NSOSPR = NSPSPR = ** SEE REF 1, PG 5-03
INPUT CARD **** && NSOAEER = NSPAER = ** SEE REF 1, PG 5-03
INPUT CARD **** && NSOFP = NSPFP = ** SEE REF 1, PG 5-04
INPUT CARD **** && FOLLOWING RUN DEPENDENT VARIABLES ARE USED IN THIS DECK
INPUT CARD **** NAENSY = 2 NSOENG = 0 && SEE REF 1, PG 5-05
INPUT CARD **** NSPENG = 0 JCONC = 17 && SEE REF 1, PG 5-05&06
INPUT CARD **** JINT = 1 JPOOL = 1 && SEE REF 1, PG 5-06
INPUT CARD **** NUMTBC = 0 MAXTBC = 0 && SEE REF 1, PG 5-07
INPUT CARD **** NRAYCC = 37 NVFPSM = 0 && SEE REF 1, PG 5-07
INPUT CARD **** && FOLLOWING RUN DEPENDENT VARIABLES AREN'T USED IN THIS DECK
INPUT CARD **** && NSOSAT = NSPSAT = ** SEE REF 1, PG 5-08
INPUT CARD **** && NSOSAE = NSPSAE = ** SEE REF 1, PG 5-08
INPUT CARD **** && NSOSFP = NSPSFP = ** SEE REF 1, PG 5-08
INPUT CARD **** EOI

>>>>> CHARACTER BLANK COMMON IS TOO SMALL ... 689 IS GREATER THAN 0
>>>>> CHANGE VALUE OF <JCSPAC> IN COMDECK /SPACE/ AT LINE '/SPACE/.5'

ICPERM: (LO,ISIZ,LCBAS,JCSPAC)=(688 1 689 0)

>>>>> ABORT CALLED BY SUBROUTINE <ICPERM >
>>>>> THE LAST WORD READ IN HAS <EOI >

>>>>> INTEGER BLANK COMMON IS TOO SMALL ... 4340 IS GREATER THAN 0
>>>>> CHANGE VALUE OF <JISPAC> IN COMDECK /SPACE/ AT LINE '/SPACE/.9'

IIPERM: (LO,ISIZ,LIBAS,JISPAC)=(4288 52 4340 0)

>>>>> ABORT CALLED BY SUBROUTINE <IIPERM >
>>>>> THE LAST WORD READ IN HAS <EOI >

>>>>> LOGICAL BLANK COMMON IS TOO SMALL ... 796 IS GREATER THAN 0
>>>>> CHANGE VALUE OF <JLSPAC> IN COMDECK /SPACE/ AT LINE '/SPACE/.17'

ILPERM: (LO,ISIZ,LLBAS,JLSPAC)=(795 1 796 0)

>>>>> ABORT CALLED BY SUBROUTINE <ILPERM >
>>>>> THE LAST WORD READ IN HAS <EOI >

>>>>> REAL BLANK COMMON IS TOO SMALL ... 26831 IS GREATER THAN 0
>>>>> CHANGE VALUE OF <JRSPAC> IN COMDECK /SPACE/ AT LINE '/SPACE/.13'

IRPERM: (LO,ISIZ,LRBAS, JRSPAC)=(26830 1 26831 0)

>>>>> ABORT CALLED BY SUBROUTINE <IRPERM >
>>>>> THE LAST WORD READ IN HAS <EOI >

>>>>> INTEGER BLANK COMMON IS TOO SMALL ... 4375 IS GREATER THAN 0



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