May 10, 1994
G-1151-RSO-94-135

Document Control Desk
United States Nuclear Regulatory Commission
Washington, D.C. 20555

BOEING

Reference:　a)　Boeing Letter G-1551-RSO-365 dated August 31, 1992;
R. S. Orr to the NRC Operations Center

　　　　　　　b)　NRC Letter Docket No. 99901227 dated August 12,
1992; L. J. Norrholm to R. S. Orr; Subject: Response to
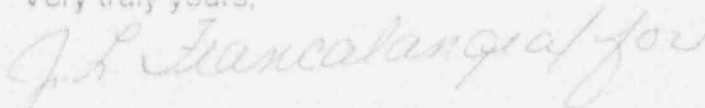10 CFR 21 Inquiry

Dear Sir or Madam:

In accordance with the reference correspondence and 10 CFR 21, Boeing is
sending the NRC the attached error notice(s) received from our former
software suppliers. Because of unknown current addresses, the following
former customers were not notified:

　　　Reactor Controls, Inc.

　　　Echo Energy Consultants, Inc.

　　　Nuclear Applications and Systems Analysis Company (Japan)

　　　Nuclear Power Services

Error notices have been sent to our other former customers.

Very truly yours,
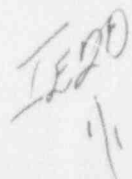
J. L. Francalangia/for

R. S. Orr
Nuclear Administrator
G-1151 M/S 7A-33
(206) 865-6248

Attachment(s):　　ANSYS Class3 Error Reports 94-17, 94-18, 94-19 and
94-20. Also ANSYS QA Notices QA94-05 and QA94-06

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ANSYS® CLASS3 ERROR REPORT

KEYWORDS: *PIPEXX*   *ETABLE*   *LOAD*   *TEMPERATURE*   *FLUENCES*

DESCRIPTION OF ERROR:

The ETABLE information for temperature and fluence loads is documented in the incorrect order for all pipe elements (PIPE16, 17, 18, 20, 59, and 60). The correct order for the applicable data is:

((T90,T180,T270,T0) OUT,IN) at end I, at end J, for temperatures,

and ((F90,F180,F270,F0) OUT,IN) at end I, at end J, for fluences.

FIRST INCORRECT VERSION(S):*

Rev. 5.0
ANSYS/LinearPlus Rev. 5.0A

CORRECTED IN:*

Rev. 5.0 Commands and Elements
  Manuals, Upd0, Printing 5

SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

Use the order of temperatures and fluences as given above.
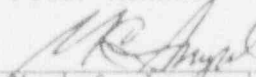
COMMENTS:

The on-line documentation for all pipe element ETABLE items (including the output from the ETEXP command) contains this same error and will be corrected in Rev. 5.1.

AUTHOR/CORRECTOR: _____   DATE: April 29, 1994
                        Peter Kohnke

REVIEWED BY QA: _____   DATE: April 29, 1994
                      Mark C. Imgrund

APPROVAL: _____   DATE: April 29, 1994
                  John A. Swanson

*If a product name is not included in the "first incorrect version", the full ANSYS program is implied. For products not listed, this error does not apply, but see the reverse side for equivalent product designations.

Unless noted otherwise, this error report also applies to all revisions after the first incorrect one and prior to the corrected revision. All revisions after "corrected in" are corrected. Manual corrections are included in on-line documentation as appropriate. Please see the reverse side of this sheet for additional information on ANSYS revision identifiers.

KEYWORDS: *FLUID29   FLUID30   ELEM29   ELEM30   ACOUSTICS   DYNAMICS*

DESCRIPTION OF ERROR:

Transient, harmonic, or modal acoustical analyses (ANTYPE=TRANS, HARMIC or MODAL) will produce erroneous results when both the following conditions are met:

1. The TEMP or VOLT degree of freedom (DOF) is active (DOF or ET commands), for example, in a coupled piezo-acoustic analyses;

and 2. KEYOPT(2) is set to 1 to turn off the displacement DOF's in FLUID29 and FLUID30 elements.

FIRST INCORRECT VERSION(S):*   CORRECTED IN:*

Rev. 5.0A   Rev. 5.1

SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

If a coupled piezo-acoustic analysis involving VOLT or TEMP DOF's needs to be performed, use FLUID29 and FLUID30 elements with KEYOPT(2)=0 [default].

COMMENTS:

AUTHOR/CORRECTOR: _____ DATE: April 29, 1994
                    C. Rajakumar

REVIEWED BY QA: _____ DATE: April 29, 1994
                    Mark C. Imgrund

APPROVAL: _____ DATE: April 29, 1994
                    John A. Swanson

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ANSYS® CLASS3 ERROR REPORT

KEYWORDS: *PREP7*   *MPDATA*   *MPTEMP*

DESCRIPTION OF ERROR:

1. If a blank or zero value is used for any of constants C2 through C6 on the
    MPDATA command (to indicate the use of previously defined data), and
    there are no previously defined data, both the data and corresponding
    temperatures that are stored for C2 through C6 may be incorrect. This
    can occur if the first MPDATA command issued for any material property
    contains blanks or zeros for the C2 through C6 data.

2. The documentation for the MPDATA and MPTEMP commands states that "blank"
    values for C2 through C6 (for T2 through T6 on the MPTEMP command) will
    leave the corresponding previous values unchanged. The documentation
    should state that "blank or zero" values will leave the corresponding
    previous values unchanged (as was stated in documentation prior to Rev.
    5.0).

FIRST INCORRECT VERSION(S):*   CORRECTED IN:*

Rev. 5.0   For error 1: Rev. 5.1
                                          For error 2: Rev. 5.0 Commands
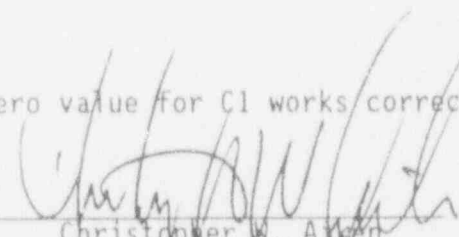   Manual, Upd0, Printing 5
Component Products Rev. 5.0A   Component Products Rev. 5.1

SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

    If a zero value is needed in either the MPDATA or MPTEMP table(s) use
C1 with a zero value.

COMMENTS:

    A blank or zero value for C1 works correctly as documented.

AUTHOR/CORRECTOR: _____ DATE: April 29, 1994
                    Christopher W. Aiken

REVIEWED BY QA: _____   DATE: April 29, 1994
                    Mark C. Imgrund

APPROVAL: _____   DATE: April 29, 1994
                    John A. Swanson

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designations.

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prior to the corrected revision. All revisions after "corrected in" are corrected. Manual corrections are
included in on-line documentation as appropriate. Please see the reverse side of this sheet for additional
information on ANSYS revision identifiers.

ANSYS® CLASS3 ERROR REPORT

KEYWORDS: *POST1* *RESUME* *RSYS* *ESYS*

DESCRIPTION OF ERROR:

In POST1, element solution results (derived data) will be displayed incorrectly for all elements defined with an element coordinate system (ESYS ≠ 0) if all of the following are true:

1. All elements in the model initially have a coordinate system parallel to the global Cartesian system.

2. An ESYS definition is then used to change one or more element coordinate systems to anything other than a global Cartesian system.

3. The database is restored after solution (SOLVE) to a pre-solution database with a RESUME command.

4. Element solution data is displayed in a results coordinate system other than solution (RSYS,SOLU). The default results coordinate system is global Cartesian (RSYS=0).

FIRST INCORRECT VERSION(S):*   CORRECTED IN:*

Rev. 5.0   Rev. 5.1
Component Products Rev 5.0A   Component Products Rev. 5.1
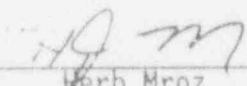
SUGGESTED USER ACTION FOR RUNNING ON UNCORRECTED VERSION:

Issue SAVE after solution or unselect elements with ESYS ≠ 0.

COMMENTS:

Element coordinate system's are discussed in the ANSYS User's Manual, Volume III - Elements.

Degree of freedom results (primary solution data) are correct.

AUTHOR/CORRECTOR: _____   DATE: April 29, 1994
                        Herb Mroz

REVIEWED BY QA: _____   DATE: April 29, 1994
                     Mark C. Imgrund

APPROVAL: _____   DATE: April 29, 1994
                   John A. Swanson

*If a product name is not included in the "first incorrect version", the full ANSYS program is implied. For products not listed, this error does not apply, but see the reverse side for equivalent product designations.

Unless noted otherwise, this error report also applies to all revisions after the first incorrect one and prior to the corrected revision. All revisions after "corrected in" are corrected. Manual corrections are included in on-line documentation as appropriate. Please see the reverse side of this sheet for additional information on ANSYS revision identifiers.

ANSYS QA NOTICE

SUBJECT: *THERMAL*   *RADIATION*   *AUX12*

DESCRIPTION:

This notice is intended to clarify usage of the space node in a thermal analysis using the AUX12 Radiation Matrix Utility.

There are two factors which, under some circumstances, can significantly exaggerate numerical inaccuracies in the radiation heat transfer to the space node.

1. If a space node is present in a model, all radiation from a surface which does not strike other surfaces in the model is assigned to the space node. This is calculated by summing all the form factors from one surface to all others in the model and subtracting from unity to obtain the form factors from the surface to the space node. As a consequence, the inaccuracy in the form factors from surface to space node is the sum of the inaccuracies in the other form factors. If the true form factor to the space node is near zero, the relative error may be quite large.

2. The radiation to the space node is the product of the form factor, the difference of the temperatures to the fourth power, and some other scalar factors. If the temperature difference is large, and the relative error in the form factor from surface to space node is large, a significant inaccuracy in the radiation to the space node results.

To avoid these situations, the following recommendations are made:

For a "closed" system in which all the radiating surfaces form an enclosure and do not radiate to "space", DO NOT use a space node.

For an "open" system in which there may be some losses to "space", a space node (with a specified temperature) may be used to capture the lost radiation. In any case, refining the mesh for the radiating surface increases the accuracy. Not using the space node in an open system may also be valid for some analyses. This simulates radiation heat transfer only between the radiating surfaces and does not account for the radiation to space.

COMMENTS: At Rev. 5.1 the accuracy of the non-hidden (fast) method has been improved significantly to eliminate this problem.

AFFECTED VERSIONS: Rev. 4.4 through Rev. 5.0A

AUTHOR: _Prashant Ambe_   DATE: April 29, 1994
                  Prashant Ambe

REVIEWED BY QA: _____   DATE: April 29, 1994
                  Mark C. Imgrund

APPROVAL: _____   DATE: April 29, 1994
                  John A. Swanson

ANSYS QA NOTICE

SUBJECT: *SOLUTION   DSYM   DL   DA   NODAL COORDINATES*

DESCRIPTION:

If POST1 is used to examine results from a solution performed with nodal rotation angles different from those presently stored in the ANSYS database, incorrect results may be listed or displayed.

This condition can result from applying symmetry or antisymmetry boundary conditions with the commands DSYM, DL, or DA (which may perform nodal rotations) in a 2nd or later load step.

Erroneous cases display the following message in POST1 when the SET command is executed:
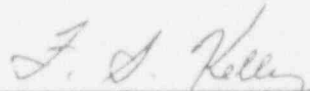
WARNING
Cumulative iteration 1 may have been solved using different model or
boundary condition data than is currently stored. POST1 results may
be erroneous unless you RESUME from a .db file matching this solution.

Correct POST1 results can be obtained by following the instructions in the WARNING.

The documentation of ANSYS Rev. 5.1 will describe the possible implications of nodal rotation angle changes.

AFFECTED VERSIONS: Rev. 5.0 - Rev. 5.0A,
                       ANSYS Component Products, Rev. 5.0 - Rev. 5.0A

AUTHOR: _____   DATE: April 29, 1994
                F. S. Kelley

REVIEWED BY QA: _____   DATE: April 29, 1994
                Mark C. Imgrund

APPROVAL: _____   DATE: April 29, 1994
                John A. Swanson