PENNDOT e-Notification

Bureau of Design
Bridge Quality Assurance Division

PAPIER No. 001 August 6, 2002	**Program Terminating With "Invalid Limit/Group Number in LDFGLDAP" Error Message**

An issue has been identified in which the PAPIER computer program terminates with the error message "Invalid Limit/Group Number in LDFGLDAP" under certain conditions. The error occurs whenever a user-defined load is specified for a limit state/group load that is considered not applicable for typical, internally-computed loadings, as further discussed below.

In order to minimize execution run time, the program scans the input file and determines if some limit states/group loads are not applicable and, therefore, do not have to be evaluated. For example, the program only performs the Strength-VI limit state combination of forces if ice loading has been specified via the WAL command; otherwise, the limit state is trivial.

The error occurs because in Version 1.1, the program fails to consider user-defined loads (entered using the UCP, UFR, UCL, UIC and UBR commands in conjunction with the LFR or LFF command) when determining the applicability of a limit state/group load.

Another aspect of the current functionality of the program contributing to the problem is that the Extreme-II limit state is only considered applicable if ice loading is present, since vessel collision (CV) and vehicular collision (CT) forces are not explicitly considered.

EXAMPLE

Consider the following input file scenario:

- A WAL command is not specified.

- A user-defined loading is specified via the UCL command in order to model a 400-kip vehicular collision loading applied to the pier column.

- Using the LFR command, the user-defined loading is added to the EXT-II limit state.

The above scenario results in the error because the program does not consider the EXT-II limit state applicable, and therefore, is not evaluated. The EXT-II limit state is not considered applicable because no ice loading has been defined via a WAL command. Currently, the program fails to recognize that a user-defined loading has been included in the EXT-II limit state, which would make it applicable.
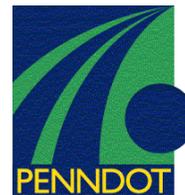
WORKAROUND

There are two workarounds to the problem.

The first workaround is to enter a small, dummy internally-computed loading so that the program would consider the limit state/load group applicable. In the example above, if the user were to specify a mean water level, an ice thickness value and an ice crushing strength value via the WAL command, the program would consider the EXT-II limit state applicable. By entering a very small value for the ice crushing strength, such as 0.1 ksf, the affect on the results due to the ice loading would be insignificant.

The major problem with this workaround is that it is not always obvious what internal loading needs to be defined in order for the offending limit state/group load to be consider applicable by the program.

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The second workaround is to include the user-defined loading in a user-defined limit state created using the 'L' option for Parameter 1 in the LFR (or LFF) command.

CORRECTIVE ACTION

The fix for this error has already been made to the development version of the next release. The program will consider user-defined loadings in addition to the standard internally-computed loadings when evaluating the applicability of a limit state/group load.

Direct any questions concerning the above issues to:

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