

May 10, 2001

MEMORANDUM TO: David Terao, Chief
Component and Containment Reliability Section
Mechanical & Civil Engineering Branch
Division of Engineering

FROM: Hans Ashar, Sr. Structural Engineer */RA/*
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SUBJECT: TRIP REPORT: IAEA CONSULTANTS' MEETING ON
"INTERNATIONAL DATABASE ON CONCRETE STRUCTURES" IN
VIENNA, AUSTRIA, APRIL 23 TO 26, 2001

Background: In response to requests for assistance from Member States which have operating nuclear power plants (NPPs), and to facilitate the international exchange of information on behavior of key components, a program on the reliability of reactor components has been established by the IAEA.

The objective of the program is to advance the understanding of degradation mechanisms encountered in nuclear power plant operation. The initial focus of the program was the major degradation mechanism and irradiation embrittlement of the reactor pressure vessel. The scope of the program has now been expanded to include nuclear power plant components important to the safety and reliability of operation. International Database on reactor pressure vessel material (IDRPVM) was completed in 1996. International database on piping (only NSSS) of NPPs (IDPNPP) was completed in 1999. International database on steam generators (IDSG) is being worked on in 2000-2001. The first consultants' meeting was held in Vienna, on September 25-27, 2000. During that period, the consultants developed seven tables with ten attachments that the member participant needed to fill up. Also, a draft legal framework which describes the rights and responsibilities of participating members and IAEA, provisions to keep the requested information confidential, and the methods of providing the requested data was developed. IAEA had sent draft legal framework and the Tables to the member states for comments in December 2000.

The essential agenda items for this meeting consisted of (1) the finalization of the draft legal framework, (2) Review and resolution of the comments received from the member states, (3) finalization of the input Tables and Attachments, (4) discussion of the database software, and selection of a software developer, (5) discussion/preparation of future time schedule for the project implementation, and (6) soliciting potential contributors for the database. Items of interest are summarized as follows:

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- The international database may be used by the participating members and member states supplementing or confirming reliability of prediction methods for concrete structure performance assessment by providing a wider range of data.
- IAEA shall develop a coding system to protect confidential data. The coding/decoding list shall be retained by IAEA.
- Comments from Russia and Bulgaria related to the "Legal Framework," and technical content in the database Tables were discussed and resolved.
- The consultants, in coordination with the software developer, developed the following criteria for storing and maintaining the database:
 - 1) Use currently available software tools, like Delphi, C++ Builder or MS Visual Studio,
 - 2) the data should be stored on files in accordance with MS-Access or DBF, with future integration into Oracle database,
 - 3) ability to import and export of data should be provided,
 - 4) the developed database should be user friendly,
 - 5) the software should support SI, Metric and the U.S. Standard Units.
- Data received from the participating members will be reviewed and adjusted to be compatible to the software. This function will be performed by the consultants as distributed by the IAEA.
- IAEA is in the process of developing a software that would allow communication and information exchange between the consultants and IAEA by Internet.

The four day effort resulted in the revision of required information in the form of 7 Tables and 10 Attachments. I have the draft version of these Tables and Attachments. IAEA will send the final package to the individual plant owners (the participating members). Mr. Vjatchaslav Lyssakov, the scientific secretary of the IAEA, stated that this is the general approach taken during the collection of previous database related to the aging management of reactor vessels, steam generators, and NSSS piping. For my part, I will be providing IAEA with the public domain information, such as a list of potential participants and available structural aging data.

The IAEA is planning to call the consultants back in April 2002, after the survey results are in. The basic purpose of this meeting will be to evaluate the results, supplement the database with the available information from the earlier international conferences and workshops, and interact with the software contractor to ensure the easy accessibility of the coded information in the database.

Though I got involved in this project as part of my professional interest, and the travel expenses are paid by the IAEA as per NRC-IAEA memorandum of understanding, I believe, the availability of such a database will be useful to (NRC) in assessing our practice for maintenance inspection and aging management of concrete containments and associated structures during the license renewal reviews, as well as during the future licensing. Once the database is available, I will make efforts to have the non-confidential version available on the internal and external NRC sites. I believe, availability of such a database will enhance efficiency and effectiveness in NRC's future work

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