

November 3, 2003

MEMORANDUM TO: Bruce A. Boger, Director
Division of Inspection Program Management
Office of Nuclear Reactor Regulation

FROM: Scott F. Newberry, Director /RA/
Division of Risk Analysis and Applications
Office of Nuclear Regulatory Research

SUBJECT: INDUSTRY TRENDS FOR INITIATING EVENTS, SYSTEM
RELIABILITIES, COMPONENT RELIABILITIES, COMMON-CAUSE
FAILURES, AND FIRE EVENTS

Web pages documenting the updated industry trends for initiating events, system reliabilities, component reliabilities, common-cause failures, and fire events are now available on the NRC's internal web site for your review and use. This work was performed in accordance with NRR User Need Memorandum NRR-02-023 in support of the Industry Trends Program (ITP).

This web-based system replaces the previous paper-based systems of NUREG-series reports to provide greater stakeholder access to the information. To access the web pages, select the Office of Nuclear Regulatory Research web page, then select "Tools," and then select "Reactor Operating Experience Results and Databases." They can also be accessed from the Office of Nuclear Reactor Regulation home page by selecting "Reactor Operating Experience," and then selecting "Reactor Operating Experience Results and Databases." The web pages provide industry trends updated through FY 2002. The data collection classification, analysis, and quality assurance used in the previously issued and peer-reviewed OERAB studies (NUREG/CR-5500 series and NUREG/CR-5750) were used in the update of the trends, except that the analysis methods have been standardized for all of the studies. Figures in these pages include 90 percent confidence bands.

During the development of the web pages, we have worked with NRR and regional staff to develop the content and format of the various reports. We have received feedback regarding the content and layout of the web pages and the reports. We feel that the web page provides information that can be used by NRR, the Regions, and the resident inspectors to aid them in their assignments. In particular, we have received comments from Inspection Program Branch (IIPB) staff regarding the content and format for use in the inspection program, in the Inspector Electronic Support System (IESS), and in the Industry Trends Program. Others have provided comments regarding putting the NUREG/CR reports cited above on the web page.

Attached for your information is a review of the web page contained in the latest issue of *Risk eBusiness*, which is published by the Probabilistic Safety Assessment Branch. Other NRR staff have provided similar comments to us. They are finding the information useful, such as having current common-cause failure parameter estimates readily available to them. Senior reactor analysts have found having the latest CCF parameter estimates on the web useful to them.

We have been working with IIPB to update the NRR user need. We are in discussions with IIPB on how this information would be directly useful in the inspection process by providing both plant-specific and generic information that would be easily accessible for use by inspectors. We are also aware of the recommendations regarding the analysis of reactor operating experience data proposed by the Operating Experience Task Force. As part of the proposed user need to support both the ITP and the inspection needs, we propose to do the following:

- Continue to provide updated trends for initiating events, system reliabilities, component reliabilities, common-cause failures, and fire events. (This directly supports the ITP.)
- Provide plant-specific system reliability estimates. (This supports the inspection program and the EISS.)

In addition, we will be providing additional information for use in reliability and risk studies (e.g., component failure probabilities, component failure rates, and initiating event frequencies). This information would be used in the Accident Sequence Precursor Program, in risk and reliability evaluations, review of plant-specific risk applications, and Phase III SDP evaluations.

We look forward to continue working with you and your staff, as well as other NRC staff, in the development and expansion of our web pages. In particular, I am interested in your feedback so that we can adjust our plans and resources. If you have any questions, please contact me or Dr. Dale Rasmuson of my staff.

Attachment: As Stated

cc w/att.:

J. Strosnider/A. Thadani, RES

J. Dyer, NRR

B. Sheron, NRR

R. Borchardt, NRR

J. Craig, NRR

C. Paperiello, EDO

MEMORANDUM DATED: 11/3/03

SUBJECT: INDUSTRY TRENDS FOR INITIATING EVENTS, SYSTEM RELIABILITIES, COMPONENT RELIABILITIES, COMMON-CAUSE FAILURES, AND FIRE EVENTS

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Except from Risk eBusiness, Volume 5, October 2003

Operational Data on the NRC Intranet

A new web site has been launched on the NRC Intranet entitled, Reactor Operating Experience Results and Databases. This site pulls together 15 years worth of plant operational data that is important for assessment of risk. The information on this site was previously scattered among various NUREG reports. This site is a work-in-progress and will evolve over the next few months. Currently, the site contains updated results for a variety of previously published studies conducted by the Operating Experience Risk Analysis Branch. These studies address: accident sequence precursors, initiating events, system performance, component performance, common-cause failures, and fire events. The site also contains links to databases that support these studies and may be useful to NRC staff. These databases include: accident sequence precursors, common-cause failures, Reliability and Availability Data System (RADS), and licensee event reports. Several search capabilities will be incorporated to assist the user in navigating this site.

This site is well organized. It doesn't make you dig more than a screen or two to see the data in graphical or tabular form. If you want to know the largest cause of motor operated valves failures or where fires tend to occur most frequently, you can find it here rather quickly. Data is presented in PDF format which makes it simple to print if you need it in paper. However, the color graphs and tables are easy to read on the screen. You can also find essential system information for some systems, including such items as design comparisons and system fault trees.

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REMARKS

INDUSTRY TRENDS FOR INITIATING EVENTS, SYSTEM RELIABILITIES, COMPONENT RELIABILITIES, COMMON-CAUSE FAILURES, AND FIRE EVENTS

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