WM02

Nuclear Power Plant Aging and PSA

The PSA has been used as a tool for assisting in design and safety management of NPPs by identifying important systems, structures, and components for safety.

Activities are ongoing worldwide to extend its use to wider spectrum of decision making including maintenance, planning of testing and inspections, and improvement of the effectiveness of regulations.

Consideration of aging of passive components in PSA has been regarded as one of the remaining issues for research and development for methodology of PSA.

Workshop WM2
Nuclear Power Plant Aging and PSA

A forum for structural and systems engineers to talk about :

- What are the needs for and potential uses of PSAs that consider the effects of aging ?
- What are the important developments in recent years in modeling and/or data on aging phenomena and/or application of such models ?
- What are the remaining technical issues to solve for more effective uses of PSA technology in decision making to cope with aging of NPPs.

Panelists and Cordinators

Panelists:

Dr. C. Faidy, EDF, France

Dr. Dozier, USNRC, USA

Dr. C. Hofmayer of BNL, USA

Dr. S. Yoshimura, U. Tokyo, Japan

Cordinators for the Workshop:

Mr. K. Muramatsu, JAERI, Japan

Dr. M.K. Ravindra, ABS Consulting, Irvine CA., USA

Dr. P. Hornet, EDF, France

Dr. J. Rycyna, Nuclear Services Inc., USA

Types of PSA with consideration of aging effects

A. Normal PSA: Performance of components are not time dependent. (Ex. failure rate and seismic capacity.)

→ Useful for importance ranking for maintenance planning, research prioritization, etc.

B. PSA with partial consideration of aging: Includes aging effect of selected component and/or aging mechanism.

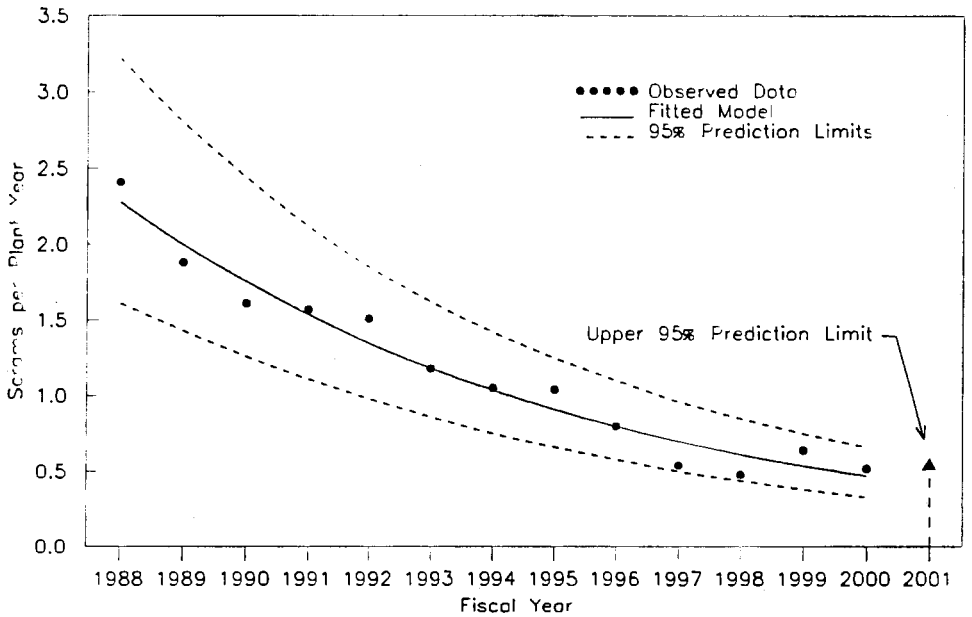
→ Useful for assessment of the importance of specific component and aging mechanism and the effectiveness of specific preventive measures

C. PSA with full consideration of Aging: Includes all potentially important aging effects

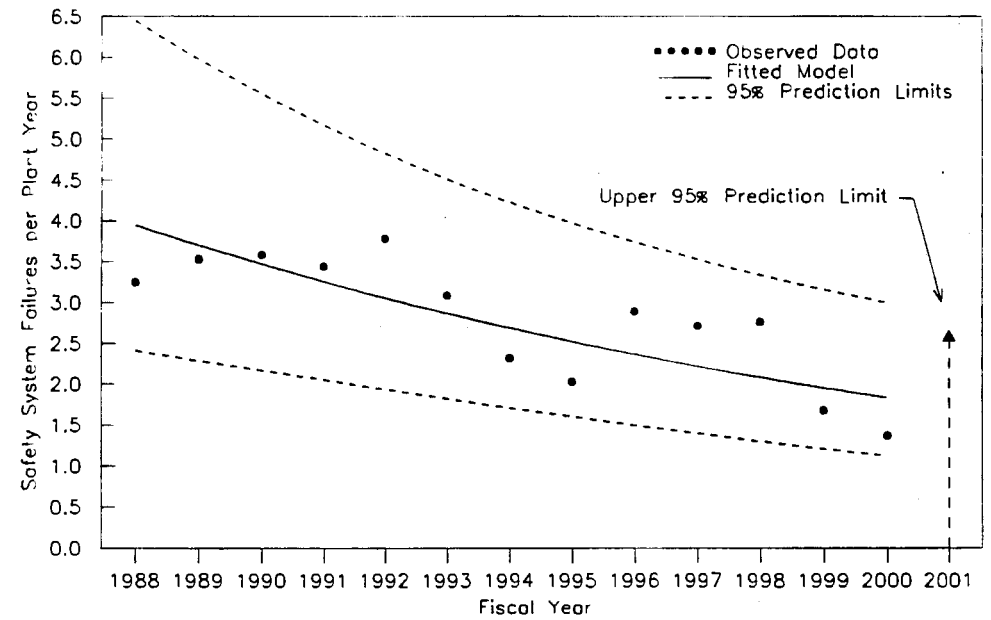
→ Useful for assessing the effectiveness of current set of maintenance activities.

1. Ex-AEOD Indicators (long-term graphs only)

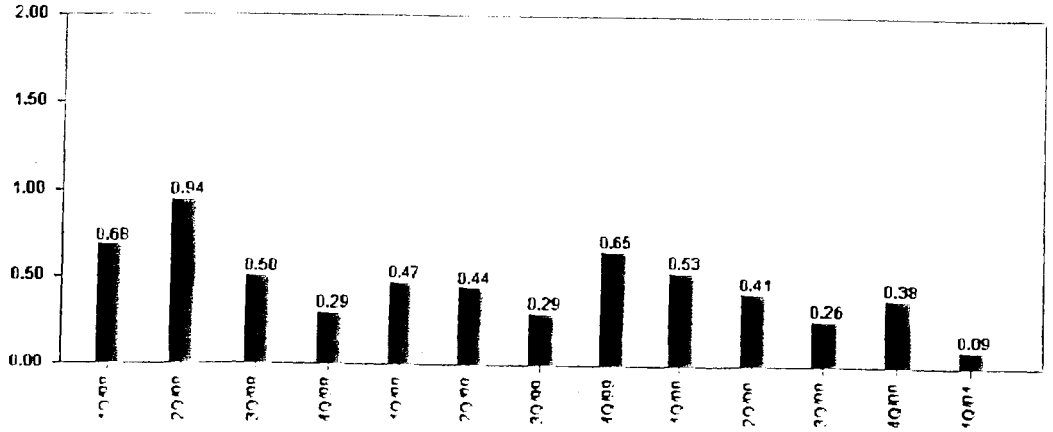
Automatic Scrams While Critical



Safety System Failures

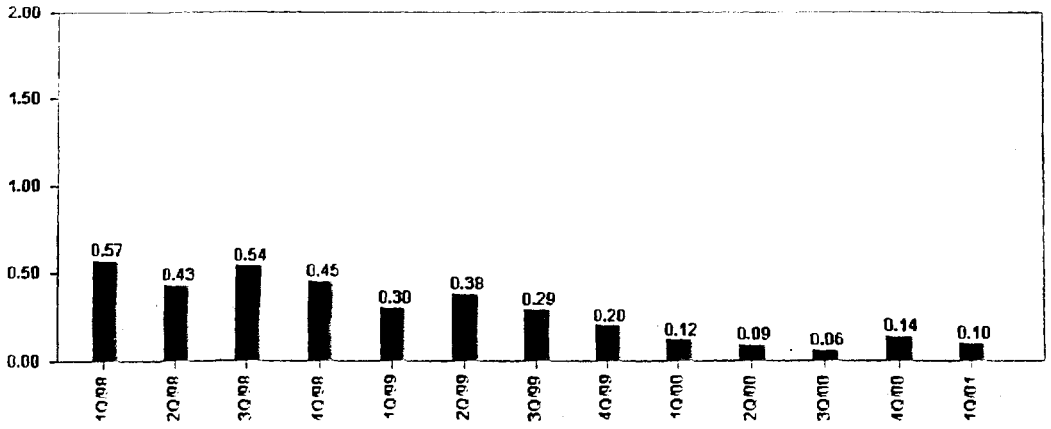


Safety System Functional Failures (BWR)



Descriptions

Safety System Functional Failures (PWR)



Descriptions