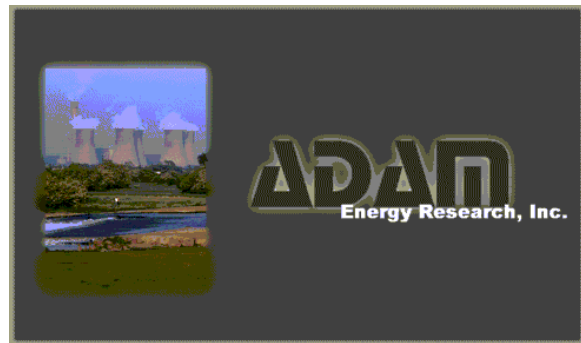

Accident
Diagnostics
Analysis
Management



ADAM Newsletter: A quarterly update on ADAM developments and applications

Volume 1, Number 2

Fall 2004

***Summary Status of ADAM
System Development &
Applications***

The Accident Diagnostics Analysis Management (ADAM) system architecture has undergone a major upgrade, and it is undergoing final integration and testing, and it is expected to be completed shortly.

This advanced version includes extensive improvements to the modeling and Graphical User Interface (GUI) that would enable on-line animation, access to a more extensive list of parameters, greater flexibility in terms of continuous display of results, and additional tools for simulation of Severe Accident Management Guidelines (SAMGs).

As it was stated in the last Newsletter, plans are in place to include a Bayesian Belief Network inference module that will enable a more systematic approach for inclusion of observations from the plant into the ADAM diagnostics framework.

During this quarter changes were included in the ADAM models and numerics for Boiling Water Reactors (BWRs) with Mark-III containments that have substantially improved the ADAM stability and running time for severe accidents. These changes will be incorporated in all BWR Mark-III plants over the next few months.

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Background

ADAM has been designed and developed by Energy Research, Inc. to provide emergency organizations with easy-to-use tools to track potential accidents, based on limited plant data and supplemental computer simulations. The efficient use of plant data is necessary for implementation of off-site emergency actions and to assist in decisions regarding implementation of potential accident management and emergency response strategies. Also ADAM is used for (a) personnel training and familiarization with the thermal-hydraulic and severe accident response of nuclear plants during accidents; and (b) analysis of design basis and severe accidents for other applications (e.g., PSAs, evaluation of EOPs, etc.). During the course of an accident, plant data provide additional information for the decision-making process.

Advanced Version

Other changes that are foreseen include provisions for changes to the ADAM input and output display language, based on the user specified input. In addition, the ADAM manuals are being streamlined to enable generalization of the modeling description and input requirements, thus reducing the need for training for different plant applications.

Future plans also call for the development of on-line training modules that include generic and ADAM-specific lectures on accident and source term analysis. Based on ERI's and ADAM users' experience.

Model Updates & Corrections

Updates include changes to the pressure suppression and vent clearing models, and the various coolant injection systems. These updates will be made available as part of the next released version.

Upcoming Events

Release of the latest ADAM system to the new users has been delayed and it is anticipated for early 2005.

In addition, commensurate with the changes to the code architecture, ADAM manuals will be updated that will reflect the models, GUI, and data requirements, on a more generic basis (versus the current plant-specific basis).

User Reports

No new user reports were received during this quarter.

Recent Publications

The revised mathematical models manual for VVER 440/213 was issued during December 2004.

Questions & Information

Any questions and/or requests for additional information regarding ADAM should be sent to Tracey Mullinix at ERI. In addition, ADAM Users are requested to provide any problems and or errors to ERI along with the specific inputs for which problems have been detected.