



RIC 2011

Code Application and Maintenance Program (CAMP) and the Thermal Hydraulic (T/H) User Group

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Agenda

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- Goals of the Programs
- Who is Participating?
- Accomplishments
- Value to NRC
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- Summary

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What is CAMP and the T/H User Group?

- NRC-coordinated international (CAMP) and domestic (T/H User Group) programs focused on the development, assessment, and application of thermal-hydraulic system analysis codes such as:
 - TRAC/RELAP Advanced Computational Engine (TRACE)
 - Purdue Advanced Reactor Core Simulator (PARCS)
 - Symbolic Nuclear Analysis Package (SNAP)
- Reactor Excursion and Leak Analysis Program (RELAP5)
 - Legacy code in maintenance mode, with no development

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Goals of the Programs

- Collaborate on NRC thermal-hydraulic safety analysis codes to promote worldwide reactor safety
- Receive feedback on code/model strengths and deficiencies from a wider user community (independent assessment)
- Sharing of knowledge about reactor system analysis and safety through in-kind contributions

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Who is Participating?

- Currently 25 countries are participating in the CAMP program
- 7 countries are in the negotiation phase
- T/H User Group - 12 participating organizations



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Accomplishments

- Program participants have furnished more than 200 NUREG/IA reports which are listed on the NRC website at <http://www.nrc.gov/reading-rm/doc-collections/nuregs/agreement>
 - These products form the basis of an important independent verification and validation (V&V) function of the program
- Two meetings each year are held, one in the United States and the other in a member country
 - Share expertise in plant modeling used to resolve safety and other technical issues
 - Share experiences to identify errors, perform code assessments, and identify areas for additional experiments

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Value to NRC

- Member contributions have saved NRC resources and improved the codes. The larger user community and range of applications help to identify code problems and improved modeling approaches. Examples include:
 - Identifying code errors
 - Plant modeling for new applications
 - Improvement to code models



Value to members

- Programs have provided a venue for members to develop and share knowledge about thermal-hydraulic safety analysis. The user community and the quality of the analysis codes benefit through the network effect. Recent examples:
 - Visualizing and understanding complex plant transients
 - Applying the codes to plant safety analyses
 - Applying the code to analyses outside NRC assessment base



Summary

- CAMP and the T/H User Group participants play a major role as an independent group in using and evaluating the codes
- Future contributions to these programs will provide information to the NRC to improve the speed, accuracy, robustness, and usability of these codes
- These contributions will improve the NRC's reviews, analyses, and audits of licensee products, thus helping us meet the mission of the agency of *Protecting People and the Environment*
- For more information on CAMP and the T/H User Group please visit www.nrc.gov/about-nrc/regulatory/research/safetycodes.html
