Applications of CFD for Nuclear Reactor Safety

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ABSTRACT

Predictions of fluid flow and thermal behaviour for nuclear reactor components and systems critically rely on the use CFD simulation to help guarantee reactor safety. To cover the broad range of safety analyses required (everything from large-scale containment studies to detailed assessment of loss-of-coolant accidents on individual components), an equally broad range of models and capabilities are required in the CFD technology itself, as well as the ability to couple CFD simulation with other simulation tools. How these requirements are currently met, and some of the challenges being faced, will be reviewed in this presentation drawing on numerous example CFD applications from industry.