

Alternative Source Term Amendments

Licensing Action Task Force
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Michael D. Tschiltz, Chief
Probabilistic Safety Assessment Branch

I. Introduction

- AST is defined by NUREG -1465 and application guidance is provided by RG 1.183
 - Reviews of the AST-based license amendments revealed amendments seek additional relief in areas where the technical issues are not fully addressed by RG 1.183
 - Reviews are taking too long and numerous RAIs required... answers to RAIs commonly involve re-analysis
 - Most of the AST issues are generic. Staff is developing Regulatory Issue Summary (RIS) to address them
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II. Selected technical issues

- Failure to use a representative scenario for LOCA analysis (LBLOCA implied by 1465) has caused a majority of the “difficulties” during review.
 - Problems have been noted with analysis of:
 - Aerosol characteristics (e.g., size distribution, effective density)
 - FP removal by ESF
 - FP removal by natural means (e.g., gravitational settling) and phoretic (diffusio- and thermo-) processes
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II. Selected technical issues (cont.)

- MSIV leakage (e.g., number of nodes used)
 - Appropriate “source” of ST, i.e., source of the FP entering the piping and its characteristics
 - FP deposition mechanisms and the physical models (e.g., settling velocity)
 - Effect of deposited decay heat (e.g., potential for re-evolution of I2)
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III. Issues of concern

- Uncertainties with thermal-hydraulic (TH) or thermodynamic (TD) state of systems of interest (e.g., representative scenarios, analytical tools used)
 - Choice of a “proper” aerosol characteristics (e.g., size distribution, effective density)
 - Lack of well established/validated Models for FP transport
 - Lack of technical consensus on AST application for FP transport in piping
 - Uncertainties with PH calculation affecting iodine behavior
 - Lack of rigorous plant-specific analyses
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IV. Attributes of Improved Quality AST license amendment submittals

- Clear scenario description of the analyzed accident
 - List of all the FP removal mechanisms credited
 - Clearly state assumptions, physical models and analytical tools with all the relevant references
 - Clearly state deviations from the existing guidelines/regulations
 - Summary of plant-specific supporting calculations
 - Well-based justification of applicability of other plants precedents
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V. Regulatory Issue Summary (RIS)

- Purpose to discuss technical issues revealed so far during review process and to prevent recurrence of similar problems with submittals
 - Will include current staff understanding of the physical processes involved
 - An NRC/NEI workshop on technical issues should be considered following issuance of RIS
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