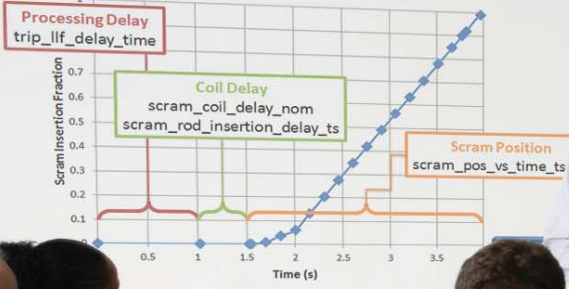




INPUTS

Scram Uncertainty Parameter

► Used to model Scram in XCOBRA-IIIC analysis



Fuels Integrated Training

us.areva.com/training

AREVA NP



AREVA Fuels Integrated Training Program

AREVA is now offering a curriculum of engineering training courses covering all disciplines relevant to fuel design and operation. The courses are tailored to the major plant designs AREVA supports with fuel. The curriculum spans all engineering fields from mechanical fuel design, core nuclear design, and safety analysis and licensing to operational areas where fuel plays a major role (e.g. Crud Risk Analysis).

Courses are segregated into three technical levels to allow customers to get the appropriate level of focus in any fuel-related area. Additionally, all courses follow industry-accepted training practices so that they may be used to satisfy training requirements for many external programs. AREVA's Fuels Integrated Training program provides the industry with the products and tools necessary to understand and ensure they can most efficiently utilize the nuclear fuel that drives their plants.

Three Tiers



High-level overview of the entire reload licensing process



Mid-level, discipline or process specific overview



Detailed, analyst-level training on focused engineering topics related to licensing or fuel design or performance

Training Features



Instructor-led PowerPoint Presentations



Microsoft OneNote Companion Notebooks



Hands-on Example Problems




Interactive Exercises

Course Offerings

Tier 1 Courses	Tier 3 Courses (cont.)
B&W Fuel Reload Licensing Process Overview	Departure from Nucleate Boiling and Fuel Centerline Melt Analysis
Tier 2 Courses	Statistical Setpoint Verification for CE Plants
TH Reload Process Overview for CE and Westinghouse Plants	Statistical Setpoint Verification for Westinghouse Plants
COBRA-FLX™ Thermal Hydraulic Subchannel Code Overview	Critical Heat Flux
Form Loss Coefficients (FLC)	Mixed Core Analysis with COBRA FLX™
Tier 3 Courses	
XCOBRA-IIIC Model Development	
Fuel Centerline Melt Limit and Limiting Axial Analysis	

Custom courses can be developed upon request.

Example Course Outline

B&W Fuel Reload Licensing Process Overview	
	
<p>General Description</p> <p>This five-day course provides an overview of the entire fuels reload analysis and licensing process for B&W plants (BAW-10179 Methodology). Included is a description of the mechanical fuel design methodology and all elements of the supporting reload licensing analyses spanning neutronics, thermal-hydraulics, thermo-mechanical, and safety analyses.</p> <p>The course follows the FIT training style of maximizing student engagement through the use of visually impactful training presentations. The training is packaged within an electronic OneNote companion notebook, which contains all training materials facilitating the interactive training experience.</p>	
Course Number	2000
Course Dates	June 5-9, 2017 August 21-22, 2017
Duration	36 hours
Tier	I
Applicable Plant	B&W
# Modules	15
<p>Course Outline</p> <ul style="list-style-type: none"> • Fuel Assembly/Control Component Mechanical Design and Performance • Fuel Rod Thermal Mechanical Performance • Fuel Assembly Structural Analyses • Core Design and Fuel Cycle Analyses • Nuclear Analyses • Fuel Assembly Hydraulics and Core Thermal-Hydraulic Performance • Non-LOCA Safety Analyses • ECCS Analyses • Radiation Analyses • Core Safety and Maneuvering Analyses • Core Monitoring and Operation • Water Chemistry • Crud Evaluation • Fuel Reliability <p>This training is intended as an introduction to AREVA's B&W Plant Reload Licensing process and provides a high-level overview of all the interdisciplinary analyses that support reload licensing for a given plant cycle.</p>	

To register for classes and see additional course outlines, visit our website:

us.aveva.com/training

AREVA in North America (AREVA Inc.) combines U.S. and Canadian leadership to supply high added-value products and services to support the operation of the commercial nuclear fleet. Globally, AREVA is present throughout the entire nuclear cycle, from uranium mining to used fuel recycling, including nuclear reactor primary circuit design and fabrication, and operating fleet engineering and services. AREVA is recognized by utilities around the world for its expertise, its skills in cutting-edge technologies, and its dedication to the highest level of safety. AREVA Inc.'s 4,100 employees are helping build tomorrow's energy model: supplying ever safer, cleaner and more economical energy to the greatest number of people.

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