

## **Training Class: SCALE Burnup Credit Computational Methods**

This class explores the use of SCALE 6.1 computational tools for burnup credit (BUC) analysis. Topics covered include using the ORIGEN/ARP GUI to calculate burned fuel compositions, generating ORIGEN/ARP libraries, using STARBUCS to calculate burned fuel compositions, fuel storage  $k_{eff}$  values and BUC loading curves, using TRITON to calculate fuel burned fuel compositions, and how to use these tools together to perform BUC criticality calculations. Attendees must be familiar with KENO-Va and KENO-VI input, as this is not covered within this course. Workshop exercises will involve typical fuel storage rack and cask geometries.

### **Monday**

- Introduction – SCALE Burnup Credit Tools
- ORIGEN/ARP graphical user interface demonstration
- STARBUCS – What it is, how it works, and how we can use it.
- Creating STARBUCS inputs from CSAS5/6 models
- STARBUCS Workshop

### **Tuesday**

- TRITON – What it is, how it works, and how we can use it.
- Creating TRITON 2-D  $k_{eff}$  calculation inputs from CSAS6 models
- Creating TRITON 2-D depletion inputs from TRITON 2-D models
- TRITON Workshop

### **Wednesday**

- ORIGEN/ARP libraries – what they are and why we care
- ORIGEN/ARP library generation
- ORIGEN/ARP Workshop
- BUC Workshop

### **Thursday**

- BUC NUREG/CR reports – present what is out there and what is in-progress
- BUC reference list – What it is and how to reach it.
- BUC validation (composition and  $k_{eff}$  calculations)
- BUC Workshop (continued)

### **Instructors:**

- Don Mueller
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