

## **2018 TRACE USER WORKSHOP AGENDA**

**Location:**     System Source Computer Training Center, Columbia, Maryland

**Dates:**     March 26 - 29, 2018

- The agenda is directed toward intermediate users with some thermal-hydraulic system code experience. To get the most out of this course, participants must:
  - be familiar with the basics of TRACE and SNAP (know what the basic TRACE components and input/output files are, know how to create a new TRACE model in SNAP, know how to import/export an existing TRACE model in SNAP, know how to place and connect components together on the SNAP views, be able to navigate a TRACE model within SNAP)
  - be able to plot variables from XTV or DMX files using APTPlot,
  - understand how to configure SNAP to run TRACE simulations, know the mechanics of submitting TRACE simulations and performing restarts from within the SNAP environment.
  - understand the mechanics of generating and using TRACE animation models with SNAP.
- Focus will be on using TRACE for thermal-hydraulic analyses
- Facilities include a computer laboratory

## **DAY 1 – Monday, March 26**

### **MORNING**

#### **Introduction to Workshop**

8:30 a.m. – 8:45 a.m.

#### **Overview of TRACE Code Theory and TRACE Components**

Technical Lead: ISL

8:45 a.m. – 9:30 a.m.

#### **The SNAP User Interface**

Technical Lead: APT

9:30 a.m. – 12 Noon

SNAP Overview: Model Editor, Configuration Tool, Job Status

Exercise: Configuring SNAP

Editing and Existing Model

Working with Model Views

SNAP Overview: Job Streams, Restart Cases, Initial Conditions, Renodalization, jEdit

Integration, Diagnostic Output

Exercises: Job Streams

Restarts

Model/Component Diff Viewer

Renodalization

### **LUNCH**

12:00 Noon – 1:00 p.m.

### **AFTERNOON**

#### **The SNAP User Interface (continued)**

Technical Lead: APT

1:00 p.m. – 4:30 p.m.

SNAP Variables, Job Stream, and Post Processing

Exercise: Variables and Parametrics, Animation,

Interactive Controls

AptPlot in Job Streams

Tabular Parametric and Axial Plotting

SNAP Uncertainty, Model Notebooks, Job Stream Sequences

Exercise: Uncertainty

Model Notebook

Job Stream Sequences

## **DAY 2 – Tuesday, March 27**

### **MORNING**

#### **TRACE Fuel Model Improvements**

Technical Lead: ISL  
8:30 a.m. – 10:00 a.m.

Exercise: Fuel Rod Modeling

#### **TRACE Modeling Issues**

Technical Lead: ISL  
10 a.m. – 12 noon

Key Plant Modeling Guidelines

L/D Considerations for Loop Piping, Loop Seal Nodalization, and  
Reactor Vessel Nodalization

Frictional Pressure Drop Modeling Considerations

Flow Areas and Flow Area Changes, Hydraulic Diameters,  
FRIC vs K-Loss Input, and Abrupt Area Change Modeling

Exercise: Friction

Loop Elevation Closure

Exercise: Loop Elevation Closure

### **LUNCH**

12:00 Noon – 1:00 p.m.

### **AFTERNOON**

#### **TRACE Modeling Issues**

Technical Lead: ISL  
1:00 p.m. – 4:30 p.m.

Analysis Techniques

Exercise: MIT Pressurizer

## **DAY 3 – Wednesday, March 28**

### **MORNING**

#### **Modeling Guideline Exercises**

Technical Lead: ISL

8:30 a.m. – 12:00 Noon

Core Nodalization and Reflood Heat Transfer

Exercises: FLECHT-SEASET

BREAK Component Input Guidance for Choked and Unchoked Flow

Exercise: BREAK Modeling

### **LUNCH**

12:00 Noon – 1:00 p.m.

### **AFTERNOON**

#### **Modeling Guideline Exercises (continued)**

Technical Lead: ISL

1:00 p.m. – 2:30 p.m.

Steam Generator Modeling

Exercise: Steam Generator Mass and Energy Balance Exercise

#### **Plant Simulations – PWR Steady-State**

Technical Leads: ISL

2:30 p.m. – 4:30 p.m.

Managing Multiple Simulations in a Single Model

Achieving Agreement with Steady-State Target Conditions

Debugging TRACE Input Errors

Break Modeling and Validation

Exercise: Plant Steady-State and SNAP User Numerics

## **DAY 4 – Thursday, March 29**

### **MORNING**

#### **Plant Simulations – PWR Steady-State (continued) and SBLOCA**

Technical Lead: ISL

8:30 a.m. – 12:00 Noon

Exercise: Plant Steady-State

Plant SBLOCA Exercise

### **LUNCH**

12:00 Noon – 1:00 p.m.

### **AFTERNOON**

#### **Plant Simulations – BWR Considerations**

Technical Lead: ISL

1:00 p.m. – 4:30 p.m.

Exercise: Configuring the model for CCFL, Choking, Power Distribution and Radiation

Jet pump form losses and advanced fuels

Adding a constrained steady-state controllers

Adding a recirculation pump PI controller

Run a steady-state

Use the SNAP restart option to configure the model and run a LBLOCA

#### **Steady-State Model Options (Optional)**

Technical Lead: ISL

Hydraulic-Path Steady-State Initialization Data

Steady-State Controller Data

Adjusted Additive Flow Loss Data