



# **SENIOR REACTOR OPERATOR REQUIREMENTS FOR NON-POWER UTILIZATION AND PRODUCTION FACILITIES INITIAL STARTUP**

Research and Test Reactors Licensing Branch  
U.S. Nuclear Regulatory Commission

2017 TRTR Annual Meeting  
September 2017



# Goal of Presentation



To work towards proposed interim staff guidance (ISG) regarding interpretation of senior reactor operator requirements per 10 CFR 50.54(m)(1) for non-power production and utilization facilities (NPUFs)

To solicit input from the community regarding initial start-up

# Implementation of Proposed NPUF-ISG



Guidance will be added to:

NUREG-1537, "Guidelines for Preparing and Reviewing Application for Licensing of Non-Power Reactors," issued February 1996

Chapter 14, Appendix 14.1, "Format and Content of Technical Specifications for Non-Power Reactors"

Section 6.1.3, "Staffing"

Will discuss with ANS 15.1 standards committee

# Background

The regulation, 10 CFR 50.54(m)(1), states:

A senior operator licensed pursuant to part 55 of this chapter shall be **present at the facility** or readily available on call at all times during its operation, and shall be present at the facility during **initial start-up** and approach to power, recovery from an unplanned or unscheduled shut-down or **significant reduction** in power, and **refueling**, or as otherwise prescribed in the facility license.

# Background



ANSI/ANS 15.1, Section 6.1.3 states, in part, that:

Events requiring the presence at the facility of the senior reactor operator are:

- initial startup and approach to power,
- all fuel or control-rod relocations within the reactor core region,
- relocation of any experiment with reactivity worth greater than one dollar;
- recovery from unplanned or unscheduled shutdown or significant power reduction.

# History



- For power reactors it appears to be first start-up after refueling
- Power reactors now require SRO on site at all times per 50.54(m)(2)(i)
- No definition of initial start-up in the statement of considerations



# Public Meetings



Public meetings:

- March 12, 2012 – discussed proposed interpretation ideas and solicited comments from RTR community
- September 25, 2012 (at TRTR) – discussion and reply to comments received

In the meetings, discussed undefined terms in 50.54(m)

# Comments and Staff's Replies



**Comment** - NRC's concern should be on events with the potential for consequence greater than the maximum hypothetical accident

**Reply** - Not consistent with defense in depth. Operator actions should prevent events from occurring in addition to limiting consequences

**Comment** - Higher powered facilities favored a graded approach to when a SRO needed to be present

**Reply** - A graded approach dependent on reactor power or complexity is consistent with the existing graded approach of NPR regulation

**Comment** - If a SRO oversaw an activity then there was no need for the SRO to oversee the first start up after the activity

**Reply** - Some safety significant errors become apparent during the reactor start up following an activity (e.g., fuel movement)



# Proposed Initial Startup and Approach to Power

Initial start-up and approach to power means:

- The very first start-up and approach to power of the day (or run if run lasts more than a day), and
- The first start-up and approach to power after:
  - Any fuel movement within the reactor core, or
  - Any control-rod relocation within the reactor core region, or
  - Any movement of an experiment within the reactor core region with reactivity worth greater than one dollar

# Discussion Topics for Moving Forward

## Role of RO and SRO in initial start-up

- Is SRO needed for every first start-up of the day?
  - If not, when would SRO be needed?
- If reactor is shutdown for long period of time (months), is there a point where an SRO should be needed?
- Should power level be a consideration for SRO action?
- SRO for first start-up after safety significant activities. Are there other activities? After safety system maintenance?

# Moving Forward



Have discussion with TRTR on interpretation of initial start-up

Work with ANS-15 committee if necessary

Finalize interpretation

# Questions

