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United States Nuclear Regulatory Commission
Protecting People and the Environment

Licensed Power Level and Technical Specifications Power Level Scram Set Points

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

2017 TRTR Annual Meeting
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Goal of Presentation

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To discuss the relationship between licensed power level and power level scram (and reverse) set points in technical specifications (TSs)

To solicit feedback from the community

Power Level License Limit and Scrams

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Some licenses have power level scram set points (and reverses) that are higher than the power level limit in the facility license

This approach is long established

Is a reactor scram a violation of the license?

Does not seem logical that an arrangement that resulted in a violation would have been developed

Basic Position

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For research and test reactors:

The NRC staff expects that licensees will operate their reactors within the licensed power level

This needs to account for uncertainties in power calibration and instrumentation.

Scram Set Points and Safety

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NRC staff recognizes differences between the basis of safety for steady-state operation and transients

Steady-state:

- Fission product driven accidents
- Decay heat driven accidents
- Insufficient cooling driven accidents

Transient

- Reactivity additions resulting in power increases over short time span

What if Reactor Scrams?

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If the reactor scrams on high power, NRC response will consider factors such as:

- Relation between licensed power level and scram set point
- Why the reactor scrammed
- Operator actions

One Solution

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Increase licensed power level such that scram set points are within licensed power level (normally 10 percent).

Example 1.1 MW(t) TRIGA reactors

Need to consider items such as:

- Fission product inventory (MHA)
- Loss of coolant (decay heat)
- Cooling (DNBR)
- Transients (fuel temperature and cooling)

Other Topics

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Licensing action acceptance reviews

- Will aim to complete in 30 days for simple amendments
  - Accept and docket application and determine review schedule
  - Reject with comments and opportunity to revise (30 days)
  - Reject application (not common)
- Application can be withdrawn
- Goal is higher quality applications and increased certainty in review schedule

Requests for additional information

- Questions will have regulatory basis
- Questions will be discussed with applicant

Questions

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