NRC Approach to Considering the National Institute of Standards and Technology Request to Restart the National Bureau of Standards Reactor

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Non-Power Production and Utilization Facility Licensing

Background of the Event

- On February 3, 2021, during a startup and approach to full power, the National Institute of Standards and Technology (NIST) National Bureau of Standards Reactor (NBSR) experienced a reactor scram due to indications of high exhaust stack radiation.
- NIST indicated that, before startup, a fuel element in the NBSR core was unlatched, which led to the element becoming unseated and damaged during startup and the release of radioactivity.
- This event resulted in the exceedance of the NBSR fuel cladding safety limit.
- Since the event, the reactor has remained in a stable shutdown condition.

Regulatory Basis

- The NBSR is required by the NRC's regulations and its technical specifications to remain shut down until the NRC authorizes the NBSR to restart:
  - In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.36(c)(1)(i)(A), if any safety limit is exceeded, **operation must not be resumed until authorized by the Commission**.
  - The NBSR technical specifications state that if the safety limit is exceeded, the reactor shall be shut down and reactor **operations shall not be resumed until authorized by the NRC**.

NIST Request to Restart the NBSR

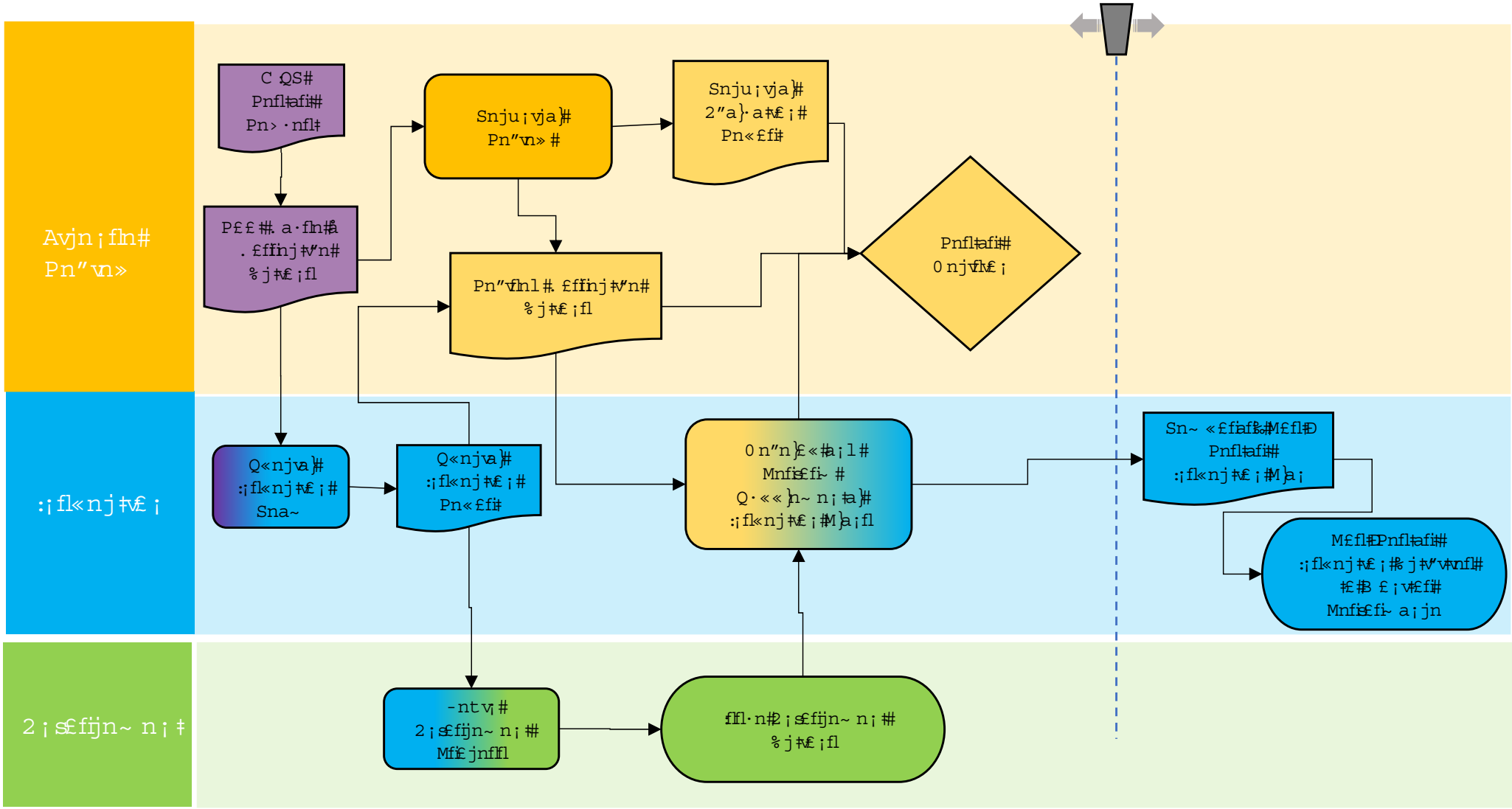
- NIST submitted the following documents in support of a request to restart the NBSR:
  - NIST root cause analysis, associated corrective actions, and restart request
  - NIST license amendment request to update the fuel latching requirements in the technical specifications

Restart Decision

- The NRC's decision on the NIST request to restart the NBSR will be based on the following:
  - ensuring that the event and the reasons that it occurred are fully understood
  - confirming that NIST has adequately identified and addressed the impacts to the NBSR
  - ensuring that NIST has made corrections to prevent this event and similar types of events from happening again
- The restart decision will be informed by several NRC activities, including a technical review, inspections, and enforcement actions.
- While the NRC is prioritizing the review, the agency will not authorize restart until it has determined that restart will be protective of public health and safety.

Key Areas of Consideration for the Restart Decision

Restart Decision Process Overview



Key Documents Supporting the Restart Decision

- NRC inspection reports from the special inspection and supplemental inspections
- NRC technical evaluation report documenting the review of design-basis and licensing-basis impacts of the event
  - will also incorporate information, as appropriate, from the NRC's separate review of the NIST license amendment request on the fuel latching requirements in the NBSR technical specifications and inspection reports
- outcomes from enforcement actions