

# Significance Determination Process Update

Peter Wilson, US NRC  
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A-3

# Background

- The NRC developed the significance determination process (SDP) to provide a method of assigning a risk characterization to inspection findings.
  - align inspection finding with risk-informed performance indicators.
  - improve NRC objectivity.
  - more understandable and predictable process.
  - provide increased focus on aspects of performance that have the greatest impact on safe plant operation.
  - Improve communication.

# Background Continued

- The NRC has developed or is in the process of developing SDPs for each of the 7 cornerstones of reactor safety
- This discussion will focus on the following cornerstones:
  - Initiating Events
  - Mitigating Systems
  - Barrier Integrity

# Background Continued

- There are three phases in the SDP for these cornerstones
  - **Phase 1 - Definition and Initial Screening of Findings**
    - Precise characterization of the finding and an initial screening-out of low-significance findings
  - **Phase 2 - Risk Significance Approximation and Basis**
    - Initial approximation of the risk significance of the finding and development of the basis for this determination for those findings that pass through the Phase 1 screening
  - **Phase 3 - Risk Significance Finalization and Justification**
    - As-needed refinement of the risk significance of Phase 2 findings by an NRC risk analyst

# Background Continued

- The NRC identified the need to develop several phase 1 and/or 2s:
  - Significance Determination of Reactor Inspection Finding for At-Power Situations
  - Fire Protection and Post-Fire Safe Shutdown SDP
  - Shutdown Safety SDP
  - Containment Integrity SDP

# At Power SDP

- Phase 2 worksheets first draft sent to each site.
  - Developed from IPEs by BNL.
  - Early recognition that the information was dated.
- Benchmarking of pilot plant worksheets identified several issues.
  - Lack of special initiators.
  - Initiating event frequency differences.
  - Human error probability differences.

# At Power SDP

- NRC analysts have visited most sites to:
  - update the phase 2 worksheets to reflect current plant design and operation,
  - Obtain information on special initiators
  - Obtain information to allow for future NRC benchmarking
  - Remaining sites to be visited
    - Crystal River 3
    - St Lucie
    - Turkey Point
    - North Anna
    - Surry
    - DC Cook

# At Power SDP

- The current phase 2 SDP does not currently consider external events and internal floods.
  - BNL is conducting a review to determine which plants should have SDPs to address external initiators.
  - NRC decision add additional work sheets for external events and floods will follow receipt of BNL's report.
  - Expecting BNL report in the fall 2000.

# At Power SDP

- The NRC intends to complete the revision 0 of the at power phase 2 worksheets in the fall 2000.
  - Current plans are to add the worksheets to the NRC inspection manual.
- As an interim measure, inspection findings
- that are not filter out by the phase 1 screen are being reviewed by NRC risk analysts and phase 3 evaluations are being performed when appropriate.

# Other Reactor SDPs

- Fire Protection and Post-Fire Safe Shutdown SDP.
  - SDP is complete.
  - Minor changes in the treatment of control room fires are being considered for a future revision.

# Other Reactor SDPs

- Shutdown Safety SDP
  - Phase 1 screening tool complete
  - Phase 2 tool is expected to be completed in fall 2000
  - Currently all shutdown finding are under going phase 3 analyses
- Containment Integrity SDP
  - Still under development
  - Currently all containment integrity finding are under going phase 3 analyses

# Resources

- The NRC's SDPs are documented (minus the at-power phase 2 worksheets) in Inspection Manual Chapter 609
- Draft MC 609 is publicly available via the public document room or
- Via the internet at:
  - [www.nrc.gov/NRR/OVERSIGHT/ROP/documents.html](http://www.nrc.gov/NRR/OVERSIGHT/ROP/documents.html)
- Expect several revisions over the next year

# Conclusions

- The NRC's SDPs are works in progress
- The progress made to date would not have been possible without your input and cooperation