

Reactor Oversight

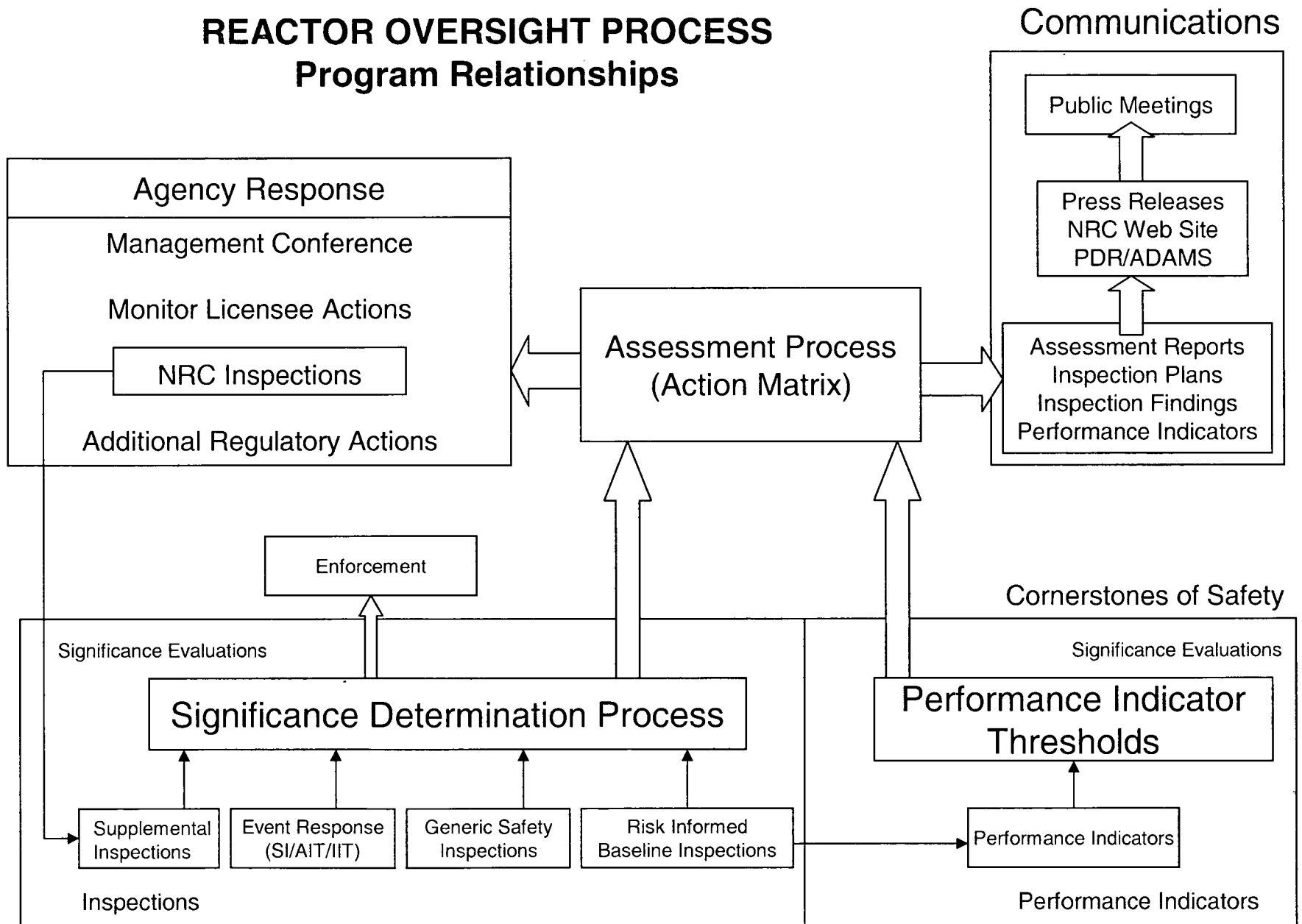
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- Integration of Inspection, Assessment, and Enforcement
- Described in NRC Inspection Manual Chapter 0305
- Includes:
 - Baseline Inspection
 - Significance Determination Process
 - Performance Indicators
 - Licensee Assessment
- Notification of Enforcement Discretion (Part 9900)

REACTOR OVERSIGHT PROCESS

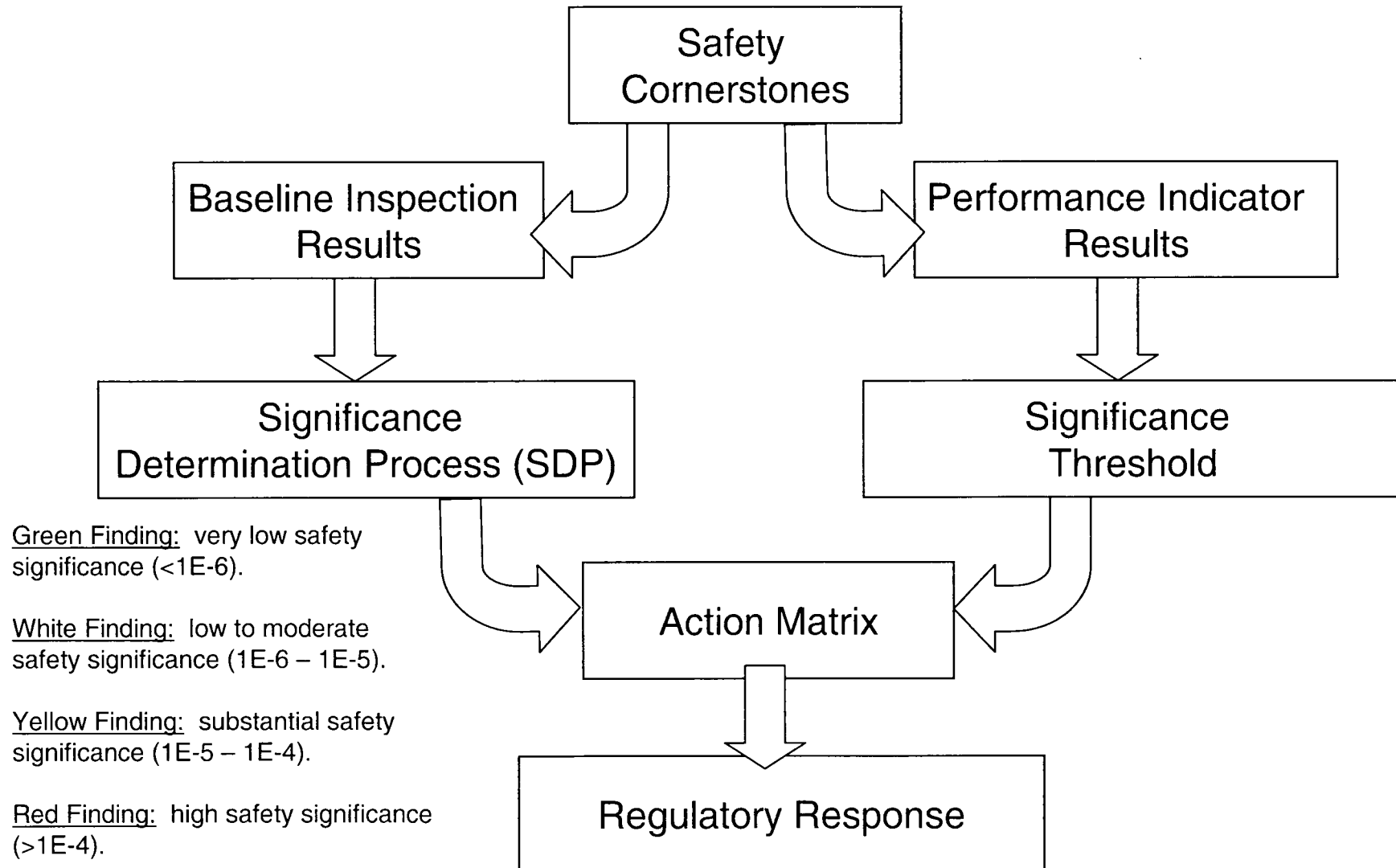
Program Relationships



← Performance Results in all 7 Cornerstones of Safety →

Reactor Oversight Process

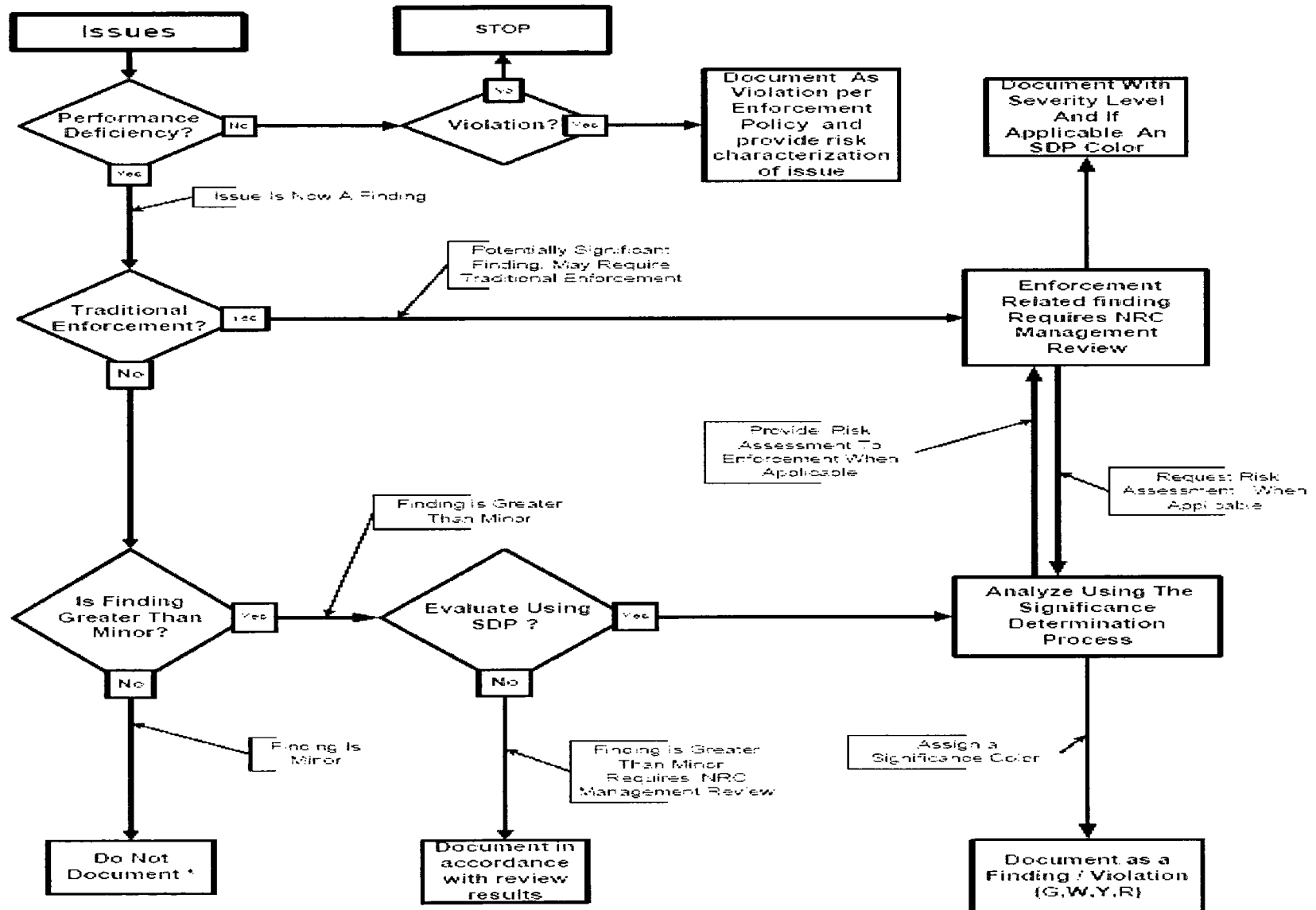
Strategic Performance Areas



Significance Determination Process Overview

- Described in NRC Inspection Manual Chapter 0609
- Risk-Informed Reactor Safety Guidelines:
 - Appendix A: Findings Affecting At-power Operations
 - Appendix G: Findings Affecting Shutdown Operations
 - Appendix H: Large-Early Release Frequency
 - Specialty SDPs:
 - Appendix F: Fire Protection
 - Appendix J: Steam Generator Tube Integrity
 - Appendix K: Maintenance Rule Violations

Entry into the SDP



* see exception in Section C5.02

Reactor Safety Significance Determination Process

- Three Phase Process:
 - Phase 1 Screen Issues
 - Phase 2 Estimate Risk Using Plant Specific Risk-Informed Inspection Notebooks
 - Phase 3 Evaluate Risk Using Modification of Phase 2 and/or Independent Risk Tools
- Phases 1 and 2 are Generally Performed by Inspection Staff, with Assistance of a Senior Reactor Analyst (SRA), When Necessary.
- Phase 3 is Defined as ANY Departure from the Phase 2 Process, and are Performed by Risk Analysts.

Minor Determination and Phase 1 At-Power Inspection Findings

- Minor Findings are not Normally Documented.
- Minor Determinations are Made in Accordance with NRC Inspection Manual Chapter 0612, Appendices E and B.
- Greater than Minor Findings are Processed Using the Phase 1 Screening Worksheet.
- The Screening Process is Designed to:
 - Reduce the Number of Findings Processed in Phase 2.
 - Decrease Inspection of Very Low Risk Significant Items.
 - Screen Some Deficiencies Immediately Based on Low Impact.

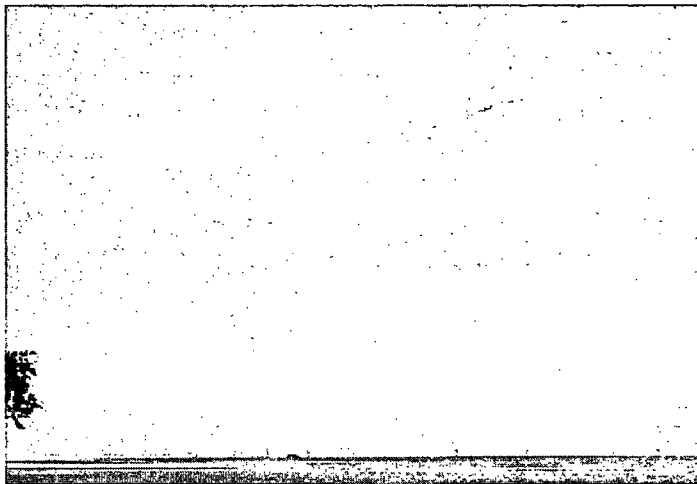
Phase 2 Estimation

At-Power Inspection Findings

- Findings are Evaluated Using the Risk-Informed Inspection Notebooks.
- Notebooks Assist the Inspectors in Identifying:
 - The Initiating Events Impacted by the Finding
 - The Accident Sequences Affected
 - The Systems Available to Perform Risk-Significant Functions
 - An Estimated Increase in Core Damage Frequency
- Notebooks Provide Risk Estimates for Findings Involving the Unavailability of Mitigating Systems and/or Increases in Initiating Event Frequencies.

External Initiator Contribution

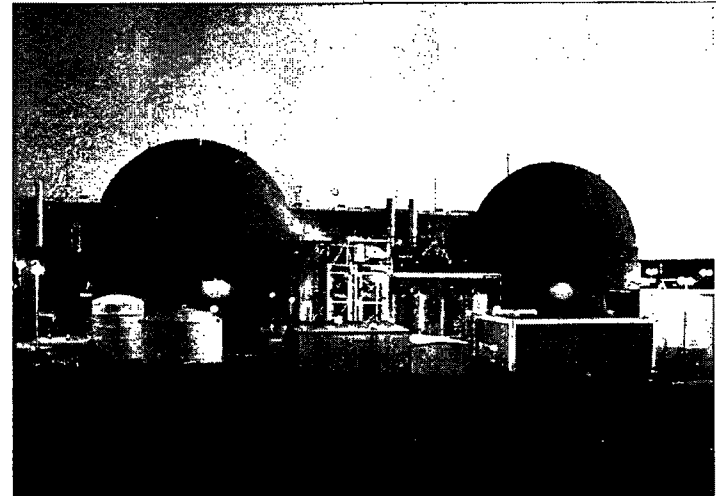
Phases 2 and 3



- External Risk Contribution may be 10 times greater than Internal Alone
- Required in NRC Inspection Manual Chapter 0609, Appendix A, Attachment 1
- Performed for all internal results greater than 1×10^{-7}
- Predominately Fire, Flooding, and Seismic (Except High Winds Season)

Large-Early Release Frequency

- Large-Early Release Frequency is a Separate Metric for Findings
- Required in NRC Inspection Manual Chapter 0609, Appendix A, Attachment 1
- Performed for all sequences greater than 1×10^{-7}
- Currently Evacuation Time Versus Time of Release is Evaluated



Licensee Input to Phase 2 Process

- Analyst's May be Asked for:
 - Assessment of Assumption Validity
 - Comments on Phase 2 Applicability
 - Validation of Phase 2 Using Licensee's PRA
 - Input to External Events and/or LERF Assessments
- Licensee May Also be Asked for:
 - Design Documents Related to Deficiency
 - Procedures to Support Recovery Credit
- It is ALWAYS in the Licensee's Best Interest to Provide and/or Comment on Completed Phase 2!
- Greater than Green Phase 2 Estimations Usually Proceed to Phase 3.

Phase 3 Evaluation

At-Power Inspection Findings

- **Phase 3 is a Risk Significance Evaluation Using a Risk Basis That Departs from the Phase 2 Process**
 - In Phase 3, SRAs will Refine, Modify, or Supercede the Phase 2 Result.
 - In Addition, Phase 3 Addresses Findings that Cannot be Evaluated Using the Phase 2 Process.
 - While Performing a Phase 3 Evaluation, the SRAs will Use Appropriate PRA or Other Techniques.
 - Specialty Risk Analysts May be Consulted.

Phase 3 Methods

- A Phase 3 Evaluation May Include the Following:
 - Portions of the Phase 2 Result
 - A Statement of the Influential Assumptions
 - A Discussion of the Tools Used for the Evaluation
 - The Affected Accident Sequences
 - A Sensitivity Study of the Results for each Major Assumption

- The Risk Tools Used May Include:
 - Standardized Plant Analysis Risk Models
 - Draft SDP Tools
 - Portions of the Licensee's PRA
 - Hand Calculations
 - Bounding Analyses

Licensee Input to Phase 3 Process

- Licensee is Encouraged to Provide a Complete Phase 3 Evaluation Including:
 - All Assumptions Made
 - The Revision of the PRA Model Used in the Analysis
 - Any Changes Made to the Model of Record
 - The Top Sequence and Event Cutsets
 - External Events Evaluated and Outcome
 - The Methods Used to Evaluate LERF
 - Documentation to Support Recovery and Human Reliability Analyses

- Routine Discussions Between the NRC and the Licensee are Encouraged Throughout the Process.