Reactor Oversight Process

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NRC Inspection Program

- Program Goals
- Staffing
- Program Structure
- Program Results
- Baseline Inspection Program
- Significant Determination Process (SDP)

Program Goals

- Via a risk-informed sampling inspection process, assess licensee compliance with their license and with applicable NRC regulations.
- Periodically provide an overall licensee performance assessment to both the licensee and public stakeholders
- Identify outlier performance and increase NRC oversight
- Continual program improvement
- Be more objective, predictable, understandable, and risk-informed

Inspection Program Staffing

- About 400 inspectors assigned to the regions
- Categories of inspectors
  - Resident inspectors
  - Region-based inspectors
- Inspectors complete a formal qualification process
  - Classroom courses (technical and inspector skills)
  - On-the-job training
  - Qualification oral examination board

Inspection Program Staffing

- Continuing training
  - Classroom
  - Contract training
  - On-line training
  - Inspector counterpart meetings
  - Program change training
- Training Working Group and Steering Group
- Resident Inspector Demographics and Pay
  - Seven year maximum tour length
  - Special salary schedule (3 step increase) and relocation bonus

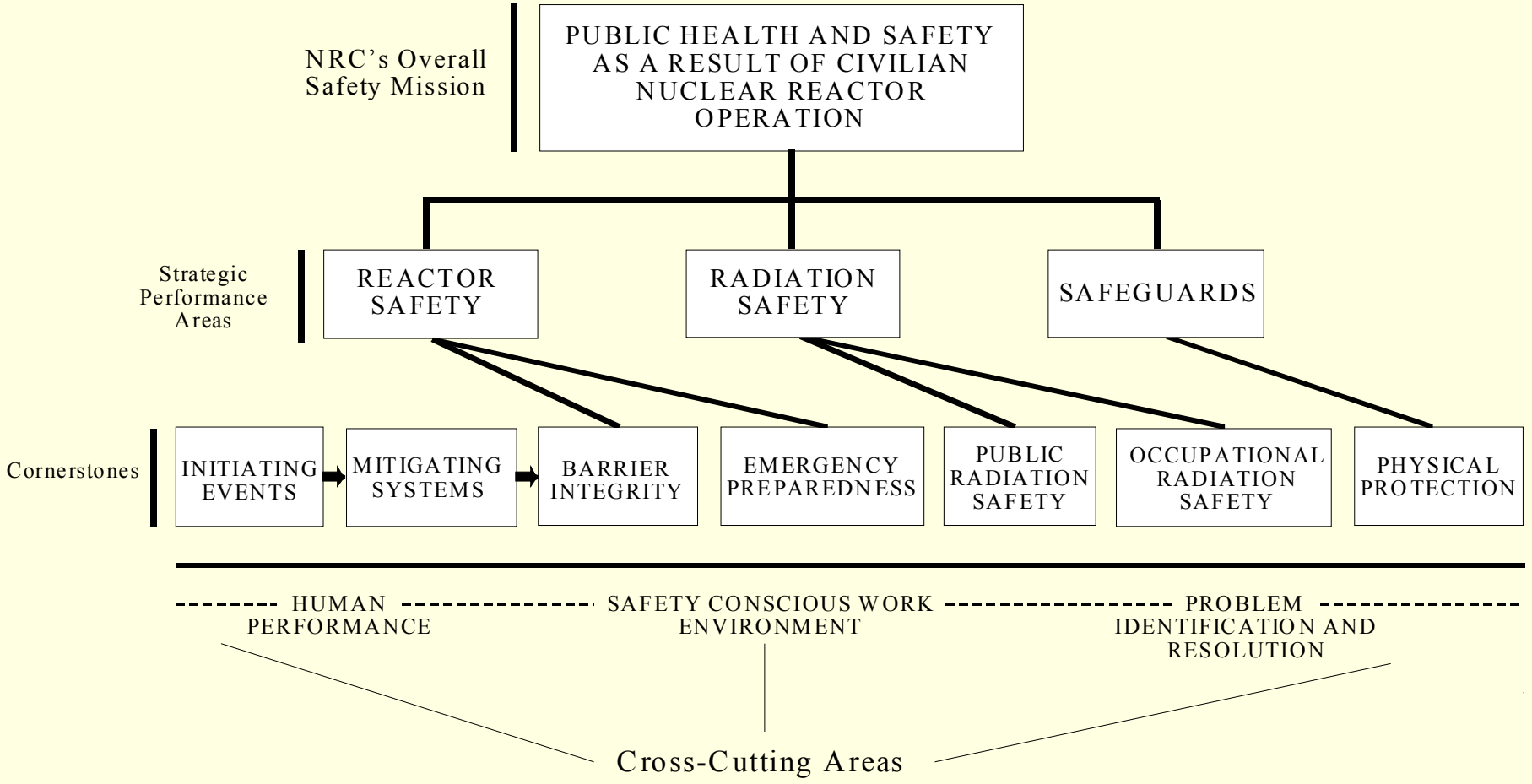
Program Structure

- Defined in the Inspection Manual
- Program guidance available to the public
- Baseline program of inspection conducted at all operating plants
- Additional inspection conducted if performance warrants
- Temporary Instructions – generally one time inspections
- Inspections are generally performance based vice program based
- Use of risk to select inspection samples

Program Results

- Inputs to performance assessment
  - Inspection findings
  - Performance indicators
- Action matrix combines inputs to arrive at the performance level
- Inspection reports available to the public except physical protection

REGULATORY FRAMEWORK



Baseline Inspection Program

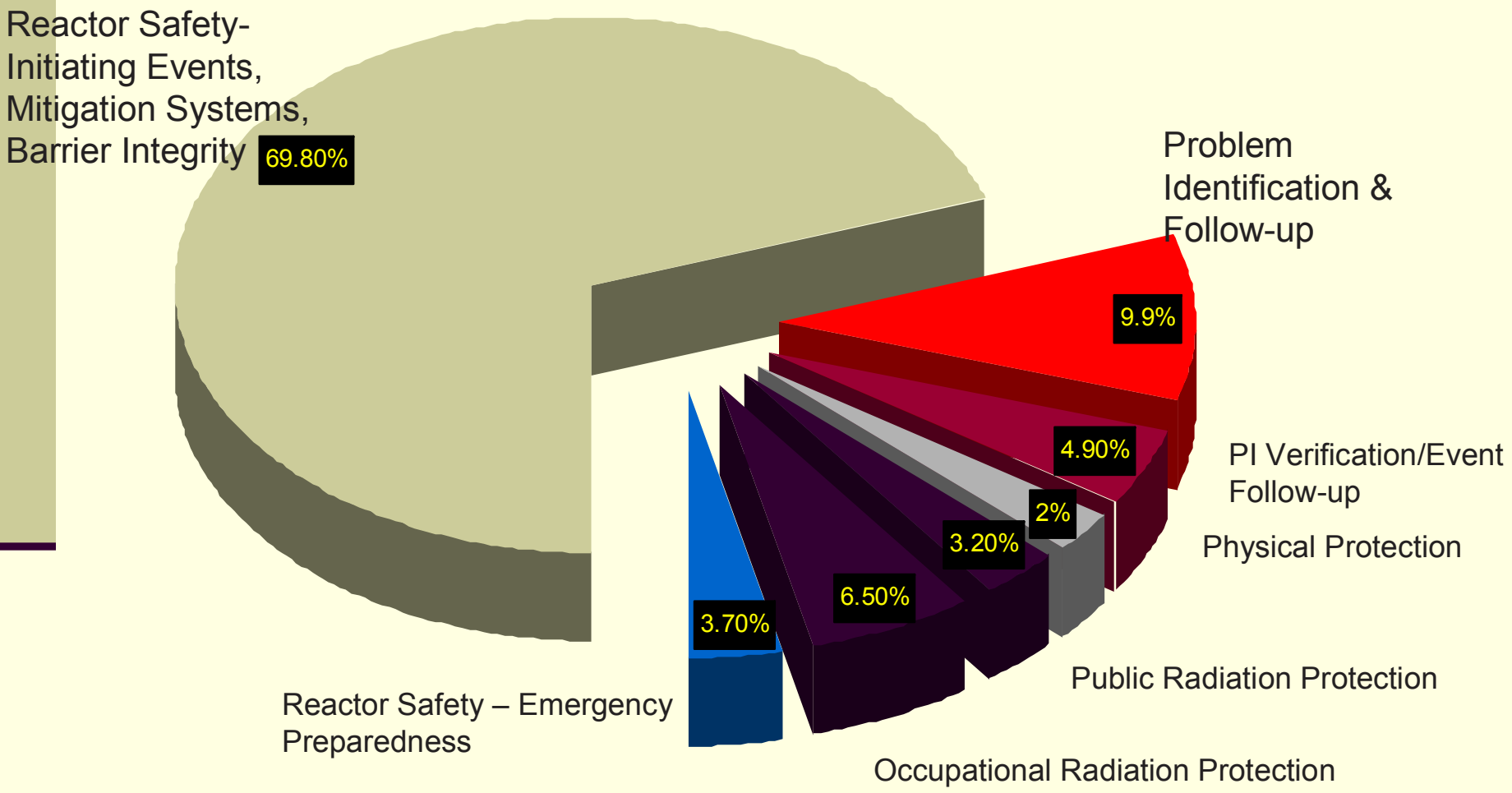
- Minimum Level of Inspection Conducted at All Plants Regardless of Performance

- Three Basic Parts:
  - Inspection in Areas Which Performance Indicators Are Not Identified or Do Not Fully Cover A Cornerstone
  - Performance Indicator Verification
  - Licensee Problem Identification and Resolution Program

Examples of Baseline Inspections

- Performance Indicator Verification
- Resident Baseline Inspections
  - Fire Protection
  - Maintenance and Surveillance
  - Operability Evaluation
- Region Led Baseline Inspections
  - Team Inspections
    - Problem Identification and Resolution (PI&R)
    - Design verification inspections
  - Emergency Planning
  - Operator Training
  - Security
  - Radiological Controls

Distribution of Direct Inspection Hours by Cornerstone (FY 2002)



Total Staff Effort Expended to Conduct Inspections at Operating Power Reactors

	Initial ROP Implementation 4/2/00-4/1/01	FY2001 Implementation 9/24/00-9/22/01	FY2002 9/23/01-9/21/02	FY 2003 9/29/02-9/27/03	FY 2004 9/28/03-9/25/04
Total Staff Effort (hours)	376,734 hrs	370,579 hrs	335,204 hrs	357,661 hrs	390,290 hrs
Total Staff Effort/Operating Site	5,623 hrs/site	5,531 hrs/site	5,003 hrs/site	5,338 hrs/site	5,825 hrs/site
*Total Staff Effort/Operating Site	4.9 person-year/site	4.9 person-year/site	4.4 person-year/site	4.7 person-year/site	5.1 person-year/site

* Using 1140 hrs/FTE conversion rate

Objectives of the Significance Determination Process

- Characterize the significance of inspection findings in support of the Reactor Oversight Process
- Provide a basis for assessment and enforcement actions associated with inspection findings thereby reducing subjectivity
- Provide stakeholders an objective and common framework for communicating the safety significance of inspection findings
- Provide the staff with plant specific risk information for use in risk-informing the inspection program

Inspection Finding Classifications:

- Green - very low risk significance
- White - low to moderate risk significance
- Yellow - substantive risk significance
- Red - high risk significance

Reactor Safety
Significance Determination Process

- Three phase process
  - Phase 1 screens issues to Green, Phase 2, and/or Phase 3
  - Phase 2 evaluates issues using plant specific risk-informed inspection notebooks that are typically conservative yet representative of licensee PRA model
  - Phase 3 is a more detailed review using independent risk tools

- Phases 1 and 2 are generally performed by inspection staff, with assistance of a Senior Reactor Analyst (SRA), where necessary.

- Phase 3 is performed by an SRA or other risk analyst.

Phase 1 SDP for At-Power Inspection Findings

- Prior to conducting a Phase 1 Screening, the performance deficiency must be of greater than minor significance.
- The Phase 1 Screening Worksheet contains decision logic to determine if the deficiency can be characterized as Green without further analysis.
- Deficiencies generally screen to Green if initiating event frequencies are unchanged or mitigating and containment system function are not lost.
- Some deficiencies immediately screen to Green based on their low impact to overall plant risk (e.g., radiological barrier systems such as building ventilation).

Phase 2 SDP for At-Power Inspection Findings

- The Phase 2 SDP is based on a simplified PRA model.
- For all plants in the US, notebooks have been developed that are used to:
  - Identify the initiating event(s) impacted by the inspection finding
  - Identify the functional level accident sequence(s) affected
  - Identify the systems available to perform the critical safety functions
  - Determine the increase in core damage frequency of the finding
- The notebooks use order of magnitude values for unavailabilities of mitigating systems and initiating event frequencies

Phase 3 SDP

- **Risk Significance Estimation Using Risk Basis That Departs from the Phase 1 or 2 Process**

  - If necessary, Phase 3 will refine or modify, with sufficient justification, the earlier screening results from Phases 1 and 2.

  - In addition, Phase 3 will address findings that cannot be evaluated using the Phase 2 process (e.g., external event contributors).

  - Phase 3 analysis will use appropriate PRA techniques and rely on the expertise of NRC risk analysts.

SDP and Enforcement Review Panel (SERP)

Preliminary SERP decision presented to licensee in a "Choice" letter

-Licensee has choice to respond by letter or attend a Regulatory Conference

-Licensee may accept preliminary result

If preliminary result is changed due to new information or insights, SERP reconvenes and determines final significance of finding

-final significance letter sent to licensee describing finding and regulatory significance

SDP Challenges

- Improve SDP timeliness goal of < 90 days – use of best available information for decision-making
- Complete the Phase 2 notebook benchmarking efforts and develop Phase 2 pre-solved tables
  - Benchmark complete by end of FY 05
  - Presolved tables complete by 12/05
- Level of risk knowledge needed for risk-informed inspectors
- Improve the Phase 3 SDP risk analysis tools and guidance
  - Documentation
  - Peer reviews
  - External event contribution
  - SPAR model development

Methods to Oversee Inspection Program

- Management visits to sites
  - Attend inspection exit meetings
  - Plant tours
  - Discussions with plant management
- HQ and regional review of inspection reports
- Debrief sessions with inspectors
- Periodic inspector counterpart meetings
- Feedback Process
- Annual ROP self-assessment

Summary of the Reactor Oversight Process

- Focuses Inspections on Activities Where Potential Risks Are Greater.
- Applies Greater Regulatory Attention to Facilities with Performance Problems While Maintaining a Base Level of Regulatory Attention on Plants That Perform Well.
- Makes Greater Use of Objective Measures of Plant Performance.
- Gives the Industry and Public Timely and Understandable Assessments of Plant Performance.
- Avoids Unnecessary Regulatory Burden.
- Responds to Violations in a Predictable and Consistent Manner That Reflects the Safety Impact of the Violations.