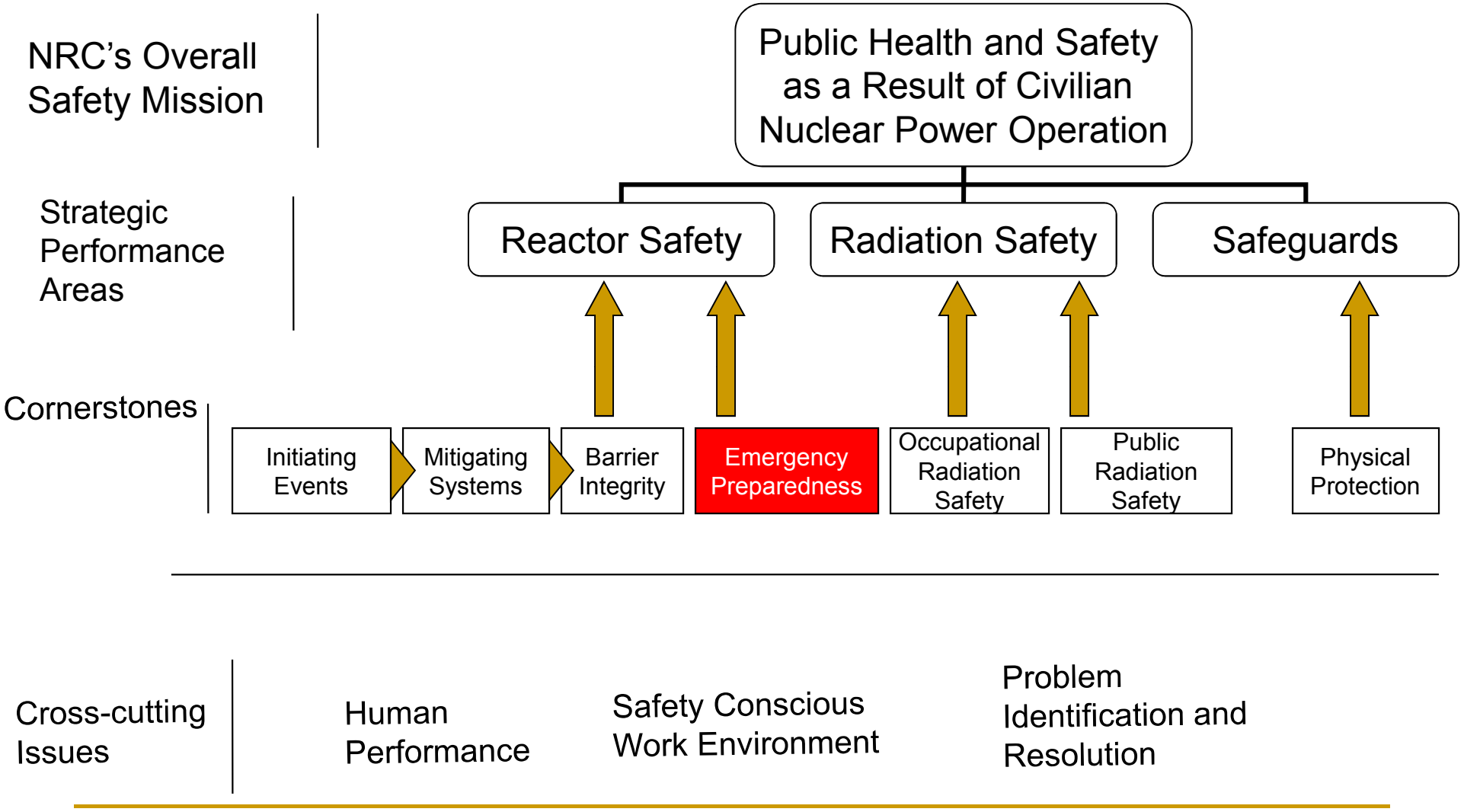
Chapter 4: EP Inspection Program and Enforcement

Introduction to Emergency Preparedness (H-107)

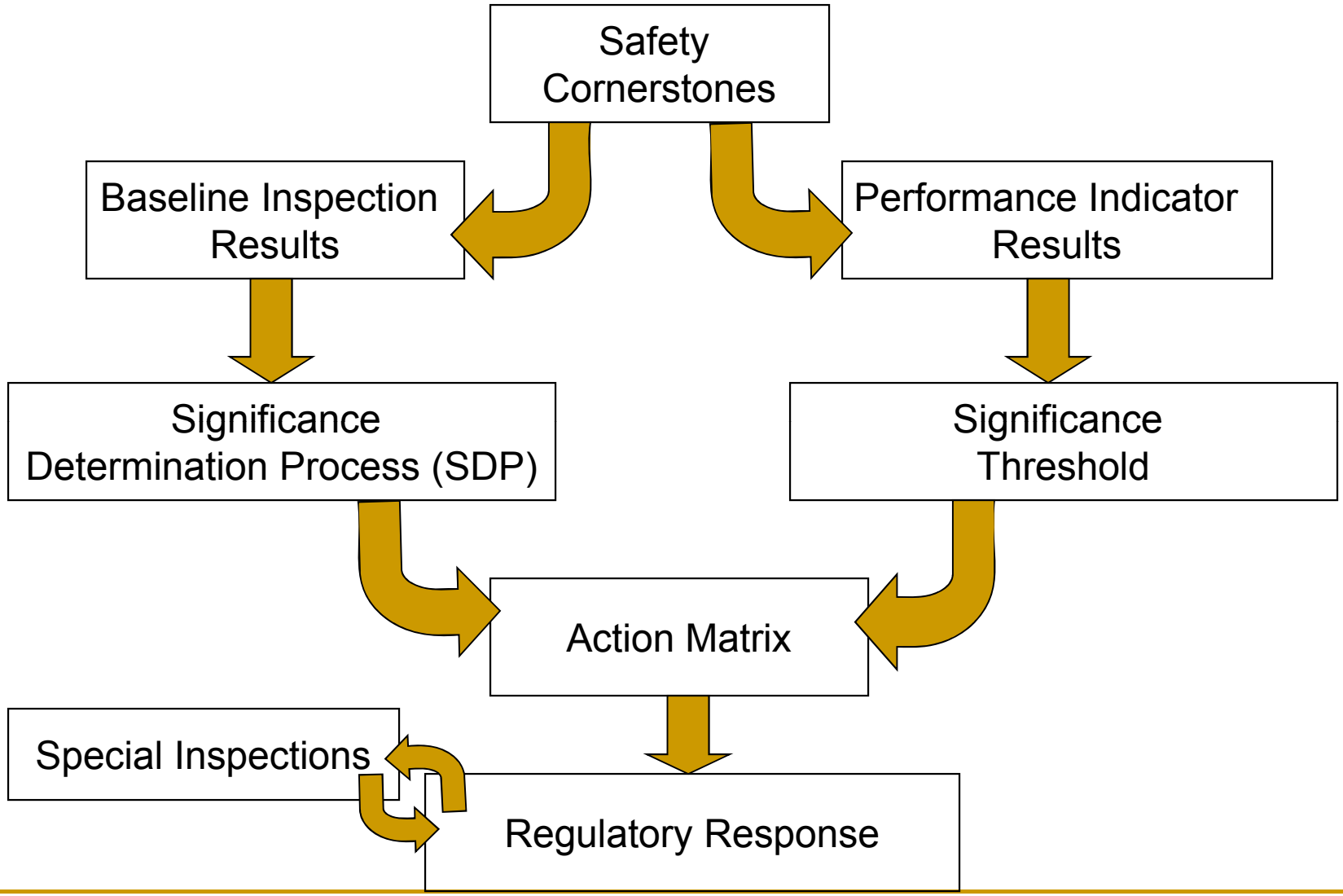
Topics:

- ROP Framework
- EP Performance Indicators
- EP Baseline Inspection Program
- EP Supplemental Inspection Program
- EP Significance Determination Process
- Examples of Findings

Regulatory Framework



Performance Assessment



Finding Colors / Significance Levels

- Green Very low safety significance (licensee response band)
- White Low to moderate safety significance (increased regulatory response band)
- Yellow Substantial safety significance (required regulatory response band)
- Red High safety significance (unacceptable performance band)

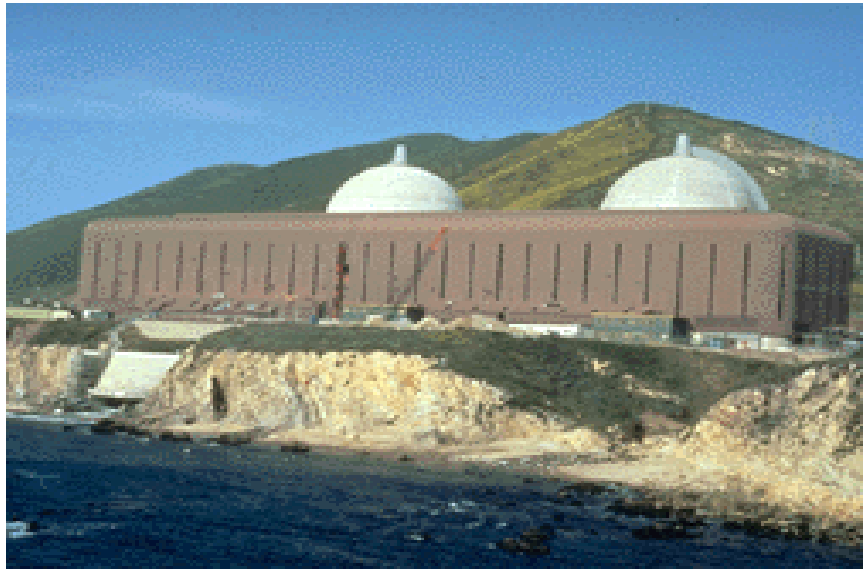
Exhibit 5 - ACTION MATRIX

	Licensee Response Column	Regulatory Response Column	Degraded Cornerstone Column	Multiple/ Repetitive Degraded Cornerstone Column	Unacceptable Performance Column	IMC 0350 Process
	All Assessment Inputs (Performance Indicators (PIs) and Inspection Findings) Green; Cornerstone Objectives Fully Met	One or Two White Inputs (in different cornerstones) in a Strategic Performance Area; Cornerstone Objectives Fully Met	One Degraded Cornerstone (2 White Inputs or 1 Yellow Input) or any 3 White Inputs in a Strategic Performance Area; Cornerstone Objectives Met with Moderate Degradation in Safety Performance	Repetitive Degraded Cornerstone, Multiple Degraded Cornerstones, Multiple Yellow Inputs, or 1 Red Input; Cornerstone Objectives Met with Longstanding Issues or Significant Degradation in Safety Performance	Overall Unacceptable Performance; Plants Not Permitted to Operate Within this Band, Unacceptable Margin to Safety	Plants in a shutdown condition with performance problems placed under the IMC 0350 process
Regulatory Performance Meeting	None	Branch Chief (BC) or Division Director (DD) Meet with Licensee	DD or Regional Administrator (RA) Meet with Licensee	RA (or EDO) Meet with Senior Licensee Management	Commission meeting with Senior Licensee Management	RA (or EDO) Meet with Senior Licensee Management
Licensee Action	Licensee Corrective Action	Licensee root cause evaluation and corrective action with NRC Oversight	Licensee cumulative root cause evaluation with NRC Oversight	Licensee Performance Improvement Plan with NRC Oversight		Licensee Performance Improvement Plan / Restart Plan with NRC Oversight
NRC Inspection	Risk-Informed Baseline Inspection Program	Baseline and supplemental inspection procedure 95001	Baseline and supplemental inspection procedure 95002	Baseline and supplemental inspection procedure 95003		Baseline and supplemental as practicable, plus special inspections per restart checklist.
Regulatory Actions[1]	None	Supplemental inspection only	Supplemental inspection only	-10 CFR 2.204 DFI -10 CFR 50.54(f) Letter - CAL/Order	Order to Modify, Suspend, or Revoke Licensed Activities	CAL/order requiring NRC approval for restart.
Assessment Letters	BC or DD review/sign assessment report (w/ inspection plan)	DD review/sign assessment report (w/ inspection plan)	RA review/sign assessment report (w/ inspection plan)	RA review/sign assessment report (w/ inspection plan)		N/A. RA (or 0350 Panel Chairman) review/ sign 0350-related correspondence
Annual Public Meeting	SRI or BC Meet with Licensee	BC or DD Meet with Licensee	RA (or designee) Discuss Performance with Licensee	RA or EDO Discuss Performance with Senior Licensee Management		N/A. 0350 Panel Chairman conduct public status meetings periodically
Commission Involvement	None	None	None	Plant discussed at AARM	Commission Meeting with Senior Licensee Management	Commission meetings as requested, restart approval in some cases.

Emergency Preparedness Cornerstone

- Objective:

"Ensure that the licensee is capable of implementing adequate measures to protect the public health and safety in the event of a radiological emergency."



Emergency Preparedness Cornerstone

- Performance Expectation:

  "Demonstrate that reasonable assurance exists that the licensee can effectively implement its emergency plan to adequately protect the public health and safety in the event of a radiological emergency."

Emergency Preparedness Cornerstone

- 3 Performance Indicators
- Baseline Inspection Program
- Special Inspection Program

Emergency Preparedness Performance Indicators

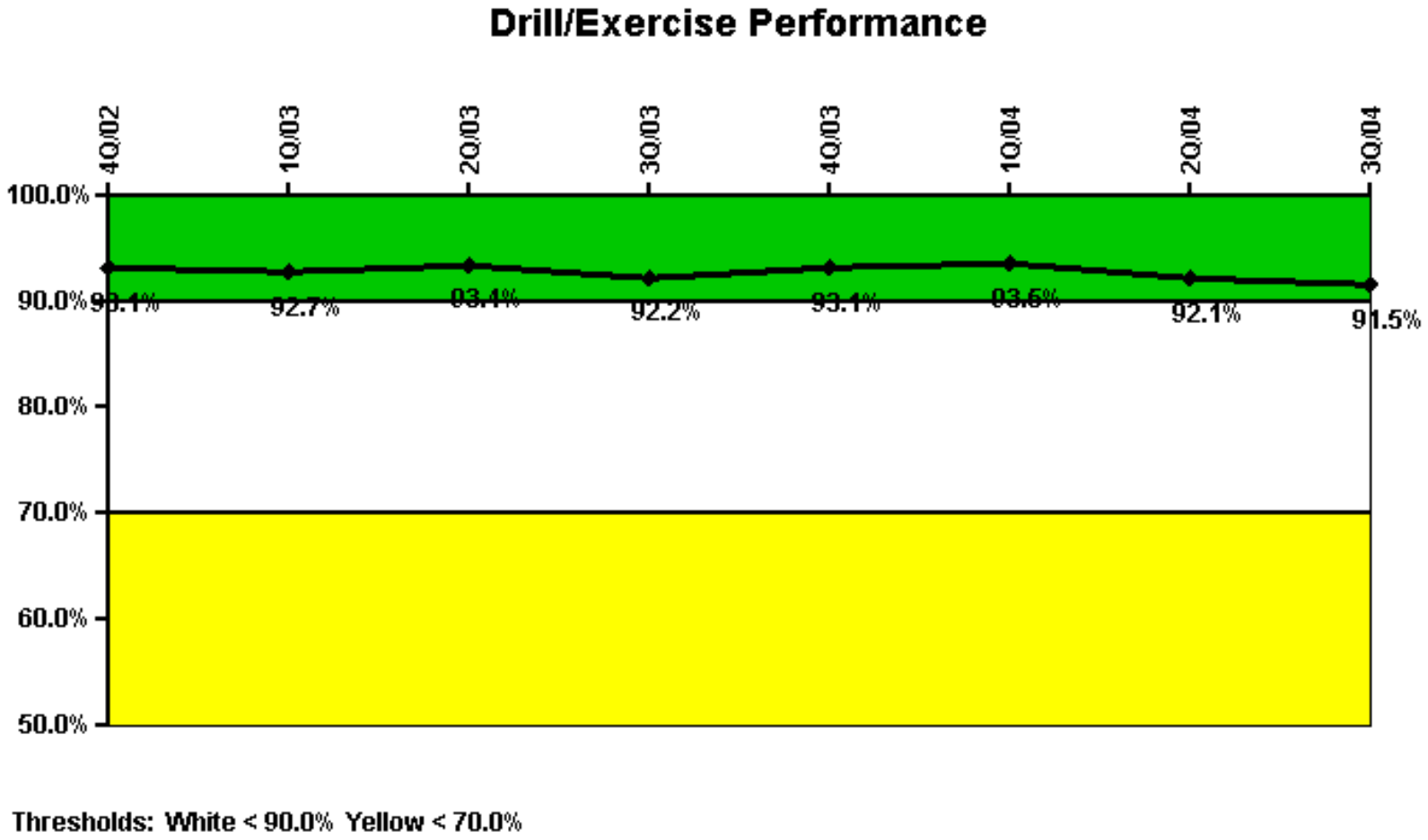
- Drill and Exercise Performance (DEP)
- Emergency Response Organization Drill Participation (ERO)
- Alert and Notification System Performance (ANS)

Drill and Exercise Performance (DEP) PI

- Drill and Exercise Performance
  - Monitors timely and accurate licensee performance in drills and exercise when presented with “opportunities” for classification, notification, and protective action recommendations (PARs)
  - 90% Green/White threshold

$$\frac{\text{\# of timely \& accurate classifications, notifications \& PARs (calculated over previous 8 quarters)}}{\text{total opportunities}}$$

DEP PI Example

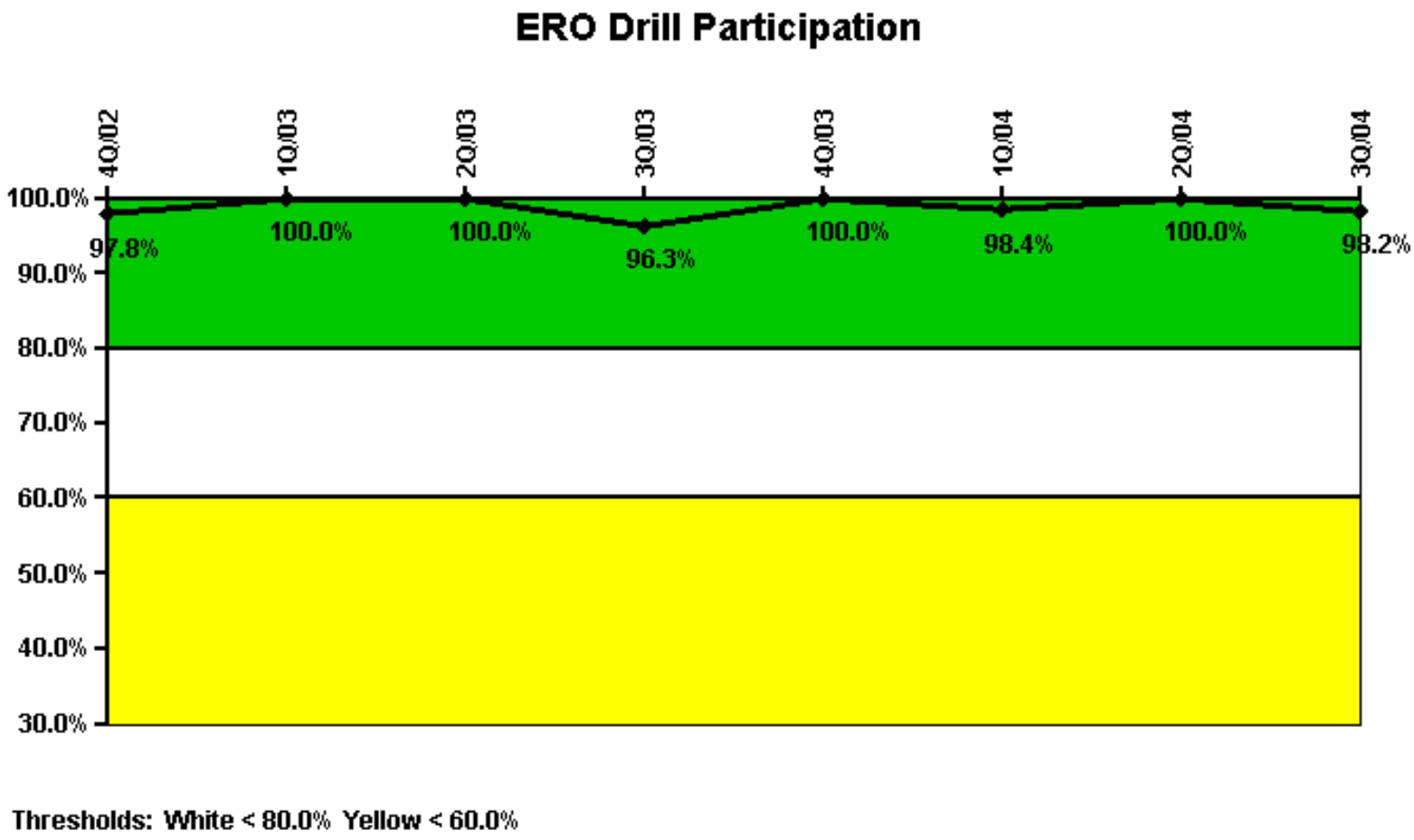


Emergency Response Organization (ERO) PI

- Emergency Response Organization Drill Participation
  - Percentage of ERO members assigned to fill key positions who have participated in a performance-enhancing drill/exercise
  - 80% Green/White threshold

$$\frac{\text{\# of ERO members assigned to fill key positions that have participated in a drill (calculated over 8 quarters)}}{\text{total number of key positions assigned to ERO members}}$$

ERO PI Example

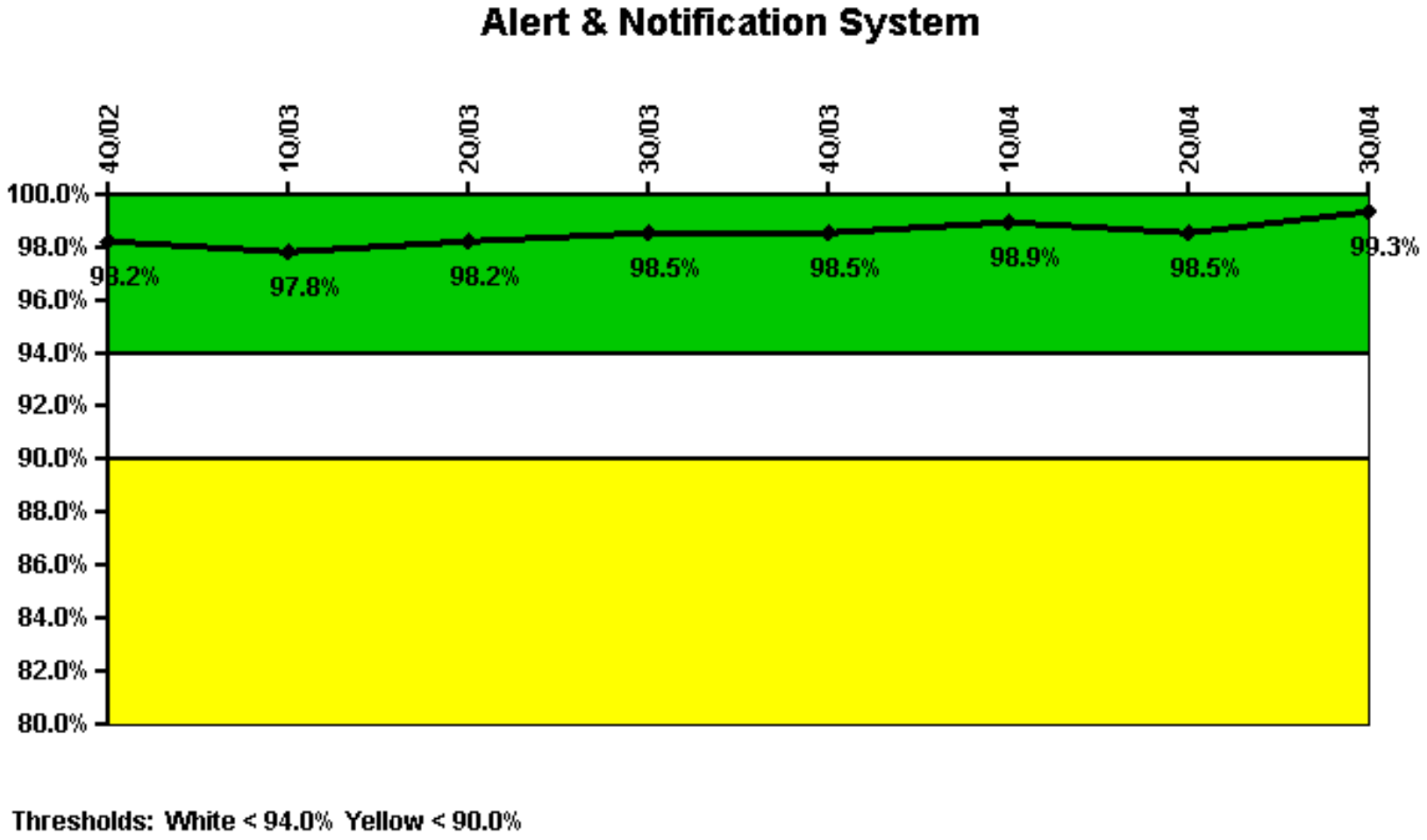


Alert and Notification System (ANS) PI

- Alert and Notification System Performance
  - Monitors the reliability of offsite ANS
  - Periodic tests are the regularly scheduled tests (documented in the licensee's test plan or guidelines) that are conducted to actually test the ability of the sirens to perform their function (e.g., silent, growl, siren sound test).
  - 94% Green/White threshold

$$\frac{\text{\# of successful siren tests (calculated over 4 quarters)}}{\text{total number of siren tests}}$$

ANS PI Example



Emergency Preparedness Baseline Inspections

- IP 71114 Attachments .01 - .06
  - Exercise Evaluation (biennial exercise)
  - Alert and Notification System Testing
  - Emergency Response Organization Augmentation
  - Emergency Action Levels And Plan Changes
  - Correction of Weaknesses
  - Drill Evaluation (resident inspector)

  - Draft attachment .07
    - Security-based EP Exercise

Emergency Preparedness SDP

- EP is a defense-in-depth measure
- Emergency Plan being implemented in response to event
- ***Impact*** on public health and safety of a program failure
  - No actual affect on public health and safety
- Risk to public health and safety increased due to lack of fully functioning defense-in-depth feature

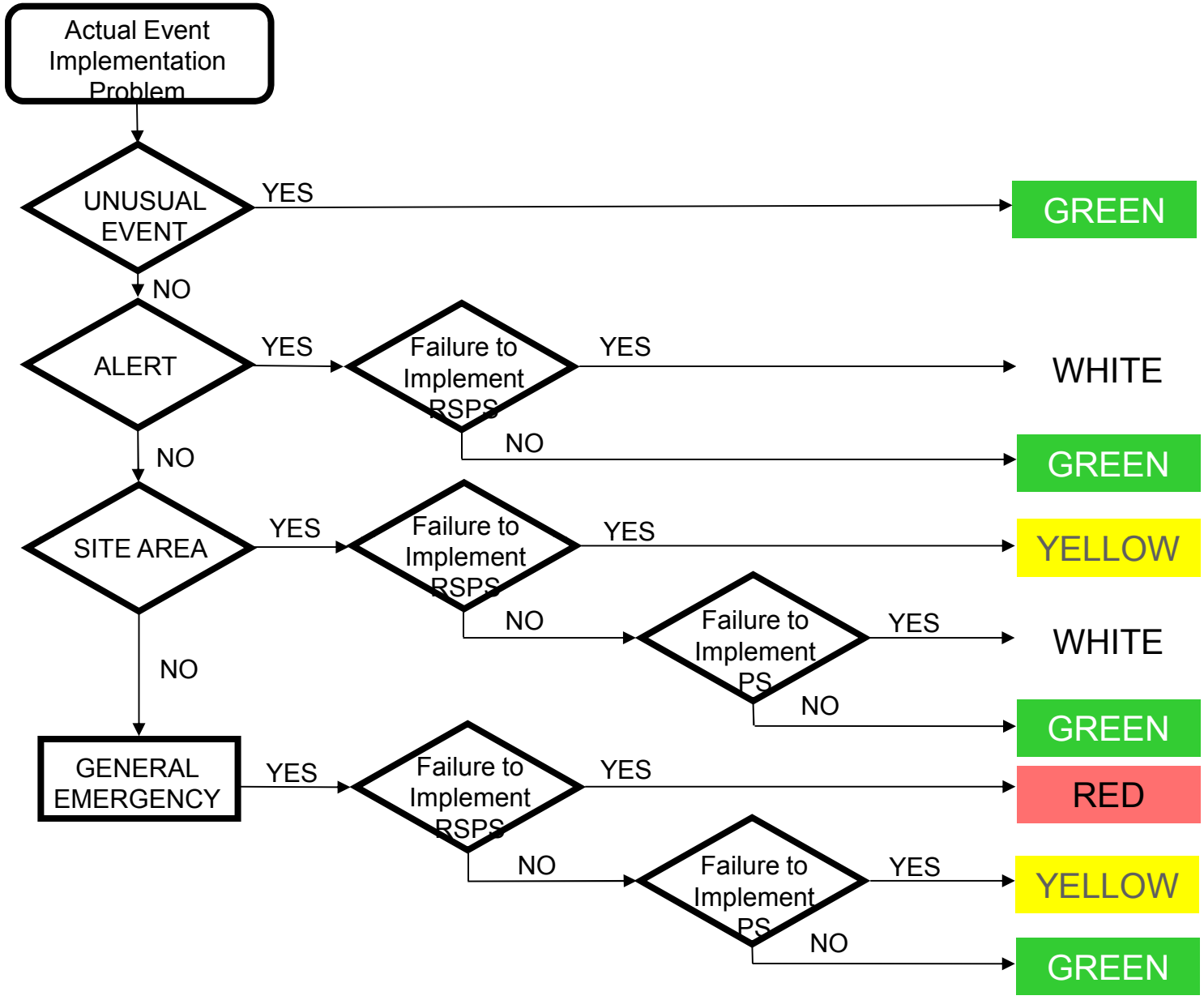
2 Types of Entry into the SDP

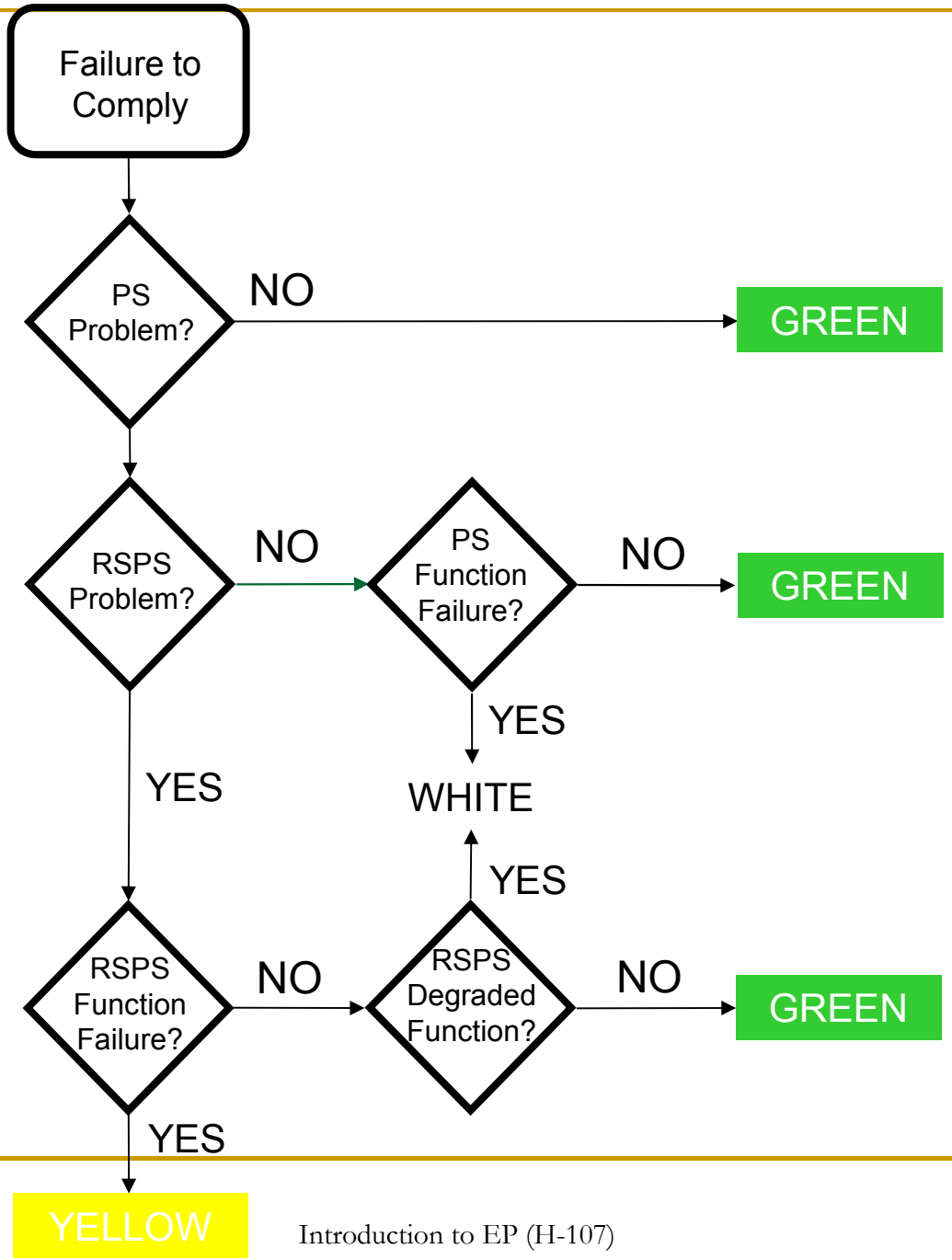
- Actual Event Implementation Problem
- Failure to Meet Regulatory Requirements
  - 16 Planning Standards

Risk Significant Planning Standards (RSPSs)

- Origins of the RSPSs
  - During the development of the EP Cornerstone, the most risk-significant EP elements were identified as being distinct from other EP elements
  - Developed by a group of EP subject matter experts, including NRC staff and industry stakeholders, with input from members of the public
  - EP SDP methodology recognizes findings in the identified risk-significant elements as being more significant

- *Classification* - (b)(4)
  - Emergency Action Level Classification Scheme
- *Notification* - (b)(5)
  - Prompt notification of offsite officials and the public
- *Dose Assessment* - (b)(9)
  - Dose assessment capabilities
- *Protective Action Recommendations* - (b)(10)
  - Range of protective actions for 10 mile EPZ


Actual Event Implementation Problem
UNUSUAL EVENT
YES
GREEN
NO
ALERT
YES
Failure to Implement RSPS
YES
WHITE
NO
GREEN
NO
SITE AREA
YES
Failure to Implement RSPS
YES
YELLOW
NO
Failure to Implement PS
YES
WHITE
NO
GREEN
NO
GENERAL EMERGENCY
YES
Failure to Implement RSPS
YES
RED
NO
Failure to Implement PS
YES
YELLOW
NO
GREEN

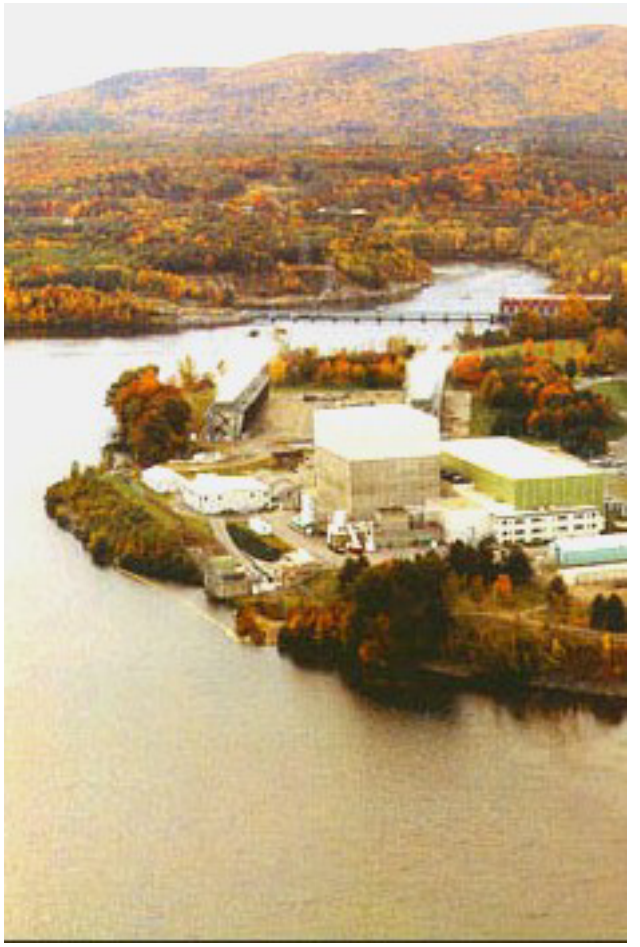

Failure to Comply
PS Problem?
NO
GREEN
RSPS Problem?
NO
PS Function Failure?
NO
GREEN
YES
WHITE
YES
YES
RSPS Function Failure?
NO
RSPS Degraded Function?
NO
GREEN
YES
YELLOW

Emergency Preparedness Supplemental Inspections

- IP 95001, 95002, 95003.1 are triggered by the Action Matrix
- 95001 – Regulatory Response Column
  - Objectives
    - To provide assurance that the root cause and contributing causes of risk significant performance issues are understood
    - To provide assurance that the extent of condition of risk significant performance issues is identified
    - To provide assurance that licensee corrective actions are sufficient to address the root causes and contributing causes, and to prevent reoccurrence
- 95002 – Degraded Cornerstone Column
  - Similar to 95001 but with independent review of extent of condition and extent of cause by NRC inspection team
- 95003.1 – Multiple Repetitive Column
  - Objectives
    - To gather information in support of the determination whether the licensee is capable of implementing adequate measures to protect public health and safety in the even of a radiological emergency
    - To verify that the EP program complies with applicable NRC regulations
    - To verify that the licensee is complying with commitments made in the Emergency Plan
    - To the extent practical, verify the absence of findings greater than white by determining the extent of condition of problems in the EP Cornerstone
  - 95003.1 inspection recently performed at Point Beach

Recent Examples of Findings and Violations

- In Fiscal Year 2004
  - 1 Severity Level III Violation
  - 4 Severity Level IV NCVs
  - 18 Green NCVs
  - 9 Green Findings
- FY 2005 update



Severity Level IV, Non-Cited Violation
10 CFR 50.54(q) – Decrease in Effectiveness

- Davis-Besse
  - March 2004
- Changed an indicator of an UE EAL from automatic or manual actuation of the Steam and Feedwater Rupture Control System to only automatic actuation
  - Narrowed the scope of the indicator by not clearly addressing manual actuation as was stated in the previous version of the EAL
  - Although the new EAL assumed that a manual actuation was used to preclude an automatic actuation and therefore was considered an automatic actuation, the EAL was not straightforward enough to ensure routine accuracy during classification

Green Non-Cited Violation

Failure to Comply during an Actual Event

- Ginna
  - April 2004
- Inspectors noted that after the declaration of an Unusual Event, the licensee did not augment the shift crew with a 30-minute radiation protection technician (RPT) in a timely manner
  - RPT arrived 62 minutes after UE declaration
  - 10 CFR 50.47(b)(2)
- Larger scoping issues
  - Control room crew skipped the step to immediately notify RPTs since event was “non-radiological”
  - Of 17 RPTs available, only 1 responded to notification
    - 2:00 am event / RPTs’ pagers were in other rooms or set to vibrate
  - EPIP was vague as to who should initiate notification of RPTs
  - Procedure changes had not been fully trained upon

Green Non-Cited Violation
for Failure to Comply

- Point Beach
  - February 2004
- A violation of 10 CFR 50.47(b)(4) was identified – the licensee failed to ensure that the facility seismic monitors were capable of supporting implementation of an NOUE EAL
- EAL 6.1.1.1 required declaration of an NOUE if ground shaking was felt or if an indicator light (set to actuate at greater than or equal to .01g) was observed on two or more of the four seismic monitors
  - The as-found setpoint for all three seismic monitors (one monitor, SEI-6211, had been sent to Sweden for repair) exceeded .03g
- Additionally, there was no system or procedure to periodically verify the accuracy of the as-found setpoints
- Also, indication of seismic events would not have been made available to control room staff in an acceptable time (separate violation)

White Violation
for Failure to Comply

- Vermont Yankee
  - January 2005
- Violation of 10 CFR 50.47(b)(5) because the method of distributing tone alert radios to members of the public outside of siren coverage was not meeting the intent of the design basis for the alert and notification system
- Inspector determined that VY did not have the means to ensure early notification of an emergency to a portion of the population within the plant's 10-mile EPZ, as required by the facility's emergency plan. Entergy could not ensure that there was proper distribution and maintenance of tone alert radios that would be used to alert individuals in portions of the EPZ who would not hear sirens due to the terrain.

Performance Indicator Violations

- Alert and Notification System Performance Indicator
  - Changes in testing plan can lead to erroneous PI data
  - Potential for manipulation of PI data to stay above Green/White threshold
- Recent example that tested this theory:
  - Davis-Besse

End Chapter 4

Next up:

Chapter 5: FEMA and Offsite Preparedness