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**Do not include proprietary materials.***

DATE OF MEETING

**04/05/2002**

The attached document(s), which was/were handed out in this meeting, is/are to be placed in the public domain as soon as possible. The minutes of the meeting will be issued in the near future. Following are administrative details regarding this meeting:

Docket Number(s)

**50-317; 50-318**

Plant/Facility Name

**Calvert Cliffs Nuclear Power Plant, Units 1 and 2**

TAC Number(s) (if available)

Reference Meeting Notice

**02-013**

Purpose of Meeting  
(copy from meeting notice)

**The NRC staff and CCNPPI management will discuss the  
results of NRC's assessment of the safety performance of  
Calvert Cliffs for the period April - December 31, 2001.**

NAME OF PERSON WHO ISSUED MEETING NOTICE

**Michele G. Evans**

TITLE

**Branch Chief**

OFFICE

**Region I**

DIVISION

**Division of Reactor Projects**

BRANCH

**Projects Branch 1**

Distribution of this form and attachments:

Docket File/Central File  
PUBLIC

# Annual Assessment Meeting

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Reactor Oversight Program - Cycle 2



Nuclear Regulatory Commission -Region I  
King of Prussia, PA

# Agenda

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- Introduction
- The NRC - Who We Are & What We Do
- The Reactor Oversight Process
- Calvert Cliff's Plant Performance
- Comments by Constellation Nuclear
- NRC Closing Remarks
- The NRC staff will be available following the meeting to address questions from the public

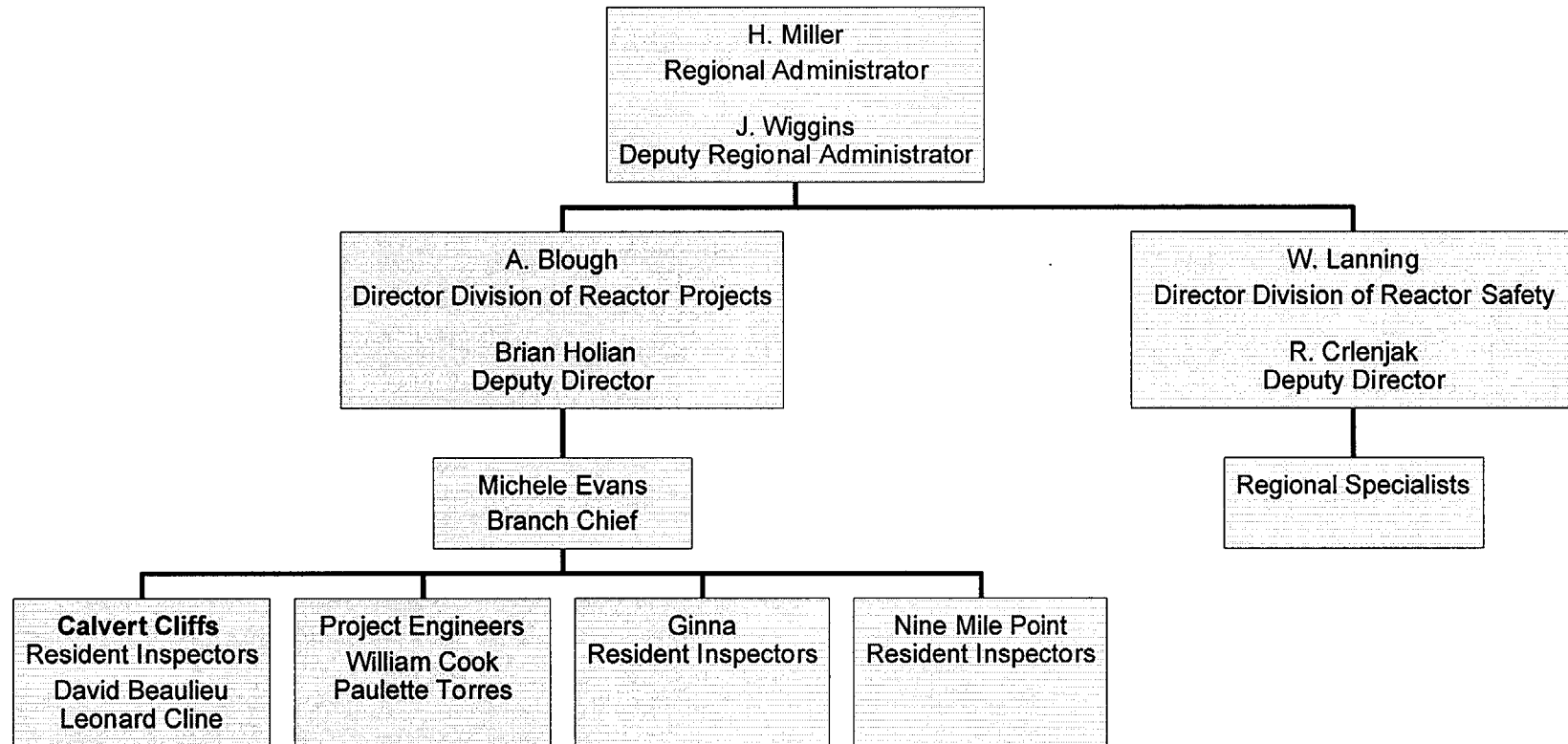
# NRC Response to 9/11

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- Highest Level of Security Maintained
- Comprehensive Review of Security
- Closely Coordinated Response With:
  - Our Licensees
  - FBI
  - Military, State, and Local Agencies
  - Intelligence Communities
- Issued Security Advisories
  - Increased Patrols
  - Augmented Security Capabilities
  - Added Barriers and Posts
  - More Limited Access
  - Enhanced Security Awareness
- Issued Order on Security
- NRC Monitoring Enhanced Security

# Region I Organization

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# NRC Representatives

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- Hubert Miller, Regional Administrator
- A. Randolph Blough, Director, Division of Reactor Projects
- Michele Evans, Chief Reactor Projects Branch 1
  - (mge@nrc.gov (610) 337-5224)
- Donna Skay, Project Manager, NRR
  - (dms6@nrc.gov (301) 415-1322)
- David Beaulieu, Senior Resident Inspector
  - (dpb@nrc.gov (410) 586-2626)
- Leonard Cline, Resident Inspector
  - (lmc1@nrc.gov (410) 586-2626)
- Public Affairs Office Region 1
  - (OPA1@nrc.gov (610) 337-5330)

# Reference Sources

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- NRC Home Page

- ▶ <http://www.nrc.gov>

- Reactor Oversight Process

- ▶ <http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/index.html>

- Public Electronic Reading Room

- ▶ <http://www.nrc.gov/reading-rm/adams.html>

- Public Document Room

- ▶ 1-800-397-4209 (Toll Free)

# NRC Activities

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- Issue licenses for the peaceful use of nuclear materials in the U.S.
- Ensure nuclear plants are designed, constructed, and operated safely
- Ensure licensees use nuclear materials and operate plants safely, and are prepared to respond to emergencies



# NRC Performance Goals

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- Maintain safety and protect the environment
- Enhance public confidence
- Improve effectiveness, efficiency, and realism of processes and decision making
- Reduce unnecessary regulatory burden

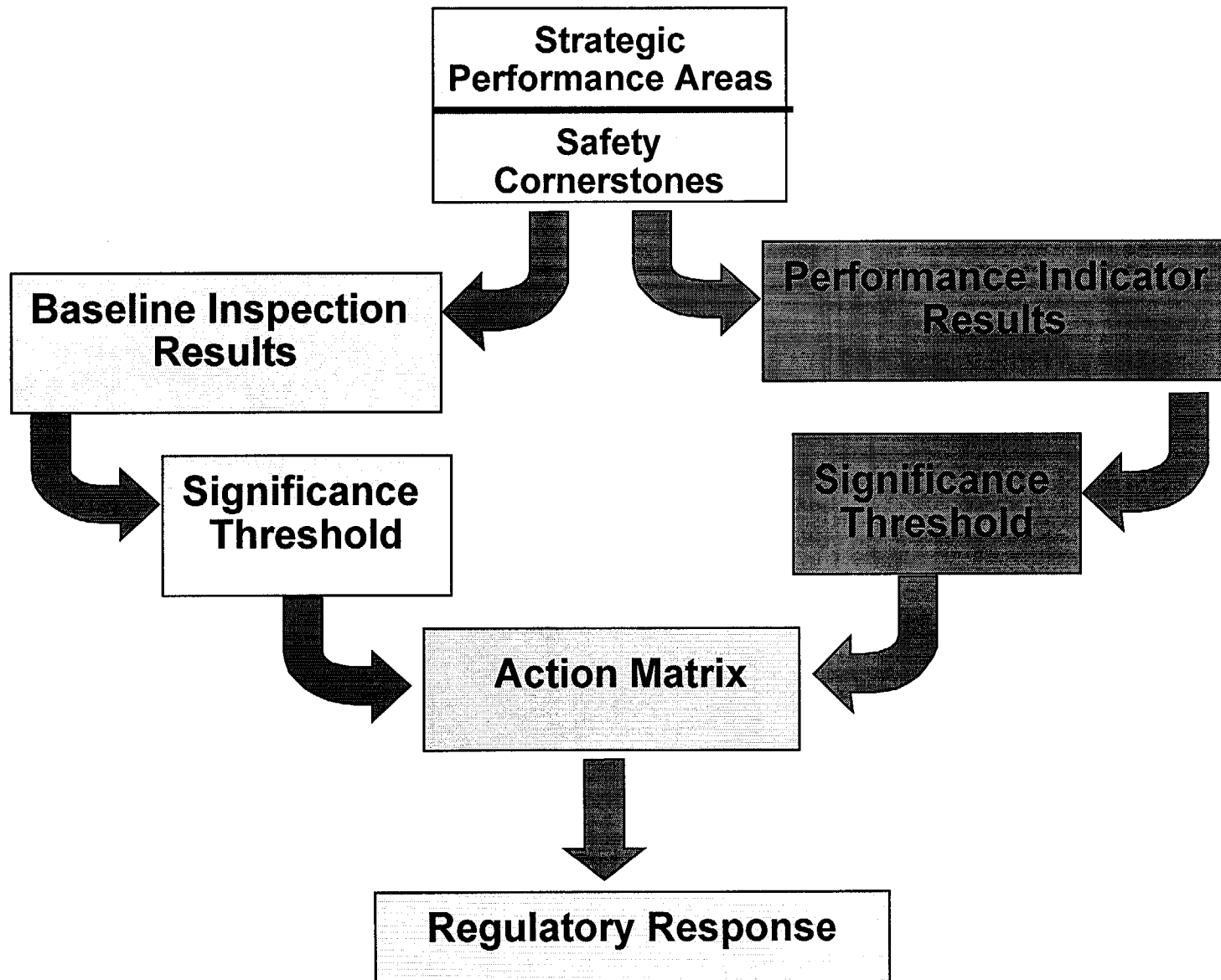
# NRC Oversight Activities

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- Provides assurance plants are operating safely and in accordance with the regulations
- Risk informed process
- Objective indicators of performance
- Inspections focused on key safety areas
- Defines expected NRC and licensee actions

# Reactor Oversight Process

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# Strategic Performance Areas / Safety Cornerstones

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- Reactor Safety
  - Initiating Events
  - Mitigating Systems
  - Barrier Integrity
  - Emergency Preparedness
- Radiation Safety
  - Occupational Radiation Safety
  - Public Radiation Safety
- Safeguards
  - Physical protection

# Examples of Baseline Inspections

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- Equipment Alignment ~ 70 hrs/yr
- Annual Fire Protection ~ 35 hrs/yr
- Triennial Fire Protection ~200 hrs every 3 yrs
- Operator Response ~ 125 hrs/yr
- Plant Security ~40 hrs/yr
- Emergency Preparedness ~60 hrs/yr
- Radiation Release Controls ~100 hrs every 2 yrs
- Worker Radiation Protection ~125 hrs/yr
- Corrective Action Program ~10% every inspection
- Corrective Action Program ~200 hrs every 2 yrs

# Performance Indicators

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- 18 Performance Indicators
- Covers all cornerstones
- Licensee submits data to NRC quarterly
- Baseline Inspection program verifies accuracy
- Available on Reactor Oversight Program Web site

# Significance Threshold

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## Inspections Findings

- Green: Very Low safety significance
- White: Low to moderate safety significance
- Yellow: Substantial safety significance
- Red: High safety significance

## Performance Indicators

- Green: Only baseline Inspection
- White: May increase NRC oversight
- Yellow: Requires more NRC oversight
- Red: Requires more NRC oversight

# Calvert Cliffs Inspection Activities

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(January 1 - December 31, 2001)

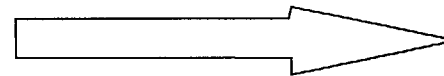
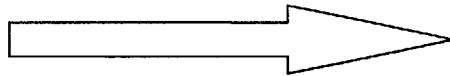
- 4990 hours of inspection related activity
- Two resident inspectors performing resident inspections
- 13 inspections by regional inspectors
  - ▶ Included: two team inspections, one special inspection, and one supplemental inspection
- Inspection Findings
  - ▶ 17 findings of very low safety significance
  - ▶ One finding of substantial safety significance



# Action Matrix Concept

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<b>Licensee Response</b>	<b>Regulatory Response</b>	<b>Degraded Cornerstone</b>	<b>Multiple/Degraded Cornerstone</b>	<b>Unacceptable Performance</b>
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Increasing Safety Significance

Increasing NRC Inspection Efforts

Increasing NRC/Licensee Management Involvement

Increasing Regulatory Actions

# National Summary of Plant Performance

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End of Calendar Year 2001

Licensee Response	74
Regulatory Response	24
Degraded Cornerstone	4
Multiple/Repetitive Degraded Cornerstone	1
Unacceptable	0

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Total Plants	103
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# National Summary

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## ■ Performance Indicator Results 4th Qtr Calendar Yr 2001

▶ Green	1834
▶ White	8
▶ Yellow	0
▶ Red:	0

## ■ Total Inspection Findings (April 2001 - December 2001)

▶ Green	660
▶ White	23
▶ Yellow	2
▶ Red	0

# Calvert Cliffs Annual Assessment

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(April 1 - December 31, 2001)

- Both units operated safely.
- Met all cornerstone objectives with moderate degradation in safety performance.
- Overall plant performance was within the Degraded Cornerstone Column of Action Matrix based on a Unit 1 inspection finding of substantial safety significance (Yellow) in Mitigating Systems cornerstone.
- The “Scrams with Loss of Normal Heat Removal” performance indicator (PI) for Unit 1 has been WHITE since the first quarter of 2000.

# **Calvert Cliffs Annual Assessment**

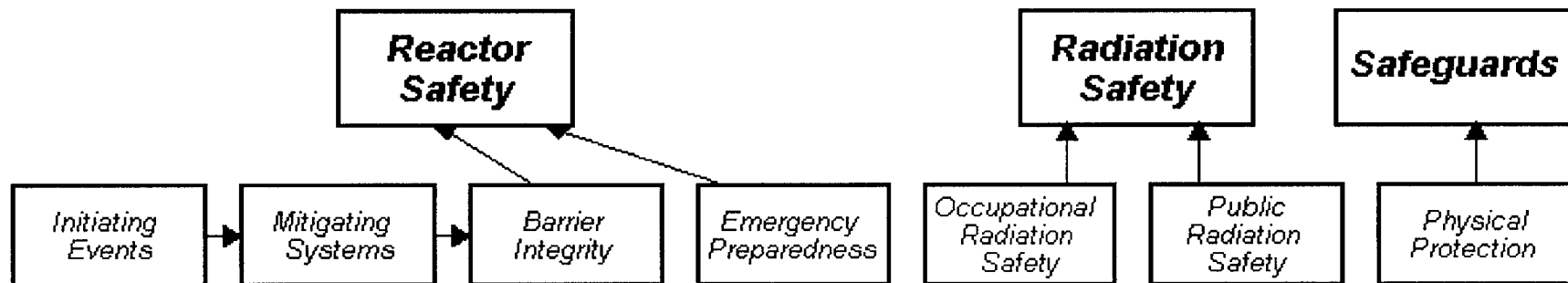
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**(April 1 - December 31, 2001)**

- Unit 2 was within the Licensee Response Column of the Action Matrix for the entire assessment cycle, based on all inspections findings and performance indicators being GREEN.

# Calvert Cliffs 1

## Performance Indicators 4Q/2001

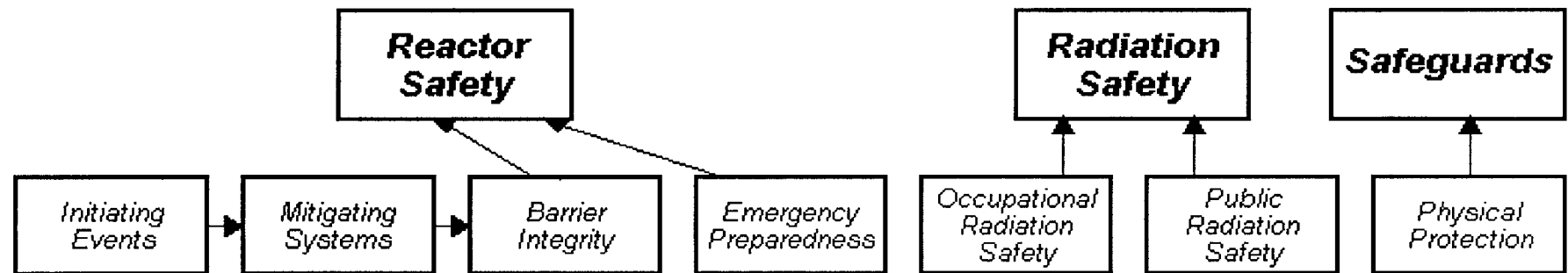


### Performance Indicators

Unplanned Scrams (G)	Emergency AC Power System Unavailability (G)	Redundant System Availability (G)	Drill/Exercise Performance (G)	Occupational Exposure Control Effectiveness (G)	RETS/ODCM Radiological Effluent (G)	Protected Area Equipment (G)
Scrams With Loss of Normal Heat Removal (W)	High Pressure Injection System Unavailability (G)	Redundant System Leakage (G)	EPG Drill Participation (G)			Personnel Screening Program (G)
Unplanned Power Changes (G)	Heat Removal System Unavailability (G)		Alert and Notification System (G)			FFD/Personnel Reliability Program (G)
	Residual Heat Removal System Unavailability (G)					
	Safety System Unavailability (G)					

# Calvert Cliffs 1

## Inspection Finding Summary



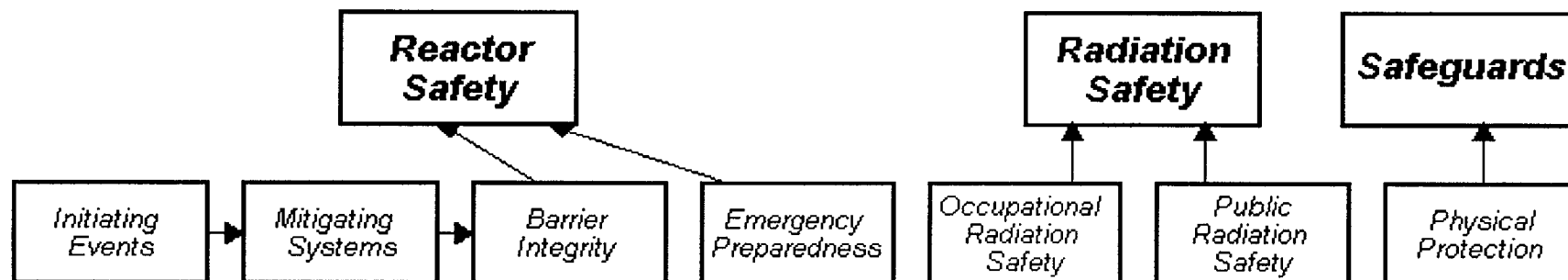
### Most Significant Inspection Findings

4Q/2001	No findings this quarter	G	No findings this quarter	No findings this quarter	G	No findings this quarter	No findings this quarter
3Q/2001	No findings this quarter	Y (1)	No findings this quarter	No findings this quarter	G	No findings this quarter	No findings this quarter
2Q/2001	No findings this quarter	G	No findings this quarter	No findings this quarter	G	No findings this quarter	No findings this quarter
1Q/2001	No findings this quarter	G	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter	No findings this quarter

Miscellaneous findings

# Calvert Cliffs 2

## Performance Indicators 4Q/2001



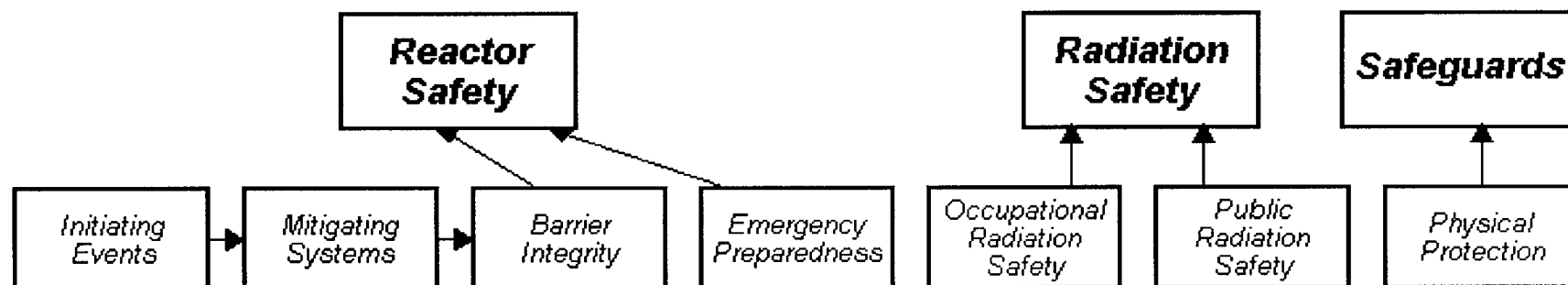
### Performance Indicators

Unplanned Borams (C)	Emergency AC Power System Availability (C)	Emergency Cooling System Availability (C)	Drill/Exercise Performance (C)	Occupational Exposure Control Effectiveness (C)	BETS/EDDM Radiological Effluent (C)	Protected Area Equipment (C)
Scrams With Loss of Normal Heat Removal (C)	High Pressure Injection System Unavailability (C)	Emergency Core Cooling System Availability (C)	ERD Drill Participation (C)			Personnel Screening Program (C)
Unplanned Power Changes (C)	Heat Removal System Unavailability (C)		Alert and Notification System (C)			ERD/Personnel Reliability Program (C)
	Residual Heat Removal System Unavailability (C)					
	Steam System Unavailability (C)					



# Calvert Cliffs 2

## Inspection Finding Summary



### Most Significant Inspection Findings

4Q/2001	No findings this quarter	G	No findings this quarter	No findings this quarter	G	No findings this quarter	No findings this quarter
3Q/2001	No findings this quarter	G	No findings this quarter	No findings this quarter	G	No findings this quarter	No findings this quarter
2Q/2001	No findings this quarter	G	No findings this quarter	No findings this quarter	G	No findings this quarter	No findings this quarter
1Q/2001	No findings this quarter	G	No findings this quarter	No findings this quarter	G	No findings this quarter	No findings this quarter

Miscellaneous findings

# Mitigating Systems Cornerstone

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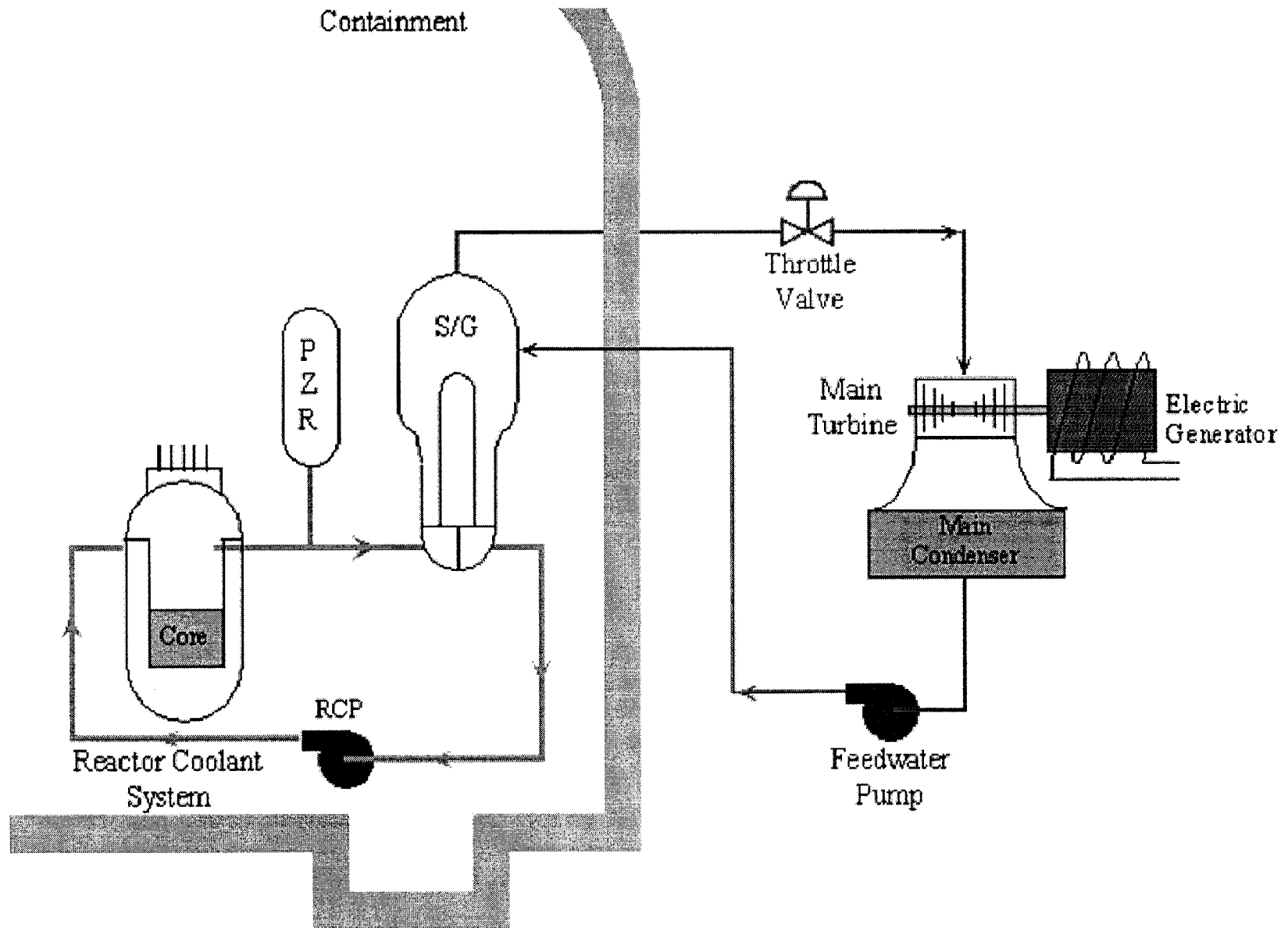
- Yellow inspection finding associated with the No. 11 auxiliary feedwater pump failure (reference Inspection Report 50-317/01-09, dated August 24, 2001).
- Maintenance instructions were not adhered to during reassembly of the No. 11 AFW pump's bearing housing. As a result, excessive sealant was applied which contaminated the oil and most likely, entered the bearing, resulting in a loss of lubrication and bearing failure.

# Mitigating Systems Cornerstone

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- Supplemental inspection conducted in December 2001 (reference Inspection Report 50-317/01-13, dated January 14, 2002), identified that the causal evaluation and corrective actions were acceptable.
- Substantive cross-cutting issue identified in the area of Problem Identification and Resolution, in part, due to seven findings in this cornerstone involving inconsistent and less than thorough assessments of degraded and non-conforming structures, systems, and components.
- NRC Plans to conduct PI&R inspections annually over the next two years because PI&R issues contributed to the YELLOW inspection finding.

# Simplified Pressurized Water Reactor

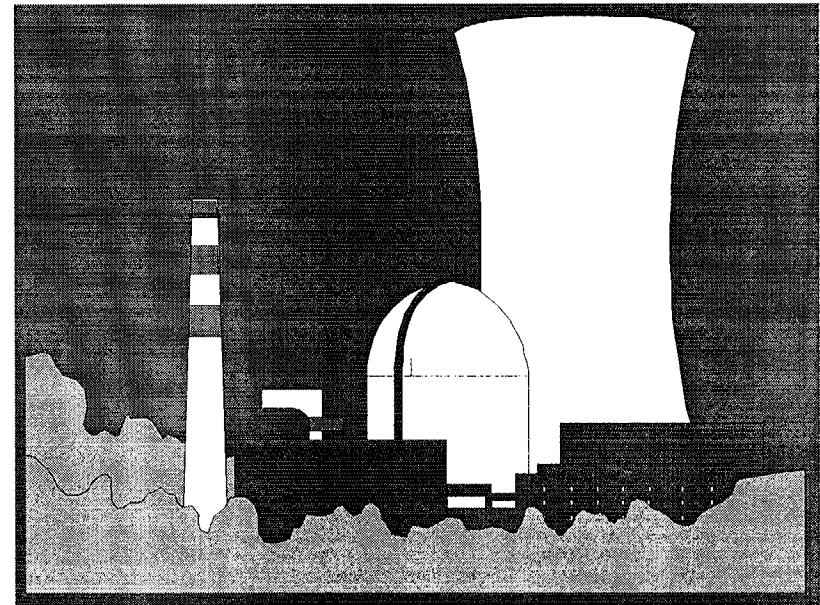


# NRC Resident and Regional Inspectors Conduct Safety Inspections

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Baseline Inspections at all reactor sites to monitor plant safety performance in each of the Strategic Performance Areas

Event Follow-up and Supplemental Inspections when required



# Key Aspects of Baseline Inspection Program

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- Conducted at all plants
- Objective evidence of safety in all cornerstones
- A Risk Informed Process that emphasizes safety significant systems, components, activities, and events
- Monitors licensee effectiveness in finding and fixing safety issues
- Standardized inspection report format to describe significant findings and non-compliance
- Inspection reports are publicly accessible

# Event Follow-up & Supplemental Inspection

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- Review events for significance
- Follow-up significant inspection findings
- Determine causes of performance declines
- Provides for graduated response

# Key Aspects of Assessment Program

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- Objective assessment of performance
- “Action Matrix” to determine agency response to performance
  - Inspection level increases
  - Management involvement increases
  - Regulatory action increases
- Plant specific assessment letters
- Information on NRC public web site

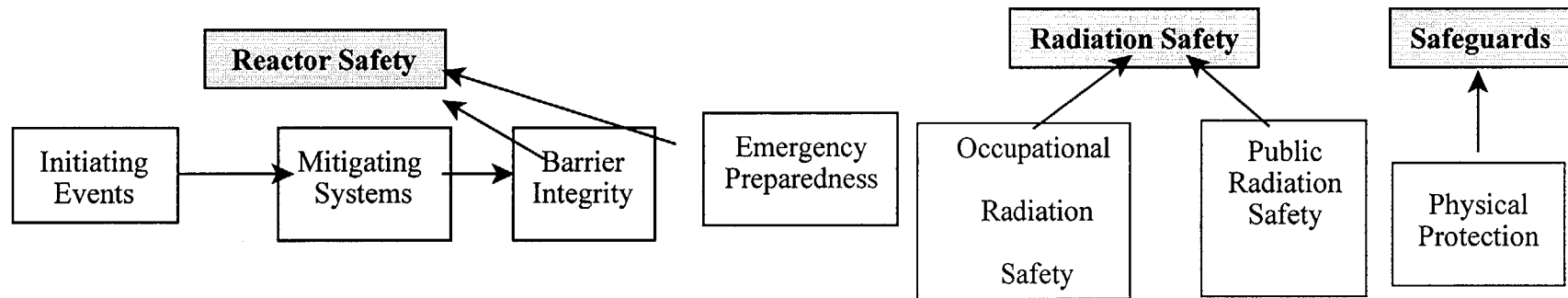


# Substantive Cross Cutting Issue

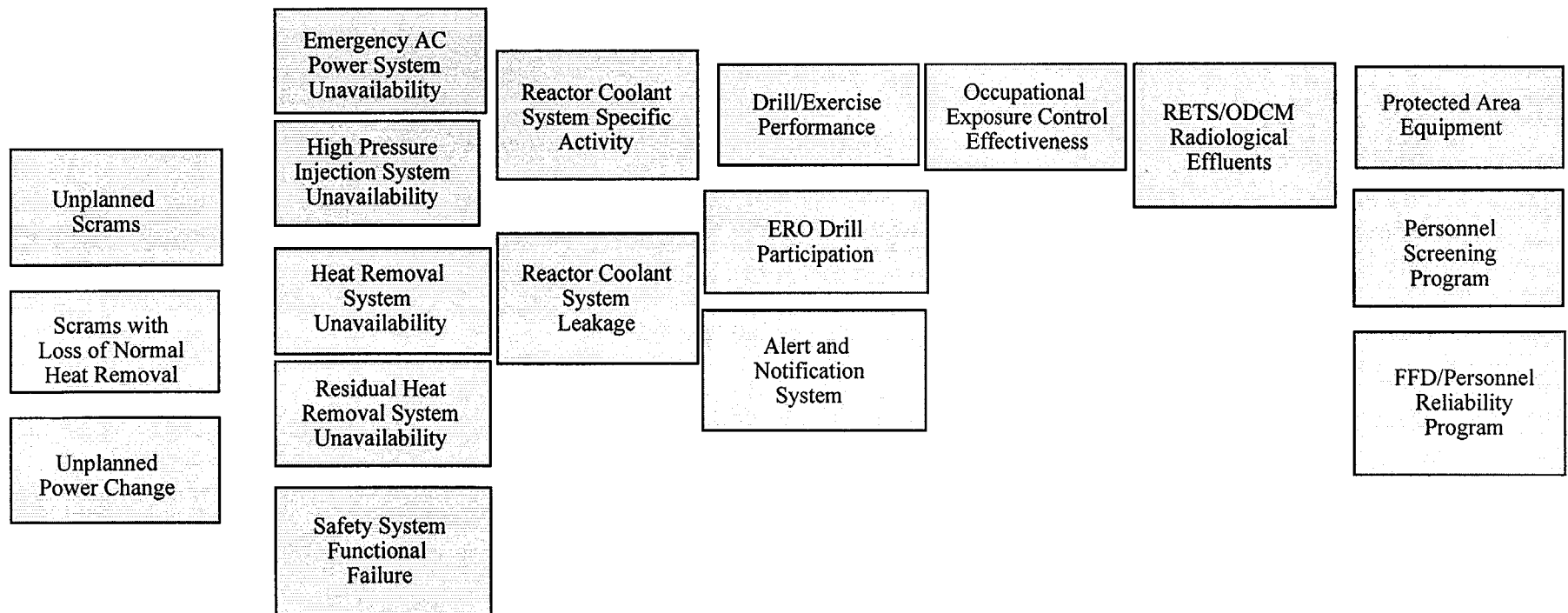
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- Multiple inspection findings with a common cause in:
  - ▶ Human performance
  - ▶ Problem Identification and Resolution
  - ▶ Safety conscious work environment
- Common cause of inspection findings
- Common cause documented in an assessment letter

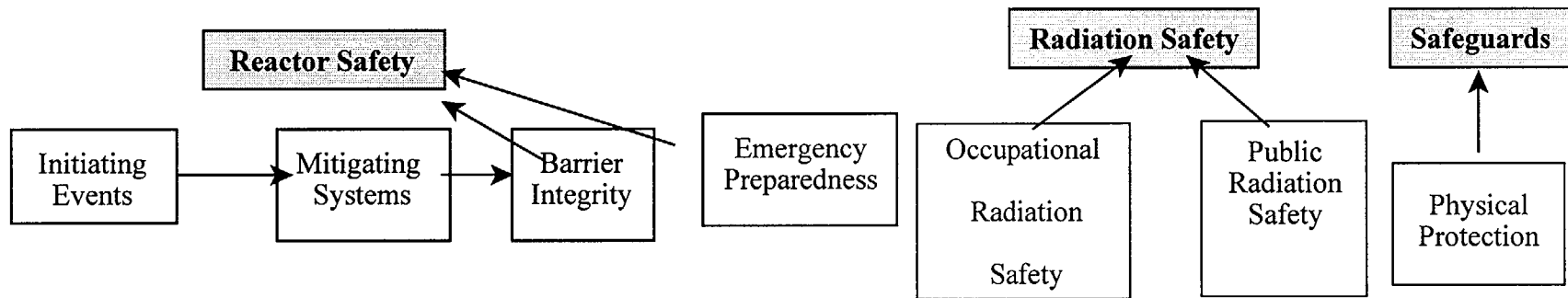
# Performance Indicators



## Performance Indicators



# Inspection Areas



## Inspection Procedures

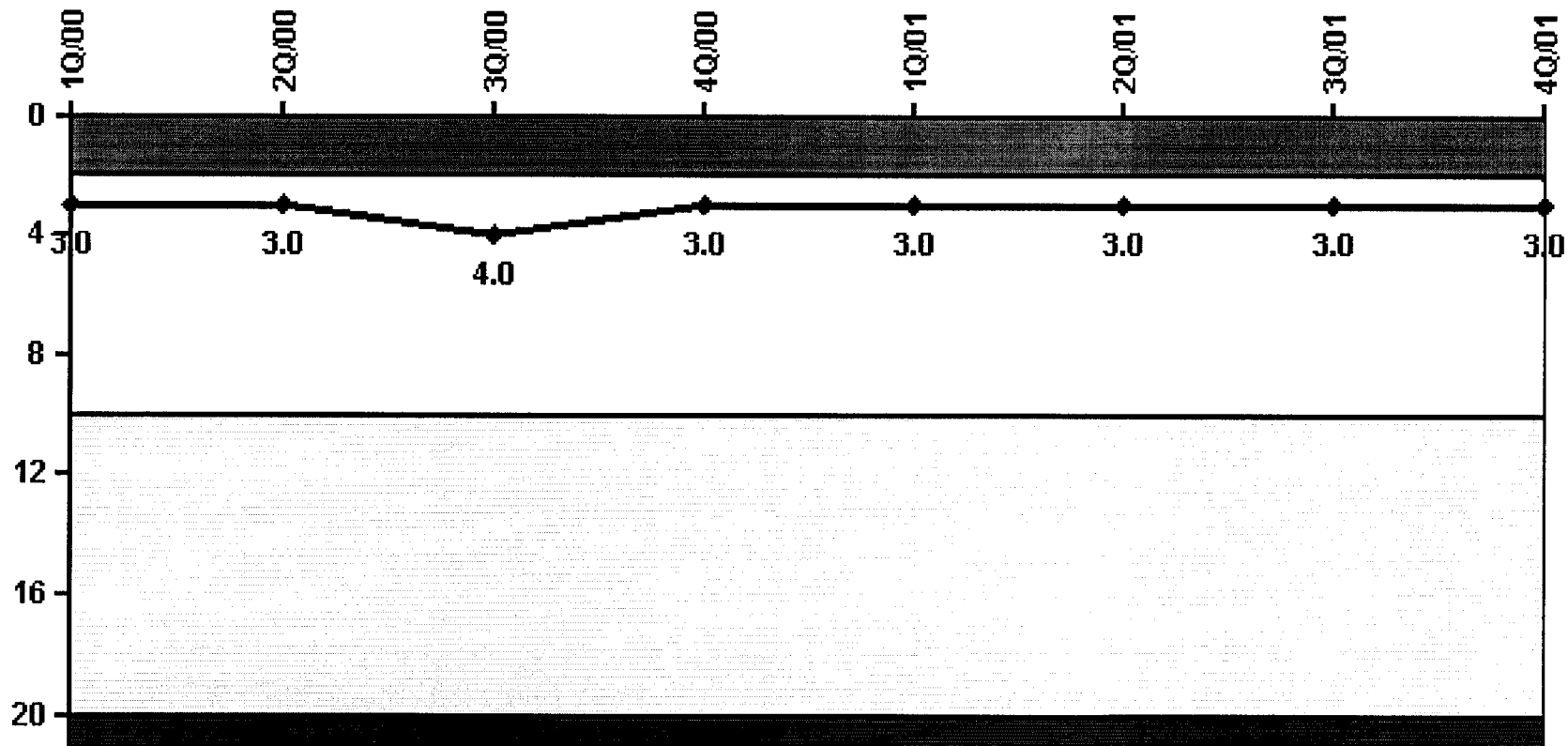
- |                               |                           |                       |                            |
|-------------------------------|---------------------------|-----------------------|----------------------------|
| ● Adverse Weather             | ● Operability Evaluation  | ● Exercise Evaluation | ● Sec Authorization Access |
| ● Evaluation of Changes       | ● Operator Workarounds    | ● Alert and Notice    | ● Sec Search               |
| ● Equipment Alignment         | ● Permanent Mods-Online   | ● ERO Augment         | ● Sec Response             |
| ● Fire Protection             | ● Permanent Mods          | ● EAL                 | ● Sec Plan change          |
| ● Flood Protection            | ● Post Maintenance Test   | ● EP Preparation      |                            |
| ● Heat Sink                   | ● Refueling Outage        | ● Drill Evaluation    |                            |
| ● In Service Inspection       | ● SSDI                    | ● RAD Access          |                            |
| ● Operator Requalification    | ● Surveillance Testing    | ● ALARA Plan          |                            |
| ● Maintenance Rule Imp        | ● Temporary Modifications | ● RAD monitoring      |                            |
| ● Maintenance Risk Assessment | ● PI&R                    | ● RAD Effluents       |                            |
| ● Non-Routine Events          | ● Event Follow-up         | ● RAD Transport       |                            |
|                               | ● PI Verification         | ● RAD Environmental   |                            |

# NRC Action Matrix

	Licensee Response Column		Regulatory Response Column	Degraded Cornerstone Column	Multiple/ Repetitive Degraded Cornerstone Column	Unacceptable Performance Column
RESULTS		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 Minimal Reduction in Safety Margin	Repetitive Degraded Cornerstone, Multiple Degraded Cornerstones, Multiple Yellow Inputs, or 1 Red Input; Cornerstone Objectives Met with Longstanding Issues or Significant Reduction in Safety Margin	Overall Unacceptable Performance; Plants Not Permitted to Operate Within this Band, Unacceptable Margin to Safety
RESPONSE	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
	Licensee Action	Licensee Corrective Action	Licensee Corrective Action with NRC Oversight	Licensee Self Assessment with NRC Oversight	Licensee Performance Improvement 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	
	Regulatory Actions	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
COMMUNICATION	Assessment Reports	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)  Commission Informed	
	Annual Public Meeting	SRI or BC Meet with Licensee	BC or DD Meet with Licensee	RA (or designee) Discuss Performance with Licensee	EDO (or Commission) Discuss Performance with Senior Licensee Management	Commission Meeting with Senior Licensee Management
	INCREASING SAFETY SIGNIFICANCE ----->					

# Performance Indicator

## Scrams with Loss of Normal Heat Removal



Thresholds: White > 2.0 Yellow > 10.0 Red > 20.0