



# **Braidwood Annual Assessment Meeting**

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**Reactor Oversight Program - CY 2006**



**Nuclear Regulatory Commission - Region III**

**Braceville, IL**

**May 22, 2007**

# Purpose of Today's Meeting

- Provide a public forum for discussion of the licensee's performance
- NRC will address the licensee performance issues identified in the annual assessment letter
- Licensee will be given the opportunity to respond to the information in the letter and inform the NRC of new or existing programs to maintain or improve their performance

# Agenda

- Introduction
- Review of Reactor Oversight Process
- National Summary of Plant Performance
- Discussion of Plant Performance Results
- Licensee Response and Remarks
- NRC Closing Remarks
- Break
- NRC available to address public questions

# Region III Organization

James Caldwell  
Regional Administrator

Geoff Grant  
Deputy Regional Administrator

Mark Satorius  
Director Division of Reactor Projects (DRP)

Steve West  
Deputy Director

Cynthia Pederson  
Director Division of Reactor Safety (DRS)

Anne Boland  
Deputy Director

Richard Skokowski  
Branch Chief

Regional Specialists

Braidwood  
Resident Inspectors  
Steven Ray  
Greg Roach

Project Engineer  
Desiree Smith

# NRC Representatives

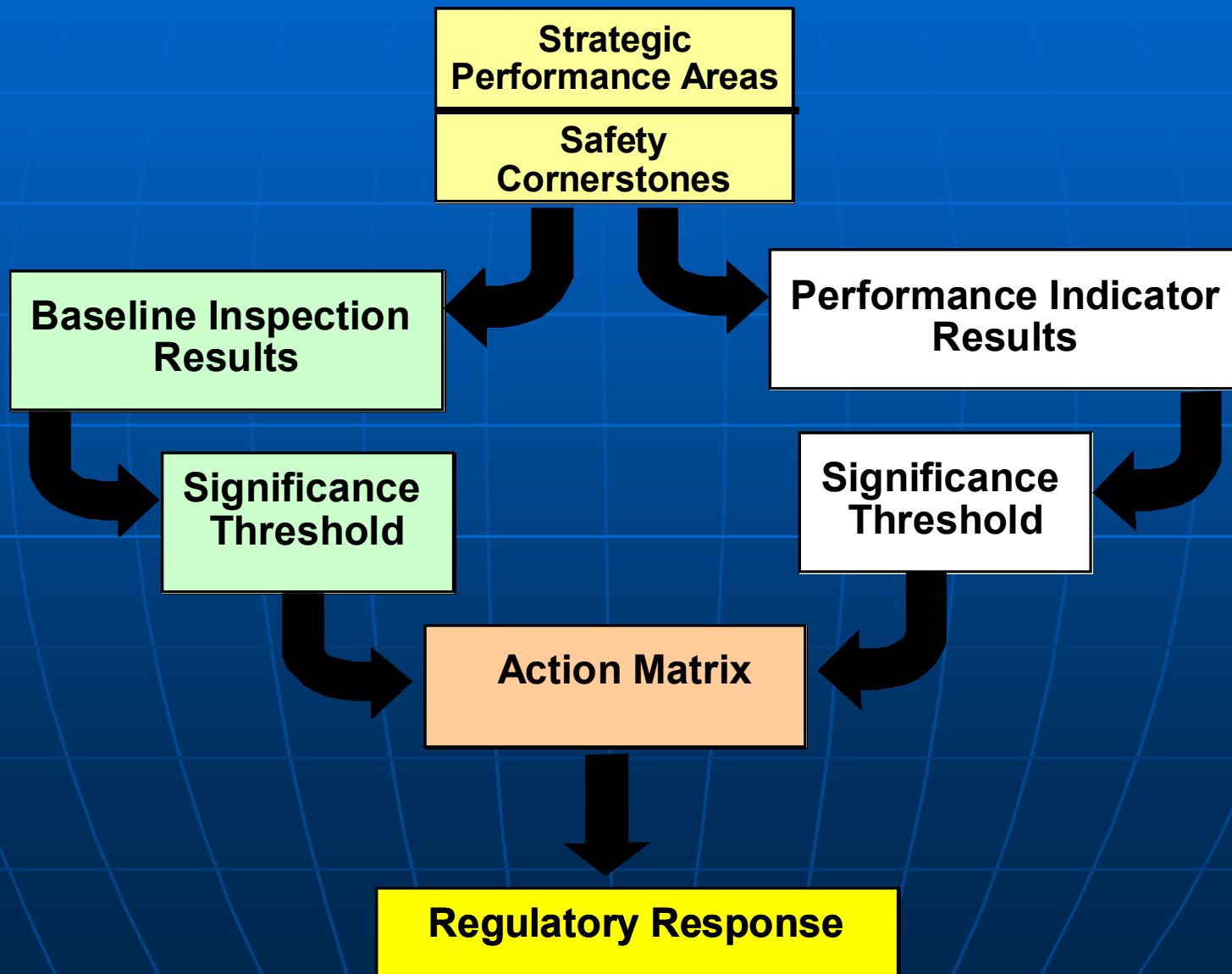
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- Steven Ray, Senior Resident Inspector
  - (815) 458-2852
- Greg Roach, Resident Inspector
  - (815) 458-2852
- Robert Kuntz, Project Manager, Nuclear Reactor Regulation
  - (301) 415-3733
- Terry Brock, Health Effects Branch, Nuclear Regulatory Research
  - (301) 415-2323
- Steven Orth, Health Physics Team Lead, DRS
  - (630) 829-9827
- Viktoria Mitlyng, Public Affairs Officer, Region III
  - (630) 829-9662
- John Cassidy, Health Physicist, DRS
  - (630) 829-9667
- Richard Skokowski, Branch Chief, DRP
  - (630) 829-9620

# NRC Performance Goals

- Safety: Ensure protection of the public health and safety and the environment
- Security: Ensure the secure use and management of radioactive materials
- Openness: Ensure openness in our regulatory process
- Effectiveness: Ensure that NRC actions are effective, efficient, realistic, and timely
- Management: Ensure excellence in agency management to carry out the NRC's strategic objectives

# Reactor Oversight Process



# Significance Threshold

## Performance Indicators

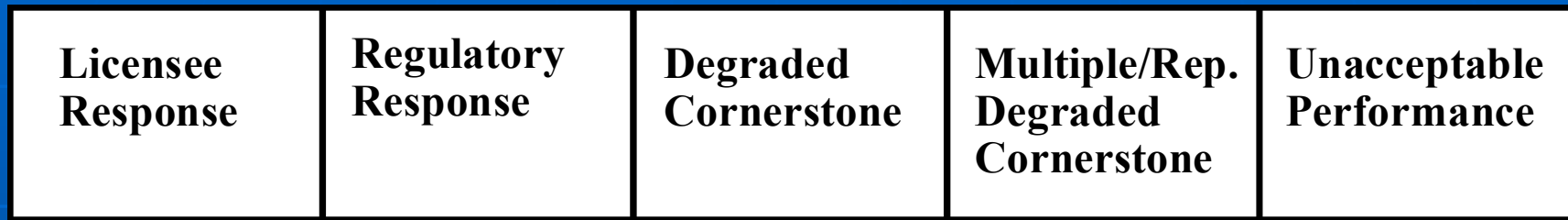
- Green:** Baseline Inspection only
- White:** May increase NRC oversight
- Yellow:** Requires more NRC oversight
- Red:** Requires more NRC oversight

## Inspection Findings

- Green:** Very low safety issue
- White:** Low to moderate safety issue
- Yellow:** Substantial safety issue
- Red:** High safety issue



# Action Matrix Concept



**Increasing Safety Significance**

**Increasing NRC Inspection Efforts**

**Increasing NRC/Licensee Management Involvement**

**Increasing Regulatory Actions**

# National Summary of Plant Performance

Status at End of CY 2006

Licensee Response	70
Regulatory Response	24
Degraded Cornerstone	6
Multiple/Repetitive Degraded Cornerstone	3
Unacceptable	0
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Total	103

# National Summary

- Performance Indicator Results (at end of CY 2006)

▶ Green	1843
▶ White	11
▶ Yellow	0
▶ Red	0

- Total Inspection Findings (CY 2006)

▶ Green	676
▶ White	13
▶ Yellow	0
▶ Red	0

# Examples of Baseline Inspections

- Equipment Alignment ~80 hrs/yr
- Triennial Fire Protection ~200 hrs every 3 yrs
- Operator Response ~125 hrs/yr
- Emergency Preparedness ~80 hrs/yr
- Radiological Release Controls ~110 hrs every 2 yrs
- Worker Radiation Protection ~90 hrs/yr
- Corrective Action Program ~250 hrs every 2 yrs
- Corrective Action Case Reviews ~60 hrs/yr

# Braidwood Assessment Results

(Jan 1 - Dec 31, 2006)

- Safety performance for Braidwood Units 1 and 2 for the most recent quarter was within the Regulatory Response column of the NRC Action Matrix.
- This assessment was based upon one inspection finding being classified as having low to moderate significance (White) in the public radiation safety cornerstone.

## Significant Findings or PIs

- One significant finding, in public radiation safety, was identified during this assessment period. This was associated with the licensee's failure to perform adequate, timely radiological evaluations following historical leaks.
- On February 2, 2007, the NRC completed a supplemental inspection pursuant to Inspection Procedure 95001 due to the White Performance Issue in the Public Radiation Safety cornerstone. No findings of significance were identified.

## Public Radiation Safety Findings

- November 2005 – Braidwood staff notified the NRC that tritium was detected in off-site wells.
- Braidwood investigation:
  - ▶ identified the source of tritium was from vacuum breaker valve leaks in 1996, 1998, and 2000
  - ▶ further identified a total of 17 occasions of vacuum breaker valve leaks.
  - ▶ characterized the release of radioactive material
- Remediation Plan implemented after coordination with State of Illinois and NRC

# Offsite Impact

- Braidwood evaluated the potential dose to a member of the public from the releases, based on measurements from onsite and offsite wells and pathway evaluations
  - ▶ Drinking water
  - ▶ Bathing
  - ▶ Cooking
  - ▶ Watering gardens (vegetation)
  - ▶ Recreational usage of “Exelon Pond” and surrounding areas
- Potential doses from the contamination were a very small fraction of the NRC’s limits and relatively indistinguishable from fluctuations in normal background radiation dose.



# NRC Evaluation

Inspections encompassed activities from the initial response through evaluating Braidwood's root cause evaluation and corrective actions.

- Initial Response
  - ▶ Source of contamination and evaluation
  - ▶ Storage of water while repairing the discharge path
- Review of remediation actions and resumption of liquid releases
  - ▶ Integrity of blowdown line
  - ▶ Integrity of modified vacuum breaker valve vaults including leak detection and alarm system
- Independent dose calculation
- Independent and duplicate analyses of water samples throughout the inspection period
- External communications

Results -- One WHITE finding and violations of NRC requirements

# Braidwood Inspection Activities

(Jan 1 - Dec 31, 2006)

- 10 findings during this assessment period
  - ▶ 2 in initiating events
  - ▶ 3 in mitigating systems
  - ▶ 2 in barrier integrity
  - ▶ 3 in public radiation safety

# Braidwood Inspection Activities

(Jan 1 - Dec 31, 2006)

- Supplemental Inspection 95001 was completed on February 2, 2007
- Unit 1 had a refueling outage from April 16 – May 3, 2006. During this outage the licensee identified a pressurizer heater housing crack which was caused by intergranular stress corrosion cracking, the first case ever identified.
- Unit 2 had a refueling outage from October 15 – November 2, 2006

# Braidwood Annual Assessment Summary

(Jan 1 - Dec 31, 2006)

- Exelon Nuclear operated Braidwood Units 1 & 2 in a manner that preserved public health and safety
- All cornerstone objectives were met with only one White Finding identified for the Public Radiation Safety Cornerstone.
- NRC plans baseline inspections at Braidwood for the remainder of the assessment period. A supplemental 95001 inspection was completed on February 2, 2007.

# Licensee Response and Remarks

Tom Coutu  
Site Vice President  
Braidwood Generating Station

# Contacting the NRC

- Report an emergency
  - ▶ (301) 816-5100 (call collect)
- Report a safety concern:
  - ▶ (800) 695-7403
  - ▶ [Allegation@nrc.gov](mailto:Allegation@nrc.gov)
- General information or questions
  - ▶ [www.nrc.gov](http://www.nrc.gov)
  - ▶ Select “About NRC > Organization and Functions” for Public Affairs

## Reference Sources

- Reactor Oversight Process

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

- Public Electronic Reading Room

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

- Public Document Room

- ▶ 1-800-397-4209 (Toll Free)

- Illinois EPA Environmental Emergencies Only

- ▶ 1-800-782-7860 (24 hrs/day, Toll Free)

- ▶ 217-782-7860 (24 hrs/day)