

U.S. NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

**NRC Annual Performance
Assessment of
Limerick
Generating Station
2007 Reactor Oversight Program**



Purpose of Today's Meeting

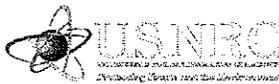
- **Discuss Limerick's Plant Performance for CY 2007**
- **Provide Exelon the opportunity to respond to the NRC's Annual Performance Assessment and to identify new or existing programs to continue to improve performance**
- **Provide stakeholders the opportunity to engage the NRC staff on plant performance issues and our role in ensuring safe plant operations**



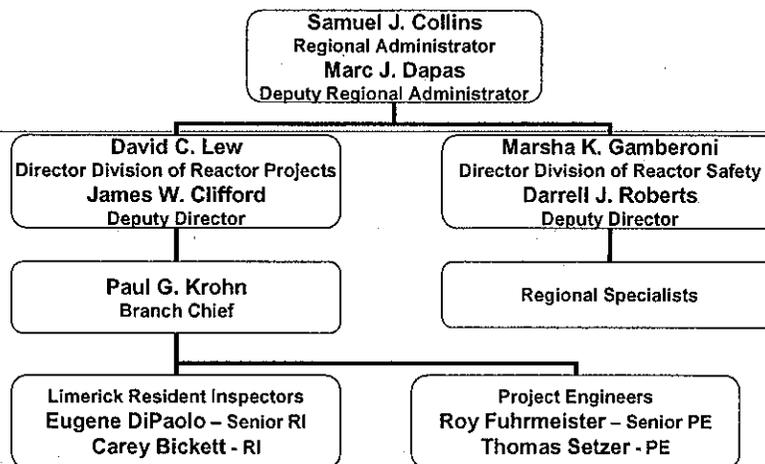
Agenda

- Introduction
- NRC Organization and Performance Goals
- Reactor Oversight Process (ROP)
- National Summary of Plant Performance
- Limerick's Plant Performance Assessment
- Exelon Response and Remarks
- NRC Closing Remarks
- Break
- NRC available to address public questions

3



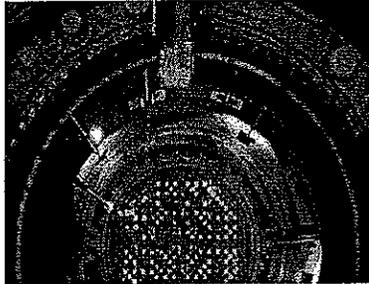
Region I Organization



4



Our Mission



- To license and regulate the nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment.

5



NRC Performance Goals

- **Safety:** Ensure adequate protection of public health and safety and the environment.
- **Security:** Ensure adequate protection in the secure use and management of radioactive materials.

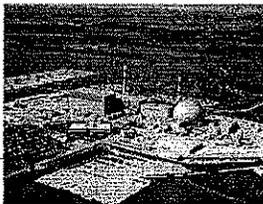
6



The NRC Regulates

- Nuclear reactors - commercial power reactors, research and test reactors, new reactor designs
- Nuclear materials - nuclear reactor fuel, radioactive materials for medical, industrial, and academic use
- Nuclear waste – transportation, storage and disposal of nuclear material and waste, decommissioning of nuclear facilities
- Nuclear security – physical security of nuclear facilities and materials from sabotage or attacks

7



Some Nuclear Facts

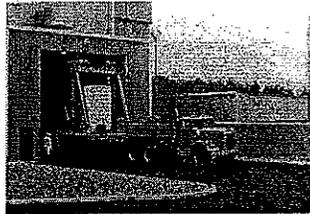
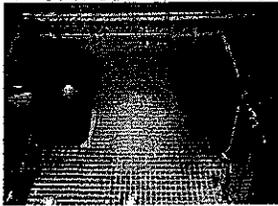
- More than 100 nuclear power plants supply about 20 percent of the electricity in the U.S.
- Nuclear materials are used in medicine for diagnosis and cancer treatment.
- Nuclear materials are widely used in industry, such as in density gauges, flow measurement devices, radiography devices, and irradiators.



8



What We Do – Nuclear Waste

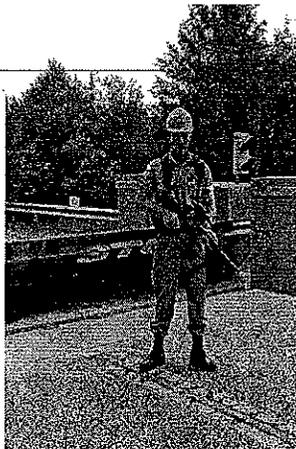


- The NRC regulates:
 - Storage of spent reactor fuel in fuel pools or dry storage casks, and
 - A national spent fuel storage site-- Yucca Mountain.

9



What We Do – Nuclear Security



- NRC Requires:
 - Well-armed and well-trained security forces,
 - Surveillance and perimeter patrols,
 - State-of-the-art site access equipment and controls,
 - Physical barriers and detection zones, and
 - Intrusion detection systems and alarm stations.

10



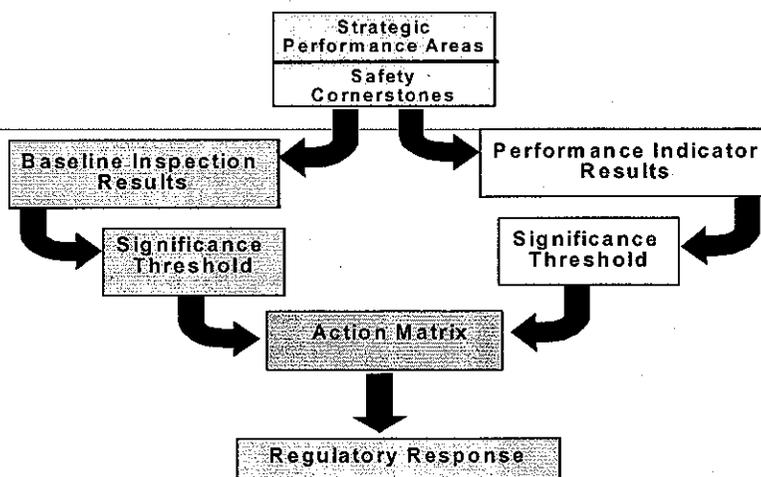
What We Don't Do

- Regulate nuclear weapons, military reactors, or space vehicle reactors
- Own or operate nuclear power plants
- Regulate some radioactive materials, such as X-rays and naturally occurring radon

11



Reactor Oversight Process



12



Typical Baseline Inspection Areas

- **Equipment Alignment**
- **Maintenance**
- **Fire Protection**
- **Operator Response**
- **Emergency Preparedness**
- **Radiation Release Controls**
- **Worker Radiation Protection**
- **Corrective Action Program**
- **Corrective Action Case Reviews**

13



Significance Threshold

Performance Indicators

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

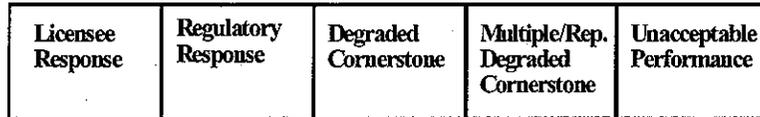
Inspection Findings

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

14



Action Matrix Concept



- Increasing Safety Significance
- Increasing NRC Inspection Efforts
- Increasing NRC/Licensee Management Involvement
- Increasing Regulatory Actions

15



National Summary (at end of 2007)

Licensee Response	87
Regulatory Response	8
Degraded Cornerstone	8
Multiple/Repetitive Degraded Cornerstone	1
Unacceptable	0
Total	104

16



National Summary (at end of 2007)

Performance Indicator Results

➤ Green	1954
➤ White	8
➤ Yellow	2
➤ Red	0

Total Inspection Findings

➤ Green	918
➤ White	9
➤ Yellow	2
➤ Red	0

17



NRC Inspection Activities at **Limerick**

- 6300 hours of inspection and related activities
- 2 resident inspectors on-site
- 6 regional inspections
- 2 major team inspections:
 - Component Design Bases Inspection
 - Fire Protection

18



Safety Significant Pls / Findings

- **All Performance Indicators were Green for CY2007**
- **4 Green inspection findings for CY2007**

19



NRC Example Inspection Findings

- **Green – Required Voltage for Load Tap Changer Motor**
- **Green – Inadequate HPCI/RCIC Flow Controller Tuning Procedure**
- **Green – Inadequate Clearance Results in Opening Scram Discharge Volume Vent and Drain Valves**
- **Green – Inadequate Fire Safe Shutdown Procedure for Securing HPCI**

20



NRC Annual Assessment Summary **Limerick**

- **Exelon operated the plant safely and in a manner that preserved public health and safety and protected the environment**
- **Limerick remained in the Licensee Response column of the NRC's Action Matrix for all four quarters of 2007**
- **All cornerstone objectives were fully met**
- **NRC plans baseline inspections at Limerick for the remainder of CY 2008**

21



Licensee Response and Remarks

Mr. Chris Mudrick
Site Vice President – Limerick
Exelon

22



Contacting the NRC

- **Report an emergency:**
 - (301) 816-5100 (call collect)

- **Report a safety concern:**
 - (800) 695-7403
 - Allegation@nrc.gov

- **General information or questions:**
 - www.nrc.gov
 - Select "What We Do" for Public Affairs

23



NRC Representatives

- **Paul G. Krohn, Branch Chief**
 - (610) 337-5120
- **Eugene DiPaolo, Senior Resident Inspector**
 - (610) 327-1344
- **Carey Bickett, Resident Inspector**
 - (610) 327-1344
- **Roy Fuhrmeister, Senior Project Engineer**
 - (610) 337-5059
- **Thomas Setzer, Project Engineer**
 - (610) 337-5165

24



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)

25



End of the Presentation

Nuclear Regulatory Commission – Region I
King of Prussia, Pennsylvania
April 10, 2008



NRC Performance Indicators

Initiating Events PIs

- Unplanned Scrams
- Unplanned Scrams with Complications
- Unplanned Power Changes

Mitigating Systems PIs

- Emergency AC Power System
- High Pressure Injection System
- Residual Heat Removal System
- Cooling Water Support Systems
- Safety System Functional Failures

Barrier Integrity PIs

- Reactor Coolant System Specific Activity
- Reactor Coolant System Leakage

Emergency Planning PIs

- Drill / Exercise Performance
- Emergency Response Organization Participation
- Alert and Notification System

Radiation Protection PIs

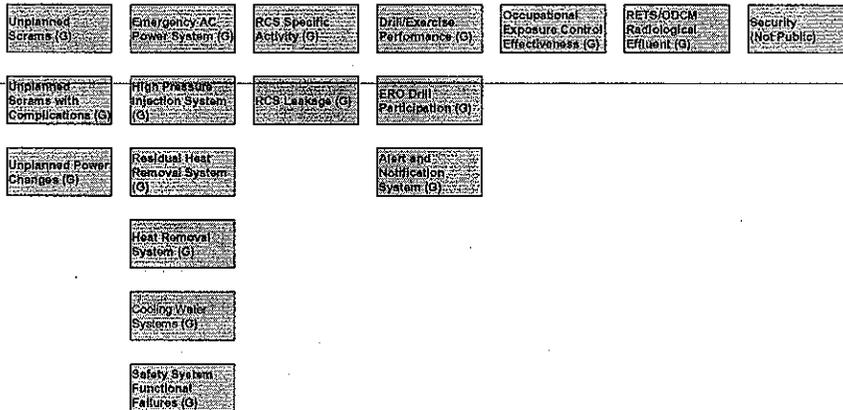
- Occupational Exposure Control Effectiveness
- RETS / ODCM Radiological Effluent

Security PIs are not Publicly Available

27



Limerick Units 1 and 2 Performance Indicators



28