

SCHEDULING NOTE

Title: **STRATEGIC PROGRAMMATIC OVERVIEW OF THE
OPERATING REACTORS BUSINESS LINE (Public)**

Purpose: The purpose of the briefing is to provide the Commission with a discussion of strategic considerations associated with the Operating Reactors Business Line.

Scheduled: **August 6, 2015
9:30 am**

Duration: Approx. 2 hours

Location: Commissioners' Conference Room, 1st fl OWFN

Participants:	Presentation
<u>NRC Staff</u>¹	60 mins.*

Mike Johnson, Deputy Executive Director for Reactor and Preparedness Programs

Bill Dean, Director, Office of Nuclear Reactor Regulation

Topic:

- Operating Reactor Business Line Safety and Security – Effective Oversight and Regulation
- Status and Path Forward for Project Aim Recommendations for the Operating Reactor Business Line and Business Line Partners

Travis Tate, Chief, Plant Licensing Branch 3-2, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation

Topic:

- Licensing
 - Assuring operating reactor safety, future challenges, and issue resolution, including reduction of licensing backlog.

¹ Other business line partner office directors will be located in the well

Joe Giitter, Director, Division of Risk Assessment, Office of Nuclear Reactor Regulation

Topic:

- Regulatory Processes
 - Use of risk concepts in the regulatory framework

Nathan Sanfilippo, Chief, Performance Assessment Branch, Division of Inspection and Regional Support, Office of Nuclear Reactor Regulation

Topic:

- Reactor Oversight Process (ROP)
 - ROP Enhancements and Self-Assessment

Mel Gray, Chief, Engineering Branch 1, Division of Reactor Safety, Region 1

Topic:

- Reactor Oversight Process
 - Inspection program, safety focus, assuring operating reactor safety, and future challenges

James Andersen, Deputy Director, Division of Preparedness and Response, Office of Nuclear Security and Incident Response

Topic:

- Event Response
 - Emergency Planning (EP) and security for transition to decommissioning, assuring safety and security of operating reactors, and future challenges

Istvan Frankl, Chief, Corrosion and Metallurgy Branch, Division of Engineering, Office of Nuclear Regulatory Research

Topic:

- Research support to business line partners
 - Subsequent license renewal research

Commission Q & A

40 mins.

Discussion – Wrap-Up

5 mins.

*For presentation only and does not include time for Commission Q & A's



OVERVIEW OF THE OPERATING REACTORS BUSINESS LINE

August 6, 2015

Michael Johnson

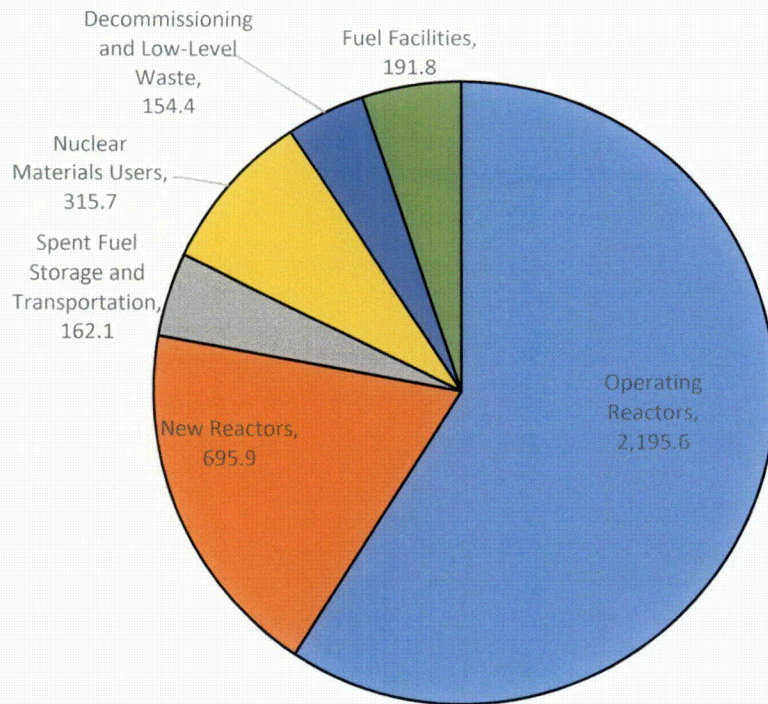
**Deputy Executive Director for
Reactor and Preparedness Programs**

Program Overview

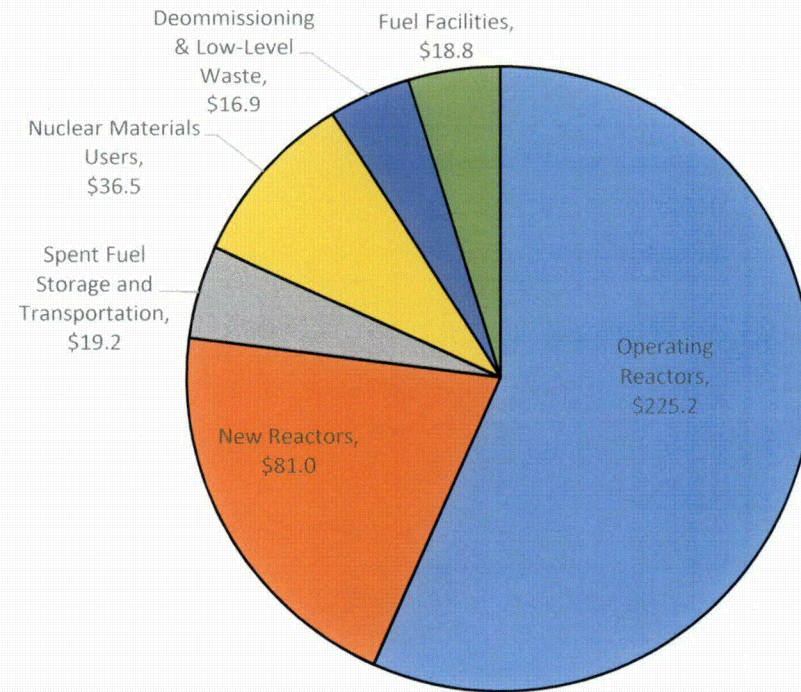
Bill Dean
Director
Office of Nuclear Reactor
Regulation

ORBL Has Significant Breadth and Scope

FY 2015 Enacted FTE*



FY 2015 Enacted CS&T by Business Line*
(Dollars in Millions)



*Contract Support & Travel (CS&T) and Full-Time Equivalent (FTE) reported at Full Cost.

ORBL Has Significant Breadth and Scope (Cont'd)

- **Conducted ~ 80,000 inspection hours**
- **Completed 549 LAs and 338 OLTs**
- **Conducted 4 SITs**
- **Completed 4 95002 inspections**
- **Opened 241 and closed 269 allegation cases**

ORBL Has Significant Breadth and Scope (cont'd)

- **Compliance with Fukushima Orders – 45 audits completed**
 - **Mitigating Strategies – 23 units**
 - **SFP Instrumentation – 48 units**
 - **Watts Bar 2 Inspection**

ORBL Has Significant Breadth and Scope (cont'd)

- **Rulemakings**
 - **14 Underway**
 - **1 completed**
- **Generic Correspondence**
 - **7 Information Notices issued**
 - **10 RIS issued**
 - **1 Generic Letter issued**
 - **43 RGs published**

ORBL Has Significant Breadth and Scope (cont'd)

- **Policy Issues**

- **Qualitative Factors (SECY-14-0087)**
- **FOCD (SECY-14-0089)**
- **Flooding Papers (COMSECY-14-0037 and COMSECY-15-0019)**
- **Watts Bar 2 licensing (SECY-15-0068)**

Initiatives Focused on Enhancing Regulatory Decision Making

- **Initiatives – NRR needs to be better positioned as an efficient and effective regulator; using risk-informed principles while improving how we set expectations, obtain alignment, make timely decisions, and implement our plans.**

Initiatives Focused on Enhancing Regulatory Decision Making (cont'd)

- **Backlog management**
- **Technical and regulatory adequacy**

NRR Initiatives Closely Align with Project AIM

- **Centers of Expertise**
- **NRR/NRO merger**
- **Business Process Improvement**

Regions and HQ Collaboration to Support Safety Mission

- **ROP Enhancements**
- **Ft. Calhoun 0350 Oversight Panel**
 - **Closed in 2nd quarter FY 15**
- **NOEDs – 20 processed**
- **Lessons Learned**
 - **SONGS**
 - **Operator Licensing**

Substantial Progress Being Made on Decommissioning

- **Status of facilities**
- **Challenges with current regulatory infrastructure**
 - **Commission direction**
- **Rulemaking**

Regulatory Research Vital to ORBL Achievements

- **Thermo-hydraulics**
- **Fire protection**
- **Probabilistic flood hazard analysis**
- **Subsequent license renewal (SLR)**

Licensing Issues

**Travis Tate, Branch Chief
Division of Operating Reactor
Licensing
Office of Nuclear Reactor
Regulation**

Licensing Program Assures Safe and Secure Reactor Operations

- **Licensing actions and other licensing tasks**
- **Approximately 1550 licensing actions and other licensing tasks**
- **Prioritized in accordance with the safety significance**

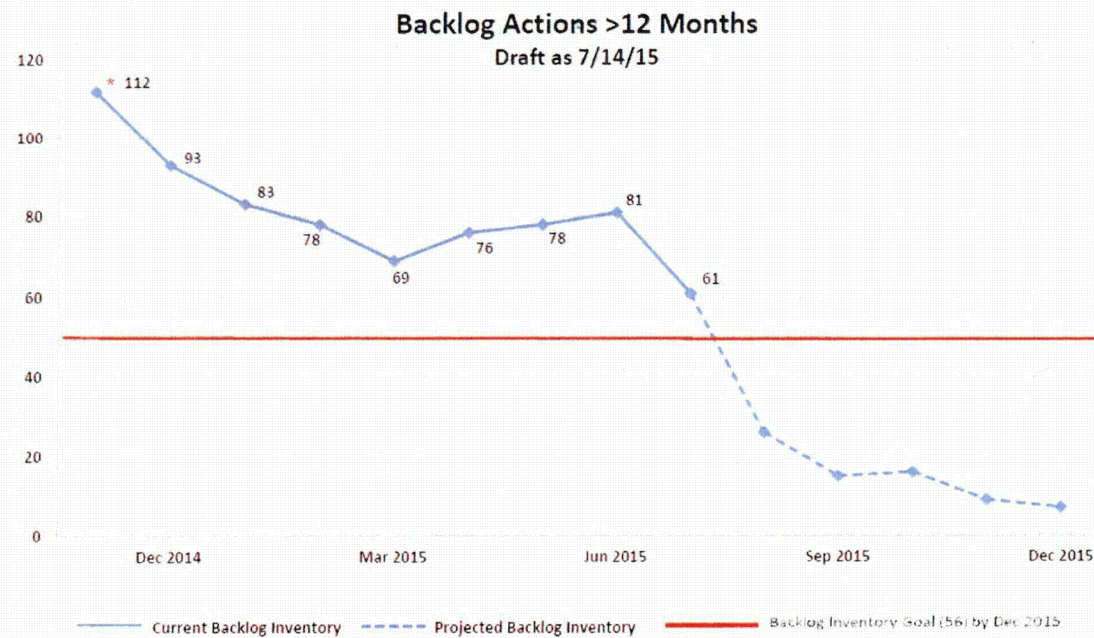
Licensing Metrics are Improving

- **Improved trend in number of completed licensing activities**
- **One year trend improved by 4%**
- **Two year trend remains steady**

Aggressive Backlog Reduction Strategies Have Been Effective

- **Reassigned resources**
- **Expanded use of contract support**
- **Rehired annuitant program**
- **Established stretch goal**
- **Reinforced use of established processes**

Backlog Trend is Improving



Maintaining Focus on Key Behaviors that Improve Workload Management

- **Monitoring progress and effectiveness of strategies**
- **Issued a RIS on planned licensing submittals**
- **Improved management tools to provide projections**

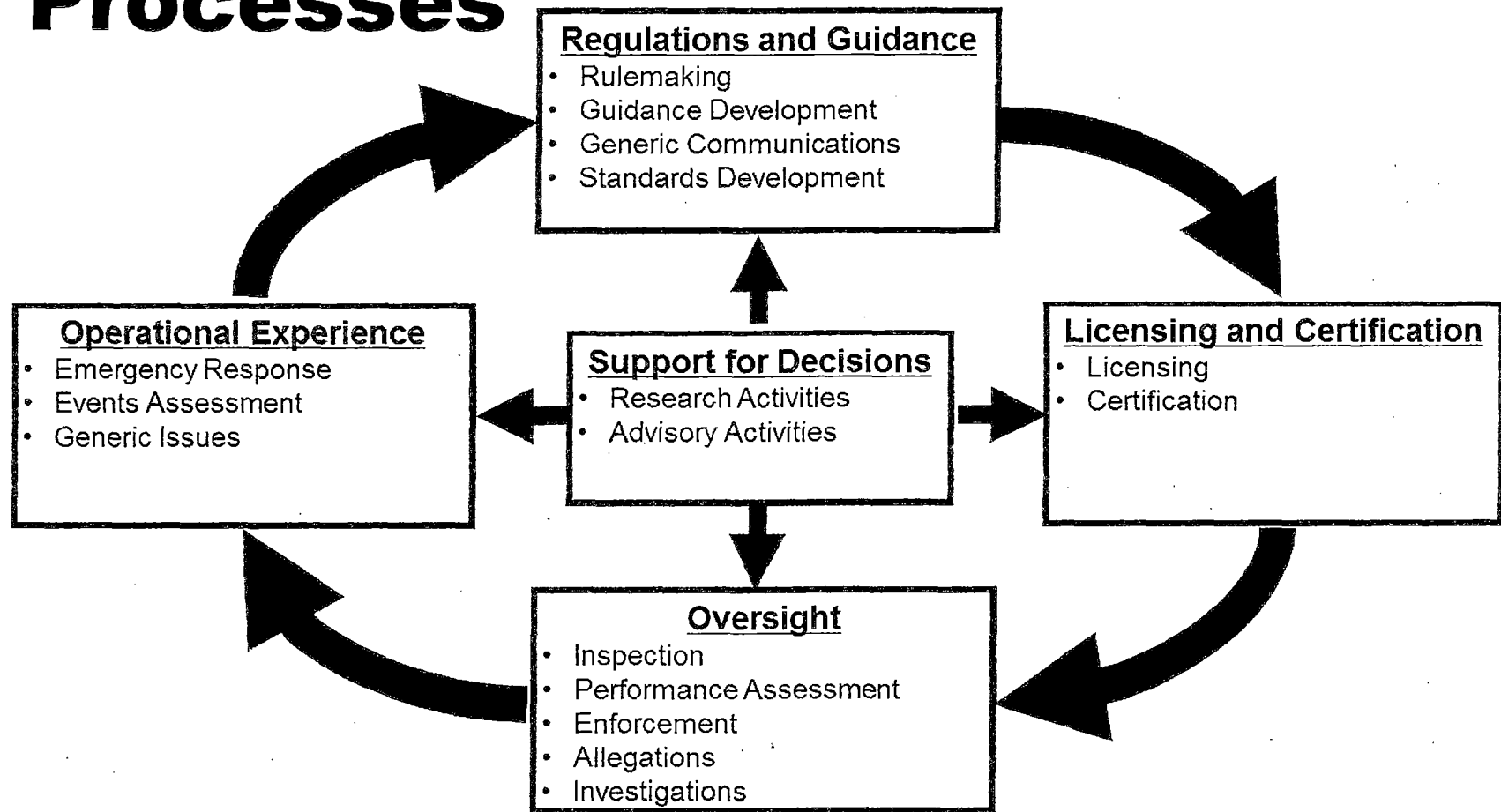
Making Substantial Progress on Important Licensing Activities

- **Decommissioning**
- **NFPA-805**
- **Risk-informed regulation**

Regulatory Processes

**Joe Gitter, Director
Division of Risk Assessment
Office of Nuclear Reactor
Regulation**

Meaningful Progress Made in Risk-Informing Regulatory Processes

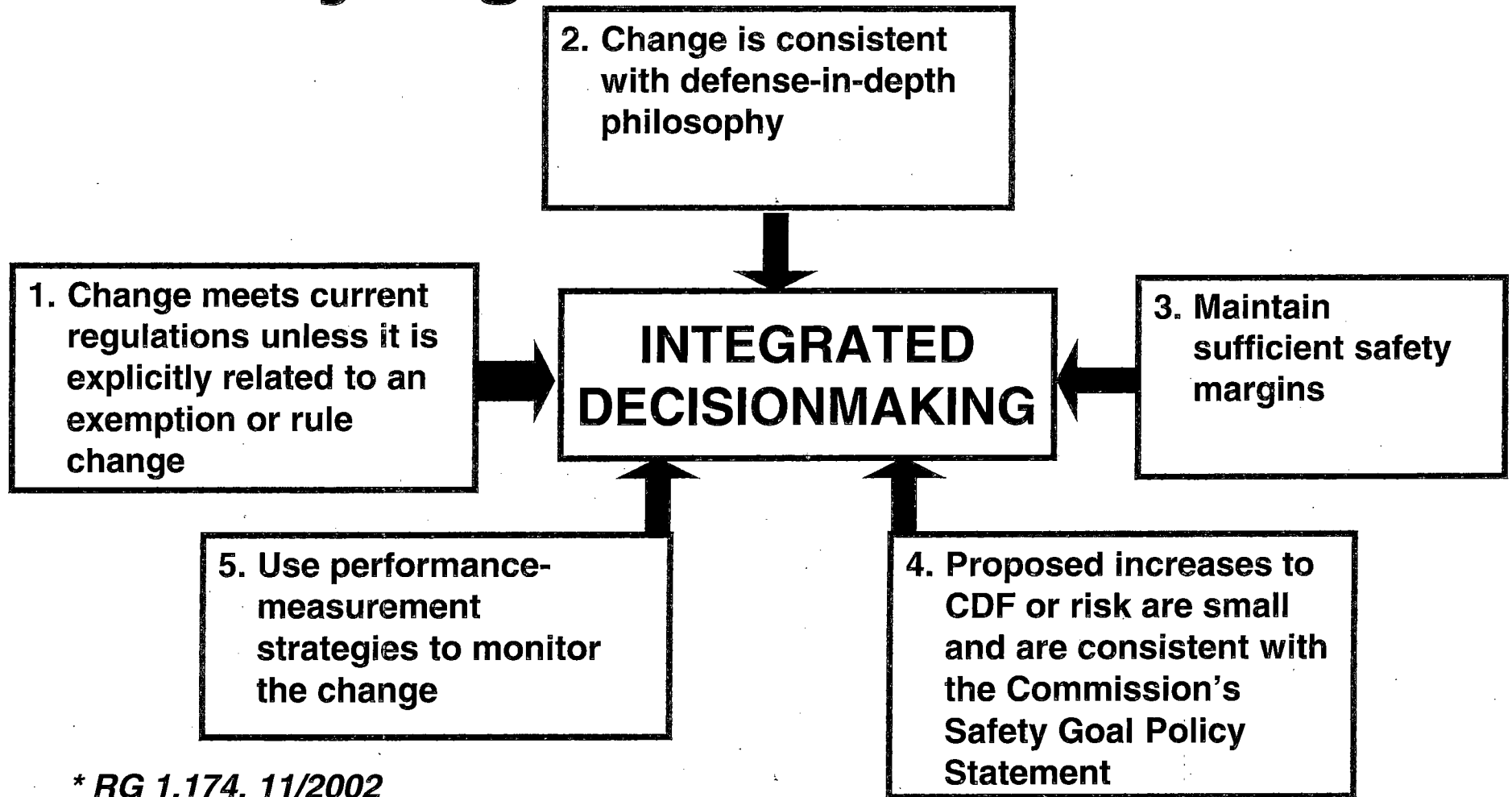


Risk-Informed Licensing Initiatives Will Improve Efficiency and Effectiveness

RISC-1: <ul style="list-style-type: none"> • Safety Related • Safety Significant ~13% of Safety-related SSCs ~1140 SSCs	RISC-2: <ul style="list-style-type: none"> • Non-Safety-Related • Safety Significant ~3% of Non-Safety-Related SSCs ~110 SSCs
RISC-3 <ul style="list-style-type: none"> • Safety Related • Low Safety Significance ~87% of Safety-related SSCs ~7880 SSCs	RISC-4 <ul style="list-style-type: none"> • Non-Safety-Related • Low Safety Significance ~97% of Non-Safety-Related SSCs ~3530 SSCs

(Numbers are approximate values from Vogtle 50.69 pilot and reflect SSCs for containment spray, radiation monitoring, and CVCS.)

Risk Insights Help Focus on Safety Significant Issues



*** RG 1.174, 11/2002**

Reactor Oversight Process

**Nathan Sanfilippo, Branch Chief
Division of Inspection and Regional
Support
Office of Nuclear Reactor
Regulation**

Seeking to Ensure Oversight Decisions are Timely and Risk- Informed

- **Commission direction to
“streamline the SDP”**
- **Must address both inspection and
SDP to affect timeliness from
issue discovery to final action**

Seeking to Ensure Oversight Decisions are Timely and Risk- Informed (cont'd)

- **Analyses are targeted towards decision-making**
- **Agency resources are aligned with risk significance**
- **Unnecessary regulatory burden is minimized**

Program Governance Drives Intended Outcomes

- **Maintain focus on safety**
- **ROP policies and Action Matrix outcomes drive licensee actions**
- **Staff must understand and balance processes to drive desired outcomes**

Engineering Inspections Help Identify Safety Issues

- **Reviewed engineering inspections as part of ROP Enhancement Project**
- **Developing pilot for revised Engineering Design Inspections**
- **Full implementation of new inspections starting in CY 2017**

ROP Self-Assessment Provides Continuous Feedback

- **Finalizing new process comprised of 3 major elements**
 - **Metrics to assess compliance and accountability to ROP governance**
 - **Efficacy of recent program changes**
 - **Targeted, in-depth assessments**

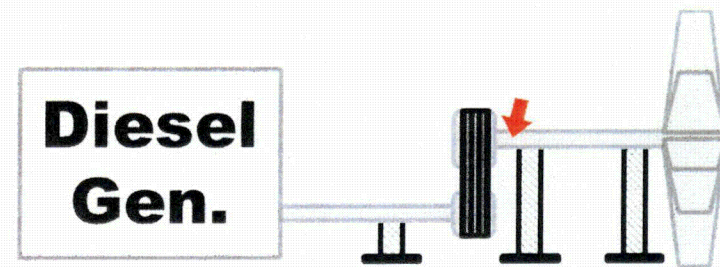
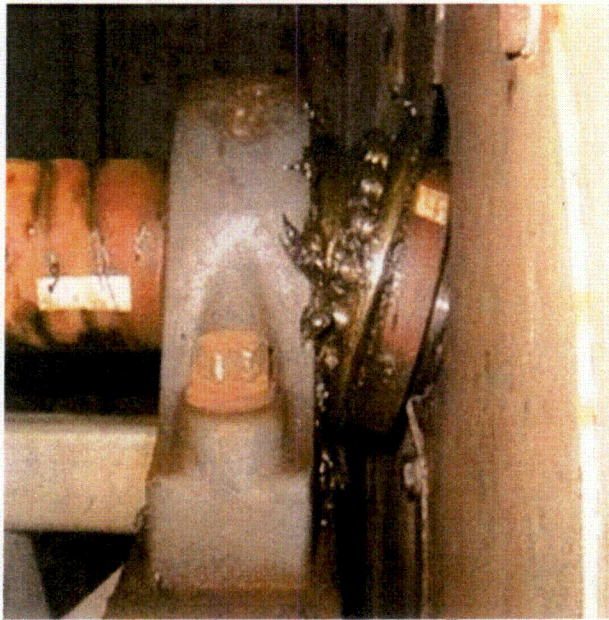
Regional Perspectives

**Mel Gray, Branch Chief
Division of Reactor Safety
Region I**

NRC Focus Is On Safety

- **Ensure safe operation of the nation's nuclear power plants by effectively implementing the Reactor Oversight Process and responding to events**
- **Inspectors are the public's “eyes and ears” for safety and security**

NRC Focus Is On Safety (cont'd)



ROP is a Mature Program with Robust Feedback

- **Operating experience**
- **Standing counterpart interactions**
- **Working groups**

ROP is a Mature Program with Robust Feedback (cont'd)



ROP is a Mature Program with Robust Feedback (cont'd)

- **Operating experience**
- **Standing counterpart interactions**
- **Working groups**

Enhance Consistency in ROP Implementation

- **Regional differences in the number of findings of very low safety significance**
 - **“Tabletop” study completed and results analyzed**
 - **Next steps – revise procedures, implement training, monitor, and adjust**

Regions Ensuring Organizational Flexibility and Agility for Continued Success

- **Maintain key technical skills**
- **Implement strategies for a more flexible and agile organization**

Regions Ensuring Organizational Flexibility and Agility for Continued Success



Emergency Preparedness and Security

**James Andersen, Deputy Director
Division of Preparedness and
Response
Office of Nuclear Security and
Incident Response**

Focus on Plants in Decommissioning Process

- **Completing licensing activities**
- **Providing interim staff guidance**
- **Commenced rulemaking activities**
- **Anticipating significant
stakeholder involvement**

Enhancing the Force on Force Program

- **Lessons learned completed**
- **Commission has provided direction**
- **Working group established and providing recommendations**

Gaining Efficiency in the Cyber Security Program

- **Scope now includes balance of plant**
- **Developed consequence-based graded approach**
- **Continued focus on public health and safety**

Early Southern Exposure 2015 Insights

- **Provided unique opportunity for all participants**
- **Significant federal agency involvement and interaction**
- **Provided opportunity to test draft documents**
- **Will allow testing of radiological incident recovery response**

Research Support

Istvan (Steve) Frankl, Branch Chief
Division of Engineering
Office of Nuclear Regulatory
Research

Support to SLR is Principal Research Focus

- **Research support to SLR involves:**
 - **Conducting research**
 - **Developing technical basis**
 - **Developing guidance documents**
 - **Confirm adequacy of aging management programs**

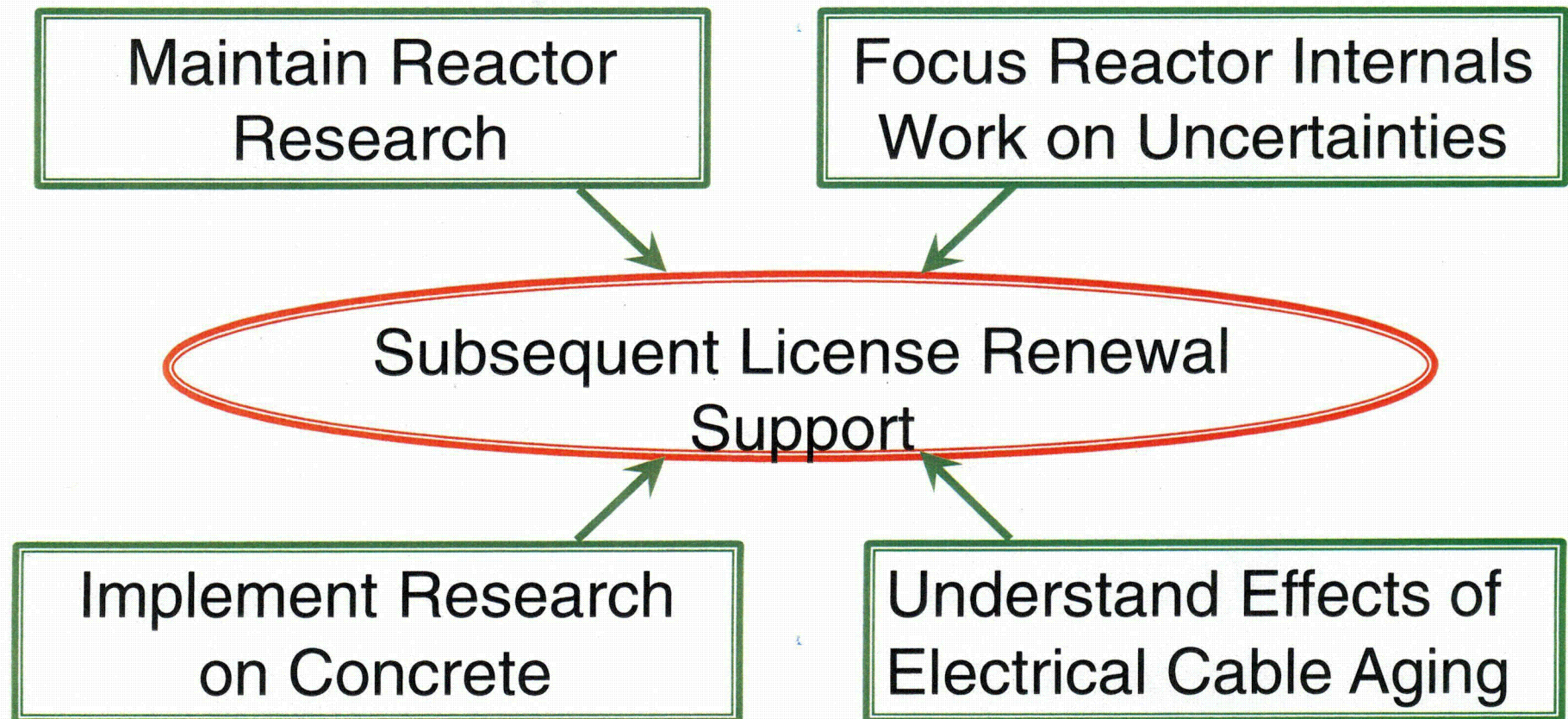
Achieved Significant Progress

- **Utilized the expanded materials degradation assessment (EMDA)**
 - **Identified issues with low knowledge but high susceptibility to degradation**

Achieved Significant Progress (cont'd)

- **Focused on key issues that have the greatest uncertainty/safety impact**
- **Contributed to development of regulatory guidance**

Unique Challenges Exist in Each Technical Area



Unique Challenges Exist in Each Technical Area (cont'd)

RPV Research

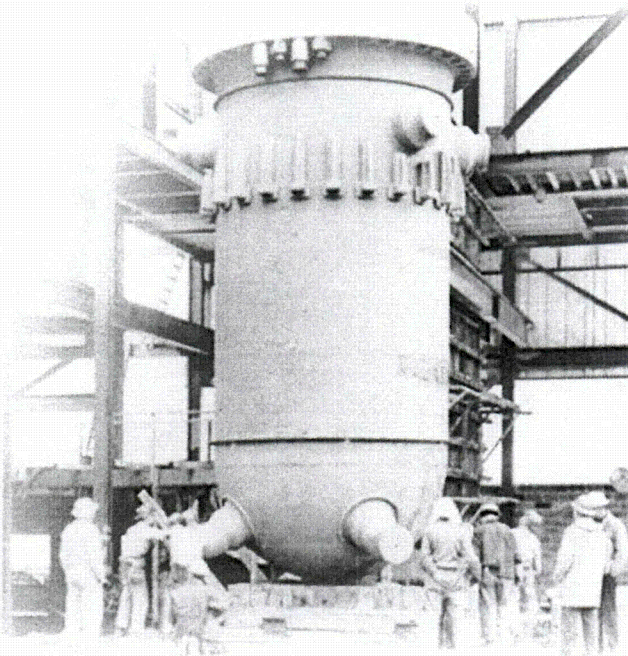
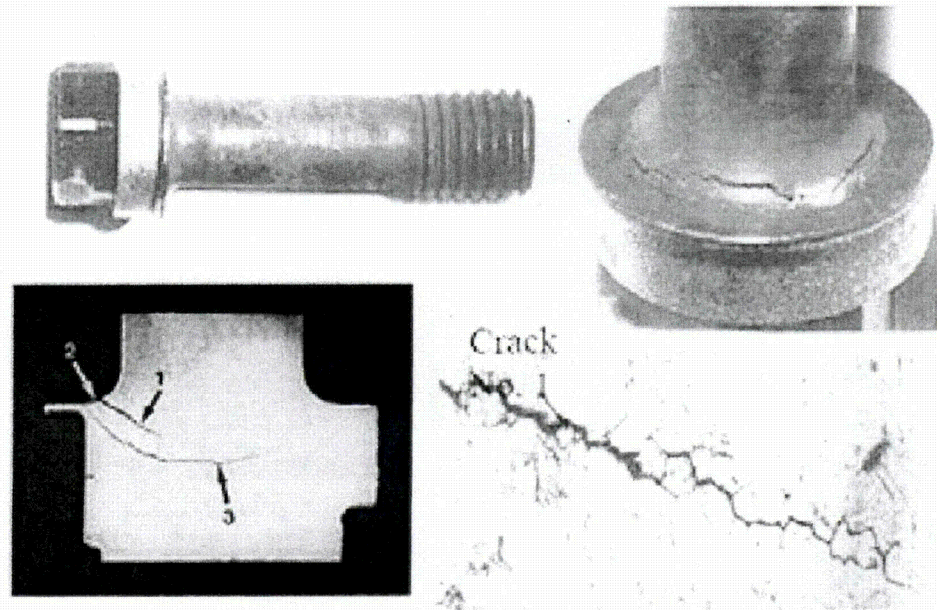


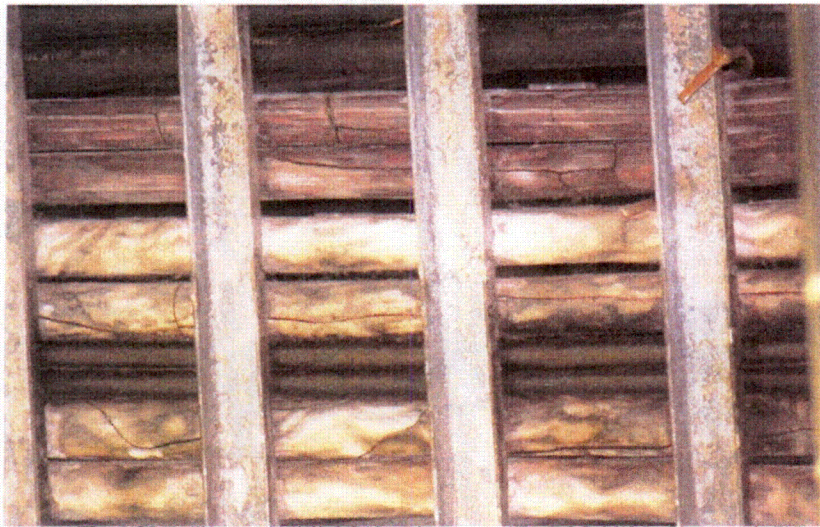
Photo Credit: <https://www.asme.org/about-asme/who-we-are/engineering-history/landmarks/47-shippingport-nuclear-power-station>

Cracking in a PWR Baffle Bolt

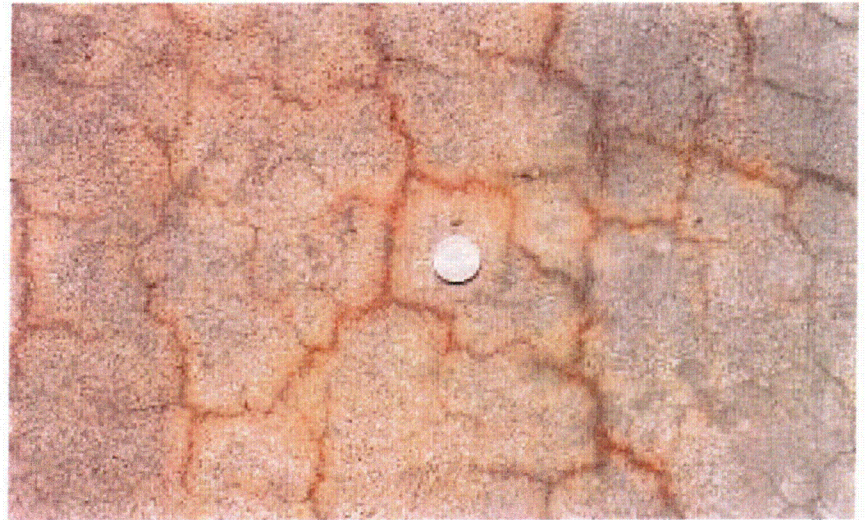


Unique Challenges Exist in Each Technical Area (cont'd)

Thermal Aging of Jacketed Cables



ASR Cracking in Concrete



Collaboration with Domestic and International Partners

- **Reactor embrittlement**
 - **Facilitating revision of surveillance programs**
- **Aging of reactor internals**
 - **Collaborating on ex-plant material testing**

Collaboration with Domestic and International Partners (cont'd)

- **Concrete and containment degradation**
 - **Leading research on concrete pathologies**
- **Electrical cable aging**
 - **Cooperating with industry on cable testing**

Support Readiness for SLR Applications

- **Significant progress on key technical issues**
- **Research will confirm adequacy of the technical basis to support efficient and effective reviews**

Support Readiness for SLR Applications (cont'd)

- **Research focus is on near-term results but will continue beyond initial SLR applications**
- **Ongoing collaborations with domestic and international partners**

List of Acronyms

- **AMP - Aging Management Program**
- **ASR - Alkali silica reaction**
- **CDF – Core damage frequency**
- **CS&T – Contract support and travel**

List of Acronyms (cont'd)

- **CVCS – Control volume containment system**
- **CY – Calendar year**
- **FOCD – Foreign ownership, domination, or control**
- **FTE – Full time equivalent**

List of Acronyms (cont'd)

- **FY – Fiscal year**
- **HQ – NRC Headquarters**
- **LA - Licensing action**
- **NFPA – National Fire Protection Association**
- **NOED - Notice of Enforcement Discretion**

List of Acronyms (cont'd)

- **NRO – Office of New Reactors**
- **NRR – Office of Nuclear Reactor Regulation**
- **OLT - Other licensing task**
- **ORBL – Operating Reactors Business Line**

List of Acronyms (cont'd)

- **PWR – pressurized water reactor**
- **RES - Office of Nuclear
Regulatory Research**
- **RG – Regulatory Guide**
- **RIS - Regulatory Information
Summary**

List of Acronyms (cont'd)

- **ROP - Reactor Oversight Process**
- **RPV - Reactor Pressure Vessel**
- **SDP – Significance Determination Process**
- **SFP – Spent fuel pool**
- **SIT – Special inspection team**

List of Acronyms (cont'd)

- **SLR - Subsequent License Renewal**
- **SONGS – San Onofre Nuclear Generating Station**
- **SSC – Structures, systems, and components**