U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

OVERVIEW OF THE OPERATING REACTORS BUSINESS LINE

August 6, 2015

Michael Johnson

Deputy Executive Director for Reactor and Preparedness Programs

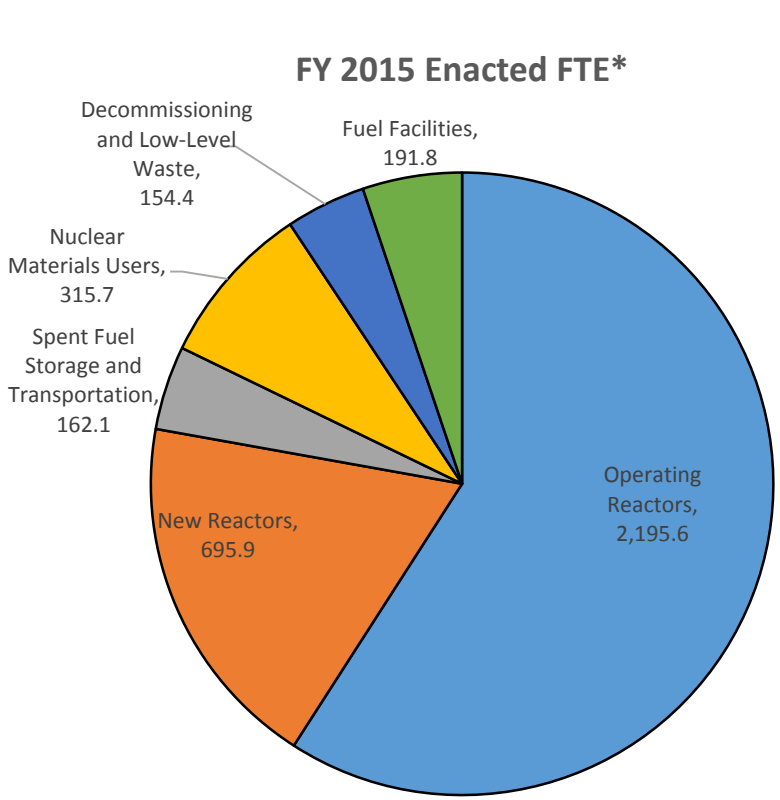
Program Overview

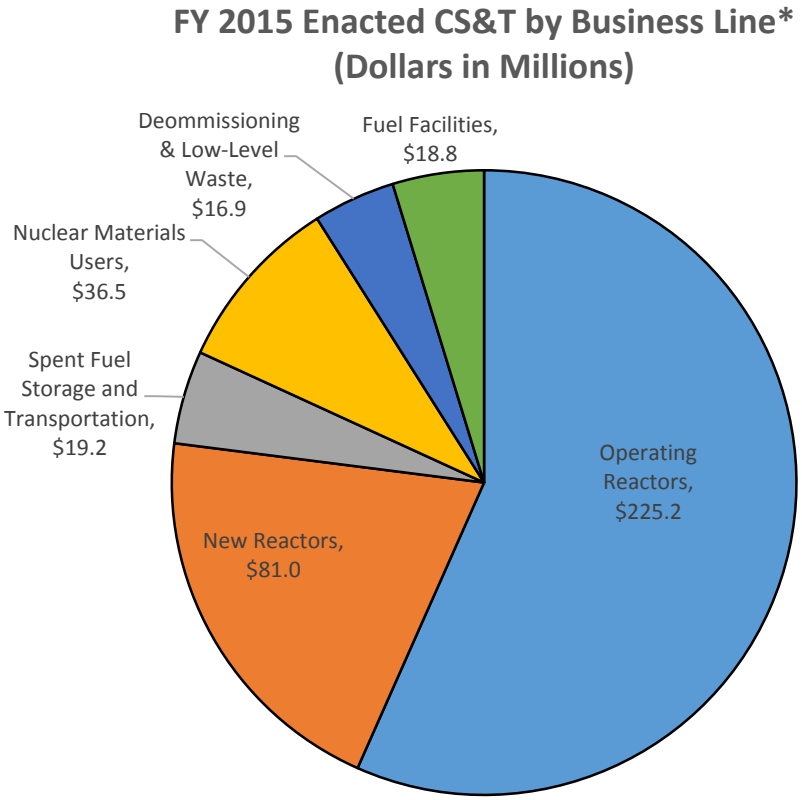
Bill Dean

Director

Office of Nuclear Reactor Regulation

ORBL Has Significant Breadth and Scope





*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

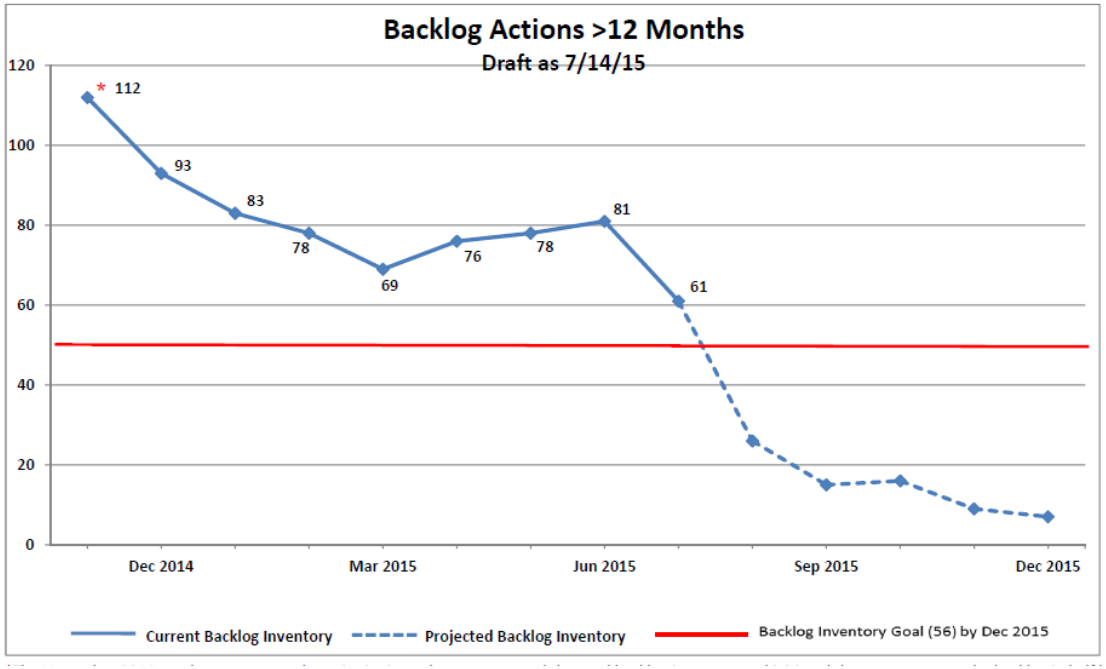
Licensing Metrics are Improving

- 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

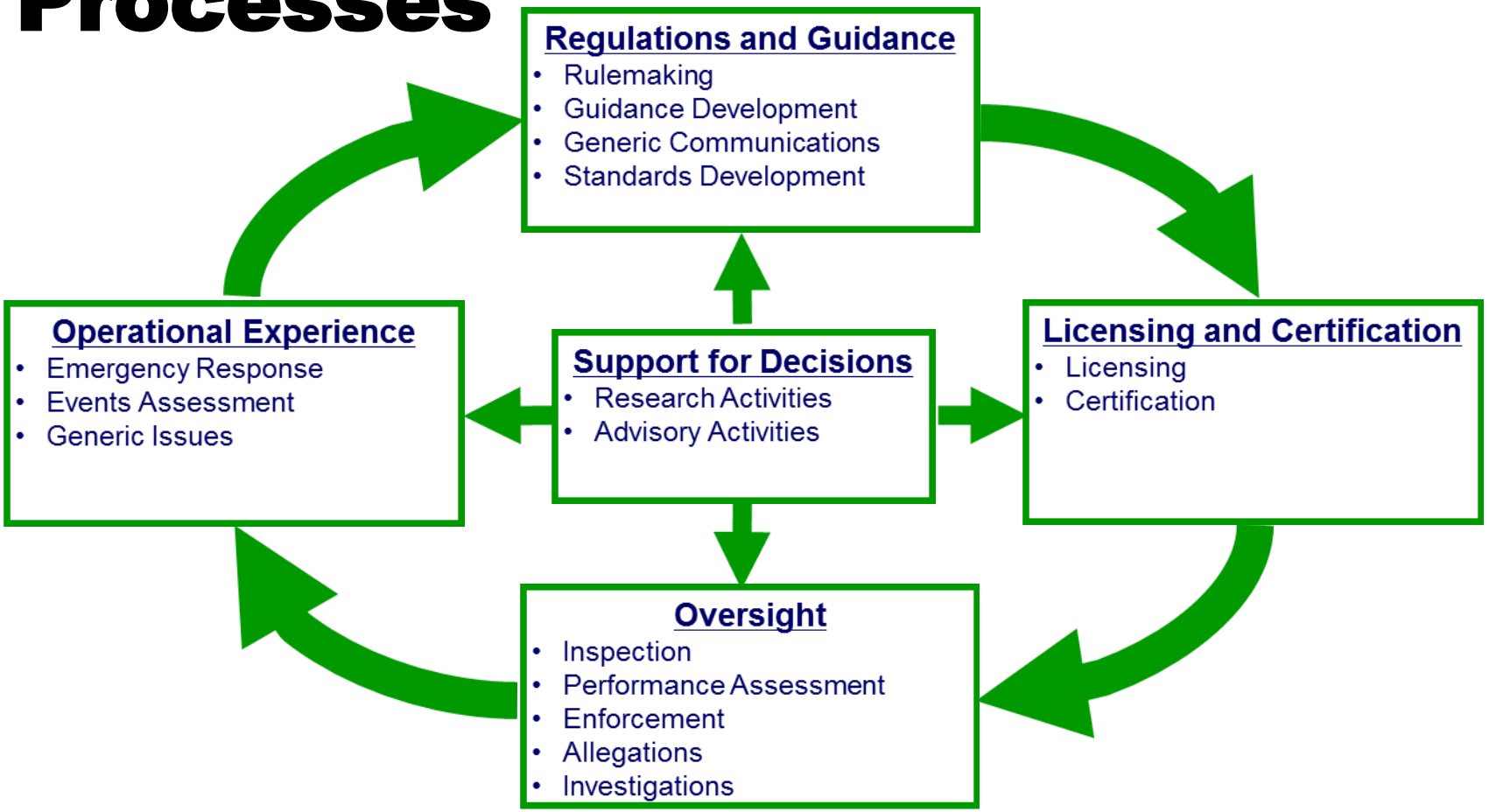
Making Substantial Progress on Important Licensing Activities

- Decommissioning
- NFPA-805
- Risk-informed regulation

Regulatory Processes

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

Meaningful Progress Made in Risk-Informing Regulatory Processes

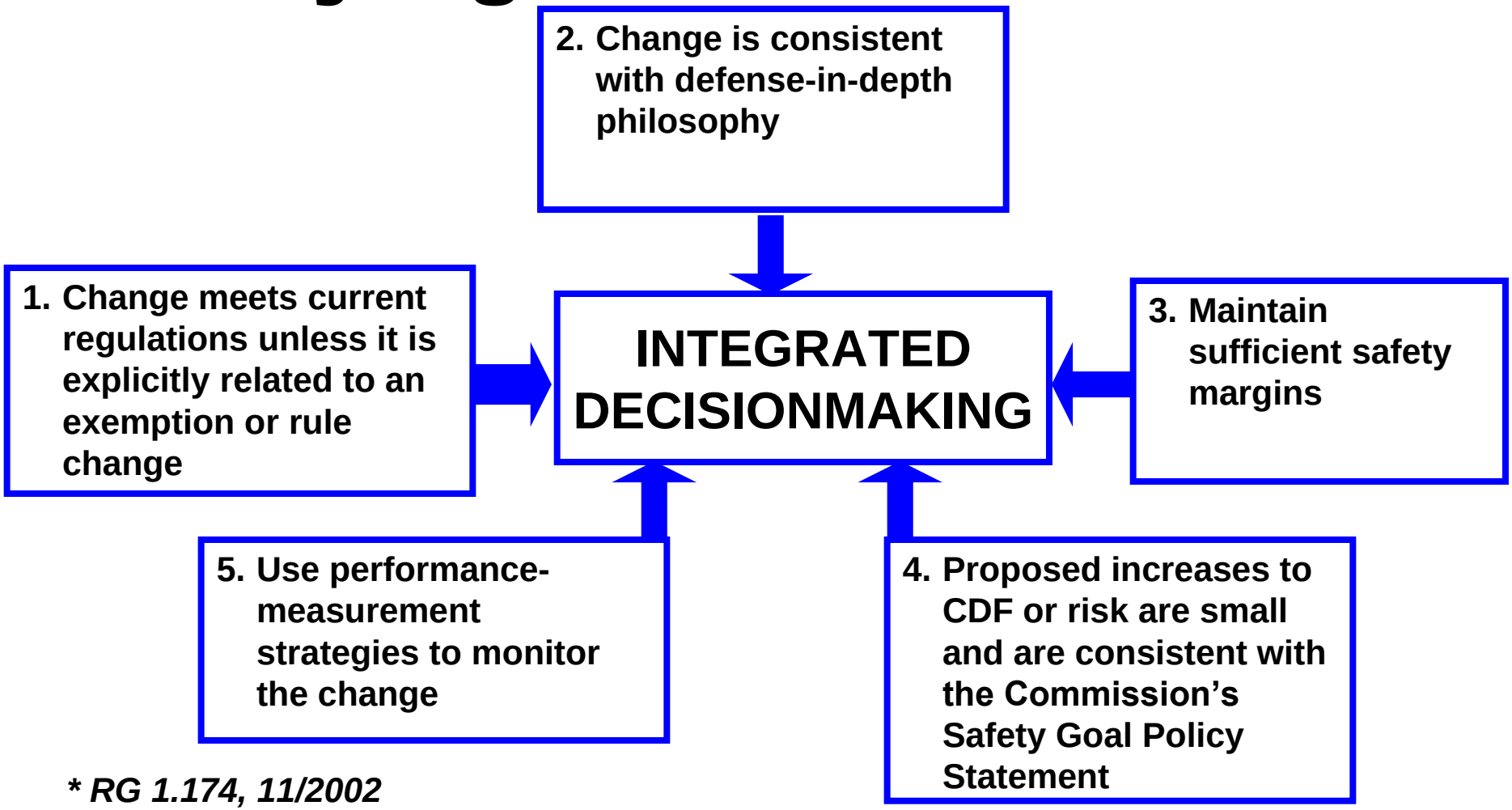


Risk-Informed Licensing Initiatives Will Improve Efficiency and Effectiveness

RISC-1: • Safety Related • Safety Significant ~13% of Safety-related SSCs ~1140 SSCs	**RISC-2:** • Non-Safety-Related • Safety Significant ~3% of Non-Safety-Related SSCs ~110 SSCs
RISC-3 • Safety Related • Low Safety Significance ~87% of Safety-related SSCs ~7880 SSCs	**RISC-4** • 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

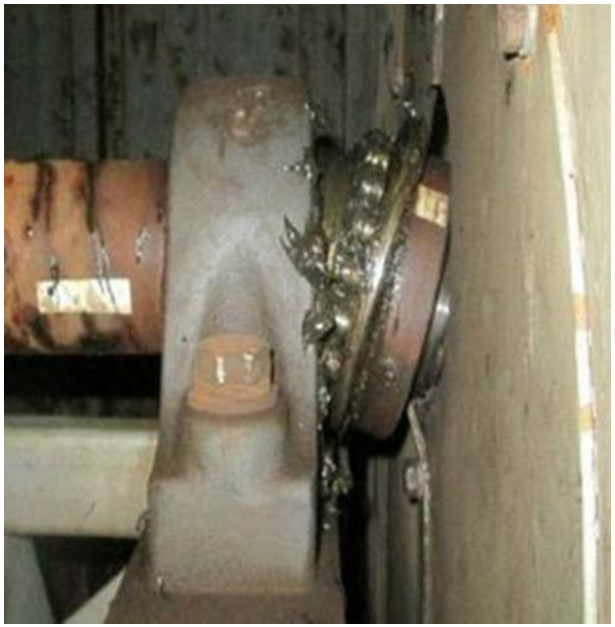
Regional Perspectives

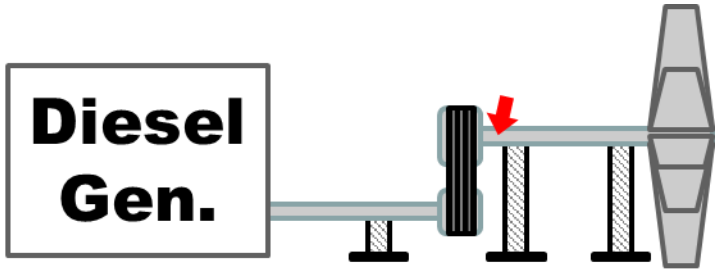
Mel Gray, Branch Chief
Division of Reactor Safety
Region I

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)

Inspector Newsletter

April 2015

Providing useful information to our inspectors, by our inspectors!

FOR INTERNAL USE ONLY

Sometimes More Is Less

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

- Operating experience
- Standing counterpart interactions
- Working groups

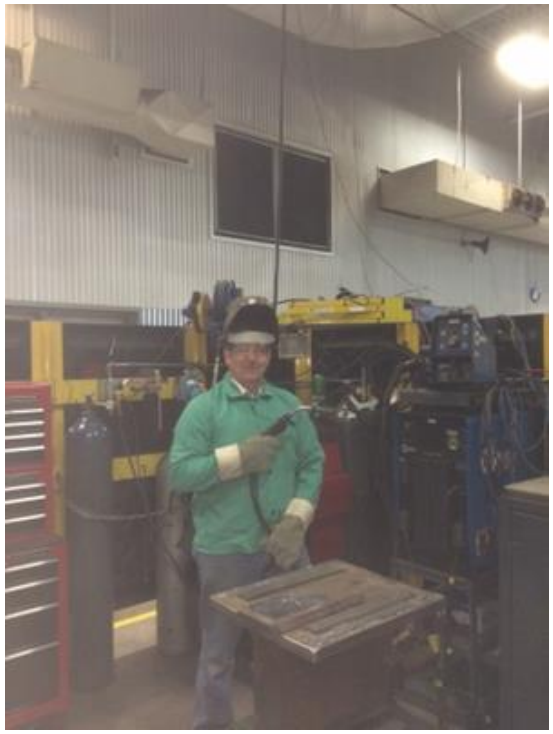
Enhance Consistency in ROP Implementation

- 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

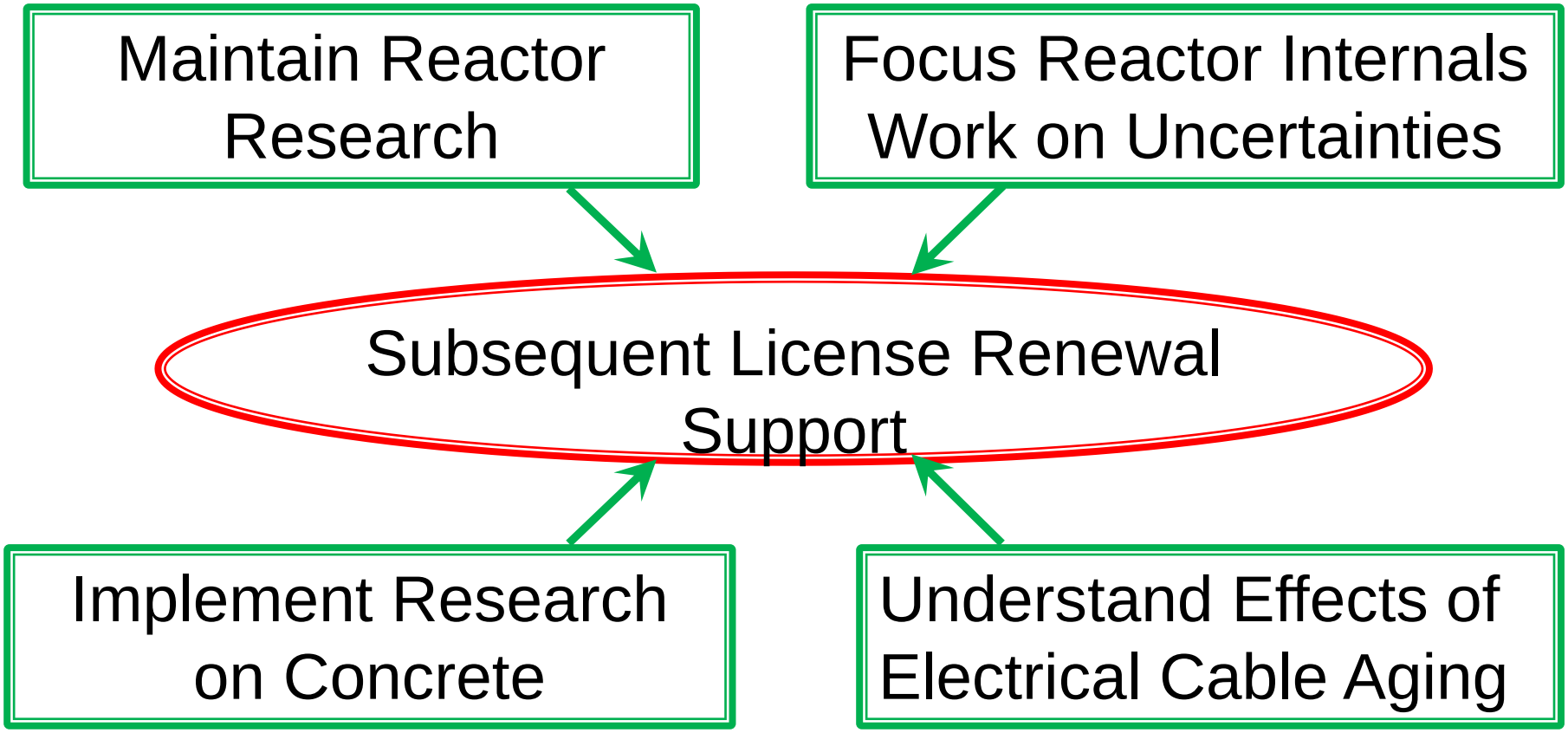
Achieved Significant Progress

- **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

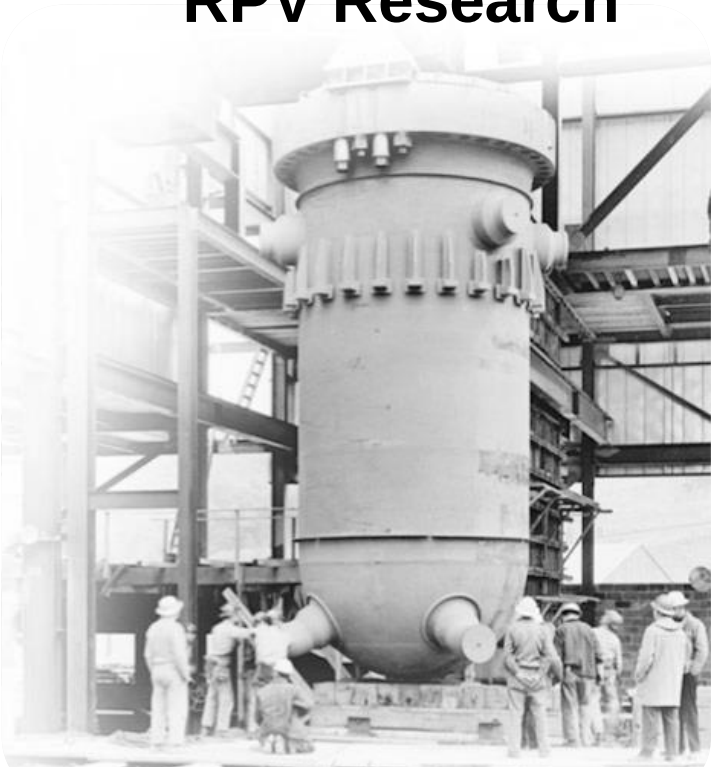
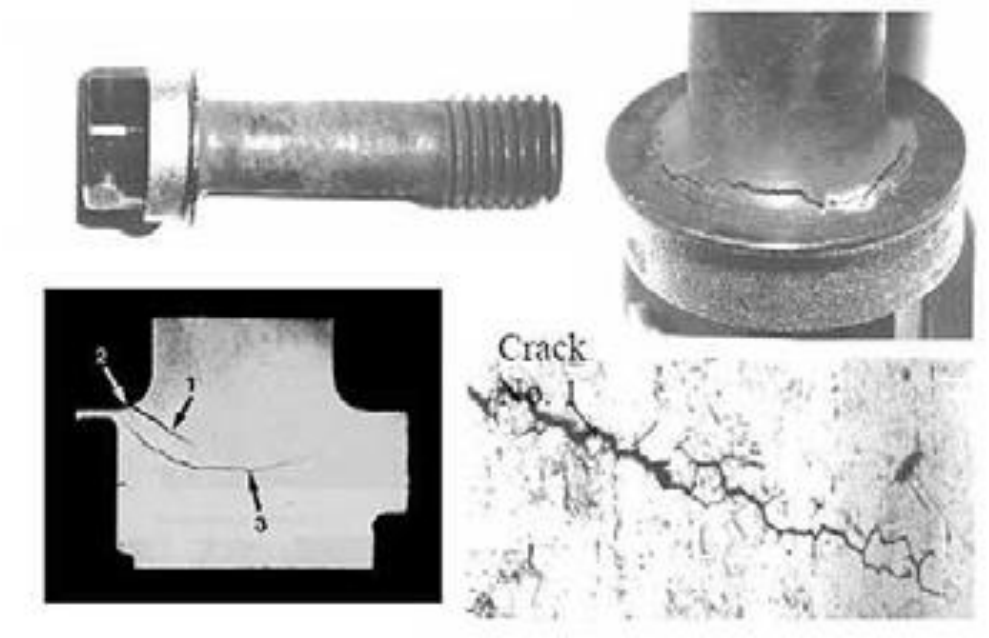


Photo Credit: https://www.asme.org/about-asme/who-we-are/engineering-history/landmarks/47-shippingport-nuclear-power-station

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