

## SCHEDULING NOTE

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

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

**Scheduled:** **October 20, 2016**  
**9:30 a.m.**

**Duration:** 2 hours

**Location:** Commissioners' Conference Room, 1<sup>st</sup> fl OWFN

**Participants:**

**Presentation**

**NRC Staff**

**60 mins.\***

**Victor McCree**, Executive Director for Operations

**Vonna L. Ordaz**, Deputy Director, Office of New Reactors

**Frank Akstulewicz**, Director Division of New Reactor Licensing

**John Monninger**, Director, Division of Safety Systems and Risk Assessment

**Laura Dudes**, Deputy Regional Administrator for Construction, Region II

**Michael Cheok**, Director, Division of Construction Inspection & Operational Programs

**Topics:**

- Large Light Water and Small Modular Reactor Licensing
  - Goals, challenges, strategies, projections, and trends
- Advanced Reactor Licensing
  - Goals, challenges, and strategies
- Construction oversight
  - Goals, challenges, strategies, and transition to operations
- ITAAC
  - Uncompleted ITAAC Pilot
- Vendor inspections
  - Goals, challenges, and strategies
- International Cooperation
- Project Aim Implementation

**Commission Q & A**

**30 mins.**

**Discussion – Wrap-Up**

**5 mins.**

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



# **New Reactors Business Line Commission Briefing**

**October 20, 2016**

**Victor McCree**

**Executive Director for Operations**



# **Overview of the New Reactor Program**

**Vonna Ordaz  
Deputy Director  
Office of New Reactors**



# **Agenda**

- **Large Light Water Reactor & Small Modular Reactor Licensing**
- **Technical Review Effectiveness**
- **Construction Oversight**
- **ITAAC**
- **Vendor Inspection Program**
- **Transition to Operations**
- **Advanced Reactor Regulation**

# **Effectively Managing Substantial Workload**

- **Emphasizing more effective, efficient, safety-focused reviews**
- **Ensuring safe construction**
- **Incorporating lessons learned and demonstrating efficiencies**
- **Focusing on quality and accountability**

# **Enhancing Readiness for Future Work**

- **Ensuring readiness to review new technologies**
- **Implementing innovative approaches**
- **Aligning resources with workload**



# **Large Light Water Reactor & Small Modular Reactor Licensing**

**Frank Akstulewicz, Director  
Division of New Reactor Licensing  
Office of New Reactors**



# Effectively Delivering on the Mission (1/3)

## Completed

- 32 licensing actions for Vogtle and V.C. Summer units
- Mandatory hearings for Levy and Lee COL applications
- Safety review for the Turkey Point COL application



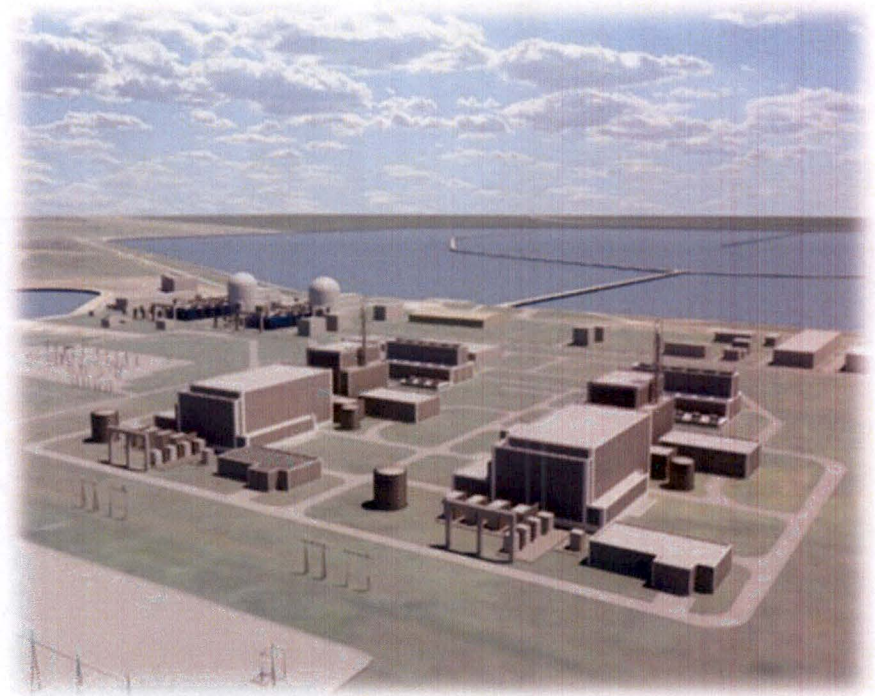
*"An elevated view of the entire Vogtle 3 and 4 construction site."  
Photo courtesy of Georgia Power Company*



# Effectively Delivering on the Mission (2/3)

## Issued

- **ESP to PSEG**
- **COLs for South Texas Project Units 3 & 4**
- **Milestone schedule letter to GEH for ABWR DC renewal application**

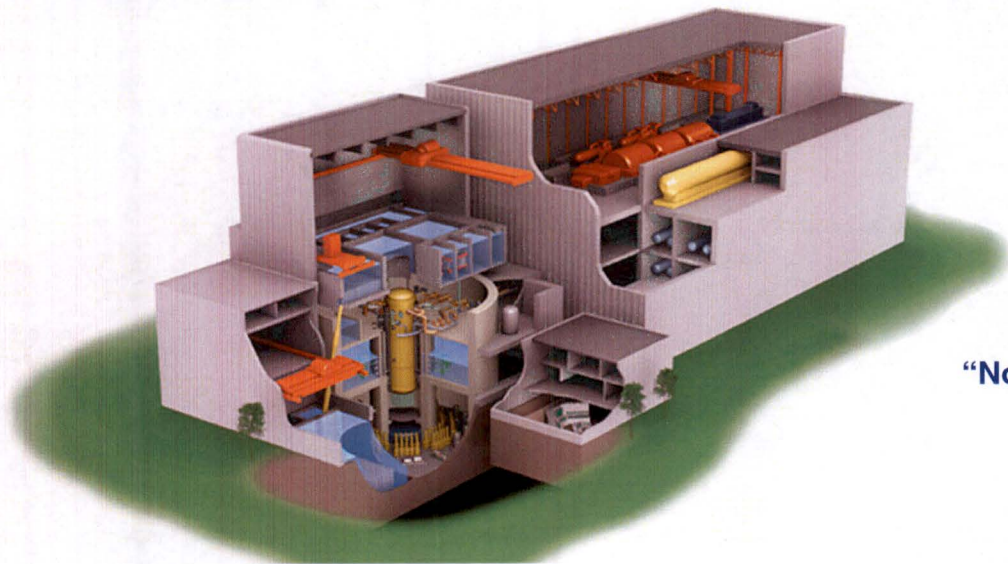


**"South Texas Project Units 3 & 4"**  
*Photo courtesy of nuclearstreet.com*



# **Effectively Delivering on the Mission (3/3)**

- **Completed the North Anna COL application safety review 3 months ahead of schedule**
- **Employing a staggered Phase 2 review of APR-1400 DC application to maintain 42-month review schedule**

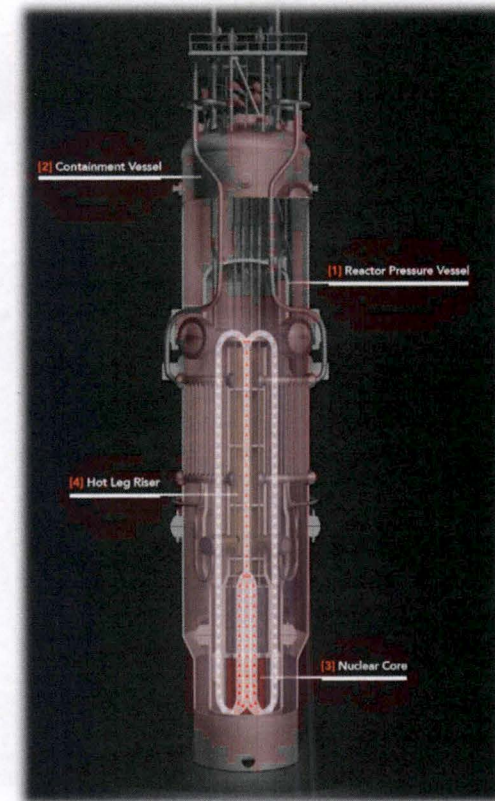


**"North Anna Power Station Unit 3"**  
*Photo courtesy of Dominion*



# Employing Lessons Learned to SMR Licensing Work

- **Addressed Regulatory Gap issues**
- **Issued readiness assessment for NuScale DC application**
- **Completed acceptance review of Tennessee Valley Authority's tendered ESP application**



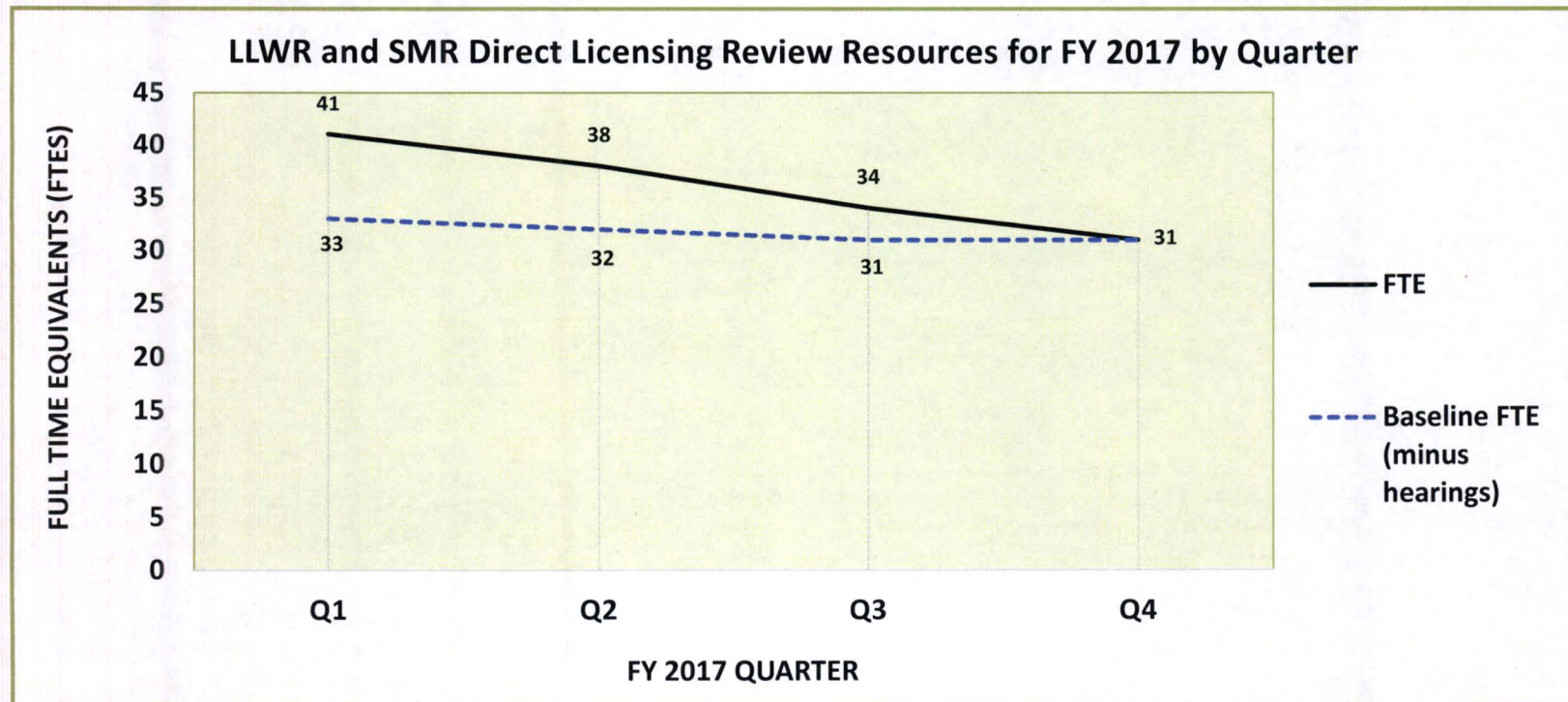
**"NuScale Reactor Diagram"**

*Photo courtesy of NuScale Power, LLC*



# Emphasizing Agility Using Resources in FY 2017

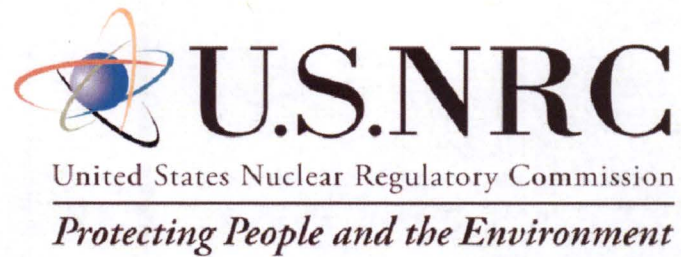
- **Challenge: Balancing resources in certain skill set areas**
- **Strategy: Effectively using rotations, details, and resource sharing with NRR**



# **Preparing for Licensing Work in FY 2017 and Beyond**

- **Reviewing increased number of licensing actions for the AP1000 design center**
- **Completing review of current applications**
- **Preparing for new COL, ESP, and DC applications**
- **Supporting international activities**





# **Increasing Effectiveness and Efficiency of Technical Reviews**

**John Monninger, Director**  
**Division of Safety Systems and Risk**  
**Assessment**  
**Office of New Reactors**

# **Enhancing Execution of our Safety Mission**

- **Continuing to assess and apply lessons learned**
- **Standardizing practices and focusing efforts**
- **Benefiting from risk-informed approaches**



# **Enhancing Licensing Review Tools**

- **Issued job aids for audits, confirmatory analysis, and requests for additional information**
  - **Clarified the purpose of the tools**
  - **Identified best practices and what to avoid**

# **Implementing Risk-Informed Approaches**

- **Capitalizing on the Standard Review Plan framework for SMRs**
- **Developing the NuScale safety focused review approach**
  - **Integrated consideration of safety-significance, defense-in-depth, risk insights, and safety margin**



# **Construction Oversight**

**Laura Dudes**  
**Deputy Regional Administrator,**  
**Construction**  
**Region II**



# Effectively Meeting Challenges of the Dynamic Construction Environment (1/3)



Placement of the  
In-containment refueling water  
storage module, VC Summer Unit 2

Placement of the  
Auxiliary Building Module,  
Vogtle Unit 4





# Effectively Meeting Challenges of the Dynamic Construction Environment (2/3)



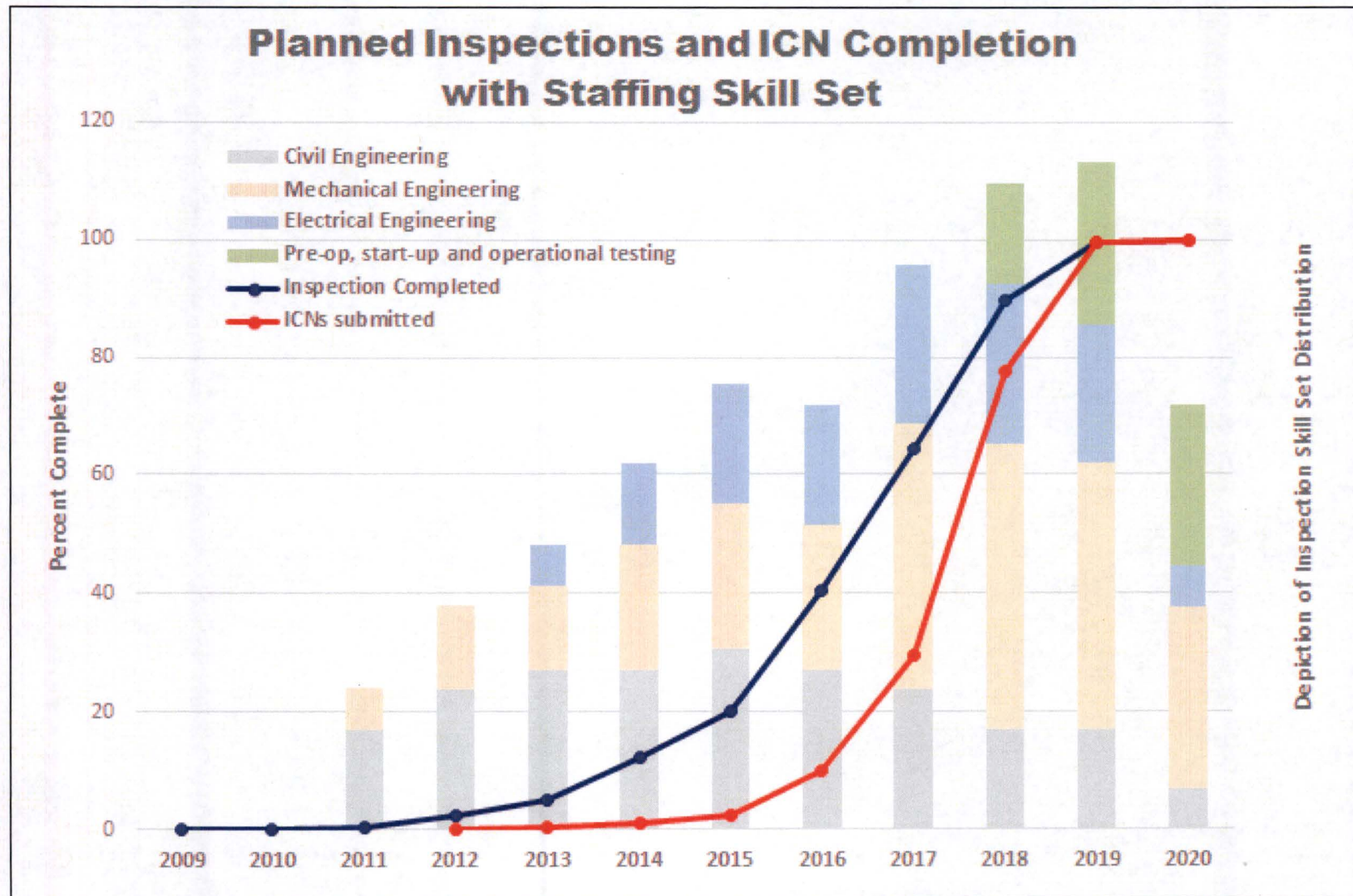
**Mechanical Module Receipt Inspection  
at Vogtle AP1000 Site**



**Chemical and volume control system  
pumps**



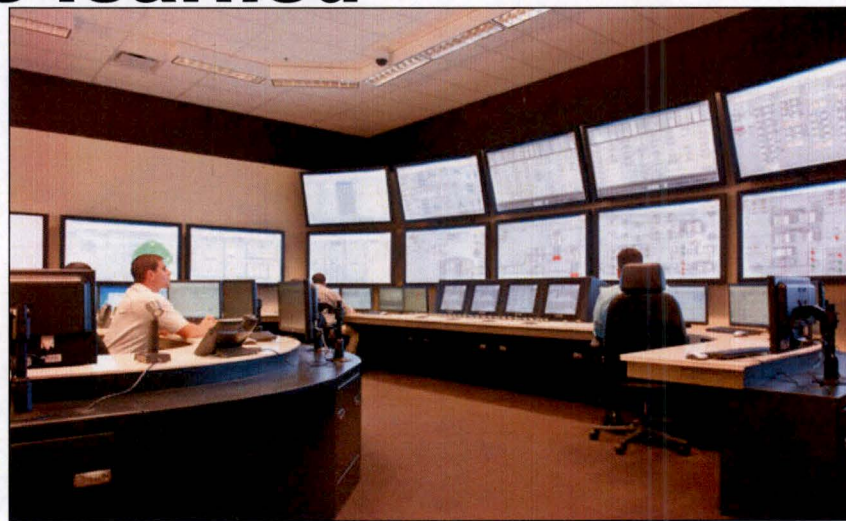
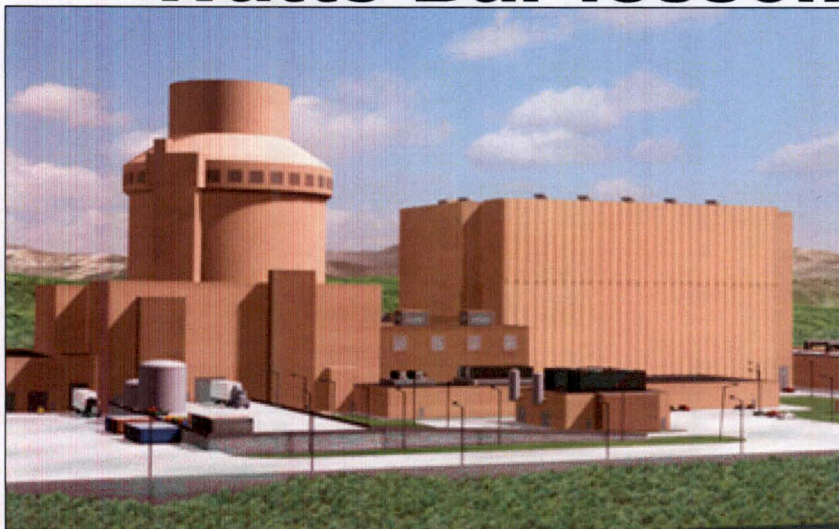
# Effectively Meeting Challenges of the Dynamic Construction Environment (3/3)





# Transition: Construction to Operations

- **Organizational plan for the AP1000 transition**
- **Staff readiness for AP1000 operation**
  - **AP1000 reactor operations training**
  - **Resource agility during initial operations**
  - **Watts Bar lessons learned**





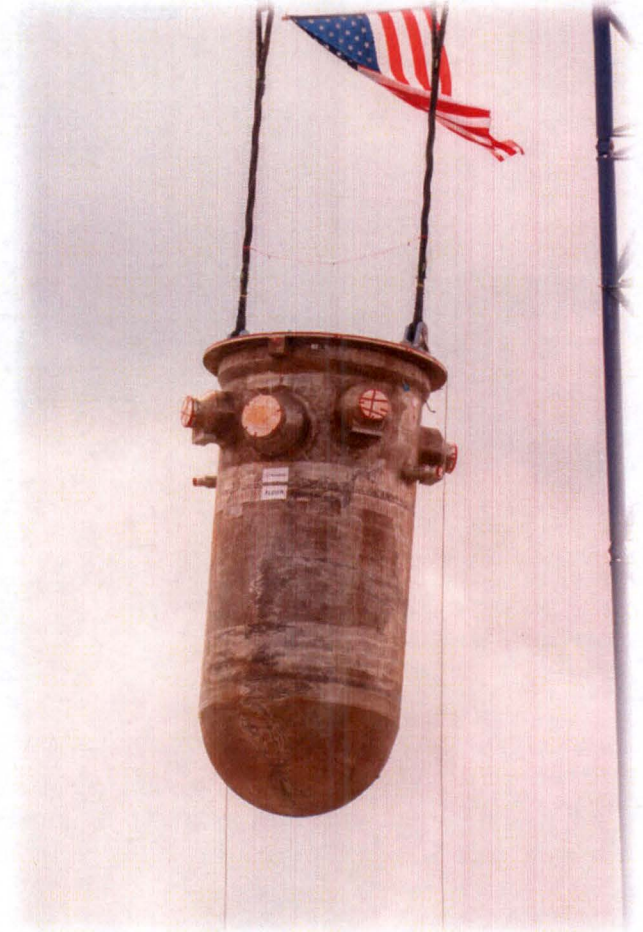


# **ITAAC, Vendor Inspection Program, & Transition to Operations**

**Michael Cheok, Director  
Division of Construction Inspection  
and Operational Programs  
Office of New Reactors**

# **Successfully verifying ITAAC Closure Notifications (ICNs)**

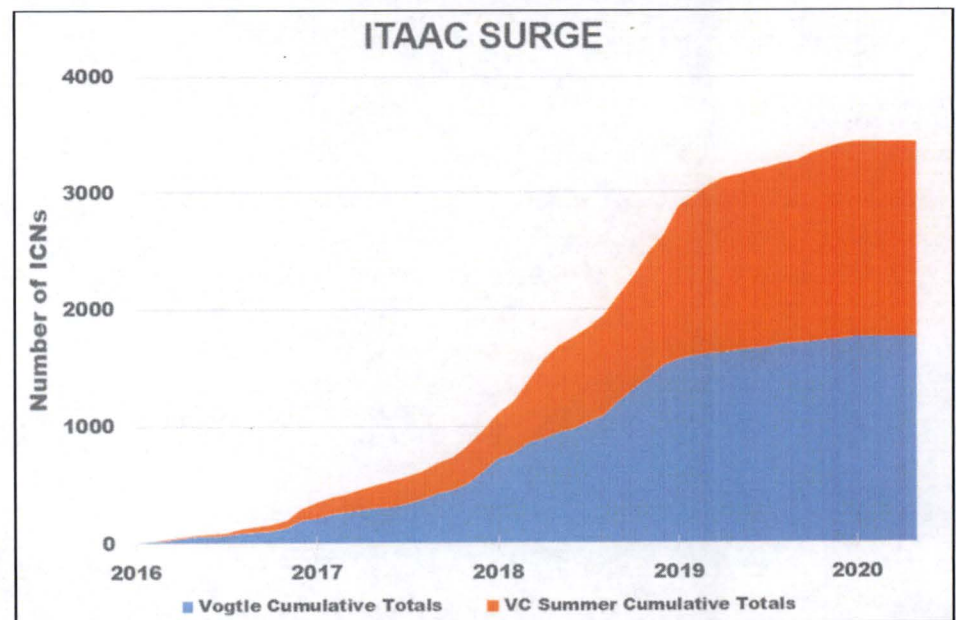
- **131 ICNs received,  
with 111 verified**
- **ICN submittals will  
increase**
- **Closure notification  
submittals have been  
high quality**





# Ready for the ITAAC surge

- **Issued Reg Guide 1.215 to facilitate quality ICN submittals**
- **NRC training on ICN verification**
- **Use of staff experts to assist in verification of complex ITAAC**



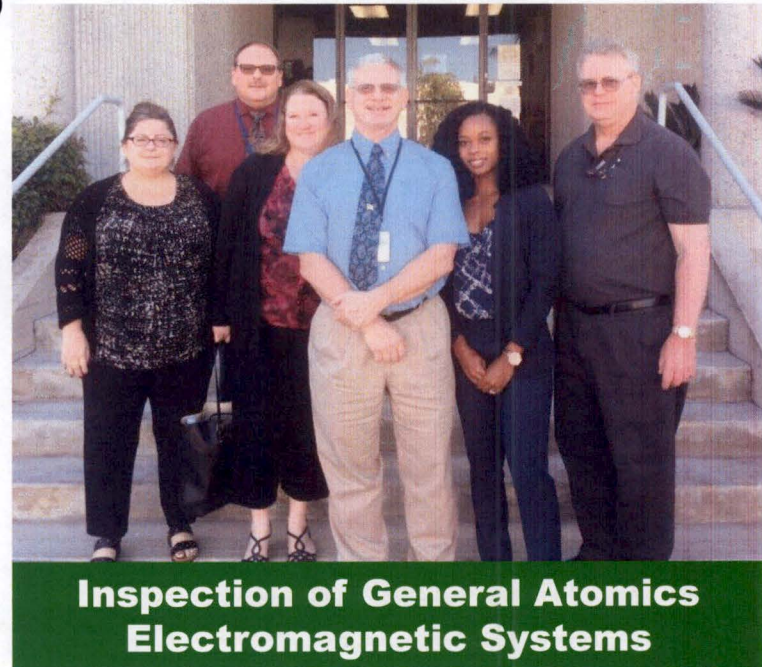
# **Implementing Efficient Solutions**

- **Carried out a successful Uncompleted ITAAC Notification (UIN) pilot project**
- **Enhanced infrastructure to process UIN reviews**
- **Achieved greater efficiencies with periodic, multiple-ICN Federal Register Notices**



# **Vendor Inspection: Focusing on New Reactor Builds**

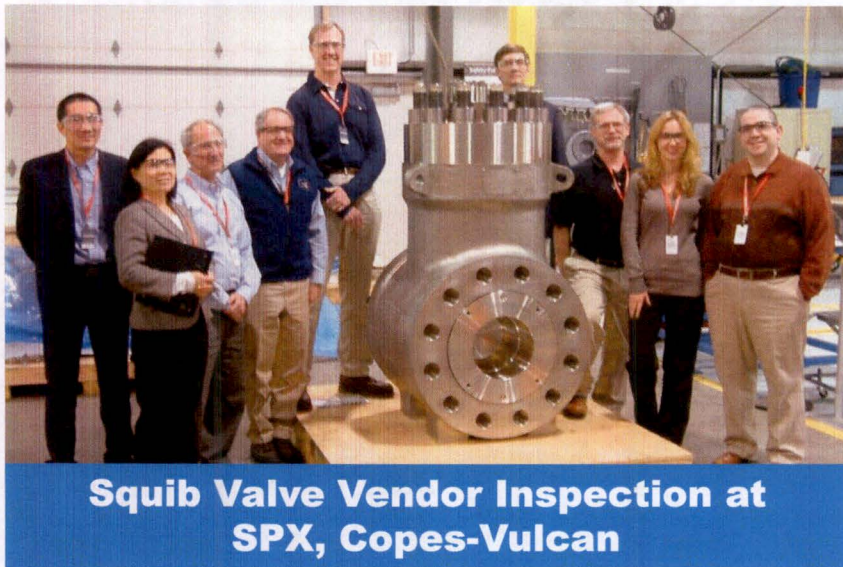
- **Majority of vendor inspections completed in FY2016 focused on new reactor components**
- **Inspections targeted vendors supplying safety-significant components**





# **Vendor Inspections are Enhancing Safety**

- **Maintaining technical focus on AP1000 engineering and design verification**

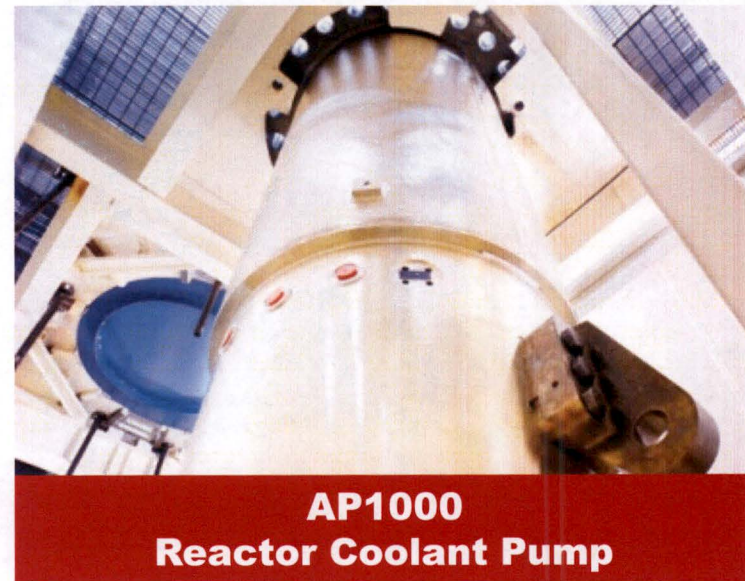


- **Closing out safety issues**
- **Continuing follow-up on AP1000 module fabrication**



# **Sustained Focus on Vendor Oversight**

- **Continue our focus on commercial-grade dedication issues**
- **Continue vendor outreach**
- **Leveraging international partnerships**



## **Actively Preparing for Transition to Operations**

- **Making progress on 21 Readiness Issues**
- **Developing implementation plan**
- **Applying enhancements to the Reactor Oversight Process for new reactors**





# **Advanced Reactor Regulation**

**Vonna Ordaz  
Deputy Director  
Office of New Reactors**

# **Increasing Emphasis on Advanced Reactors**

- **Industry engagement with NRC has increased**
- **Congressional interest remains high**
- **Staff aggressively working toward readiness for efficient and predictable reviews**



# **Managing the Challenges to Advanced Reactor Readiness**

- **Maturity of designs – focusing on common issues**
- **Clarity of schedule – effective communication**
- **Flexibility of regulatory review process – soliciting stakeholder feedback**

# Actions Focus on Readiness for Efficient Reviews



- **NRC Vision and Strategy**
  - **Three Pronged Approach**
    - **Technical Readiness**
    - **Regulatory Readiness**
    - **Communications Optimization**



# **Efficient Reviews are Essential to Success**

- **Developing strategies and  
Implementation Action Plans**
- **Technical work on design  
criteria progressing**
- **Taking first steps to develop a  
licensing strategy**



# **Communication and Coordination are Vital**

- **Excellent coordination with DOE**
- **Active communication with vendors and industry organizations**
- **International collaboration**



# **Summary**

- **Positively impacting safe construction**
- **Implementing innovative approaches to complete current licensing reviews**
- **Enhancing readiness for new technologies**

## **Acronyms (1/2)**

- **ABWR – Advanced Boiling Water Reactor**
- **COL – combined license**
- **DOE – Department of Energy**
- **DC – design certification**
- **ESP – early site permit**
- **GEH – General Electric Hitachi**
- **ICN- ITAAC closure notification**



## **Acronyms (2/2)**

- **ITAAC – inspections, tests, analyses, and acceptance criteria**
- **LLWR – Large Light Water Reactor**
- **RAI – request for additional information**
- **NRR – Office of Nuclear Reactor Regulation**
- **PSEG - PSEG Power, LLC and PSEG Nuclear, LLC**
- **SMR – small modular reactor**