



New Reactor Business Line Commission Briefing

September 25, 2012



Opening Remarks

**Bill Borchardt,
Executive Director for Operations**



Overview of the New Reactor Program

**Glenn M. Tracy, Director
Office of New Reactors**

Agenda

- **Overview of the New Reactor Program**
- **Large Light Water Reactor Licensing**
- **Small Modular Reactor Licensing and Oversight Preparations**

Agenda

- **Site Safety and Environmental Reviews**
- **Construction Inspection and Vendor Inspection Programs**

Historical Perspectives

New Reactor Program Goals

2009–2012

- Completed AP1000 design certification amendment**
- Issued first combined licenses**
- Made significant progress on other design certification and combined license applications**

Historical Perspectives

- Developed construction inspection and support infrastructure**
- Established an advanced reactor organization and identified policy issues**



Key Planning Assumptions

- **Four AP1000 units and one Part 50 reactor under construction**
- **First AP1000 unit expected in operation in 2017**
- **Significant increase in implementation of Inspections, Tests, Analyses and Acceptance Criteria closure verifications**

Key Planning Assumptions

- **Increasing number of licensing actions and technical assistance requests for plants under construction**
- **Continued support to the operating reactor program for Fukushima lessons learned**

Workload Projections

- **Receipt of one large reactor design certification and one early site permit application through 2017**
- **Receipt of two small modular reactor applications in 2013-2014**
- **Continued monitoring of advanced reactor developments**

New Reactor Program Goals 2012-2016

I. Support the construction oversight of four AP1000 units

II. Implement the agency's Reactor Vendor Inspection Program

New Reactor Program Goals 2012-2016

III. Develop an integrated transition plan from construction to operations

IV. Support completion of design certifications, early site permits, and license applications

New Reactor Program Goals 2012-2016

V. Establish the infrastructure to support review of small modular reactor applications

VI. Prepare for the licensing of advanced non light-water reactors



Large Light Water Reactor Licensing

David Matthews, Director
Division of New Reactor Licensing
Office of New Reactors

Plans to Address Key Challenges

- **Maintaining the licensing basis during construction**
- **Addressing Waste Confidence decision**
- **Implementing Fukushima recommendations**

Key Staff Activities

- **Managing license amendments**
- **Completing safety and environmental reviews**
- **Preparing for transition to operations**

Potential Policy Issue

- **Financial qualifications for merchant plants**



Small Modular Reactor and Advanced Reactor Licensing and Oversight Preparations

Michael Mayfield, Director

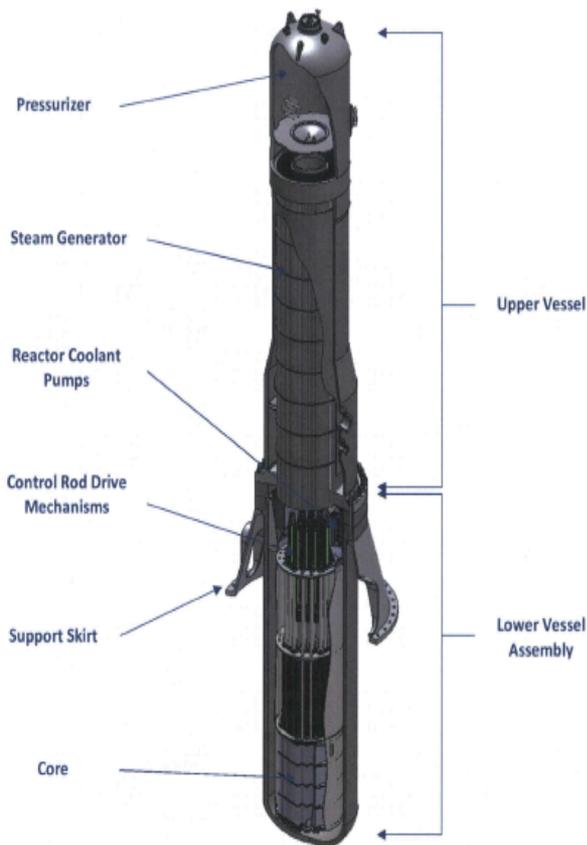
**Division of Advanced Reactors and
Rulemaking, Office of New Reactors**

Plans to Address Key Challenges

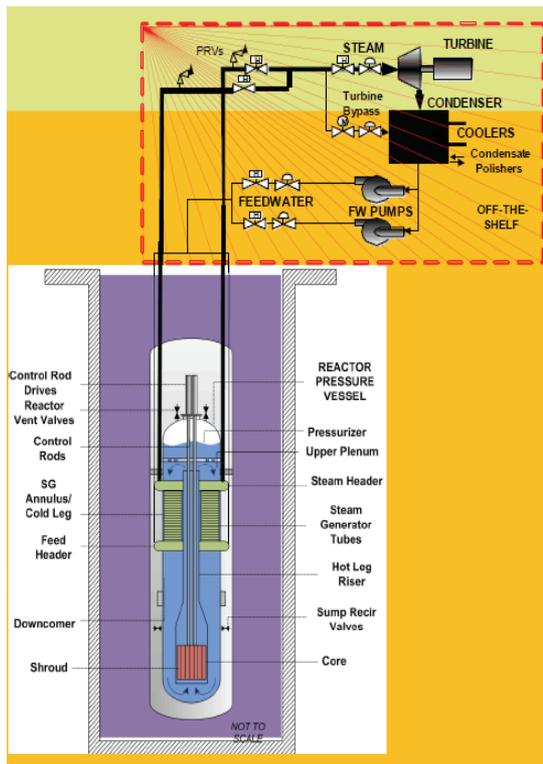
- **Developing an effective approach to review small modular reactors**
- **Applying lessons learned**
- **Undertaking first-of-a-kind reviews with unique technical challenges**

Integral Pressurized Water Reactors

B&W mPower

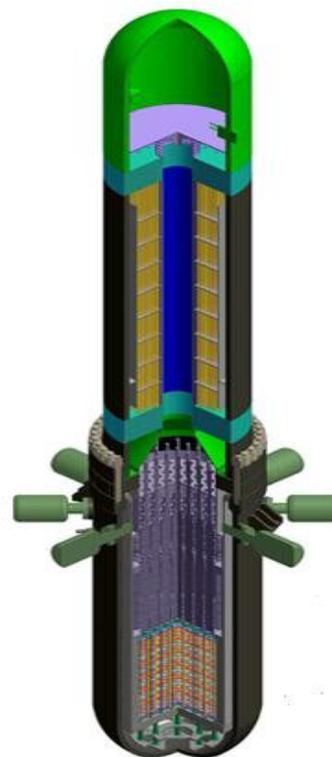


NuScale



Westinghouse

SMR



Holtec SMR-160



Key Staff Activities

- **Developing plans to support the review of the two small modular reactor projects to be selected by DOE**
- **Formulating Design Specific Review Standards**
- **Communicating that the progress of any future reviews depends on industry's readiness**

Potential Policy Issue

- **Emergency Planning requirements**



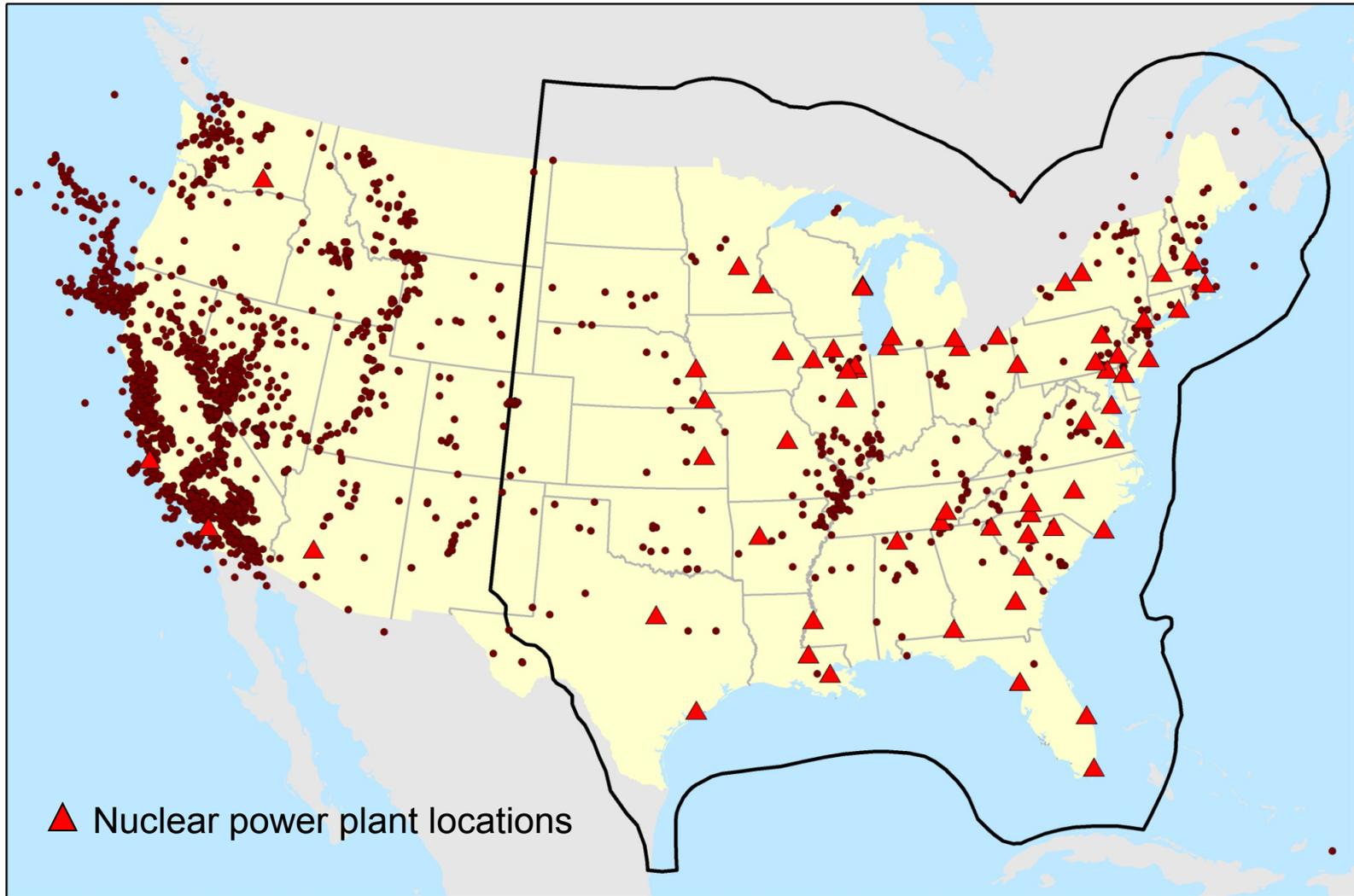
Site Safety and Environmental Reviews

**Scott Flanders, Director
Division of Site Safety and
Environmental Analysis
Office of New Reactors**

Plans to Address Key Challenges

- **Implementing Fukushima seismic and flooding lessons learned for operating and new reactors**
- **Evaluating the first western site for a new reactor**

Earthquakes and NPPs



USGS Catalog of Felt/Damaging Earthquakes in the USA 1568 - 2004

Key Staff Activities

- **Preparing for small modular reactor reviews**
- **Ensuring critical skills are available to support planned activities**

Construction and Vendor Oversight

- **Construction Reactor Oversight Program and Vendor Inspection Program – Laura Dudes**
- **Construction Oversight at Vogtle, Summer and Watts Bar – Victor McCree**

Construction and Vendor Oversight

- **Construction Oversight Implementation – Rick Rasmussen and Justin Fuller**



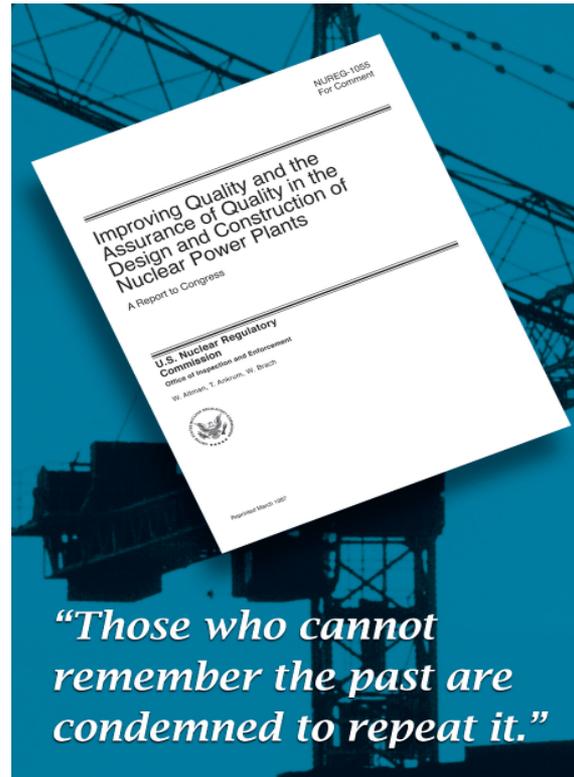
Construction Reactor Oversight Program and Vendor Inspection Program

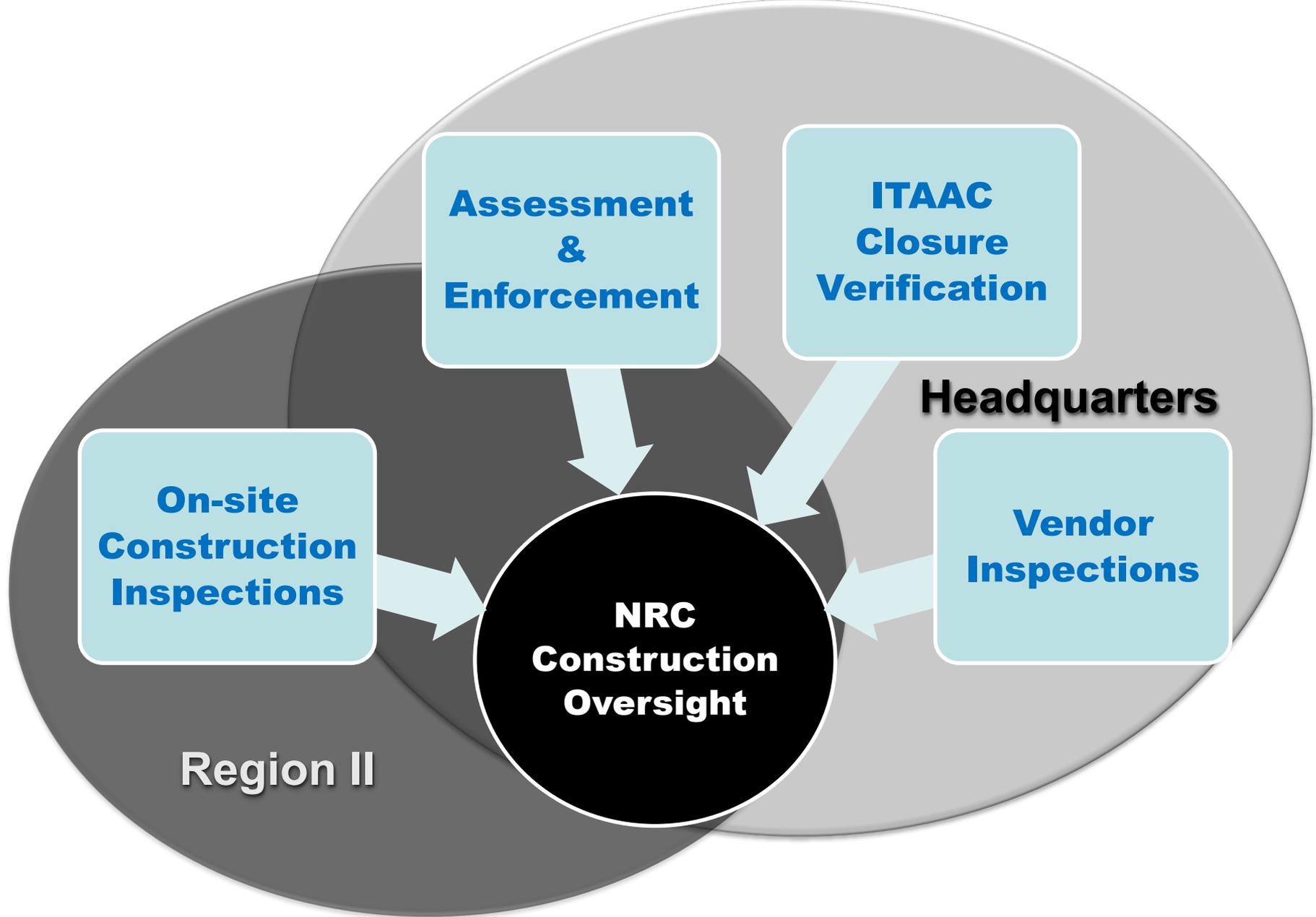
Laura Dudes, Director

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

Construction Reactor Oversight Program

NUREG-1055





ITAAC = Inspections, Tests, Analyses, and Acceptance Criteria

Plans to Address Key Challenges

- **Addressing emerging lessons learned**
- **Planning for integrated transition**
- **Developing small modular reactors construction oversight**



Construction Oversight of Vogtle, Summer, and Watts Bar

Victor McCree
Regional Administrator
Region II

Construction Oversight of Vogtle, Summer, and Watts Bar

- **Region II responsibilities**
- **Construction inspectors and operator licensing examiners**
- **Site staffing (current/future)**

Plans to Address Key Challenges

- **Managing inspections amidst changes to construction schedules**
- **Applying international lessons learned**

NUREG 1055 – NRC Lessons

- **Inspect early in any new process**
- **Provide a larger resident inspector presence**
- **Compile an accurate inspection record**
- **Ensure an effective licensee corrective action program**



Vendor Inspection Program

Richard Rasmussen

Branch Chief

Construction Electrical Vendor Branch

Vendor Inspection Program

- **Implementing vendor oversight for operating and new reactors**
- **Planning approximately 30 inspections in FY 2013**
- **Verifying effective licensee oversight of vendors**

VC Summer #2 Reactor Vessel Upper Shell



AP1000 Components

Core Nozzle



Core Barrel



AP1000 14 inch Squib Valve



Vendor Inspection Program

- **Vendor Inspection Program Plan highlights ranking criteria used for vendor selection**
- **Ongoing coordination and communication with RII**

Vendor Inspection Program

- **Focusing on Counterfeit, Fraudulent and Suspect Items**
- **Utilizing international cooperation**

Vendor Inspection Results

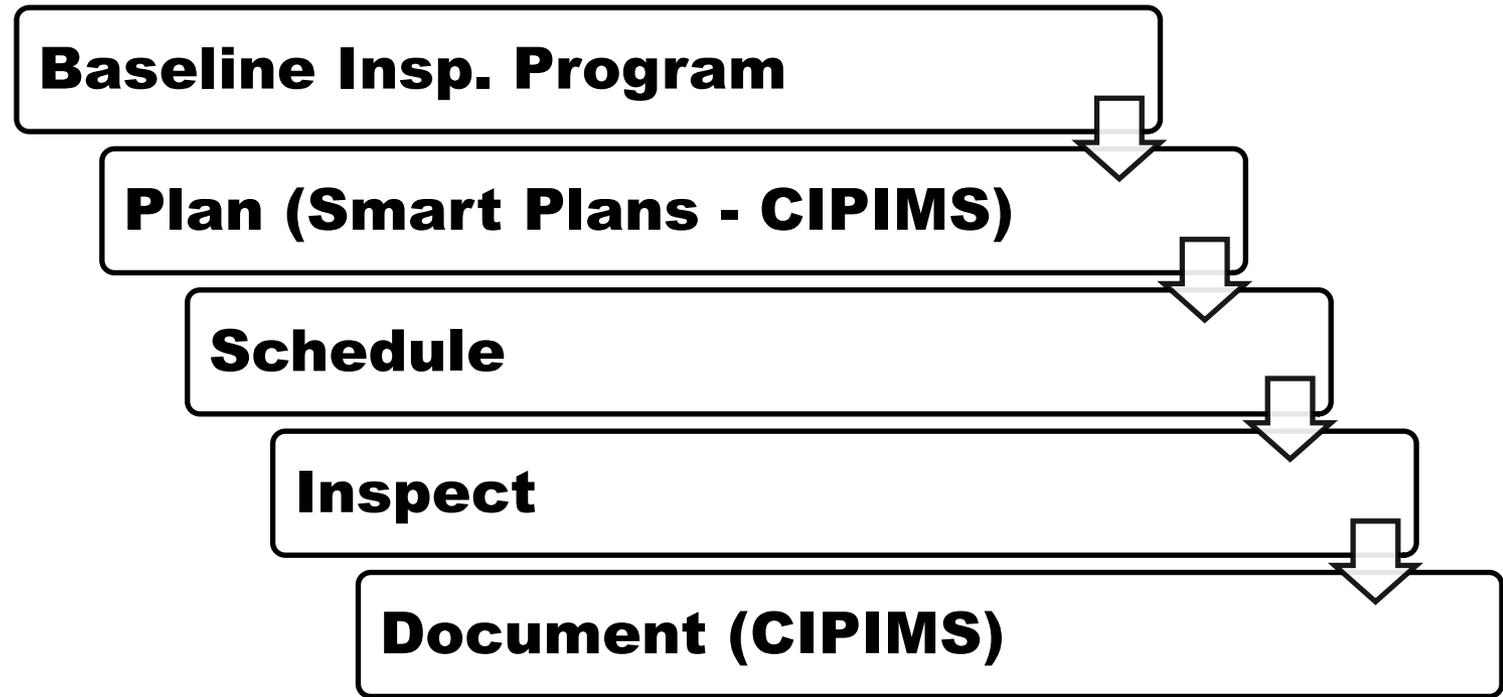
- **Inspections sample activities supporting ITAAC**
- **Provide early identification of issues and valuable inspection insights**
- **Support the Commission's finding that all ITAAC are complete**



Region II Implementation of Inspection Process and Tools

Justin D. Fuller
Senior Resident Inspector
Vogtle 3&4

Inspection Process & Tools



CIPIMS = **C**onstruction **I**nspection **P**rogram **I**nformation **M**anagement **S**ystem

Smart Plans



CIPIMS ▶ Preplan Site SmartPlans: Fuel transfer tube insert plate welding inspection



I Like It



Tags & Notes

Activity Description	Fuel transfer tube insert plate welding inspection
Pre-Plan Site ID	149
DCD	AP1000
ITAAC	2.2.01.03a
ITAAC Owner Branch	Construction Inspection Branch 3
ITAAC Family	06B
Activity Number	11
Engineering Discipline	Mechanical Inspections
Unit	VOG3
IVR	No
Inspection Link Information	Link to CV BH assembly duration 50% complete to 100% complete (CB&I work).
Number of Inspectors	1
Hours	40
Skillset	Mechanical Engineer
Non-CCI Support	
Non-CCI Support Hrs	
Resident Needed	Yes

- **Smart Plan Identifies:**
- **Description of activity or item to inspect**
- **Link to licensee construction schedule**
- **Estimate # of hours (inspection effort)**
- **Resident support**
- **Inspection guidance**
- **Construction & fabrication insights**

Example ITAAC – Containment System

ITAAC No.	Design Commitment	Inspections, Tests, Analyses	Acceptance Criteria
2.2.01.03a	3.a) Pressure boundary welds in components identified in Table 2.2.1-1 as ASME Code Section III meet ASME Code Section III requirements.	Inspection of the as-built pressure boundary welds will be performed in accordance with the ASME Code Section III.	A report exists and concludes that the ASME Code Section III requirements are met for non-destructive examination of pressure boundary welds.

- **The containment vessel was selected for inspection**
- **Fuel Transfer Tube Insert Plate Weld (Pressure Boundary Weld)**

Inspection Schedule

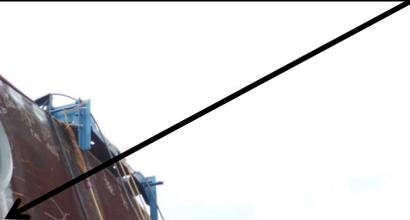
Vogtle Units 3 4 Inspection Schedule					NRC New Reactor 13W Insp Schedule Report						
Activity ID	USNRC AP-1000R19 DCD ITAAC Number	USNRC ID Number	Activity Name	USNRC Approved Task	Start	Finish	Original Duration	USNRC Unit Number	USNRC Resp. Branch	Role IDs	Resources
<ul style="list-style-type: none"> - Report published weekly (13 Week Look Ahead) - Smart plan items available for inspection - Linked to the licensee's construction schedule - ITAAC #, smart plan #, title, dates, and assigned inspector - Estimated # of hours for inspection 										EE, NRODE, EE	
										EE	
										EE	
										RI-V	Coleman Abbott
										CE	
VG0401a0050b	3.3.00.05c	2	PXS Room Flood Barrier Inspection Report Review	No				4	CIB2	CE	
VG0401a0050a	3.3.00.02b	1	Site Grade Walkdown	No				4	CIB2	RI-V	Coleman Abbott
VG0401a0060a	3.3.00.02f	1	NI Key Dimension Inspection	No			2	4	CIB2	RI-V	Coleman Abbott
Mechanical Branch											
VG0406b0010k	2.2.01.03a	11	Fuel Transfer Tube Inset Plate welding Inspection	Yes				4	CIB3	RI-V	Justin Fuller



Inspect



**Fuel Transfer Tube Insert Plate to
Containment Vessel Weld
Inspection Report 052-25/2012-002**



2012/3/7 14:48

Document (CIPIMS)

CIPIMS 2.1

Planners



- Review **ITAAC Master Data**
- Review/Edit **DCD PrePlans**
- Review/Edit **Site Specific PrePlans**
- Create new **Site Specific PrePlan**

Inspectors



- Review/Edit **Inspection Plans**
- Review/Edit **Inspection Reports**
- Create new **Inspection Plan**
- Create new **Inspection Reports**

Approvers



- Review/Approve designated **Inspection Plans**
- Review/Approve designated **Inspection Reports**

CIPIMS = Construction Inspection Program Information Management System

Summary

- **The staff has demonstrated its effective use of programs and processes developed to evaluate new reactor applications**

Summary

- **The staff will be prepared to evaluate small modular reactor applications by applying its experience with large light water reactor reviews**



Summary

- **The new reactor construction oversight program is built on lessons learned**
- **The inspection program confirms that the plant is built in accordance with the license**