



# *Major Project Plans*

Oconee Nuclear Station

Seneca, SC

January 18, 2012

## **Oconee Nuclear Station**

For Information Only

- ❖ **Welcome & Opening Remarks – Preston Gillespie**
- ❖ **Organizational Changes – Preston Gillespie**
- ❖ **Projects Update – Scott Lynch**
- ❖ **Licensing Update – Dave Baxter**
- ❖ **Closing Remarks – NRC / Duke – Preston Gillespie**



## Duke Attendees

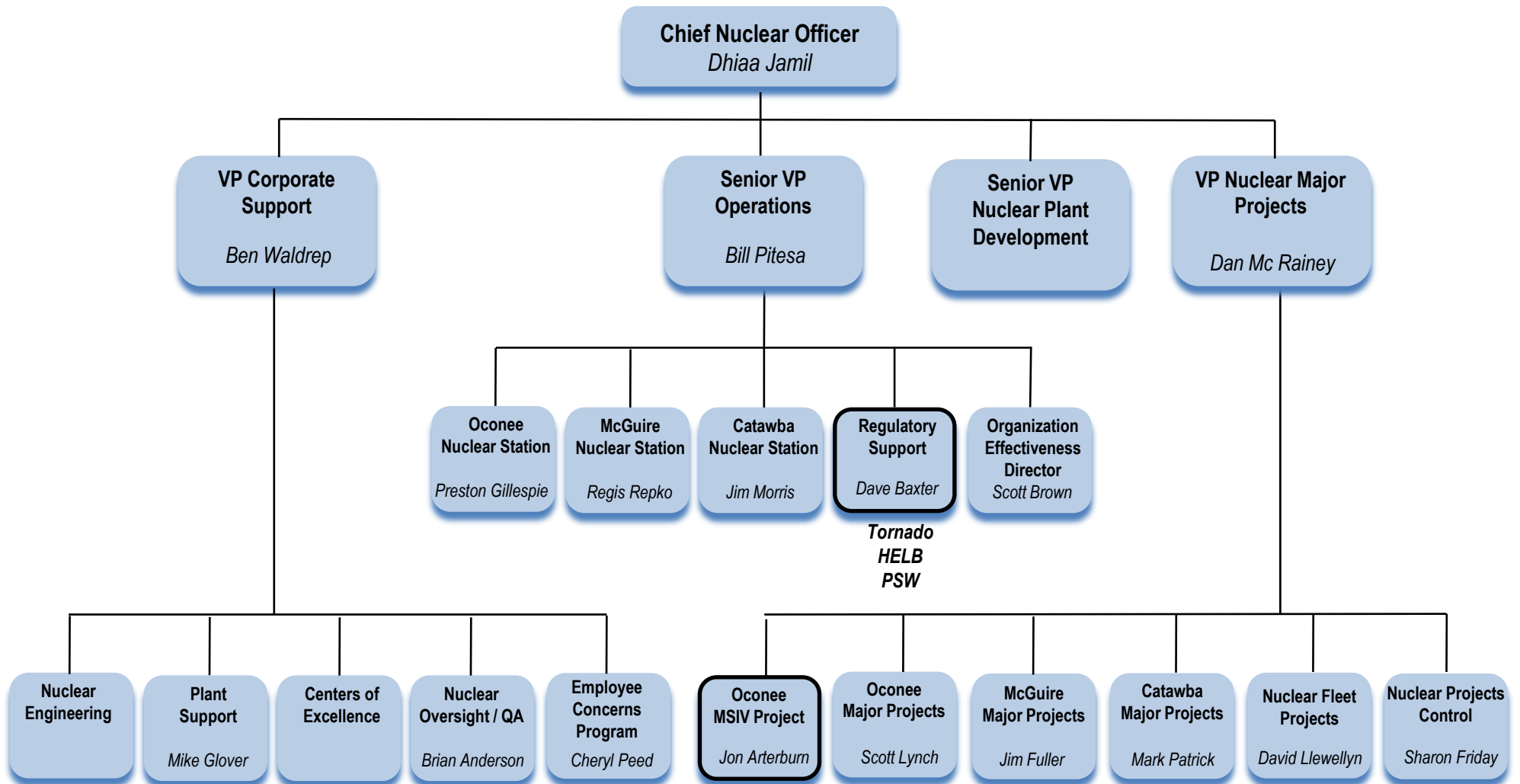
- ❖ Dhiaa Jamil, Chief Nuclear Officer
- ❖ Bill Pitesa, Sr. VP, Nuclear Operations
- ❖ Preston Gillespie, Site VP, Oconee Nuclear Station
- ❖ Dave Baxter, VP, Nuclear Engineering
- ❖ Dan McRaney, VP, Major Projects
- ❖ Scott Batson, Station Manager
- ❖ Tom Ray, Engineering Manager
- ❖ Bob Guy, Organizational Effectiveness Manager
- ❖ Scott Lynch, General Manager, Oconee Major Projects
- ❖ Chris Nolan, Fleet Safety Assurance Manager
- ❖ Terry Patterson, Oconee Safety Assurance Manager
- ❖ Rich Freudenberger, Regulatory Affairs Manager
- ❖ Dean Hubbard, Regulatory Affairs Manager
- ❖ Barbara Thomas, Project Director, MSIVs, Oconee Major Projects
- ❖ Kent Alter, Regulatory Compliance Manager
- ❖ Sandra Magee, Public Affairs Manager

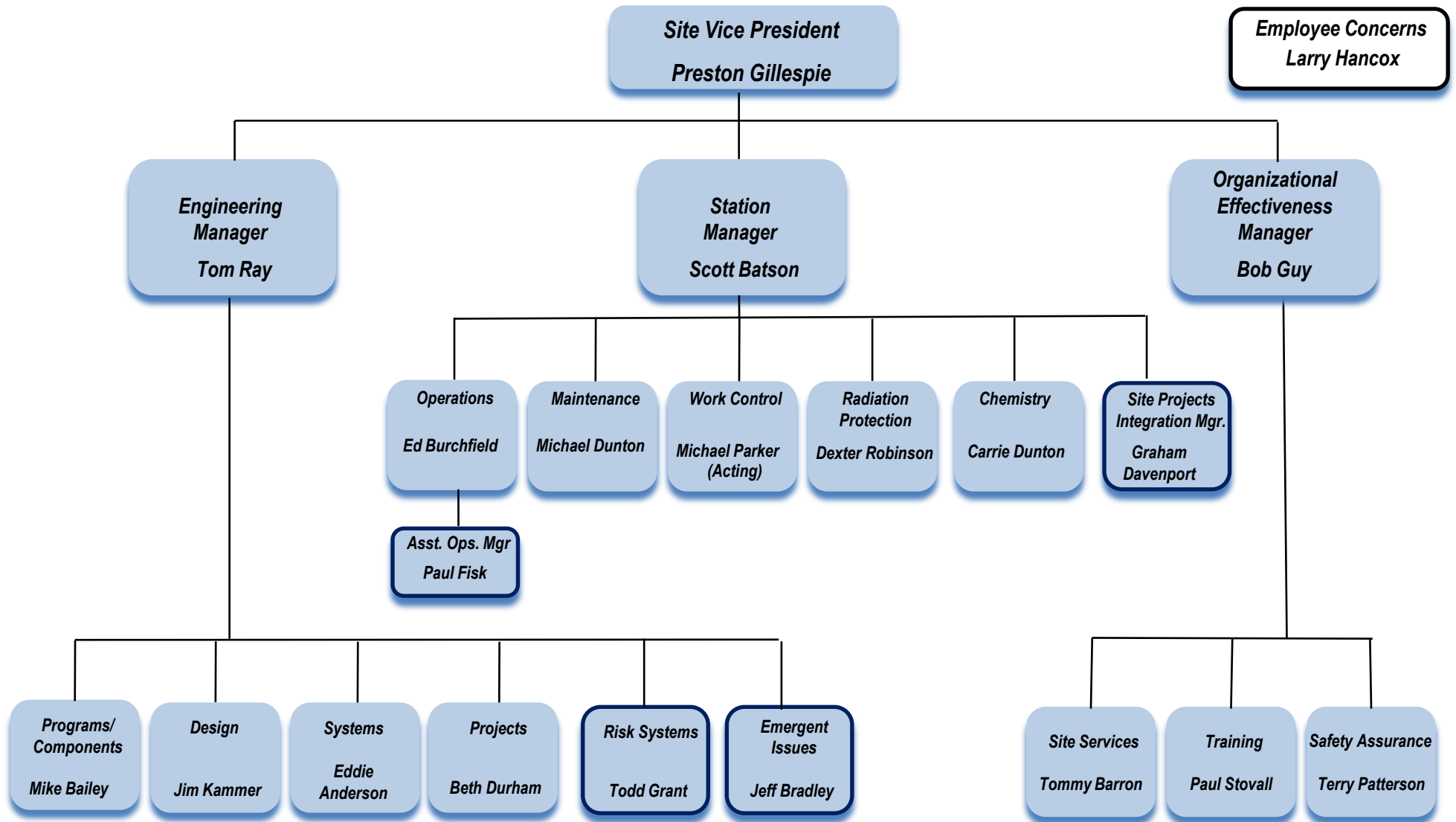


# Opening Remarks

Preston Gillespie

Vice President, Oconee Nuclear Station







## Projects Update

Scott Lynch,

General Manager, Oconee Major Projects

### ❖ Regulatory Status

- ❖ License Amendment Request (LAR) submitted - January 2008
- ❖ Safety Evaluation Report (SER) issued - January 2010
- ❖ On-site NRC inspection – June 2011

### ❖ Project Status

- ❖ Unit 1 installation Spring 2011 - Complete
- ❖ Unit 2 installation Fall 2013
- ❖ Unit 3 installation Spring 2012

### ❖ Addresses long term obsolescence



**Platts Global Energy Award  
2011 Engineering  
Project of the Year**



## ❖ Regulatory Status

- ❖ Safety Evaluation Report (SER) Issued December 29, 2010
- ❖ Self approval will require another LAR submittal

## ❖ Project Status

- ❖ Protected Service Water System required to complete implementation
- ❖ Fire Probabilistic Risk Assessment (PRA) Peer Review successfully completed in November, 2011
  - ❖ Activities in progress(i.e. Fire Risk Evaluations, Nuclear Safety Capability Assessment, etc.)
- ❖ Modifications on schedule to be completed per SER
  - ❖ Turbine/Auxiliary Building Wall Fire Barrier Upgrade
  - ❖ Purge Inlet Room/Auxiliary Building Fire Barrier Upgrade
  - ❖ Blockhouse Pressure Relief Shafts Upgrade
  - ❖ General Area/Hazard Fire Detection Improvements
- ❖ Program Implementation Team; in place
  - ❖ Two year implementation window – ONS on track to complete on schedule
  - ❖ Large list of implementation items from SER to be integrated with program implementation

- ❖ Natural Phenomenon Barrier System (NPBS)
  - ❖ NRC Commitment complete (August 31, 2011)
    - ❖ More than 618 tons of structural steel procured and installed
    - ❖ Approximately 13,100 linear feet of weld (2.5 miles long) was applied, equating to 5.5 tons of weld/filler material
    - ❖ More than 450 cubic yards of QA-1 concrete was placed for the foundation and other structural components, which included 70 tons of rebar
    - ❖ For the first time in the nuclear industry, approximately 11,300 square feet of Fibrwrap<sup>®</sup> used
    - ❖ More than 2,800 lifts were made safely around operating systems, structures and components
    - ❖ Approximately 635,100 work hours were expended with peak workforce of more than 600 technical and craft personnel
    - ❖ Planning activities included 524 work packages, averaging approximately 120 pages of documents per package

# **Duke Energy** Natural Phenomena Barrier System



Unit 1 BWST



Unit 2 BWST



Unit 2 BWST Area



Unit 3 BWST Area

For Information Only



# **Duke Energy** Natural Phenomena Barrier System



*Unit 1 – Looking East*



*Unit 2 – Looking North*

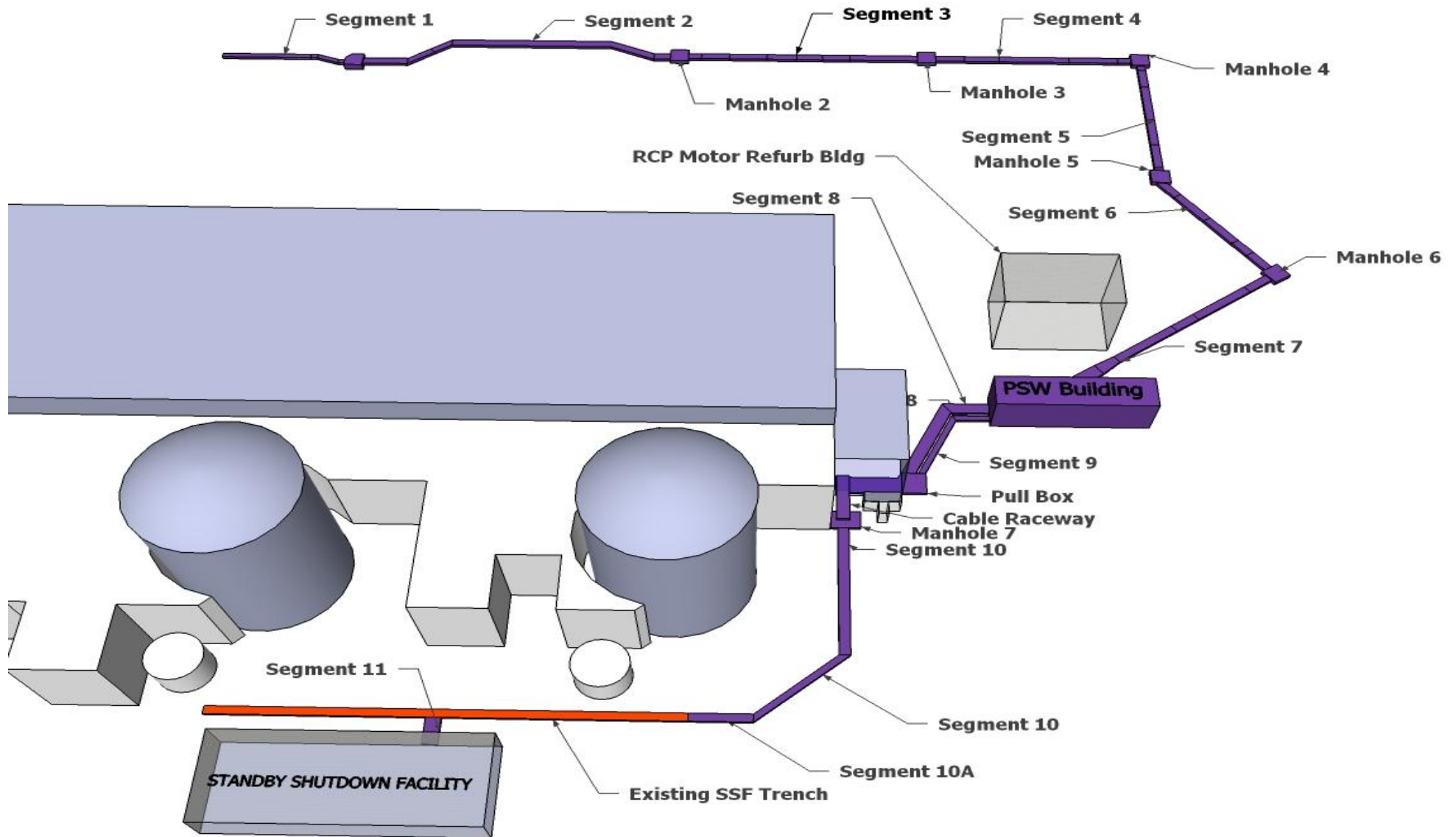


*Unit 3 – Looking Southeast*

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# Protected Service Water

## Project Status Overview



## ❖ In Progress

- ❖ Remaining Engineered Equipment manufacturing and delivery
- ❖ Final design completion
- ❖ Protected Service Water (PSW) Building equipment interconnection and testing
- ❖ SSF Alternate Power Supply
- ❖ Auxiliary Building piping and valves
- ❖ Duct bank cable pulling and terminations
- ❖ Pressurizer Heater and Vital I&C Battery Charger repowering
- ❖ Vital Instrument and Control (I&C) cable reroute
- ❖ Keowee Emergency Start cable reroute

## ❖ Completed Scope

- ❖ Units 1 and 2 High Pressure Injection (HPI) repowering outage scope
  - Main Control Board modifications
  - Transfer switch installation and testing
  - HPI Valve installation and testing
- ❖ Units 1 and 2 HPI repowering cables between PSW and Auxiliary Buildings
- ❖ Units 1 and 2 HPI components powered up and tested on temporary power
- ❖ Duct Bank infrastructure completed to support cable pulling
- ❖ Overhead Fant Line for offsite power
- ❖ Cable raceway required for cabling between Auxiliary Building and PSW Building
- ❖ PSW Building structure
- ❖ PSW Building power delivery equipment in place
- ❖ Auxiliary Building cable tray for PSW
- ❖ First Standby Shutdown Facility (SSF) Outage to support SSF repowering
- ❖ Condensate Test Line

### ❖ Remaining Scope

- ❖ PSW Equipment wiring and testing
- ❖ Units 1 and 2 Keowee Outages including Post Mod Testing
- ❖ ASW pump room demolition and installation of new PSW pumps
- ❖ Power Up PSW Building equipment and test
- ❖ U3EOC26 Outage Scope and Integrated Testing
- ❖ SSF Online and Outage work
- ❖ Online Projects (Pressurizer Heater power, Vital I&C Battery Charger power and cable reroute, fire detection)



### ❖ Challenges

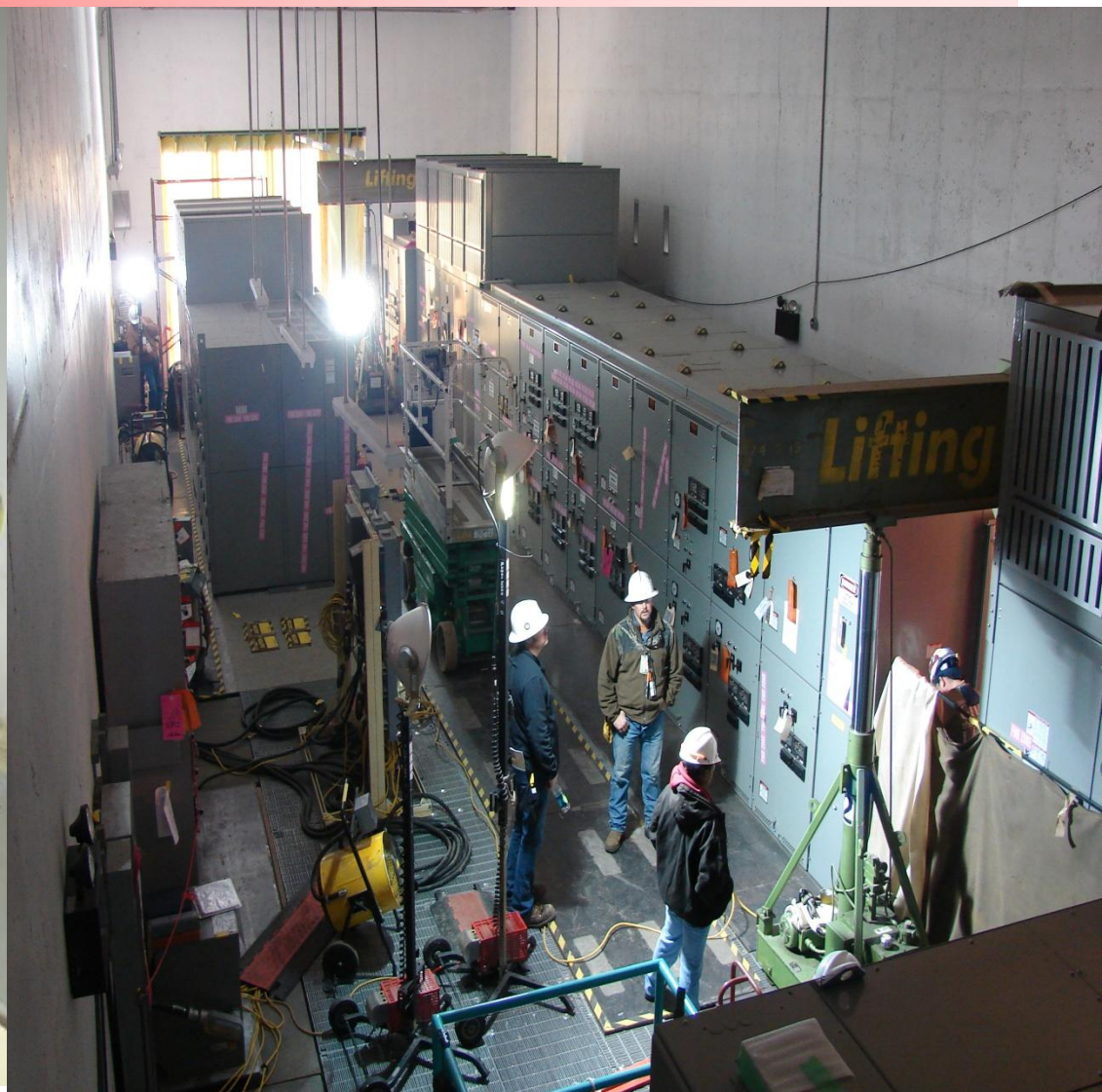
- ❖ **Procurement Document Processing** – Added dedicated engineering resources, developed dedicated procurement team with Senior Duke Manager as Procurement Director, increased Duke oversight presence in vendor facilities
- ❖ **Engineered Equipment Delivery** – OMP Management and expeditors in key vendor shops on a regular basis, vendor increased staffing to improve testing and documentation progress and expedite manufacturing and shipment, added additional engineers to resolve documentation issues associated with conditional releases
- ❖ **Completing Engineering Change Packages** – Awaiting vendor documentation to complete design. Actions previously mentioned are intended to expedite receipt of required documentation.



**PSW Duct Bank Manhole 6 (01-26-10)**

**PSW Duct Bank Manhole 6 (12-30-11)**





**PSW Building Internals (01-26-10)**

**PSW Building Internals (12-29-11)**

### ❖ Continued Focus on Nuclear Safety Risk and Quality

- ❖ **Implementation Risk Management** - daily independent reviews of complex plan restrictions and contingencies

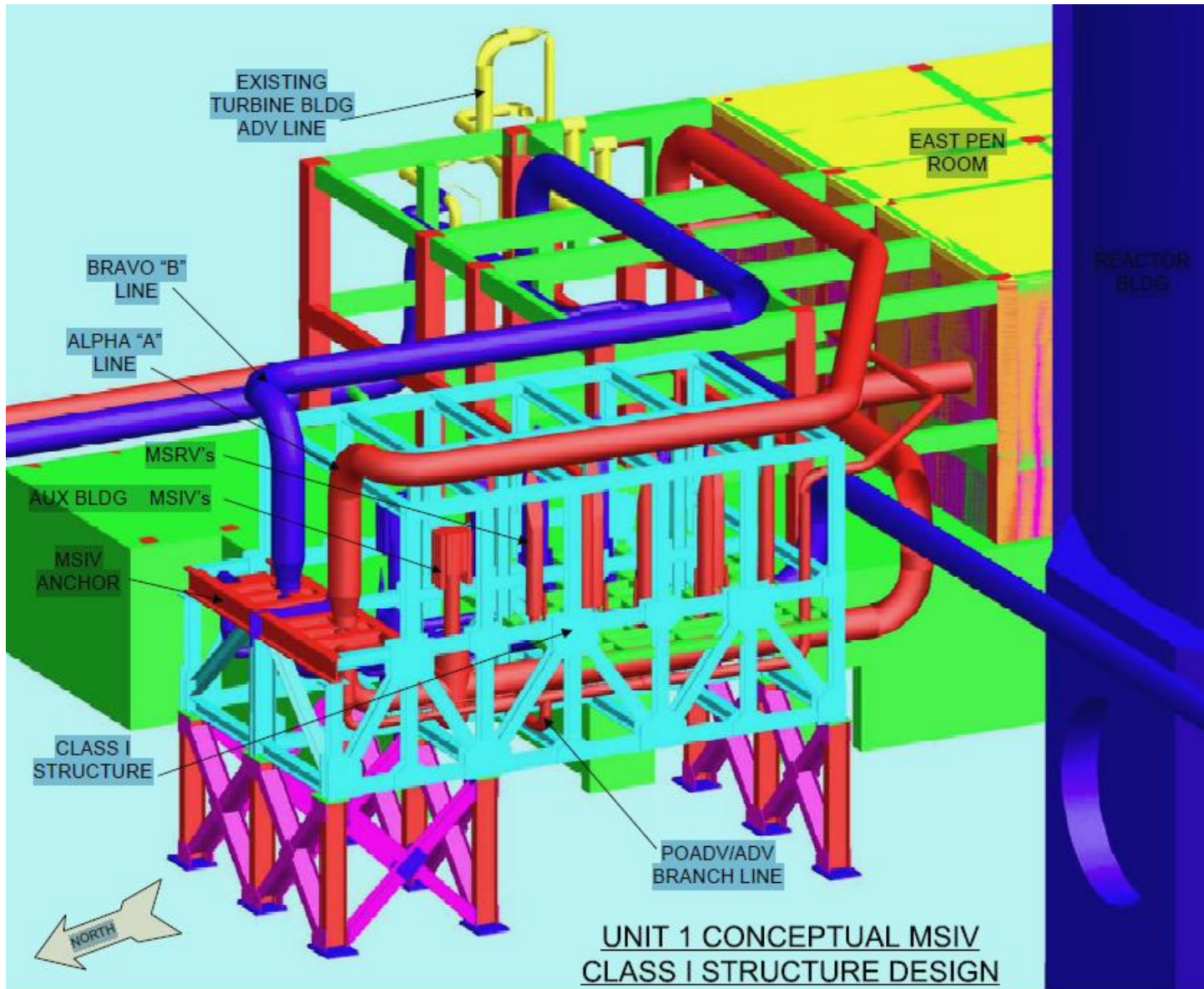
### ❖ Efforts to Ensure Project Success

- ❖ All major infrastructure construction is complete (PSW Building structure and Duct Bank)
- ❖ All construction scope responsibility moved to OMP\* self perform implementation team
- ❖ 32 dedicated engineering personnel added for support in procurement, design and implementation support activities
- ❖ Dedicated project teams established for major focus areas- providing prompt problem solving and decision making
- ❖ Dedicated procurement team with a senior Duke manager responsible for all procurement activities
- ❖ Additional dedicated project team resources deployed to supplier shops to expedite equipment delivery
- ❖ Additional senior leadership for project oversight and barrier removal
- ❖ Additional craft resources
- ❖ Daily senior management update for timely resource reallocation, barrier removal, and oversight
  - ❖ Duke VP of Major Projects, and Duke Senior VP

- ❖ Project Status
  - ❖ Initial Scope Approved
  - ❖ MSIV Purchase Order issued to Enertech for Gas-Hydraulic Actuator Valves
  - ❖ The Steam Generating Team (SGT) selected as Engineering, Procurement and Construction (EPC) contractor
  - ❖ Detailed Scope being developed



# Duke Energy Main Steam Isolation Valves (MSIVs)



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# Licensing Update

Dave Baxter,  
Vice President, Nuclear Engineering

## ❖ Regulatory Status

- ❖ Tornado LAR\* submitted 6/26/2008; Review in progress
- ❖ Fiber Reinforced Polymer LARs; Approved

## ❖ Project Status

- ❖ Natural Phenomena Barrier System (NPBS); complete
- ❖ Protected Service Water System; construction in progress
- ❖ Main Steam Isolation Valves; design in progress
- ❖ SSF Equipment Door Protection; design in progress

\* LAR = License Amendment Request





# High Energy Line Break

## ❖ Regulatory Status

- ❖ LARs submitted; Unit 1 6/2008; Unit 2 12/2008; Unit 3 6/2009
- ❖ NRC review in progress
- ❖ Responded to most recent set of RAIs 12/16/2011

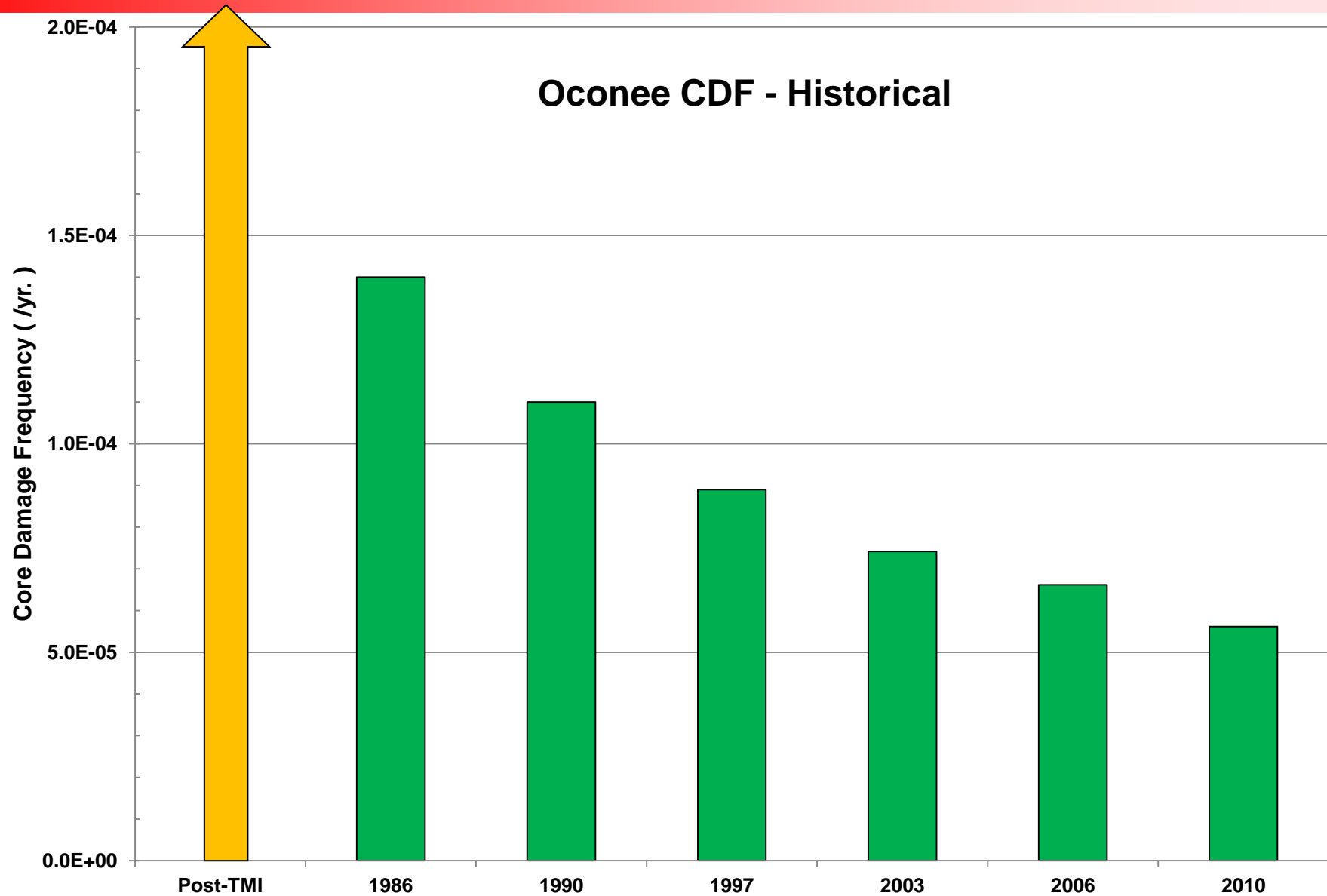
## ❖ Project Status

- ❖ Feedwater and Main Steam Pipe Weld Inspections; complete
- ❖ East Penetration Room Flood Modifications; complete
- ❖ Protected Service Water System; construction in progress
- ❖ Main Steam Isolation Valves; design in progress
- ❖ Other modifications to be implemented following LAR approval
  - ❖ Letdown Cooler Isolation Valves Upgrade
  - ❖ Control Complex Ventilation Isolation
  - ❖ High Pressure Injection Suction Header Isolation Valves Upgrade
  - ❖ Turbine Building column reinforcements
  - ❖ Condenser Circulating Water Stop Gate Upgrade



## Closing Remarks

Preston Gillespie,  
Vice President, Oconee Nuclear Station





# Closing Remarks

## Looking forward

2012	2013	2014	2015	2016
PSW Completion				
NFPA-805 Implementation				
		MSIV Unit 1	MSIV Unit 2	MSIV Unit 3
RPS/ES Unit 3	RPS/ES Unit 2			



# Closing Remarks

NRC