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Oconee Nuclear Station

Major Project Plans

NRC Region II

Atlanta, GA

January 5, 2011

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Attendees

- Bill Pitesa, Sr. VP, Nuclear Operations
- Preston Gillespie, Site VP, Oconee Nuclear Station
- Scott Batson, Station Manager
- Tom Ray, Engineering Manager
- Joel Bohlmann, Organization Effectiveness Manager
- Scott Lynch, General Manager, Oconee Major Projects
- Terry Patterson, Safety Assurance Manager
- Rich Freudenberger, Regulatory Affairs Manager

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Agenda

- Organizational Changes
- Projects
  - Digital Reactor Protective System / Engineered Safeguards Protective System
  - Tornado
  - High Energy Line Break
  - Fire Protection transition to NFPA 805
  - Main Steam Isolation Valves
  - Protected Service Water System
  - Natural Phenomena Barrier System
- Closing Remarks

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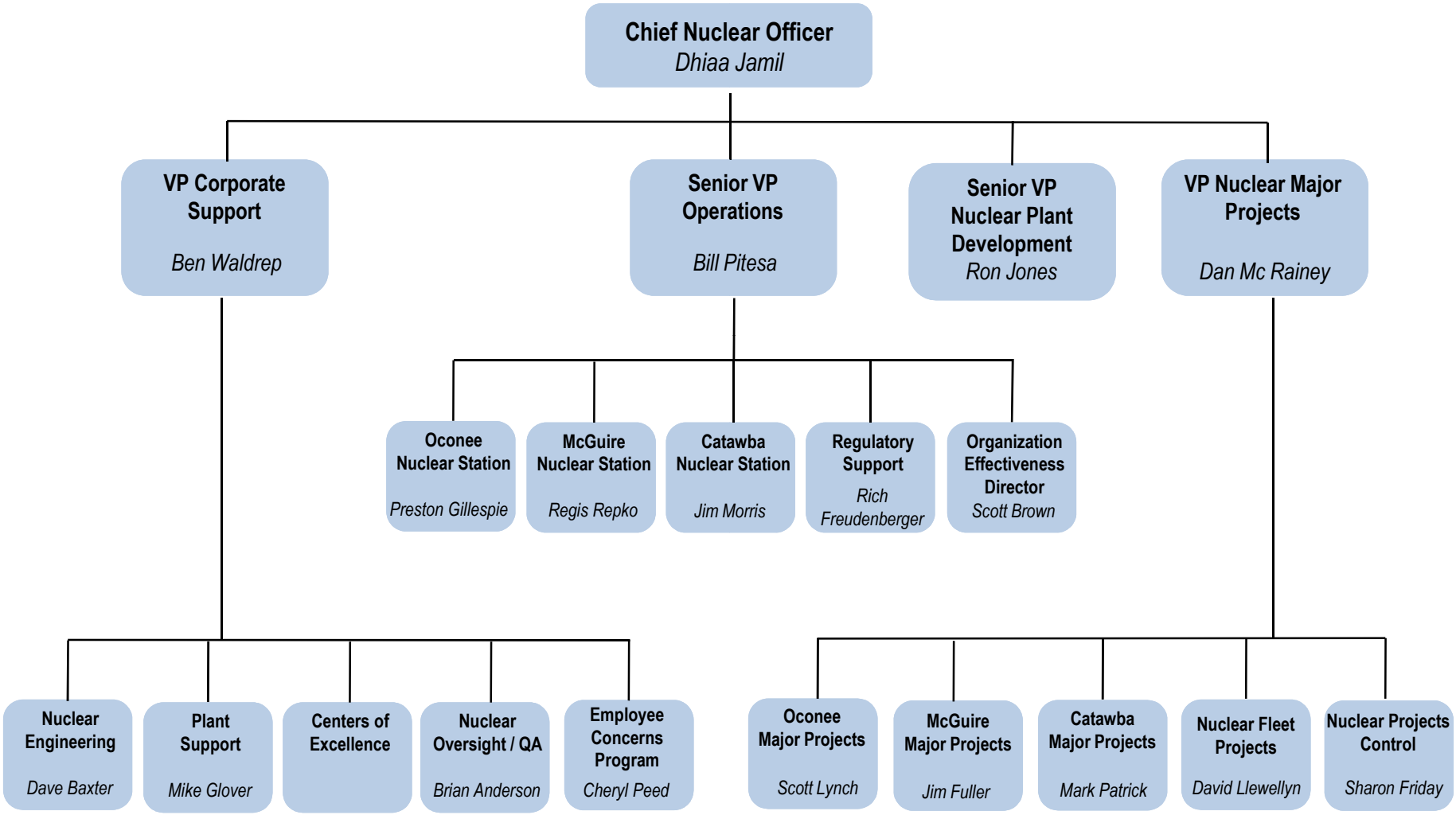
Executive Leadership



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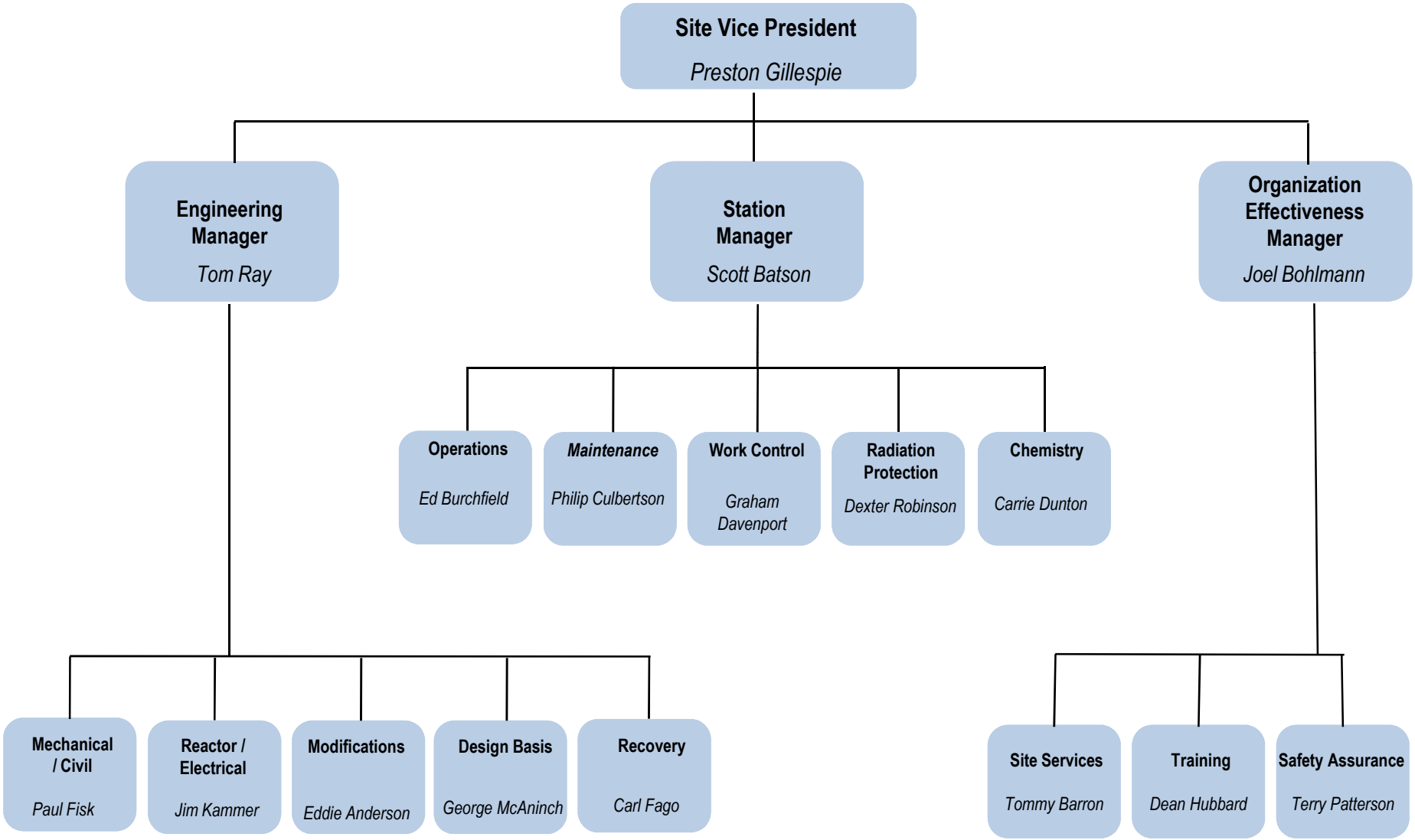
ONS Leadership



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Digital RPS/ES

- Regulatory Status
  - Safety Evaluation Report (SER) issued 1/30/2010
  - License Amendment Request (LAR) submitted 1/31/2008
  - Inspections in progress for Site Acceptance Testing and installation
    - Tracking 44 items of NRC interest for inspection
  - Plan to participate in 2/1/11 Digital I&C Commission Meeting
- Project Status
  - Unit 1 installation Spring 2011
  - Unit 2 installation Fall 2013
  - Unit 3 installation Spring 2012
- Risk Benefit
  - Not quantified – Addresses long term obsolescence
- Cost
  - $ 225 M

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Tornado

- Regulatory Status
  - Tornado LAR submitted 6/26/2008; Review in progress
  - Fiber Reinforced Polymer LAR submitted; 6/1/2006
    - Approved for reinforcing Block Walls only; 2/21/2008, corrected 3/26/2008
    - Re-submitted for Brick Walls 6/29/2009; NRC review in progress
- Project Status
  - Natural Phenomena Barrier System (NPBS); construction in progress
  - Protected Service Water System; design & construction in progress
  - Main Steam Isolation Valves; conceptual design in progress
  - SSF Equipment Doors Upgrade; design in progress
- Risk Benefit
  - Small (low E-06 / yr) - actual risk improvement
- Cost
  - $ 155 M (NPBS only)

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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 2nd set of RAIs 12/7/2010
  - Approval targeted for 12/2011
- Project Status
  - Feedwater and Main Steam Pipe Weld Inspections; complete
  - East Penetration Room Flood Modifications; complete
  - Protected Service Water System; design and construction in progress
  - Main Steam Isolation Valves; conceptual design in progress
  - Letdown Cooler Isolation Valves Upgrade; scoped, slotted, awaiting LAR approval
  - Control Complex Ventilation Isolation; scoped, slotted, awaiting LAR approval
  - High Pressure Injection Suction Header Isolation Valves Upgrade; scoped, slotted, awaiting LAR approval
  - Turbine Building column reinforcements; scoped, slotted, awaiting LAR approval
  - Condenser Circulating Water Stop Gate Upgrade; scoped, slotted, awaiting LAR approval
- Risk Benefit and Cost primarily attributed to PSW project

NFPA 805 Transition

- Regulatory Status
  - Letter of intent submitted February 2005
  - Initial LAR submitted May 31, 2008
    - Incomplete – preliminary Fire PRA & modifications not determined
  - Followup LAR submitted October 31, 2008
    - Based on RG 1.205, revision 0
  - Revised LAR submitted April 14, 2010
    - Superseded previous LARs
    - Incorporated Requests for Additional Information (RAIs)
    - Will be template for RG 1.205, revision 1, submittals
  - Safety Evaluation Report (SER) Issued December 29, 2010
- Project Status
  - Protected Service Water System; construction in progress
  - Turbine/Auxiliary Building Wall Fire Barrier Upgrade; scoped and slotted w/ committed date
  - Purge Inlet Room/Auxiliary Building Fire Barrier Upgrade; scoped and slotted w/ committed date
  - Blockhouse Pressure Relief Shafts Upgrade; scoped and slotted w/ committed date
  - General Area/Hazard Fire Detection Improvements; scoped and slotted w/ committed date
  - Program Implementation Team; in place
    - large list of implementation items from SER to be integrated with program implementation
- Risk Benefit
  - Small - actual risk improvement from PSW project
- Cost
  - ~$ 30 M (not including PSW modifications)

Main Steam Isolation Valves

- Regulatory Status
  - Tornado and HELB LARs depend on installation of MSIVs
  - Separate LAR will be required – targeted for 12/2011
- Project Status
  - Initial Scope Approved
  - MSIV procurement specification approved
  - Purchase order for MSIVs – 1st Quarter 2011
  - Detailed Scope being developed
- Risk Benefit
  - Very Small (<1E-06 / yr) - actual risk improvement
- Cost
  - $ TBD

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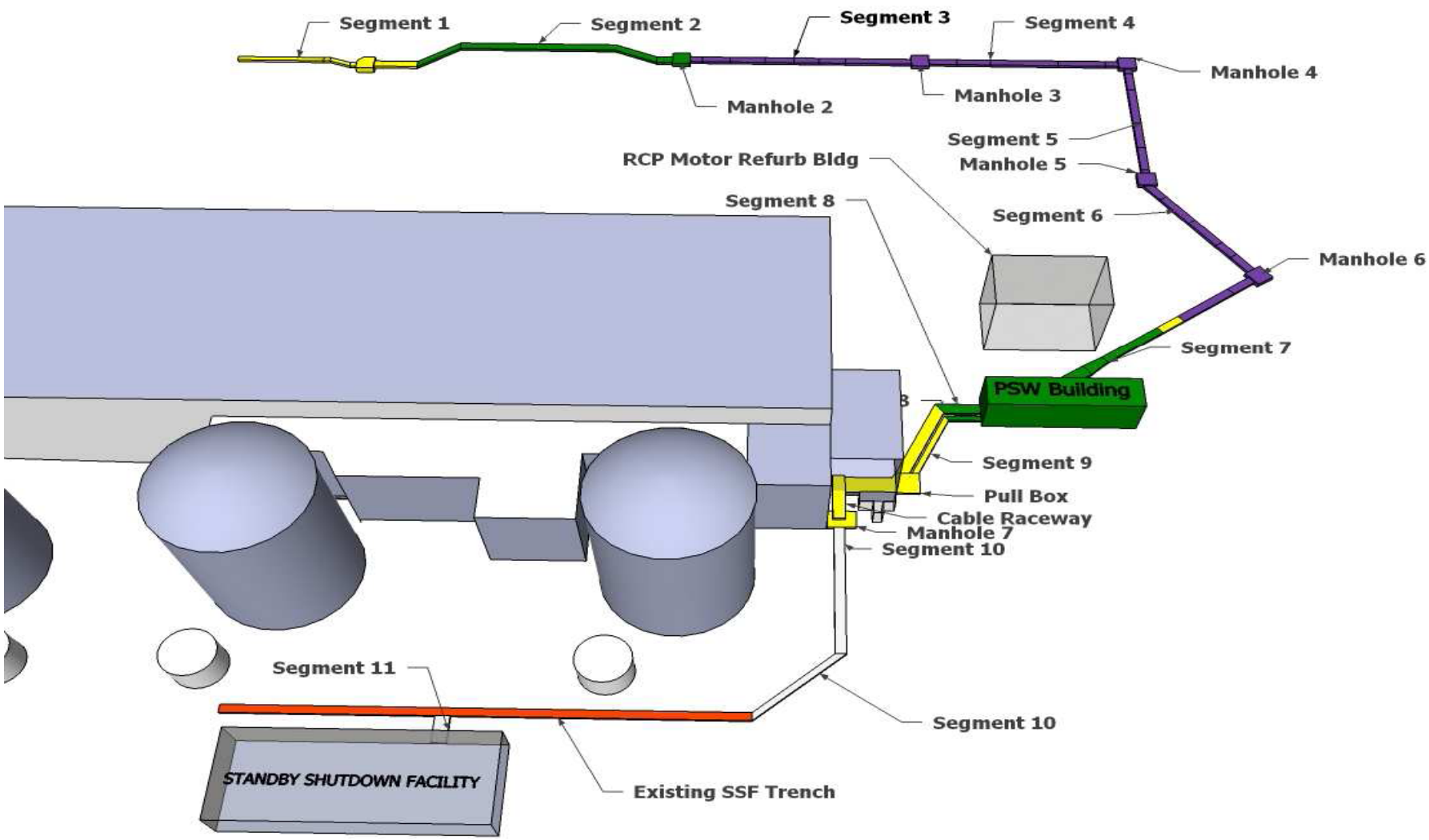
Protected Service Water

Project Status Overview



White – Not Started | Yellow – Being worked | Green – Concrete Complete | Purple – Backfill Complete

For Information Only

Protected Service Water

Project Status

- **Complete**
  - Duct bank segments 2 thru 6 outside Protected Area (segment 1 to complete in 2011)
  - 100kV Substation including voltage regulation
  - Segment 7A, 7C and Manhole 6
  - PSW Building Structure
  - South Vestibule concrete placement
  - Segment 8 & 9 excavated - Tech Support Building Excavation, reroute of 16" HPSW line, completion of segment 8A
  - Raceway fabrication
  - Auxiliary Building Penetration at Manhole 7
  - Auxiliary Building cable tray for PSW for Units 1 and 2
  - Unit 1 (Fall 2009) – all except HPI transfer switches wiring, transformer, MCC and power panel
  - Unit 2 (Spring 2010) – Installed portions of Main Control Board additions & some HPI mechanical scope
  - Unit 3 (Fall 2010) - Installed portions of Main Control Board additions
  - All S&L DCPs are 100% design submitted except one (OD500933 – PSW Pump Room – not required for U1 power up)
  - T/H Project percent complete = 64%
  - T/H Project spend to date = 63%
- **Ongoing**
  - Equipment manufacturing and delivery
  - Duct Bank construction
  - PSW Building internal infrastructure
  - Auxiliary Building piping and valves
- **Remaining**
  - Unit 1, 2 & 3 Final Refueling, Keowee, and Standby Shutdown Facility outages
  - PSW Building and Equipment Installation
  - PSW Duct Bank and Cable Installation
  - Aux Service Water Pump Room Demolition and PSW Pumps installation
  - SSF Alternate Power Supply
  - System Integrated Testing

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Protected Service Water

Installation Status

- **Duct Bank Segments 7, 8, 9, TSB and MH-7 (67% Complete)**
- **Raceway Fabrication (100% Complete – awaiting duct bank completion for installation)**
- **PSW Piping Header (25% Complete)**
- **Condensate Test Line (43% Complete)**
- **Raised Floor (100% Complete)**
- **Vital I&C (46% Complete) -** Unit 1 (70% Complete), Unit 2 (50% Complete), Unit 3 (20% Complete)
- **Aux Cable Tray (90% Complete) -** Unit 1 (100% Complete), Unit 2 (100% Complete), Unit 3 (70% Complete)
- **Power to HPI (52% Complete) -** Unit 1 (95% Complete), Unit 2 (60% Complete), Unit 3 (0% Complete)
- **MCB (72% Complete) -** Unit 1 (100% Complete), Unit 2 (75% Complete), Unit 3 (40% Complete)
- **Challenges**
  - **PSW Building roof crack** – independent contractor evaluation (expected 1/2011)
  - **Construction schedule performance** – reduced constructor scope, dedicated project team, utilizing conditional release process for engineered components, resources in equipment supplier shops to expedite issue resolution, additional resources & 2 shifts, daily senior management call
  - **Concrete placement quality** – improvement plan developed for reinforcing steel installation

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Natural Phenomena Barrier System

Installation Status

- **Demo Package (96% complete)**
  - Units 1, 2 and 3 – Girts and Siding Removal Complete (Except one section awaiting seismic barrier installation)
- **BWST Superstructure Foundation (64% complete)**
- **Fiber Reinforced Polymer (45% complete)**
- **Girts and Siding Replacement (28% complete)**
- **BWST Superstructure (7% complete)**
- **Overall Status – Percent Complete through November 2010 (Unit 1 – 59%, Unit 2 – 42%, Unit 3 – 54%)**
  - Schedule margin has been eroded because of supplier issues
- **Challenges**
  - **Structural steel weld issues** – approx. 350 steel members returned to supplier, repair plan in place
  - **Fiber wrap tensile strength** – supplier cause analysis for tensile strength issues (expected 1/2011)
  - **Concrete placement quality** – improvement plan developed for reinforcing steel installation
  - **Risk Management plan implementation** - daily independent reviews of complex plan restrictions and contingencies

Protected Service Water System
Natural Phenomena Barrier System
Projected Milestones

2011

- Duct bank Segments 7, 8, 9 and Fant Line (scheduled to finish February 2011)
- Install remaining PSW building electrical equipment, cable pulls/terminations
- Cable installation from PSW Building to Aux Building to support U1 PSW power up
- Duct Bank Segment 1 (required for Keowee Emergency Start reroute)
- Unit 1 & 2 PSW components installed/tested on PSW Power during refueling outage
- Keowee AC Power and Controls installed
  - Units 1 and 2 Keowee Outages required – June/September of 2011
- SSF Backup Power Feed (October to November of 2011)
- NPBS projects completed (July 2011)

2012

- ASW pump room demo, pump room components installed and PSW Pipe Header final tie-ins
  - ASW outage required – February thru April of 2012
- Unit 3 PSW components tested on PSW power to complete during spring outage
- Unit 3 integrated testing to complete during spring outage

Protected Service Water System
Natural Phenomena Barrier System
Key Take Aways

- Continued Focus on Nuclear Safety Risk and Quality
  - **Implementation Risk Management** - daily independent reviews of complex plan restrictions and contingencies
  - **Concrete Clear Cover** - concrete placement recovery plan
  - **NPBS Structural Steel Weld Issues** – returned steel to supplier to repair welds
  - **Fiber Reinforced Polymer Supplier** - cause analysis for tensile strength issues (expected 1/2011)
  - **PSW Building concrete roof crack** - independent contractor evaluation (expected 1/2011)
- Engineering/design managed task scope is 95% complete with one remaining DCP
- Efforts to ensure we meet our critical path schedule
  - Redesigned duct bank segments 8 & 9 to simplify construction
  - Reduced constructor scope to improve their focus on completing critical path duct bank segments 7, 8 & 9
  - Dedicated project team established - providing prompt problem solving and decision making
  - Conditional release of equipment applied to nine components
  - Additional project team resources deployed to supplier shops to expedite equipment delivery
  - Unit 1 PSW power up implementation plans receiving detailed readiness reviews
  - Additional craft resources added for duct bank
  - Daily senior management call for timely resource reallocation, barrier removal, and oversight
    - Fluor President/Power Group & Fluor CNO
    - Duke VP of Major Projects, and Duke Senior VP

Action Items and Closing Remarks

- NRC

- Duke Energy