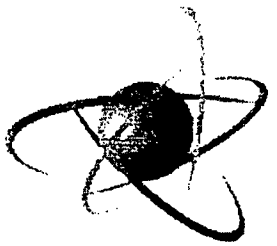

U.S.NRC

United States Nuclear Regulatory Commission

Protecting People and the Environment

BRIEFING BOOK

FOR

CHAIRMAN GREGORY B. JACZKO

OCONEE NUCLEAR STATION

JUNE 23, 2009

E11

On-Site Visit by Chairman Jaczko

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Agenda for Chairman Gregory Jaczko's Visit to Oconee Nuclear Station - June 23, 2009

11:00 a.m.	Arrive/park at World of Energy (Note: Chairman will be met and escorted to the Primary Access Portal by a licensee representative)
11:30 a.m.	Obtain visitor badges at Primary Access Portal
11:45 a.m.	Working lunch with plant management, NRR Associate Director for Engineering, Region II Division Director for Reactor Projects, and Resident Inspection Staff
12:30 p.m.	Tour Standby Shutdown Facility
1:30 p.m.	Visit the World of Energy for topographical model overview
2:00 p.m.	Travel to Jocassee Dam for tour
3:30 p.m.	Travel back to the World of Energy
4:00 p.m.	Chairman leaves for Greenville-Spartanburg Airport

Executive Summary

Purpose of the visit/meeting

- Discuss the potential impact of external flooding on the facility
- Tour the Jocassee Dam and the Standby Shutdown Facility (SSF)

Issues to be addressed (See TAB 6)

- External flooding issues and related activities

Persons to meet

NRC personnel (See TAB 9)

- Andy Hutto, Senior Resident Inspector, Catawba
- Geoffrey Ottenberg, Resident Inspector
- Leonard Wert, Director, Division of Reactor Projects, RII
- John Grobe, Associate Director, Engineering and Safety Systems, NRR

Oconee personnel (See TAB 8)

- Ronald Jones, Senior Vice-President, Nuclear Operations
- David Baxter, Oconee Site Vice-President
- Rich Freudenberger, Oconee Safety Assurance Manager

Activities on site

- Meet with plant management, NRR Associate Director for Engineering, Region II Division Director for Reactor Projects, and resident inspectors
- Discuss the potential impact of external flooding on the facility during a working lunch and related tour
- Visit the World of Energy and tour the Jocassee Dam and the SSF

Message to be communicated by the Chairman

- Timely resolution of External Flood concerns
- Important to keep Tornado/HELB modifications on track

Licensee's briefing topics for the Chairman

- External Flooding Issues and Related Activities
- NFPA 805 Transition (if time permits)

Licensee Ownership Information

Duke Energy Carolinas owns and operates the two-unit McGuire and the three-unit Oconee nuclear stations. In addition, Duke Energy Carolinas operates and has a partial ownership interest in the two-unit Catawba Nuclear Station.

Recent Oconee Management Changes (See TAB 7)

There have been no senior management changes in the last year.

ROP Assessment - Significant ROP Inspection Findings (See TAB 5)

With the exception of the fourth quarter performance of Unit 1, plant performance for 2008 was within the Licensee Response Column of the NRC's Action Matrix for all three Units. Unit 1 fourth quarter performance was within the Regulatory Response Column of the NRC's Action Matrix as a result of an Initiating Events Cornerstone finding of low to moderate safety significance (White), involving a loss of reactor coolant system inventory while on decay heat removal.

Discussion Topics (See TAB 6)

Flood Action Plan
The NRC is evaluating an external flooding issue at Oconee to determine whether there is reasonable assurance that the site is adequately protected. In response to the related NRC 50.54(f) letter, the licensee has provided to the staff an updated flood inundation analysis utilizing an advanced computer model. The staff is currently reviewing the study and has engaged the licensee on the need to perform a sensitivity study to provide the staff added assurance that the estimated flood height predicted by the inundation study is valid. In a June 11, 2009 meeting with the staff, Duke provided the schedule for completing its inundation study and the sensitivity study, and plans to identify any plant modifications, if necessary, to the NRC by November 2009.

NFPA 805 Transition
Oconee is one of two pilot plants that are in the process of transitioning to NFPA 805 for fire protection. The NRC staff is currently finalizing requests for information (RAIs) for issuance to Duke, and is planning to complete its review of Oconee's license amendment request (LAR) in the spring of 2010.

Topics of Interest (See TAB 6)

Tornado Mitigation
As a result of a 95002 supplemental inspection of two White Mitigating System tornado-related findings in 2001, it was determined that Oconee has a number of tornado-related vulnerabilities that collectively represent a deficient tornado mitigation strategy.

HELB Mitigation
Following a 1998 self-assessment of Oconee's licensing basis for HELB events outside containment, Duke notified the NRC in January 1999 that it was initiating a project to reconstitute the design and licensing basis for HELBs outside the reactor building.

Digital Computer Based Reactor Protective System (RPS)/Engineered Safeguards Protective System (ESPS)
Duke submitted a LAR that would allow replacement of the current analog-based RPS/ESPS with a digital computer based RPS/ESPS. Implementation will begin in Spring 2011 following development of modification packages.

William States Lee III Nuclear Station Combined Operating License (COL) Application
Duke Energy submitted a 10 CFR 52 application for a combined operating licensee to the NRC on December 12, 2007, which was docketed on February 25, 2008.

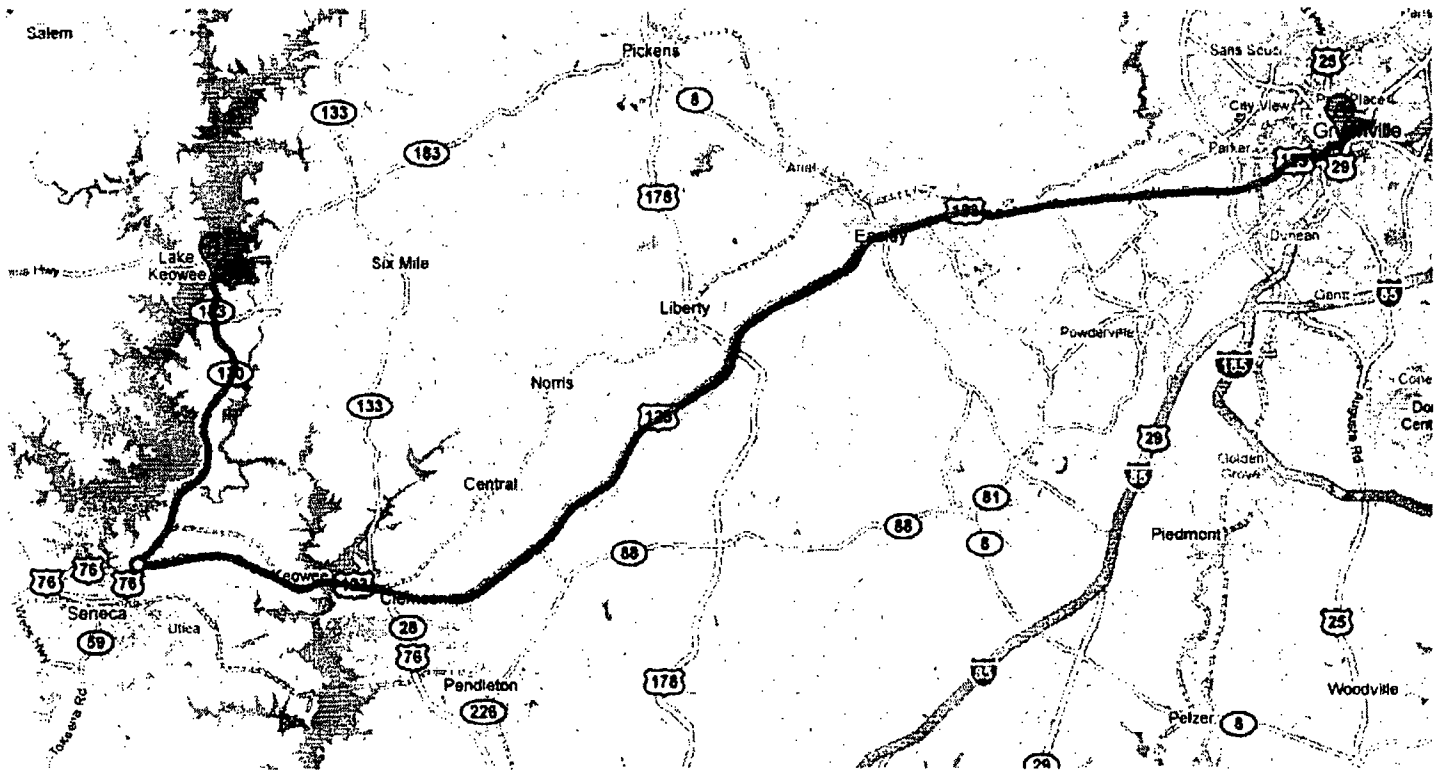
Unit 1 Loss of Inventory Event
On April 15, 2008, Unit 1 experienced a loss of reactor coolant system inventory while on decay heat removal, due to an inadequate automatic voltage regulator maintenance procedure. A Regulatory Conference was held with Duke on January 22, 2009, followed by the issuance of the Final Significance Determination letter (with an associated White finding) on February 19, 2009. This resulted in putting Unit 1 in the Regulatory Response Column of the NRC's Action Matrix as of the fourth quarter of 2008.

Approval for Additional Resident Inspector
A temporary third resident has been authorized for the Oconee site due to the large number of planned major plant modifications.

INPO Rating and Nuclear Performance Plan
A two week INPO E&A was conducted during July 2008 with the final rating being an INPO 2. As a result, the licensee has developed a recovery plan which outlines initiatives and areas of responsibility to improve overall plant performance.

TAB 2

Facility Location Map and Directions

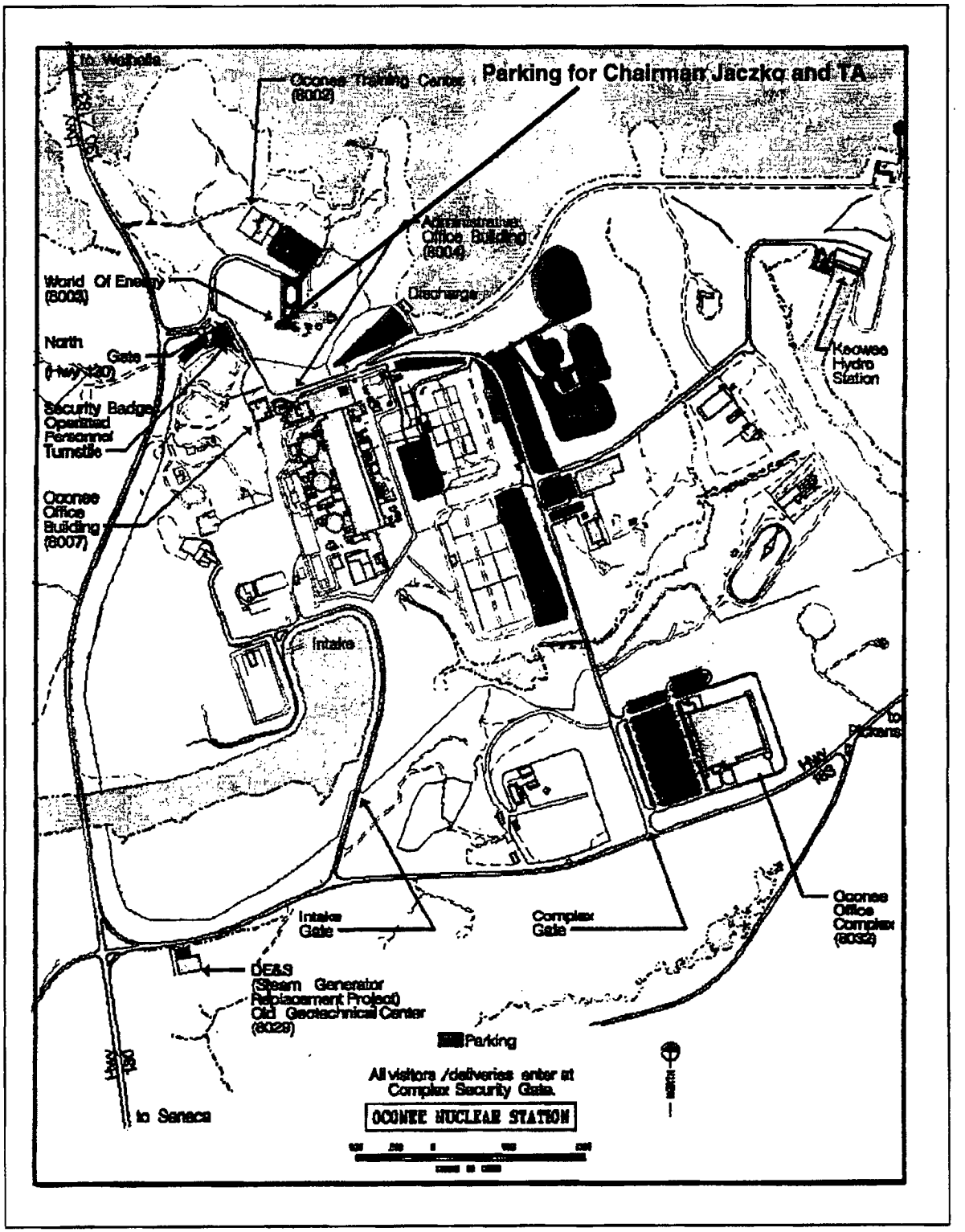


A – Greenville, SC **to**
B – Duke Power: World of Energy, 7812 Rochester Hwy, Seneca, SC 29672
(~ 43 miles) [Lat: 34° 47' 48.93" N (34.7969 N); Long: 82° 53' 57.372" W (82.8993 W)]

Head **north** on S Main St
Turn **left** on to W McBee Ave
Turn **left** on to S Academy St/US-123/US-25
Continue on US-123 for approximately 35 miles
Turn **right** at Rochester Hwy/SC-130
Continue on Rochester Hwy...after the traffic light at the intersection of Hwy 183/130 you go approximately 1 mile, the World of Energy entrance is on right
(Note: after turning right off Hwy, bear left, up hill, turn right into the visitor parking area.)

TAB 2

Oconee Site Map



TAB 3

Facility Data

Utility: Duke Energy Carolinas, LLC
Location: 8 miles northeast of Seneca, SC
County: Oconee County, SC

	UNIT 1	UNIT 2	UNIT 3
Docket Nos.	50-269	50-270	50-287
License Nos.	DPR-38	DPR-47	DPR-55
Full Power License	02/06/1973	10/06/1973	07/19/1974
Commercial Operation	07/15/1973	09/09/1974	12/16/1974
OL Expiration Date	02/06/2033	10/06/2033	07/19/2034

PLANT CHARACTERISTICS	All Units
Reactor Type	PWR
Containment Type	Dry Ambient
Power Level	2568 MWt (900 MWe)
NSSS Vendor	B & W

TAB 4

Facility Unique Features

Emergency Supply to 4160 Volt-AC Safety-Related Buses

Provided from the two hydro units at the adjacent Keowee Hydro Station, the onsite emergency AC power supply is not Train separated by source. A single Keowee Hydro Unit (KHU) will supply all emergency power. Should a failure occur, the other KHU will supply power. This power is supplied to Oconee by two connections; an overhead transmission line and an underground line. [Note: gas turbines at the Lee Steam Station can also be made available (manually, via a separate overhead line) to provide power if Keowee is not available.] Keowee was originally built, operated and maintained to Duke's hydro station standards; therefore, a number of modifications/upgrades have been necessary over the last ten years (i.e., procedure upgrades, engineering analyses, maintenance program development, significant testing, circuit breaker and underground cable replacements, weld overlay/repairs to the KHU turbine blades and guide rings, and modifications pertaining to auxiliary power and over voltage/under frequency issues).

Standby Shutdown Facility (SSF)

The SSF, which is unique to the Duke Facilities, provides an alternate and independent means to achieve and maintain a hot standby condition for any unit following postulated turbine building flood, fire, and sabotage events. [Note: The proposed Tornado/HELB mitigation strategies also take credit for the SSF.] It consists mainly of one diesel generator set, an auxiliary service water pump, and supporting equipment (all housed in an onsite seismically qualified building), three standby makeup pumps (one in each unit's reactor building), strainers, valves, and associated piping. Powered from the SSF diesel, the standby makeup pumps deliver water at approximately 26 gpm from the associated spent fuel pool to the reactor coolant pump seals. In support of primary decay heat removal, the SSF diesel supplied electric auxiliary service water pump supplies water from the condenser circulating water (CCW) cross-over header to the once-through steam generators. The SSF is able to maintain all three units in Mode 3 (525 degrees) for 72 hours, at which point, it is assumed that the other mitigating systems will be repaired and returned to service.

Low Pressure Service Water (LPSW)

As originally designed, long-term decay heat removal has relied on the non-safety, non-seismically qualified CCW piping system and its pumps to provide water to the safety-related LPSW pumps located in the turbine building basement. During loss of offsite power events, the CCW pumps lose power; therefore, decay heat removal and cooling water for safety-related pumps rely on the use of a siphon effect (between the lake and the CCW cross-over header) to provide water to the safety-related LPSW system. Accordingly, to maintain the siphon and assure LPSW system operability, a number of modifications/upgrades were completed in recent years (e.g., installation of a QA-1 siphon vacuum system, supplying safety-related sealing/cooling water to CCW pumps, reclassifying the CCW interface boundary to QA-1, etc.).

Emergency Feedwater (EFW)

The safety-related turbine driven EFW pump (one for each unit) and the motor driven EFW pumps (two for each unit) are located in the turbine building basement. The turbine driven EFW pump in each unit can be aligned to either its safety-related main steam supply or to a non-safety-related, non-seismically qualified auxiliary steam header. The EFW system does not have a dedicated, seismically qualified source of water of sufficient capacity to bring the unit(s) to the point where low pressure injection cooldown can be initiated. Specifically, each unit's EFW system must rely on the limited source of water in its seismically qualified upper surge tank, as well as depend on the water contained in the condenser hotwell. Cross-connect valves are, however, provided between all three units' EFW systems. Identified EFW single failure vulnerabilities have been addressed through plant modifications and licensing basis changes/clarifications.

Containment Isolation

Several piping systems penetrating containment were designed without isolation valves (Main Steam), or redundant, reliable (QA Level 1) isolation devices (Main Feedwater). Operator actions were required in some cases to prevent consequences beyond "standard" design basis accident end points. For containment integrity concerns, the licensee implemented a modification several years ago in all three units which automatically secures/isolates main feedwater upon a steam line break event. During the Spring 2002 Unit 1 refueling outage, and subsequent Unit 2 and 3 refueling outages, a new automatic feedwater isolation system (AFIS) modification was installed that secures/isolates both main and emergency feedwater to the affected steam generator. (Note: Due to a potential small steam line break scenario that results in a delayed feedwater isolation signal, supplemental diesel air compressors are utilized to compensate for the expected bleed off of valve operating air pressure should a coincident loss of offsite power occur.)

Reactor Oversight Process Info

The following URLs are for the Oconee Nuclear Station (Units 1, 2 and 3) ROP Performance Summary web pages.

http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/OCO1/oco1_chart.html

http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/OCO2/oco2_chart.html

http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/OCO3/oco3_chart.html

http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/pi_summary.html

ROP Performance Status (1st Quarter 2008 - 4th Quarter 2008)

Performance of Oconee Units 1, 2 and 3 during 2008 was within in the Licensee Response Column of the NRC's Action Matrix. All findings and PIs over the assessment period were **GREEN.**

Note: A Regulatory Conference was held with Duke on January 22, 2009, for the Unit 1 loss of inventory event. A caucus was held on January 28, 2008, to finalize the significance determination. [PREDECISIONAL INFORMATION - Preliminary results, including addressing the licensee's comments on the risk, are that the finding will be **WHITE.** This would put Unit 1 in the Regulatory Response Column as of the 4th quarter of 2008.]

Current Issues

A. EXPECTED DISCUSSION TOPICS

Flood Action Plan

During a review of a breached flood barrier to the Oconee Nuclear Station (ONS) standby shutdown facility (SSF), the staff discovered that the licensee had underestimated the Jocassee dam rupture frequency in their site external flooding analysis by an order of magnitude (i.e., 2E-4). Duke provided the staff with a 1992 inundation study conducted for the Federal Energy Regulatory Commission (FERC). Although this study was performed for other purposes (i.e., for emergency planning), it raised questions regarding whether the SSF, and therefore the Oconee site, was adequately protected from external flooding. The SSF is the only mitigating system that is currently protected from this external flooding event; however, it was only protected to a flood height of 5 feet and can only mitigate the effects of this event for 72 hours before the SSF standby makeup systems will deplete the spent fuel pool water inventory. Consequently, a 50.54(f) letter was issued on August 15, 2008, concerning this external flooding issue. On November 5, 2008, NRC and licensee management met to discuss: concerns with the SSF licensing basis with respect to flooding, as addressed in the related 50.54(f) letter; short-term interim measures for ONS operation; and a long-term solution to the question of flood protection at the ONS site.

The licensee's response to the 50.54(f) letter did not provide the staff reasonable assurance that the Oconee site was adequately protected from external flooding. NRR met with FERC on December 1, 2008, to discuss generic issues related to the Jocassee dam inundation study performed by the licensee in 1992. A technical exchange meeting between NRR and Duke was held December 4, 2008, to work out details on the probabilistic and consequence analyses. Licensee tours of the Jocassee Dam were provided to the Regional Administrator on December 10, 2008, to NRR and Regional management (Skeen, Galloway and Wert) on January 8, 2009, and to Commissioner Lyons on February 3, 2009.

In response to the NRC's 50.54(f) letter, the licensee performed a new inundation study in 2009, using a more advanced computer model (HEC-RAS) for the specific purpose of determining the effect of flood waters on the SSF. Duke provided the preliminary results of its analysis for the staff's review on April 27, 2009. A meeting was held on May 11, 2009, where Duke discussed its analysis with the NRC and FERC. In a June 11, 2009, meeting with the staff, Duke provided the schedule for completing its inundation study, as well as a sensitivity study that will vary key parameters to provide the staff added assurance that the estimated flood height predicted by the inundation study is valid. Duke plans to complete all of these studies and identify any plant modifications, if necessary, to the NRC by November 2009. The staff has developed an action plan to address the external flooding issue at the Oconee site. The plan will use expertise from NRC hydrologists, the US Bureau of Reclamation, and FERC to assess Duke's inundation study and associated sensitivity study to provide reasonable assurance that Oconee has adequate protection against external flooding. The staff hydrologists will conduct a site visit on June 15, 2009, to gather information and have technical discussions with the licensee on assumptions made in the HEC-RAS model that was developed for the inundation study. The staff will continue to interact with the licensee as the sensitivity study is being developed to facilitate resolution by November 2009.

NFPA 805 Transition

Oconee is one of two pilot plants that are in the process of transitioning to NFPA 805 for fire protection. LAR No. 2008-01, to adopt NFPA 805, was submitted for all three Units on May 30, 2008. On October 31, 2008, the licensee submitted, as a supplement to the LAR, the fire probabilistic risk assessment model and associated change evaluations. Proposed

modifications are being finalized. In February 2009 the NRC conducted an on-site audit. The NRC staff is reviewing the LAR and visited the site in May 2009 to discuss RAIs. The NRC staff is currently finalizing the RAIs for issuance to Duke. The NRC staff is planning to complete its review of the LAR in the spring of 2010.

B. TOPICS OF INTEREST

Tornado Mitigation
As a result of a 95002 supplemental inspection of two White Mitigating System tornado-related findings in 2001, it was determined that Oconee has a number of tornado-related vulnerabilities that collectively represent a deficient tornado mitigation strategy. Duke has subsequently provided its resolution to this matter by proposing the use of two redundant and largely separate tornado mitigation systems (i.e., the SSF and a planned Protected Service Water (PSW) system). The licensee has already started civil/site work on the PSW system and the Unit 3 control room wall missile protection modifications are also underway. Duke has also informed the NRC that difficulty in meeting the Standard Review Plan TORMIS risk acceptance criteria (1.0E-6) will result in the need for more missile protection than originally thought. The Tornado Mitigation LAR was submitted June 26, 2008. The NRR staff is currently reviewing the LAR and has requested additional information from the licensee. The licensee is in the process of responding to the staff's requests for additional information (RAIs).

HELB Mitigation
Following a 1998 self-assessment of Oconee's licensing basis for HELB events outside containment, Duke notified the NRC in January 1999 that it was initiating a project to reconstitute the design and licensing basis for HELBs outside the reactor building. The NRC staff is concerned that the analyses that were completed by Duke in 1973 for addressing postulated high energy pipe failures in the auxiliary building do not adequately consider and address the potential consequences of postulated HELB events.

Duke analysis of 1973 did not adequately consider issues such as physical arrangement of structures, systems and components (SSCs) in the penetration rooms, the lack of separation, the absence of barriers for preventing pipe whip, jet impingement, and migration of steam and water, and the proximity of important SSCs to postulated pipe break locations. For example, a postulated feedwater line break in the auxiliary building could impact both trains of HPI/LPI, RCP seal injection and thermal barrier cooling, letdown, EFW, vital batteries, and numerous electrical penetrations.

Oconee's Unit 1 HELB mitigation LAR (which includes the use of existing safety systems, along with the SSF and planned installation of the PSW system and main steam isolation valves) was submitted June 26, 2008, and accepted (Rare Circumstances) by NRR. A LAR for Unit 2 was submitted in December 2008 and a Unit 3 LAR is scheduled to be submitted by June 30, 2009. The NRR staff is currently reviewing the Unit 1 and Unit 2 LARs and has issued RAIs to the licensee. The licensee is in the process of responding to the RAIs.

Digital Computer Based Reactor Protective System (RPS)/Engineered Safeguards Protective System (ESPS)
By letter dated January 31, 2008, Duke submitted a LAR that would allow replacement of the current analog-based RPS/ESPS with a digital computer based RPS/ESPS. The NRR staff has conducted related audits at the Oconee site, at the AREVA facility in Alpharetta, Georgia, and at the AREVA facility in Erlangen, Germany (factory acceptance testing). During the review of the LAR, the NRC staff has generated numerous RAIs. Duke has submitted 16 supplements to the original LAR. The NRC is scheduled to complete its review and issue the amendment in the fall

of 2009. Currently the NRC staff has not identified any open items that would prevent approval of the LAR. Implementation is scheduled to begin in Spring 2011 following development of modification packages.

William States Lee III Nuclear Station Combined Operating License (COL) Application
By letter dated December 12, 2007, Duke Energy Carolinas, LLC (Duke) tendered a COL application for two Westinghouse AP1000 advanced passive pressurized water reactors designated as Units 1 and 2 of the William States Lee III Nuclear Station. The proposed site is located in the eastern portion of Cherokee County in north central South Carolina, approximately 35 miles southwest of Charlotte, North Carolina, and approximately 7.5 miles southeast of Gaffney, South Carolina. The review is currently underway.

Unit 1 Loss of Inventory Event
On April 12, 2008, Oconee Unit 1 shut down for refueling. On April 15, 2008, Unit 1 had restored level, from a midloop operation to install coldleg nozzle dams, to below the reactor vessel flange. The head was detensioned in preparation for removal. As part of main generator voltage regulator modification testing, a main generator lockout signal was generated while the switchyard was back-feeding all Unit 1 electrical loads through the main transformer and the associated auxiliary transformer. This caused a slow transfer from the aux transformer to backup transformer (CT1) from the switchyard. The resulting electrical transient caused a momentary loss of power to the running pumps performing shutdown cooling (SDC) and, due to one complication, a relief valve in the letdown purification system opened and remained open as designed. This transient caused a loss of inventory (LOI) from the reactor coolant system (RCS) to the miscellaneous waste holdup tank (MWHUT). The operators quickly recognized the LOI and entered the appropriate procedures. They had the relief valve isolated and makeup water going into the RCS within 17 minutes. During the RCS level transient, level dropped from 70 inches above hotleg midloop to approximately 55 inches. Approximately 2000 gallons were transferred from the RCS to the MWHUT. The root cause of the generator lockout was determined to be a failure of the procedure preparers and reviewers of IP/0/B/2005/001, "Main Generator Automatic Voltage Regulator (AVR) Maintenance and Channel Transfer," to recognize the system interaction between the AVR trip circuitry and the backcharge power path; therefore, steps to isolate actuation of the K31 relay were not included in the procedure. A Regulatory Conference was held with Duke on January 22, 2009, followed by the issuance of the Final Significance Determination letter (with the associated White finding) on February 19, 2009. This resulted in Unit 1 being in the Regulatory Response Column of the NRC's Action Matrix as of the fourth quarter of 2008.

Approval for Additional Resident Inspector
A temporary third resident has been authorized for the Oconee site due to the large number of permanent plant modifications associated with Tornado/HELB issues, NFPA 805 implementation, conversion to a digital Reactor Protection System/Engineered Safeguards Protective System, and the addition of Main Steam Isolation Valves. These modifications are both complex and important to safety. The third resident will provide additional oversight of the modification work and will coordinate inspection efforts of specialist inspectors from Region II.

INPO Rating and Nuclear Performance Plan

(b)(4)

C. OTHER TOPICS OF INTEREST

Labor/Management Issues

None

License Renewal Activities

The Oconee Site-Specific Independent Spent Fuel Storage Installation (ISFSI) license was renewed on May 29, 2009, for 40 additional years. This included a 20 year renewal plus an exemption allowed for an additional 20 years. The license will now expire on January 31, 2050. Regarding the external flood issue, the staff found that the license renewal application is not contingent upon the resolution of the flooding of the site following a postulated Jocassee Dam failure issue.

Escalated Enforcement, Non-Green Findings and Non-Green Performance Indicators

Other than the Unit 1 loss of inventory event and related discussed above, there has been no escalated enforcement or the identification of any Greater than Green findings or performance indicators within the last year.

Open Investigations

Two items are under Office of Investigations (OI) review. One involves the discovery of an illegal substance inside the Protected Area at Oconee Nuclear Station. Another involves personnel at McGuire Nuclear Station that were aware of illegal drug use, but failed to report this information to the licensee.

Open Allegations

Two allegations are open. One involves the discovery of an illegal substance inside the Protected Area. Another involves personnel at McGuire that were aware of illegal drug use, but failed to report this information to the licensee. Both are being investigated by OI.

Congressional Interest

None

Harassment and Intimidation Issues

None

2.206 Petitions

None

TAB 6

Recent News Articles

On May 8, 2009

NRC: Oconee Nuclear Operated Safely But maintenance-related 2008 incident will trigger additional federal oversight (by Anna Simon) Greenville News, May 8, 2009 - All three reactor units at Oconee Nuclear Station operated safely overall during 2008; however, Unit 1 will be under greater federal scrutiny due to an April 15 incident that raised safety concerns, federal officials said Thursday. With one exception, all findings during the year were of "very low safety significance," said Andy Hutto, the Nuclear Regulatory Commission senior resident inspector at the plant. Those were corrected appropriately, he said. Only the April 15 incident rose to a level of concern that triggers additional oversight, Hutto said. The Nuclear Regulatory Commission held an open house Thursday as its public forum for its annual assessment of the nuclear station's performance for 2008 rather than a meeting between NRC and Duke Energy officials as has been done in the past. Duke and NRC officials were present to answer questions. There will be a supplemental inspection of Unit 1 this summer because of a brief power loss that interrupted cooling on April 15 during a scheduled maintenance and refueling outage for the reactor, Hutto said. The NRC classified it as having "low to moderate safety significance," and after earlier meetings with plant officials the NRC found the problem was due to an inadequate maintenance procedure on a voltage regulator. The NRC determined that operators responded appropriately, Hutto said. Duke has maintained that the incident was of low safety significance. Sandra Magee, a Duke spokeswoman, said the incident posed no public safety concern. Dave Baxter, site vice president at the Oconee Nuclear Station, said corrective actions were taken. "When something happens at the plant we have procedures and trained operators. In that situation we had almost a double crew, and we had additional management oversight because of the refueling and maintenance outage. The operators saw what happened and took prompt corrective action to resolve the issue," Baxter said.

NRC: SC's Oconee Reactors Operated Safely In 2008 Associated Press, May 8, 2009, SENECA, S.C. - Federal regulators say the three reactors at South Carolina's Oconee Nuclear Station operated safely last year. But officials say Unit 1 will be monitored more closely because of a brief power outage in April 2008 that interrupted cooling during scheduled maintenance and refueling. The Nuclear Regulatory Commission's Andy Hutto said the incident was handled properly. The Greenville News reported that Hutto spoke during a public forum at the nuclear station near Seneca on Thursday. NRC and Duke Energy officials attended the session. Hutto says Unit 1 will get an extra inspection because of the problem. The NRC says the problem occurred because of an inadequate maintenance procedure on a voltage regulator. Duke spokeswoman Sandra Magee says there was no danger to the public.

On January 23, 2009

NRC Sees Some Safety Risk During Oconee Station Power Interruption - In its coverage of the NRC's regulatory conference with Duke Energy officials, the Greenville (SC) News (1/22, Simon) reports, "Human error played a part in an interruption of power and cooling at Oconee Nuclear Station, Duke Energy and Nuclear Regulatory Commission officials said," Thursday, "at the NRC's Atlanta office," called to "discuss a brief interruption of power and cooling at Oconee's Unit 1 reactor during a scheduled refueling and maintenance outage last April 15. Preliminary NRC findings indicate some safety significance, while Duke contends that the incident was handled properly without compromising safety." The News adds the problem "could have been more serious, coming closer to a possibility of reactor core damage had it not been caught and

had it occurred at a different point in the refueling outage, NRC officials said. The risk could have been slightly higher or lower depending on the timing of the event, Duke officials said." The Greenville News (1/23, Simon, 84K) updates its coverage with an abbreviated version of the same story.

NRC Sees "No Big Difference" With Duke On Incident, Just Disagreement On Safety Risk - The Seneca (SC) Daily Journal (1/23, Galarza) remarked that the meeting marked the "first time" NRC and Duke Energy officials "used the words 'human error' to explain a cooling glitch in the Unit 1 reactor at the Oconee County nuclear plant last year." The Daily Journal adds, "The glitch automatically set off visual and audio alarms at the Oconee nuclear plant that NRC, and Duke officials [agreed,] increased the stress level of the operator. NRC spokesman Roger Hannah said there is no big difference between the agency and Duke over what happened or how it happened. However, he said the two don't see eye-to-eye over the extent of the safety risk. 'Our assessment is that they reacted quickly to reset things and get things right,' [said] Hannah. 'However, we thought the safety risk was greater than what they think.'"

The Anderson Independent-Mail (1/23, Chandler) adds that Oconee station site vice president Dave Baxter said, "Duke accepts the (NRC) findings," but added, "our operators recognized the event and took corrective action. There was adequate backup to the system, adequate mitigating paths, and our people took prompt, thorough corrective action," and the "incident involved no off-site release, no damage to the reactor core and no risk of loss of containment, Baxter said." The Independent-Mail notes, "Luis Reyes, regional administrator for the NRC Region II, said the NRC will render a final determination regarding the incident within four to six weeks." At the end of the piece, the Independent-Mail concludes, "Reyes gave no clear hint of what the final determination about the incident will be. 'Assessments of human actions drives these evaluations,' he said."

WSPA-TV Spartanburg, SC (1/22, 5:34 p.m.) broadcast, "We now know that human error was partly to blame for a cooling pump inside the Oconee nuclear station vibrating and interrupting the power supply. It happened during a scheduled re-fueling and maintenance outage last April. Workers were shutting a reactor down to add more uranium when the cooling pumps started shaking. Investigators have found a 'breaker trip' was not set correctly. That's according to our coverage partners at the Anderson Independent-Mail. Officials with the Nuclear Regulatory Commission say it could have been more serious, but no one in the community was ever in danger." WSPA-TV (1/22) also reported the story on its website. ***[NOTE: The inaccuracies in this article are being addressed by Public Affairs.]***

On January 12, 2009

NRC To Meet With Duke Officials About Brief Oconee Station Power Outage - The Greenville News (1/10, Simon, 84K) reported, "A maintenance procedure during a scheduled refueling outage at Oconee Nuclear Station triggered a brief power loss and [NRC] concern, although Duke Energy denied any danger." The News added, "NRC and Duke officials will meet Jan. 22 to discuss the brief loss of power that interrupted cooling at Oconee's Unit 1 reactor. Duke spokeswoman Sandra Magee said the 1.8-second loss of power that occurred while the reactor was shut down April 15 didn't create a safety concern; however, preliminary NRC findings differ." The News quotes from the NRC statement last week that the incident "'related to the apparent failure to implement an adequate maintenance procedure,' and a preliminary evaluation determined that it 'has more than very low safety significance,'" and while the "actual loss of power had little safety significance," the NRC's "safety concern is that the maintenance procedure wasn't followed, said Roger Hannah, a NRC spokesman." The AP (1/11) notes NRC

officials will meet with Duke Energy Corp to discuss the Oconee Station power loss "during a maintenance procedure in April. Duke spokeswoman Sandra Magee told The Greenville News for a story Saturday that the 1.8-second loss of power occurred while the reactor was shut down for refueling." The AP adds NRC "spokesman Roger Hannah told the newspaper that while the incident itself had little safety significance there was concern that the crew failed to follow proper procedure." WYFF-TV Greenville, SC (1/10, 7:19 pm) reported on its website, "The cause of a brief power loss at the Oconee Nuclear Station in April will be the center of discussion this month." WYFF-TV added, "A Duke representative said the 1.8-second loss of power happened while a maintenance team changed a circuit board on a voltage regulator."

NRC Says Oconee Operators Did Not Follow Proper Maintenance Procedures To Prevent Lockout - The Anderson (SC) Independent-Mail (1/10, Staed) added, NRC officials want to discuss the "'apparent failure to implement an adequate maintenance procedure,' according to a statement." The "finding is considered level 'green,' which is at the lowest end of safety significance, officials said. ... A problem with the automatic voltage regulator on the main generator caused a 'lockout' situation, said Roger Hannah, the [NRC] spokesman. 'We identified that they did not follow a maintenance procedure that would have prevented a lockout from occurring,' Hannah said." The "hearing 'allows Duke to come in and explain what exactly happened' and how to prevent such problems, Hannah said."

On December 1, 2008

Contract Worker Who Brought Controlled Substance Onto Site Banned From Oconee Plant - The Greenville (SC) News (11/29, Simon) reported, "A contract worker was denied access to Oconee Nuclear Station after an investigation found the worker "brought" marijuana into the facility, a Duke Energy spokeswoman said Friday. Duke security launched an investigation earlier this month after a small quantity of marijuana was found in a protected area of the nuclear station, said spokeswoman Sandra Magee." The News added, "The contract employee was at the nuclear facility for maintenance and refueling work during a scheduled outage on the Unit 2 reactor, Magee said," and subsequent to the discover, the "individual's access to the plant has been terminated, according to Magee and a Nuclear Regulatory Commission report."

Facility Organization

OVERVIEW OF DUKE ENERGY

Duke Energy Carolinas

Duke Energy Carolinas' operations include nuclear, coal-fired, natural gas, and hydroelectric generation. This diverse fuel mix provides nearly 21,000 megawatts (MW) of safe, reliable and competitively priced electricity to more than 2.3 million electric customers in a 24,000 square-mile service area of North Carolina and South Carolina.

Generation Assets

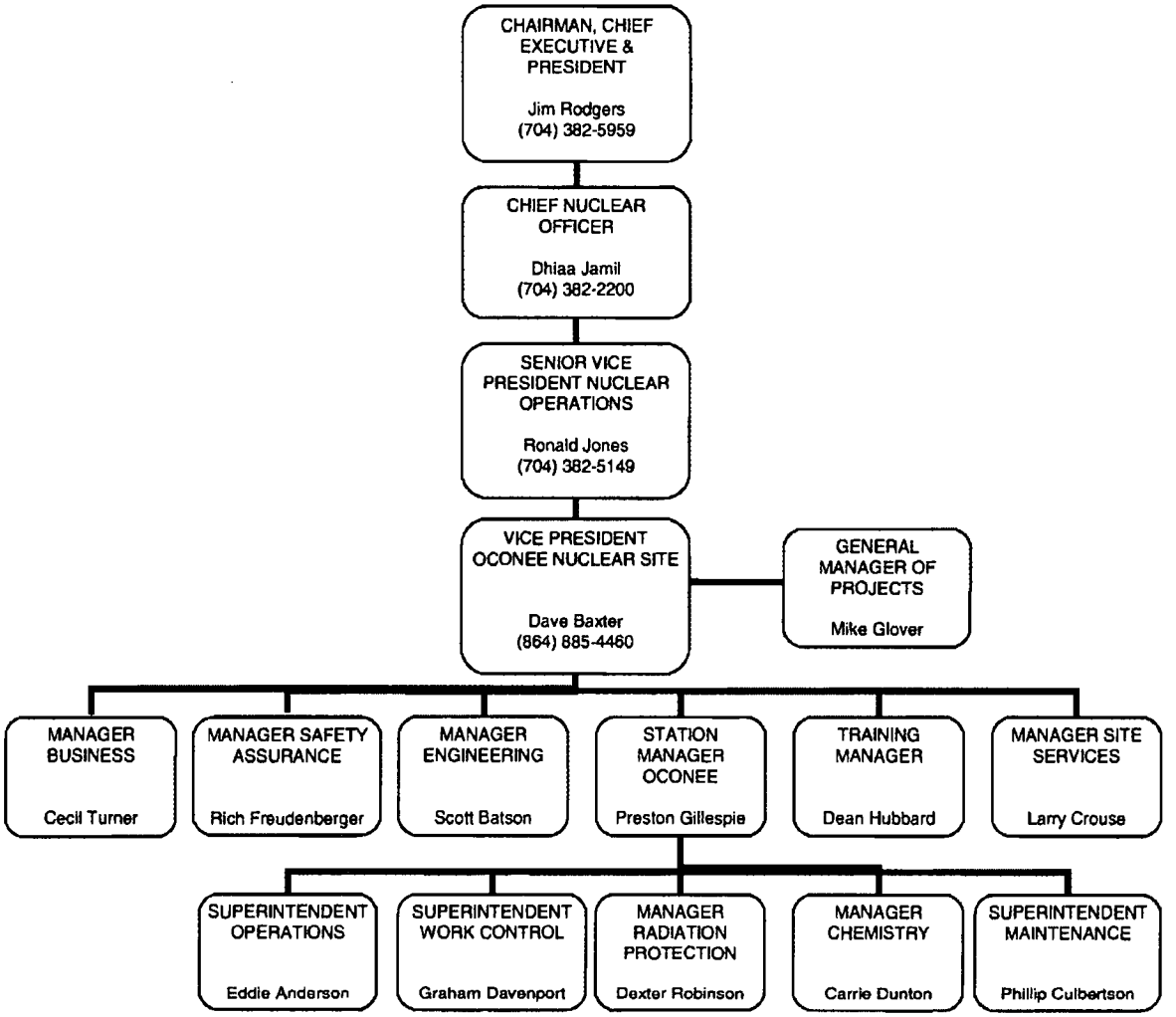
Duke Energy Carolinas generates energy primarily from three nuclear generating stations with a combined net capacity of 6,996 MW, eight coal-fired stations with a combined capacity of 7,699 MW, thirty-one hydroelectric stations with a combined capacity of 2,693 MW, and six combustion turbine stations with a combined capacity of 2,861 MW. Duke Energy Carolinas owns and operates the two-unit McGuire and the three-unit Oconee nuclear stations. In addition, Duke Energy Carolinas operates and has a partial ownership interest in the two-unit Catawba Nuclear Station.

New Nuclear Generation

Duke Energy submitted a 10 CFR 52 application for a combined operating licensee to the NRC on December 13, 2007, which was docketed on February 25, 2008. A public scoping meeting was also held on May 1, 2008, near the proposed site location. The license application references the Westinghouse AP1000 as the reactor type and two reactors are planned for the site. The location is just south of the North Carolina/South Carolina border near Gaffney, S.C. The site can be reached by taking I-85 from Charlotte, N.C. to exit 96 (approximately 50 miles), then going south about 10 miles.

TAB 7

DUKE ENERGY
OCONEE NUCLEAR STATION
ORGANIZATIONAL CHART



TAB 8

Biographical Data of Principal Managers

Dhiaa M. Jamil
Group Executive and Chief Nuclear Officer

Dhiaa Jamil is Group Executive and Chief Nuclear Officer for Duke Energy. He is responsible for the safe and efficient operation of the company's three nuclear generating stations - Catawba, McGuire and Oconee nuclear stations. He was named to his current position in January 2008.

Mr. Jamil has more than 25 years of experience in the energy industry.

Most recently, Mr. Jamil served as Senior Vice President of nuclear support. He led the organization responsible for plant support, major projects and fuel management for Duke Energy's nuclear fleet. In addition, he was responsible for regulatory support, nuclear oversight and safety analysis functions.

He joined Duke Power in 1981 as a design engineer in the design engineering department. After a series of promotions, he was named Electrical Systems Engineering Supervisor of Oconee Nuclear Station in 1989 and Electrical Systems Engineering Manager in 1994. He was named Maintenance Superintendent of McGuire Nuclear Station in 1997, Station Manager in 1999, and Site Vice President of McGuire Nuclear Station in 2002. In that role, Mr. Jamil was responsible for all aspects of the safe and efficient operation of the nuclear site. He was appointed Site Vice President of Catawba Nuclear Station in 2003.

Mr. Jamil received a Bachelor of Science degree in Electrical Engineering from the University of North Carolina at Charlotte.

He is a registered Professional Engineer in North Carolina and South Carolina. He has completed the Institute of Nuclear Power Operations (INPO) Senior Nuclear Plant Management course and received Duke Energy's technical nuclear certification. He has served as a senior member of the Institute of Electrical & Electronics Engineers (IEEE) and has completed a three-year assignment as a member of the Council of the National Academy for Nuclear Training. He is a former member of Dominion Energy Management Safety Review Advisory Committee, TVA Nuclear Safety Review Board, and Pacific Gas & Electric Nuclear Safety Oversight Committee. He also served on the board of directors of the York County, S.C. Chamber of Commerce.

Mr. Jamil is currently a member of the board of directors of the Charlotte Research Institute and serves on an advisory board for the School of Engineering at the University of South Carolina. He is a member of INPO's Executive Advisory Group, the Nuclear Energy Institute (NEI) New Plant Oversight Committee, and the NEI Nuclear Strategic Issues Advisory Committee Steering Group.

(b)(6)

Ronald A. Jones
Senior Vice President - Nuclear Operations

Ron Jones is senior vice president of nuclear operations for Duke Energy. He provides oversight for the safe and reliable operation of the three Duke Energy-operated nuclear stations – Catawba, McGuire and Oconee. He was named to his current position in January 2006. In addition to this role, Jones assumed responsibility for the nuclear fleet support and major projects organizations in February 2008.

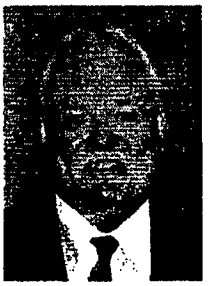
Jones has more than 27 years experience in the nuclear field.

He joined Duke Power in 1980 as an engineer at Catawba Nuclear Station. He received his senior reactor operator license in 1987. After a series of promotions, he was named manager of maintenance engineering in 1988; superintendent of instrument and electrical in 1991; superintendent of operations at McGuire Nuclear Station in 1994; station manager of Catawba Nuclear Station in 1997; station manager of Oconee Nuclear Station in 2001; and vice president of Oconee Nuclear Station in 2002.

The (b)(6) graduated from Virginia Tech in Blacksburg, Va., with a Bachelor of Science degree in Electrical Engineering.

Jones is a member of the American Nuclear Society and the Institute of Electrical and Electronic Engineers; chairman of the Pressurized Water Reactors Owners Group Executive Management Group and Executive Committee; chairman of the Carolinas Nuclear Cluster; and an executive member of the Nuclear Energy Institute Nuclear Security and Workforce Working Groups. He is currently a member of the board of directors for Junior Achievement of the Central Carolinas and the Lake Norman Charter School.

(b)(6)



David A. Baxter
Site Vice President
Oconee Nuclear Station

Dave Baxter is site vice president of Oconee Nuclear Station in Seneca, S.C. Baxter is responsible for the safe and reliable operation of Oconee Nuclear Station, a three-unit, pressurized water-reactor nuclear generating facility. He directs station and facilities management, operations, maintenance, chemistry and radiation protection, engineering, nuclear and industrial safety, and business operations.

Baxter has over 28 years of experience in nuclear engineering with Duke Energy.

Baxter joined the company in 1979 as a junior engineer at McGuire Nuclear Station in Huntersville, N.C. After a series of promotions at McGuire, including operations staff engineer, operations shift technical advisor, operations shift engineer and operations section manager, he was named nuclear engineering manager for modifications at Catawba Nuclear Station in 1998; and nuclear engineering manager for mechanical and civil engineering in 1999. He was named engineering division manager of Oconee Nuclear Station in 2002; and station manager in 2006. In that role, he was responsible for managing all aspects of Oconee's day-to-day operations. He was named to his current position in January 2008.

The (b)(6) earned a Bachelor of Science degree in Nuclear Engineering from Pennsylvania State University.

Baxter has received a U.S. Nuclear Regulatory Commission Senior Reactor Operator License and the Institute of Nuclear Power Operations' Senior Nuclear Plant Management Certification. He also served as a member of the B&W Owners Group Steering Committee. He is currently a board member of the Oconee Memorial Hospital Foundation and the United Way of Oconee County.

(b)(6)

R. Michael Glover
General Manager Nuclear Plant Projects
Oconee Nuclear Station

Mike Glover is general manager, plant projects at Oconee Nuclear Station for Duke Energy. He is responsible for leading the station's plan to address recently identified improvement areas and providing senior management oversight for both Oconee special regulatory projects and the integration of Oconee major projects into the station's site processes. He was named to his current position in October 2008.

Most recently, Glover served as station manager of Oconee Nuclear Station. He managed all aspects of operation, maintenance, work control, radiation protection and chemistry activities at the station to provide safe, reliable and efficient electrical service for customers.

Glover joined Duke Power in 1975 as a junior engineer in the nuclear fuel services group. Glover received his senior reactor operator license in 1987. After a series of promotions, he was named manager of the shift engineers in 1987; unit 2 operations manager then station compliance group manager for units 1 and 2 in 1988; performance group manager in 1990; operations unit manager in 1992; electric systems support customer service manager in 1993; mechanical and electrical systems engineering manager in 1995; and operations superintendent in 1997. He was named station manager at Catawba Nuclear Station in 2001 and continued in that role until 2005. Glover transferred to Oconee Nuclear Station in the latter part of 2005 to lead the engineering organization. In that role, he was responsible for managing activities related to system, component, and modification engineering.

(b)(6) Glover graduated with honors from the University of Virginia with a Bachelor of Science degree in Nuclear Engineering. He is a registered professional engineer in North Carolina.

(b)(6)

T. Preston Gillespie, Jr.
Station Manager
Oconee Nuclear Station

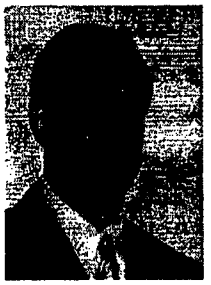
Preston Gillespie is station manager of Oconee Nuclear Station for Duke Energy. He is responsible for managing all aspects of operation, maintenance, work control, radiation protection and chemistry activities at the station to provide safe, reliable and efficient electrical service for customers.

Gillespie joined Duke Power in 1986 as an assistant engineer at Oconee Nuclear Station in Seneca, S.C. He served in a variety of positions while at the station, including nuclear production engineer, senior engineer, shift work manager, nuclear shift supervisor, nuclear operations shift manager and shift operations manager. In 2004, he was named nuclear engineering manager at Oconee, where he managed activities for the station's engineering organization. In addition, he was responsible for the reliable operation of electrical systems and equipment. He was named operations superintendent at Catawba Nuclear Station in March 2007 where he was responsible for the safe and reliable operation of the station's two nuclear units. He assumed his current position at Oconee Nuclear Station in October 2008.

The (b)(6) graduated from Clemson University with a Bachelor of Science degree in Mechanical Engineering.

Gillespie is a registered professional engineer in South Carolina. He has held a senior reactor operator license at Oconee Nuclear Station. He is also a past recipient of the company's Robinson Award, which recognized employees for their outstanding contributions to the company's operations.

(b)(6)



Scott L. Batson
Engineering Manager
Oconee Nuclear Station

Scott Batson is engineering manager of Oconee Nuclear Station for Duke Energy. He is responsible for managing and directing activities at the station related to system, component, and modification engineering to provide safe, reliable and efficient electrical service for customers.

Batson joined the company in January 1985 as a junior engineer at Oconee Nuclear Station in Seneca, S.C. He has held various leadership positions at Oconee, including operations shift manager, maintenance instrument and electrical section manager, and mechanical and civil engineering manager. His most recent position as Operations Superintendent was responsible for managing all aspects of operations activities at the station and at Keowee Hydro Station. He was named to his current position in January 2008.

Batson has over 22 years of experience in plant operation and engineering with Duke Energy.

The (b)(6) earned a Bachelor of Science degree in Mechanical Engineering from Clemson University.

Batson is a registered professional engineer in South Carolina. He received a senior reactor operator license from the U.S. Nuclear Regulatory Commission and a senior nuclear plant management certification from the Institute of Nuclear Power Operations. He has also completed the Duke Energy Advanced Leadership Program.

(b)(6)

Richard J. Freudenberger
Safety Assurance Manager
Oconee Nuclear Station

Rich Freudenberger is safety assurance manager of Oconee Nuclear Station for Duke Energy. He is responsible for the management of site programs and processes related to environmental health and safety, regulatory compliance, performance improvement, emergency planning and security.

Prior to joining Duke Power in 1997, Freudenberger had 12 years of commercial nuclear power experience as a resident and senior resident inspector for the Nuclear Regulatory Commission at the Maine Yankee, Crystal River, and Catawba nuclear stations. His first position with Duke Power was in the Charlotte, N.C. office as the regulatory audit supervisor. He was responsible for implementation of performance-based audits required by the Duke Energy Nuclear Quality Assurance program.

In February 2000, Freudenberger was assigned to Oconee Nuclear Station as the secondary systems engineering supervisor. In this role, he was responsible for the power conversion and standby shutdown systems mechanical design and licensing basis, testing support and equipment reliability. He was named valve engineering supervisor in 2001 and was responsible for design basis, margin management and equipment reliability of valves, valve actuators and heat exchangers.

In mid-2002, Freudenberger was assigned to an operator licensing class. He successfully completed the program and was licensed as a senior reactor operator in July 2004. In November 2004, he was reassigned as the primary systems engineering supervisor. He was responsible for the nuclear steam supply systems mechanical design and licensing basis, testing support and equipment reliability. In December 2005, Freudenberger was assigned to lead a team of engineers and licensing personnel to address two long-standing licensing basis issues. An agreement with the Nuclear Regulatory Commission for issue resolution was achieved in 2007.

Freudenberger was appointed safety assurance manager of Oconee Nuclear Station in January 2008.

TAB 9

Résumés of Resident Inspectors

George A. (Andy) Hutto
Senior Resident Inspector
Oconee Nuclear Station

Andy Hutto joined the Nuclear Regulatory Commission in December 1997. He is a (b)(6) He has been the Senior Resident Inspector at the Oconee Nuclear Station since March 2008.

Mr. Hutto received his Bachelor's Degree in Biochemistry from Clemson University in (b)(6) Subsequently, Mr. Hutto received a Master's degree in Environmental Systems Engineering (nuclear core curriculum) from Clemson in (b)(6)

Mr. Hutto began his career in 1984 as an environmental engineer with the South Carolina Department of Health and Environmental Control. His primary responsibilities included oversight of the low-level radioactive waste disposal facility at Barnwell. Mr. Hutto joined the Charleston Naval Shipyard as a nuclear engineer in 1986. While at the shipyard, Mr. Hutto achieved qualification as a nuclear shift test engineer on several submarine reactor plant designs. Following closure of the shipyard in 1993, Mr. Hutto accepted a project manager position with the Naval Facilities Engineering Command in Charleston, where he managed environmental cleanup projects at a number of Navy and Marine Corps bases in the southeast.

In the NRC, Mr. Hutto was initially hired as a project engineer in Region II, Division of Reactor Projects. Shortly after arriving at Region II, Mr. Hutto was assigned as resident inspector at the H. B. Robinson Plant. Mr. Hutto completed his certification as a Westinghouse Pressurized Water Reactor Operations Inspector in 1999, and in January 2003 transferred to the Oconee Nuclear Station to fill a vacant RI position. Mr. Hutto was promoted to the Oconee Senior Resident Inspector position in March 2008.

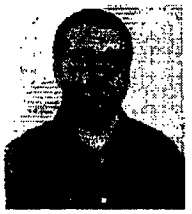
Eric T. Riggs
Acting Senior Resident Inspector
Oconee Nuclear Station

Eric Riggs joined the U. S. Nuclear Regulatory Commission in 2002. He is a (b)(6) (b)(6) He has been a resident inspector at the Oconee Nuclear Station since December 2002.

Mr. Riggs received his bachelor's degree in Mechanical Engineering from the Pennsylvania State University in (b)(6) After attending Pennsylvania State University, Mr. Riggs worked as a Faculty Research Assistant/Engineer at Penn State's Applied Research Laboratory.

Mr. Riggs began his career in the nuclear industry in the U.S. Navy Nuclear Power program from 1988 to 1994. While in the Navy, he served as an Engineering Laboratory Technician (ELT) instructor at the S8G prototype and the Leading ELT aboard the USS Tennessee (SSBN 734).

In the NRC, Mr. Riggs was initially hired as a project engineer in Region II, Division of Reactor Projects. Shortly after arriving at Region II, Mr. Riggs was assigned as resident inspector at the Oconee Nuclear Station. Mr. Riggs was recently promoted to Acting Senior Resident Inspector.



Geoffrey K. Ottenberg
Resident Inspector
Oconee Nuclear Station

Geoff Ottenberg joined the U. S. Nuclear Regulatory Commission in 2004. He is a (b)(6) (b)(6) He has been a resident inspector at the Oconee Nuclear Station since September 2008.

Mr. Ottenberg received his bachelor's degree in Mechanical Engineering from the Florida State University in (b)(6) Mr. Ottenberg is a registered engineer intern in the State of Florida. After attending Florida State University, Mr. Ottenberg worked as a researcher at Argonne National Laboratory on a fellowship assignment.

In the NRC, Mr. Ottenberg was initially hired as a reactor engineer in Region I, Division of Reactor Projects. After qualifying as an inspector, Mr. Ottenberg worked in Region I, Division of Reactor Safety, as a reactor inspector doing primarily Component Design Basis Inspections, and also completed a 6-month rotation as resident inspector at the Susquehanna Steam Electric Station.