

September 9, 2008

MEMORANDUM TO: Vonna L. Ordaz
Assistant for Operations
Executive Director for Operations

FROM: Eric J. Leeds, Director */RA by BBoger for/*
Office of Nuclear Reactor Regulation

SUBJECT: COMMUNICATION PLAN FOR INFORMATION REQUEST
PURSUANT TO 10 CFR 50.54(f) RELATED TO EXTERNAL
FLOODING, INCLUDING FAILURE OF THE JOCASSEE DAM,
AT OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3
(TAC NOS MD8224, MD8225, AND MD8226)

The enclosed plan describes the methods and tools for communicating with internal stakeholders and a limited number of external stakeholders (i.e., affected licensee and a limited number of federal, state and local officials) about the Information Request related to external flooding, including failure of the Jocassee Dam, at the Oconee Nuclear Station. This plan will assist the U.S. Nuclear Regulatory Commission staff in responding to any questions or concerns from external stakeholders. This plan will also facilitate communication within the agency to enable the staff to provide timely, consistent, and understandable information.

This communication plan will be implemented immediately.

Enclosure:
Communication Plan

CONTACT: Leonard Olshan, DORL/NRR
301-415-1419

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* via e-mail

OFFICE	LPLII-1/PM	LPLII-1/PM	LPLII-1/LA	LPLII-1/BC	R-II/DPR/D	DORL/D	NRR/D
NAME	JThompson	LOlshan	MO'Brien By phone	MWong	LWert *	TMcGinty (for JGiitter)	B Boger for ELeeds
DATE	09/03/08	09/05/08	09/9/08	09/04/08	09/05/08	09/05/08	09/09/08

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**COMMUNICATIONS PLAN FOR ISSUANCE OF INFORMATION REQUEST
PURSUANT TO 10 CFR 50.54(f) RELATED TO EXTERNAL FLOODING, INCLUDING
FAILURE OF THE JOCASSEE DAM, AT OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3
(SEPTEMBER 2008)**

GOALS

To accomplish effective communication for the U.S. Nuclear Regulatory Commission (NRC) staff's issuance of an information request related to external flooding, including failure of the Jocassee Dam, at the Oconee Nuclear Station (ONS). (Note: This material is Official Use Only – Security-Related Information (OUO-SRI), so there will be no communication with external stakeholders other than the affected licensee and some federal, state, and local officials. In addition, please take appropriate measures in the development and handling of information regarding this issue, including consideration of the provisions of 10 CFR 2.390(d)(1) and the safeguards information provisions of 10 CFR 73.21).

BACKGROUND

The NRC staff is concerned that certain external flooding events, including failure of the Jocassee Dam, may render key systems unable to perform their safety functions. Due to the configuration of ONS on Lake Keowee, accident mitigation for several conditions relies entirely on the operation of a standby shutdown facility (SSF). The SSF in these conditions provides Reactor Coolant Pump seal cooling, inventory control, and secondary side heat removal. Therefore, an external flooding event which incapacitates this facility would render ONS unable to mitigate accident conditions brought on by flooding of the site and defense-in-depth would not exist for such events.

The current NRC staff concerns were highlighted by a recent final significance determination. By letter dated November 22, 2006 (Accession No. ML063260282), the NRC staff issued a final significance determination that evaluated a performance deficiency of an unanalyzed opening made in the SSF, rendering it vulnerable to external flood. By letters dated December 20, 2006 (Accession No. ML063620092), and May 3, 2007 (Accession No. ML072970510), Duke Energy Carolinas, LLC (the licensee), appealed the finding. During a re-evaluation of the second appeal by the licensee, the NRC staff discovered that the licensee had erroneously computed a random rupture frequency for the Jocassee Dam, a frequency significantly lower than what could be justified based on actual data.

In the 1980s, the licensee performed an analysis which considered the downstream effects resulting from a Jocassee dam failure and which predicted a resultant flood height of 4.7 ft from such an event. This study was used as the basis for construction of a seismically qualified 5-ft high flood protection wall around the entrance to the SSF. This flood protection wall was

Enclosure

incorporated into the ONS Updated Final Safety Analysis Report (UFSAR), becoming part of the ONS licensing basis in 1992. In the early 1990s, due to the issuance of a national response plan, the licensee performed a flood analysis according to the requirements of the Federal Energy Regulatory Commission (FERC) which predicted a flood height of 12.5 to 16.8 ft above grade. In 1994, the licensee removed the references to the 5-ft wall and Jocassee Dam failure flood protection from their licensing basis using a potentially inappropriate argument. The current UFSAR discusses 5-ft walls that are used for flood protection at the SSF. However, it does not include a description of the effects of a Jocassee Dam failure, nor does it describe the flood protection features to mitigate the consequences of such an event. In mid-1994, the UFSAR was revised removing the reference to the Jocassee Dam failure and the postulated wave height of 4.7 ft in the yard at the ONS site. The earlier flooding study, which predicted a 4.7-ft flood height, is not available and the study's results can not be replicated. Only the latter flood analysis is available.

Another potential discrepancy which relates to the lower Jocassee Dam failure frequency is referenced in several documents, including the ONS Individual Plant Examination of External Events (IPEEE) and the Severe Accident Mitigation Alternatives (SAMA) submittals for license renewal. Moreover, many other licensees with similar issues appear to have adopted this dam failure frequency and used it to justify screening out consideration of external flood damage at their sites. Since the extent and impact of this underestimate at the individual sites is unknown, the NRC staff will communicate concerns of potential deficiencies to other licensees, as necessary. Other licensees may be required to re-visit the flooding analyses for their sites to ensure validity.

To address the concerns at the ONS site, the NRC staff issued by letter dated August 15, 2008 (Accession No. ML081640244), an information request to the licensee pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Section 50.54(f) (10 CFR 50.54(f)) requesting additional information regarding analyses of potential external flooding of the ONS site, including failure of the Jocassee Dam. The response from the licensee is due September 29, 2008 and the NRC staff will evaluate their response to determine, in the event of external flooding, including a Jocassee Dam failure, whether the units can be safely shutdown and maintained in a safe shutdown condition, and whether the two spent fuel pools can be likewise maintained in a safe condition. It will be assessed at a later time whether further regulatory action is needed. In addition, a generic communication is under development to inform other licensees of the underestimate in the Jocassee Dam failure frequency.

KEY MESSAGES

The key messages to be communicated to stakeholders are as follows:

- The NRC staff's mission is to protect public health and safety and the environment. One of the NRC staff's specific concerns is to ensure that the consequences of a dam-break near the ONS site are properly understood and addressed. A study of a Jocassee dam-break conducted in response to FERC requirements by Duke Power estimated that flood waters of up to approximately 17 ft above SSF grade-level are possible. However,

the ONS site currently has flood protection features designed against floods of 5 ft. The NRC staff has begun to address this issue through issuance of a letter dated August 15, 2008, requesting information pursuant to 10 CFR 50.54(f).

- The NRC staff currently believes that it is premature to determine if shutdown of the ONS units is appropriate. Interim operations of ONS units is acceptable while this issue is being resolved based on the current good condition of the nearby dams and the current low water levels in nearby lakes.
- The NRC staff is also concerned that the probability of a dam-break near the ONS site is properly understood and accounted for. The NRC staff has recently discovered the use of a dam failure frequency that appears to be in error, one which is significantly lower than what can be justified by the available data. The NRC staff plan to address this issue directly through development of a generic communication and a review of the potential impact of external floods on other plants. The NRC staff will pursue resolution of this issue for the ONS site through discussions with the licensee.
- This information request pursuant to 10 CFR 50.54(f) requires the licensee to provide the NRC with certain, specific information regarding external flooding of the Oconee site, including the consequences of a Jocassee Dam failure. The NRC will use this information to determine whether further regulatory action and/or additional assessment is needed.

AUDIENCE

INTERNAL AUDIENCE

The Commission
Office of the Executive Director for Operations (OEDO)
Office of Public Affairs (OPA)
Office of Congressional Affairs (OCA)
Office of Nuclear Reactor Regulation (NRR)
Office of Nuclear Regulatory Research (RES)
Office of Nuclear Security and Incident Response (NSIR)
Office of Enforcement (OE)
Division of Reactor Projects, Region II
State Liaison Office, Region II
Region (Regional Administrators/Resident Inspectors/Regional State Liaison Officers)

EXTERNAL AUDIENCE

Duke Energy Carolinas, LLC
Selected local, state and federal officials

COMMUNICATION TEAM

Team members will use the communication plan to coordinate their communication activities with internal and external audiences. Team members also will review and maintain the communication plan.

L. Olshan	301-415-1419	NRR ONS Licensing Project Manager
J. Thompson	301-415-1119	NRR Communications Plan Coordinator
C. Tucci	301-415-2008	NRR Communications Technical Assistant
U. Shoop	301-415-2063	OEDO Communications Coordinator
L. Wert	404-562-4500	Director, Division of Reactor Projects, Region II
R. Trojanowski	404-562-4427	State Liaison Officer, Region II
K. Clark	404-562-4416	Public Affairs Officer, Region II
D. Screnci	610-337-5330	Public Affairs Officer, Region I
V. Mitlyng	630-829-9662	Public Affairs Officer, Region III
V. Dricks	817-860-8128	Public Affairs Officer, Region IV
S. Burnell	301-415-8206	Public Affairs Specialist, OPA (HQ)
D. Decker	301-415-1693	Congressional Affairs Specialist, OCA (HQ)
R. Carroll	404-562-4511	Project Engineer, ONS 1, 2, and 3
A. Hutto	864-882-0189	Senior Resident Inspector, ONS 1, 2, and 3

ACTION PLAN

The focus of the activities in this communication plan is to deliver key messages to internal and external stakeholders in a consistent manner. There has been no specific interest expressed to the NRC staff from the general public and/or other external stakeholders. In addition, the information request with respect to evaluation of flood issues at ONS has been classified as OUO-SRI. Therefore, this information will only be disseminated to the affected licensee and selected federal, state and local officials.

Internal and External Communications

Complete development of Communication Plan and preparation of Communications Tools:

Time Sequence Goal	ACTION	Responsible Organization
N - 9 days	Brief EDO	NRR
N – 3 days	Brief Commission Technical Assistants	NRR
N - 2	Distribute draft Communication Plan, including Questions and Answers to Points of Contact	NRR
N – 1	Contact licensee regarding senior management call and impending issuance of letter	NRR
N	Issue letter to licensee (completed 8/15/08)	NRR
N + 1 hr	Contact licensee regarding issuance of letter and provide copy by fax or e-mail. Notify Senior Resident Inspector	DORL (L. Olshan)
N + 21 days	Meeting with licensee (completed 8/28/08)	NRR
N + 45 days	Receive licensee response	NRR
N + 120 days	Complete evaluation of licensee's response	NRR
N + 150 days	Develop summary of responses and identify options/recommendations for regulatory actions	NRR
End	Notify D:DORL when actions completed.	DORL (L. Olshan)

COMMUNICATIONS TOOLS

This Communication Plan and associated information will be provided to NRC management for use during planned outreach activities. Information that will be prepared and maintained by the Communication Team includes key messages and a bank of Questions and Answers for use in communicating with stakeholders.

- All materials developed by the team for external release will be reviewed and approved by the NRR Office Director to ensure accurate and timely communication with external stakeholders.
- Materials will be used for outreach activities and will be tailored, as needed, to effectively communicate key messages and address specific stakeholder issues.

EVALUATION AND MONITORING

The following activities are planned:

- The team will monitor correspondence to ensure consistency with key messages or to determine if further information is needed. The team will assess the degree of success that key messages and talking points had upon the target stakeholder audience.
- All feedback gathered on this plan and its implementation will be assessed by the team to determine lessons learned that will be forwarded to NRC senior management, as appropriate.

UPDATES AND REVISIONS

If major revisions are necessary to the plan or its key messages, the NRR Communication Plan Coordinator will ensure that a formal revision is made and the revision placed in ADAMS and on the internal Communications Web page.

FINAL CLOSE-OUT

The NRR Communication Plan Coordinator will prepare, if necessary, lessons learned that are identified about the plan and its implementation. This close-out will be attached to the Communication Plan.

Questions and Answers Regarding the Issuance of an Information Request Pursuant to Title 10 of the Code of Federal Regulations (10 CFR) Part 50, Section 50.54(f) Related to External Flooding, Including Failure of the Jocassee Dam, at Oconee Nuclear Station

Q.1. What is a 50.54(f) letter and how are they used?

A.1. Section 50.54 lists certain conditions that apply to every license issued. Paragraph (f) of 10 CFR 50.54 states that: “The licensee shall at any time before expiration of the license, upon request of the Commission, submit, as specified in § 50.4, written statements, signed under oath or affirmation, to enable the Commission to determine whether or not the license should be modified, suspended, or revoked. Except for information sought to verify licensee compliance with the current licensing basis for that facility, the Nuclear Regulatory Commission (NRC) staff must prepare the reason or reasons for each information request prior to issuance to ensure that the burden to be imposed on respondents is justified in view of the potential safety significance of the issue to be addressed in the requested information. Each such justification provided for an evaluation performed by the NRC staff must be approved by the Executive Director for Operations or his or her designee prior to issuance of the request.”

Q.2. Why did the NRC staff issue this letter?

A.2. The NRC staff has discovered potential discrepancies in the calculations of both the probability and consequences of flooding events at the Oconee Nuclear Station (ONS) site conducted by Duke Energy Carolinas LLC (the licensee). The NRC staff issued this letter to gather information that will help determine whether additional regulatory action or assessments are needed.

Q3. What kind of information are you requesting?

A3. The NRC staff is requesting information on the nature and consequences of external flooding events at the ONS site, including the consequences of a Jocassee Dam failure. This information is needed to demonstrate whether the ONS units can be safely shutdown and maintained in a safe shutdown condition, and that the two spent fuel pools can be maintained in a safe condition, in the event of external flooding. An assessment of an existing Inundation Study is also requested.

Q.4. The NRC staff has known about this issue for a while. Why did it take so long to address this issue? Why is it addressing this issue now?

A.4. The NRC staff is addressing this issue now in response to concerns about external flooding events at the ONS site. The NRC staff has known about this issue for a while and has pursued the following course of action:

- While the NRC staff carried out their tasks in the Reactor Oversight Process (ROP), they brought to light new information which highlighted the importance of an external flooding issue at ONS.

Attachment 1

- The ROP has increased the NRC staff's use of risk information for both internal and external events. The ROP also provides the NRC staff with a tool to improve assessment of low probability events with potentially high consequences.
- Based on the identification of the issue, the NRC staff has requested information in a letter to the licensee in order to determine the appropriate course of action.
- In addition, we recognize there have been interactions between the licensee and the NRC staff on this issue in the past (see Attachment 2). As part of our continuing efforts on this issue, the NRC staff will be evaluating the lessons learned and if necessary, implementing corrective actions in its regulatory processes to improve its identification and resolution of issues.

Q.5. What possible actions might you take based on this information?

A.5. If it is determined that there is not adequate protection against external floods at the ONS units, short- and long-term compensatory measures may be required. The NRC staff may also decide to issue a safety order to the licensee regarding this issue.

Q.6. What is the NRC staff doing to assess the potential generic implications of this issue?

A.6. The NRC staff reviewed all nuclear sites with proximity to a river or impoundment in order to screen out those sites with little vulnerability from dam failures. This review included evaluation of NUREG-0965, the NRC Inventory of Dams, each site's topographic map, Individual Plant Examination of External Events (IPEEE), and Section 2.4 of each plant's Final Safety Analysis Report. Twenty-five sites were associated with upstream or downstream dams. Seventeen of these sites could be readily screened out by means of adequate elevation and cooling water assurance. The remaining 8 sites will need further analysis.

Q.7. Besides the ONS units, how many others plants may be impacted by the use of a lower Jocassee Dam failure frequency? What are the implications for these plants?

A.7. Almost all licensees potentially impacted by upstream and downstream dams used the Jocassee Dam failure frequency during their IPEEE assessment. These licensees would need to reassess their IPEEE conclusions and other licensees' programs that are dependent on the IPEEE results.

Q.8. How long does the licensee have to respond to this letter?

A.8. The licensee has 45 days (i.e., until September 29, 2008) to supply the requested information. If they cannot meet this deadline, they may request an extension. The NRC staff will evaluate the request for extension and make a determination on the reasonableness of the request.

Q.9. What will happen if the licensee does not supply the required information?

A.9. The NRC staff will consider taking additional actions such as issuing an Order.

Q.10. Will this letter or the information you receive from the licensee be made public?

A.10. While the NRC staff considers public involvement in, and information about, our activities to be a cornerstone of strong, fair regulation of the nuclear industry, the information needed to evaluate this issue is Official Use Only – Security-Related Information and as such, will be withheld from the public. The licensee will be required to protect the information from inappropriate release. The NRC staff will evaluate the information submitted and will release any non-sensitive information in accordance with existing guidance and procedures.

Q.11. Why is the NRC staff allowing the continued operation of the ONS units?

A.11. Until the NRC staff has acquired and evaluated the licensee's response to the 10 CFR 50.54(f) letter, the NRC staff believes it is premature to determine if shutdown of the ONS units is appropriate. The fact that we are issuing a 10 CFR 50.54(f) letter means that we need additional information to make an effective safety decision. The following considerations were also factors in determining that continued interim operations are acceptable pending additional information and our evaluation of it.

The NRC staff has reviewed the 2007 Federal Energy Regulatory Commission (FERC) inspection reports for the Jocassee and Keowee Dams to determine if the health of the dams is sound such that no immediate significant hazard is present. The FERC conducted rigorous inspections and assessed likely failure modes of each dam. The overall conclusions were that the dams and associated structures are in satisfactory condition.

The NRC staff is also aware that there has existed a long-standing drought condition in the area surrounding the ONS site. This drought has caused the associated lake to be approximately 10 ft below normal levels. These lower lake levels have the effect of increasing the safety margin associated with the likelihood of dam failure and the potential consequences. The lower lake levels reduce the pressure on the dam and make overtopping of the dam more difficult to achieve. In addition, while not currently evaluated, the lower lake level may affect the ultimate flood height at the ONS site. This rationale applies as long as the lake water levels remain below normal.

This assessment is preliminary and the NRC staff may seek an ONS shutdown or compensatory measures if the licensee's response to the 10 CFR 50.54(f) letter is less than adequate such that the NRC staff does not have reasonable assurance that defense-in-depth or appropriate safety margins exist for ONS flood protection and external flood mitigation.

Q.12. What interactions have the NRC staff had with the licensee and/or FERC on this issue?

A.12. Regarding the issuance of this letter, the licensee has been sent a copy of the letter and the NRC staff have had preliminary conversations with the licensee for the purpose of

ensuring that the licensee is aware of the NRC staff's expectations for the response due September 29, 2008. The NRC staff has coordinated with FERC and received the recent Dam survey for the ONS sites.

Q.13. What interactions has the Office of Nuclear Reactor Regulation (NRR) had with the Office of Nuclear Security and Incident Response (NSIR) on this issue?

A.13. The NRR staff have had discussions with the NSIR staff on this issue and they are aware of the issuance of this letter.

**Timeline of Interactions with the Licensee on the
External Flooding Issue at the Oconee Nuclear Station (ONS)**

Note: Key events are underlined.

- **January 1983** - Licensee memo to file, documents that a Jocassee Dam failure would overtop the Keowee Dam by 2.45 ft resulting in 4.71 ft of water on site. The flood study was completed as part of the ONS probabilistic risk assessment (PRA) study, NSAC-60 by Duke Power and the Electric Power Research Institute (EPRI) Nuclear Safety Analysis Center.
- **April 1983** - Based on Request for Additional Information (RAI) responses, Nuclear Regulatory Commission (NRC) issues Standby Shutdown Facility (SSF) SER, which recognized turbine building flood as only credible SSF flooding concern....not Jocassee Dam failure.
- **June 1984** - NSAC-60 was completed. (This addressed both random failures of Jocassee Dam....no split fractions and no credit for SSF.)
- **June 1984 to June 1986** – Licensee design and construction of the North and South SSF 5-ft exterior flood walls.
- **December 1992** - Jocassee Dam Failure Inundation Study (Federal Energy Regulatory Commission (FERC) Project No. 2503) was completed and predicted a flood range of 12.5 ft to 16.8 ft compared to site grade level.
- **December 1992** - Licensee implemented a final safety analysis report (FSAR) update which added the Jocassee Dam failure, SSF flood wall, and watertight door references to the licensing basis.
- **December 1993** – In an internal memo, licensee attempted to reconcile differences between the FERC study and their internal one due to updated software and analysis conservatism. Licensee states that they can not replicate the studies showing a 4.7-ft flood height. Proposed corrective action to re-analyze as part of the Individual Plant Examination of External Events (IPEEE) for December 1995.
- **February 1994** - NRC issued a Notice of Violation and Notice of Deviation (Report number 50-269,270,287 / 93-25) which included the identification of the inability of the SSF to mitigate the worst case Jocassee Dam failure per the recently completed FERC study; and the inaccurate IPEEE submittal, which stated that the SSF flood walls were 8 ft in height.

Attachment 2

- **March 1994** – Service Water inspection and violations. Licensee discussed a commitment to the NRC “...to complete a reanalysis of a postulated Jocassee flood with the available information on flood frequency, SSF availability, and SSF serviceability, as part of the IPEEE effort.”
- **June 1994** – Licensee removed all references to Jocassee Dam failure and the SSF flood walls in the FSAR. The 10 CFR 50.59 evaluation stated that these references were originally added based on results of a PRA study which was not part of design basis.
- **September 1994** – (Internal NRC meeting between Region II and the Office of Nuclear Reactor Regulation (NRR) as documented in memo dated October 6, 1994)...The status of NRC review of a hypothetical Jocassee Dam failure was discussed. NRR indicated that the external events review would not be done for months, and research had not been contacted about the error in the licensee’s IPE submittal. The ramifications of a high E-5 event was discussed, NRR considered it of minimal importance, and a revision submittal of 1995 was acceptable.
- **December 1995** – Licensee issued the IPEEE. However, the IPEEE did not explicitly reference the Jocassee Dam Failure Inundation Study. In addition, the IPEEE review team was not aware of the 1994 Notice of Violation and Notice of Deviation and the associated licensee commitments when completing their review. Random dam failure frequency was computed to be 1.3×10^{-5} per year. In addition, split fractions for flood heights that exceeded the 5-ft level were included. Subsequent supplements issued in December 1996 and December 1997 also carried over these split fractions. In response to the January 1999 RAI, the licensee reconfirms that a flooding event (resulting from the seismically-induced failure of the Jocassee Dam) which exceeds the 5 ft SSF flood wall is the dominant cut set. Subsequently in March 2000, the NRC closes the IPEE generic letter.
- **July 1998** – Licensee applied for renewal of operating license for all three units. In the value impact results for potentially cost-beneficial Severe Accident Mitigation Alternatives, the licensee considered increasing the height of the 5-ft flood walls. However, it was not deemed cost-effective based on the underestimated IPEEE results. The NRC staff conducting this review were not aware of errors in the dam failure frequency which were to come to light in follow-up to the November 2006 final significance determination.
- **August 2003** - Licensee removed an access cover on the south side of the SSF outer wall exposing it to floods below the 5-ft level. Licensee failed to perform any 10 CFR 50.65(a)(4) or 10 CFR 50.59 evaluation (ref. RIS-2001-009) for a breached barrier.
- **September 2004** – During SSF sump modifications, the licensee’s SSF Risk Reduction Team identified the need to consider increasing the height of the flood

walls. This recommendation was identified in PIP O-04-6365, corrective action #8. However, the actual corrective action #8 stated that, "Based on discussions with the Severe Accident Analysis Group, modifications to increase the height of the flood wall around the SSF will not be pursued at this time. Therefore, the proposed replacement SSF Sump pump should be based on operating with flood levels up to the height of the existing flood wall surrounding the SSF."

- **June 2005** – NRC inspectors notified licensee of the wall breach in the SSF. The licensee entered the deficiency into their corrective action program.
- **August 2005** – After a second corrective action, the licensee corrected the condition by sealing the breach in the SSF wall.
- **April 2006** – NRC inspectors, in documenting SSF breach as a performance deficiency, also note the Jocassee Dam Inundation Study.
- **August 2006** – Senior Executive Review Panel (SERP) meeting on the performance deficiency assessed as preliminary WHITE with the choice letter sent to the licensee.
- **October 2006** – Licensee provided written response to the NRC choice letter to waive a regulatory conference.
- **November 2006** - Final significance determination of WHITE was issued.
- **December 2006** - Licensee appeals the determination. Requested NRC to accept an incomplete, un-docketed, Jocassee seismic fragility study.
- **January 2007** - Appeal panel was convened with Region II, Region IV and Headquarters personnel.
- **February 2007** – Licensee sent completed seismic fragility analysis of Jocassee to NRC one month late.
- **March 2007** – Appeal panel upheld the WHITE finding based on random dam failure alone.
- **May 2007** – Licensee requested reassessment of the final determination of the appeal panel.
- **June 2007** - Team assembled to evaluate seismic analysis. Flooding expert reviewed the random failure frequency for Jocassee Dam. Follow-up telecom with licensee after seismic fragility analysis was evaluated. Discrepancy in dam failure frequency was communicated to the licensee.
- **July 2007** - Licensee response to analysis questions by email.

- **September 2007** – Final SERP concluded a WHITE finding.
- **October 2007** – Associated IP95002 Supplemental Inspection (conducted in late August 2007) report issued.
- **November 2007** – November 20 letter to licensee regarding the Final Significance Determination of the SSF barrier white finding and communication of the Jocassee Dam failure frequency error.
- **December 2007** – NRC Region II communicated the NRC Jocassee Dam failure frequency computation to the licensee.
- **December 2007 - August 2008** – The NRC staff developed/implemented an internal backfit assessment/flood action plan. This included pursuance of concern as an “inadequate protection” issue.
- **August 2008** – NRC Deputy Executive Director telecon to licensee Chief Nuclear Officer on concerns over Jocassee Dam failure and Oconee site flood height. Request for information pursuant to 10 CFR 50.54(f) issued to the licensee August 15, 2008.