



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BLVD
ARLINGTON, TEXAS 76011-4511

March 6, 2012

MEMORANDUM TO: Elmo Collins
Regional Administrator
Region IV

FROM: Thomas Blount */RA/*
Deputy Director
RIV Division of Reactor Safety

SUBJECT: BACKFIT PANEL REGARDING FORT CALHOUN FLOODING

PURPOSE:

This memo is to inform you that the Fort Calhoun Station (FCS) Backfit Panel has reached an assessment of no immediate action required to address the flooding issue at Fort Calhoun Station. It is our determination that there is "no immediate safety concern." Additionally, the panel recognizes the need to address the cascading dam failure flooding issue at FCS in the longer term. This issue is currently being addressed by two other agency organization activities: 1) the Japan Lessons Learned Directorate (JLD) charged NRO with addressing the Fukushima Near-Term Task Force (NTTF) Recommendations 2.1 and 2.3, and; 2) RES has Pre-GI-009 on track to be approved for incorporation into the Generic Issues Program as GI-204. These efforts are aligned and include addressing the cascading dam failure concern on a more global perspective with consideration of the specifics to each facility. Therefore this memo proposes that the Backfit Panel Charter for FCS Cascading Dam Failure be terminated at this time to avoid duplication of efforts while remaining efficient and effective in overseeing the public health and safety with regards to the operation of FCS.

BACKGROUND:

In response to a proposal from David Loveless, dated July 1, 2011, to evaluate a backfit exception for Fort Calhoun Station, you directed a backfit panel be convened in accordance with Region IV Office Policy Guide (PG) 0901.6, "Facility-Specific Backfit and Information Collection Procedure (ML11293A198)." In your charge to the panel you expected a response regarding the several items contained in the scope. The first item in the scope was presented as:

"Review the analysis performed by Mr. Loveless to determine if an information request in accordance with 10 CFR 50.54(f) is justified and whether the burden imposed on the licensee by the information request is justified in view of the potential safety significance of the issue addressed in the information request."

The technical review conducted by Mr. Loveless concluded that based on as-built design and current compensatory actions, the Fort Calhoun Station would not be able to survive gross failure of the Oahe dam. According to the Fort Calhoun USAR, the total failure of a large dam upstream of the plant site is not considered credible by the Corps of Engineers. However, through reviews of Corps documents, we have learned that often the Corps refers to a lack of credibility when the return time is greater than 500 years. This is significantly lower than the maximum return time we would consider safe for the operation of a nuclear power plant. According to the most recent Corps of Engineers assessment, the water height at Fort Calhoun, following an Oahe dam rupture, could be as high as 1060 feet MSL. This flood would result in flooding of all major plant equipment including the main control room and would likely require complete abandonment of the site for weeks.

BASIS:

The assumptions used in Mr. Loveless' analysis were based on generic data from reputable sources. This data may be conservative because a specific evaluation of the Missouri River dams was not completed. It is the opinion of the panel that obtaining additional information is justified, specifically with regards to consideration of what the design basis flooding event should be. Consideration should be given to the cascading dam failure event identified in Mr. Loveless' analysis. This information should be provided to support the efforts associated with the broader initiative undertaken by the JLD regarding flooding at US facilities.

In reaching a determination of whether the information request in accordance with 10 CFR 50.54(f) is justified, other pertinent insight has been developed. Since the development of Mr. Loveless' analysis, several pertinent activities have been initiated that have a bearing on this issue. There is the ongoing 10 CFR 2.206 petition submitted by Mr. T. Saporito regarding flooding at Ft. Calhoun and Cooper Stations. There are the JLD's efforts to address flooding issues for the industry, and there is also the Generic Issue in RES regarding flooding concerns at reactor sites, Pre-GI-009.

With regard to the immediacy issue, or need for immediate action by this panel, it is our considered opinion that there is "no immediate safety concern" with the facility in the current status of shutdown. We have reached this determination after considering a number of aspects and inputs, such as:

- On November 28, 2011, the 10 CFR 2.206 Petition Review Board (PRB) for the flooding issues at Ft Calhoun and Cooper Stations, submitted by Mr. T. Saporito met internally and determined that there is no immediate safety concern which would warrant an immediate action by the NRC to prevent the restart of FCS or to bring Cooper to cold-shutdown, as requested by the petitioner. However the PRB did recognize both petitions meet the criteria for review and therefore should be accepted in accordance with MD 8.11. These efforts were not informed by the analysis completed by Mr. Loveless, prior to reaching their conclusions on immediate action.
- The JLD has an initiative directed by the Commission to Issue two (2) 10 CFR 50.54(f) letters to address Recommendations 2.1 and 2.3 initiatives NTTF Action Plan. In SECY-11-0137, staff recommended as part of Recommendation 2.1 that a request for information pursuant to 10 CFR 50.54(f) be sent to licensees to

evaluate site-specific flooding hazards using present-day regulatory guidance and methodologies being applied for Early Site Permits (ESP) and Combined Operating License (COL) reviews. In Recommendation 2.3, staff recommended that a second request for information, also pursuant to 10 CFR 50.54(f), be sent to licensees to perform flood protection walkdowns to identify and address plant-specific issues and verify the adequacy of monitoring and maintenance of flood protection features. Recommendations 2.1 and 2.3 were approved by the Commission in the Staff Requirements Memorandum on SECY-11-0137 on December 15, 2011.

- RES has initiated a Generic Issue (Pre-GI-009) to consider flooding at licensees' facilities. As part of an initial assessment of the "cascading Dam Failure" mechanism in developing the Pre-GI-009 position, RES did not identify a need for immediate actions. These efforts were not informed by the analysis completed by Mr. Loveless, prior to reaching their conclusions on immediate action.
- This panel reviewed the NRR Office Instruction LIC 504, Rev.3, "**Integrated Risk-Informed Decision-Making Process for Emergent Issues**" with input and support from NRR/ DRA and came to the determination that there was no immediate safety concern with regard to this issue at FCS. Additionally, as provided for in this procedure there is another agency process that is addressing the specific concern as identified above, and therefore this procedure has limited applicability. However, LIC-504 states that an Immediate Plant Shutdown is required if:

"The risk impact from both internal and external events is high, as determined using risk metrics such as the following. . . Incremental conditional core damage probability (ICCDP) is high (e.g., greater than or on the order of 5×10^{-5}). Insufficient or inadequate information will necessitate making conservative assessments as to whether the criteria listed above are met.

It should be noted that Mr. Loveless' evaluation indicated an ICCDP of 6×10^{-4} .

Currently, the FCS is shutdown and has been since it commenced its outage approximately a year ago in May, of 2011. It is also noteworthy that the facility is under the regulatory purview of Manual Chapter MC-0350 because of its recent operating performance. In addition, as previously identified, the issue of cascading dam failures is being addressed as identified in SECY-12-0025 by the JLD. As part of the evaluations for flooding contained in the proposed 10 CFR 50.54(f) letters that the license will be required to respond to, is the section on dam breaches and failures. This particular section states that: "Flood waves resulting from the breach of upstream dams, including domino type or cascading dam failures should be evaluated for the site."

RECOMMENDATION:

It is the recommendation of this panel that the Charter be terminated because the Fort Calhoun Cascading Dam failure issue is addressed in the efforts underway by the JLD Flooding review team based on the recognition that this activity would be duplicative and could potentially be divergent of other agency efforts underway. It is further recommended that, if, at a future date, it is determined that the full scope of the issues raised in Mr. Loveless' Backfit exception analysis are not addressed by the actions of the Japan Lessons Learned Directorate, the un-addressed scope would be reconsidered for reactivation of the Backfit Panel for evaluation at your direction. Similarly, in the event information becomes available, indicating that there is an immediate concern for public health and safety in the vicinity of the Fort Calhoun site due to a cascading dam failure event, this panel should be reconstituted to evaluate the concern in light of the new information for consideration of a facility-specific backfit consistent with the agency policy and direction on such matters.

SUNSI Review Completed: X ADAMS: Yes No Initials: TB
 Publicly Available Non-Publicly Available Sensitive Non-Sensitive

ADAMS No.: ML12010A090

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