

August 22, 2013

MEMORANDUM TO: Stewart L. Magruder, Branch Chief
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Division of Advanced Reactors and Rulemaking
Office of New Reactors

FROM: Joseph F. Williams, Senior Project Manager
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SUBJECT: SUMMARY OF JULY 23, 2013, MEETING KEY ASSUMPTIONS
FOR THE CLINCH RIVER CONSTRUCTION PERMIT
APPLICATION AND COORDINATION WITH mPOWER DESIGN
CERTIFICATION APPLICATION

On July 23, 2013, representatives of the Tennessee Valley Authority (TVA) and Generation mPower (GmP) met with members of the U.S. Nuclear Regulatory Commission (NRC) staff to discuss TVA's "key assumptions" for its planned construction permit (CP) application for the Clinch River site, and how that application will be coordinated with the planned design certification (DC) application for the mPower small modular reactor. A list of meeting participants is provided in the Enclosure. Materials presented by TVA are available through the Agencywide Documents Access and Management System (ADAMS). The slide presentation can be found at ADAMS accession number ML13205A183. A summary of the meeting is provided below.

In late 2010 and early 2011, the NRC staff and TVA discussed assumptions being made by TVA to support development of the CP application for mPower reactors at the Clinch River site near Oak Ridge, Tennessee. After meetings and an exchange of correspondence, NRC staff indicated that it had no objections to TVA's assumptions. At that time, it was expected that the CP application would be made before the mPower DC application. As described in an April 9, 2013, NRC staff letter¹, that sequence of events has changed. As a result, TVA was requested to review its assumptions and inform the NRC of any changes. TVA responded to the NRC's request on June 14, 2013², providing its assessment of the current state of its assumptions. The NRC's letter also proposed that a meeting be planned to discuss the assumptions, and coordination of the CP and DC applications, leading to the meeting described in this summary.

¹ "Responses to Regulatory Issue Summary 2012-12 and Coordination of U.S. Nuclear Regulatory Commission Review of Planned Construction Permit and Design Certification Applications," April 9, 2013, Agencywide Documents Access and Management System (ADAMS) accession number ML13093A357.

² "Revision to the Key Assumptions Letter for the Possible Licensing and Construction of Small Modular Reactor Modules at the Clinch River Site," June 14, 2013, ADAMS accession number ML13191B262.

TVA and GmP staff emphasized a mutual commitment to a standard design approach, characterizing their plan as “one design/one review.” TVA’s presentation stated that implementation of one of the key assumptions had been affected by the revised CP and DC application sequence, but the underlying purpose of the assumption to use a standard design approach was unchanged.

Presently, GmP expects to submit the mPower DC application in September 2014, while TVA plans the Clinch River CP submittal in June 2015. NRC review of these applications will proceed in parallel. GmP projects that the DC review and associated rulemaking will be complete in 2018. Assuming that NRC completes the CP review and associated mandatory hearing in 3 years, TVA plans to submit an operating license application in 2019. As experience is gained during construction, GmP anticipates that changes to the certified design might be desirable, so an update of the certification may be requested. NRC staff noted that there is a high threshold for certified design changes, which GmP should consider as part of its planning.

TVA and GmP described how they plan to maintain consistency between the CP and DC applications. It is anticipated that revisions to the CP application will lag behind changes made to the DC application as a result of NRC’s review. In addition, there will often be differences in content between the CP and DC applications, as described in the TVA and GmP presentation. These factors will add complexity to the NRC’s review. NRC staff stated that it is expected that there will be a high degree of synergy between the reviews, but noted that distinctions in the submittals and associated products mean that the two reviews will not be identical.

NRC staff also noted that a recent report on new reactor licensing lessons learned³ provides insight on how to improve timeliness and effectiveness of licensing reviews. NRC plans to conduct pre-submittal audits approximately 6 months before planned receipt of submittals to confirm the planned application has sufficient information. NRC staff at the meeting informed TVA and GmP that the agency is revising its guidance for conducting acceptance reviews, including setting a standard that an application is sufficient for the staff to conduct its review as opposed to adequate to begin the review.

Meeting participants discussed projected review schedules. NRC is planning aggressive schedules for reviews, targeting a certification review in as little as 30 months, for example. However, GmP and TVA were cautioned that meeting an aggressive schedule will require high quality applications, with timely responses to NRC requests for additional information. A high level of performance is required across all topics, as inability to successfully address a single critical path issue can lengthen the schedule, even if all other safety and environmental issues are resolved. Meeting participants agreed that it will be beneficial to discuss schedule expectations and development details in a future meeting.

TVA and GmP described how the content of the DC design control document (DCD) will be used to develop the preliminary safety analysis report (PSAR) supporting the CP application. While much of the PSAR will match the DCD, there are criteria being applied that will lead to differences in content. The NRC staff noted that issues can arise where there will be differences in the content of the applications. For example, even if an issue is addressed adequately in the DCD for the purposes of the certification, it is possible that if the PSAR has less information on that topic, additional information may be required to provide adequate

³ “Bipartisan Policy Center Report Recommendations on the New Reactor Licensing Process”, April 18, 2013, ADAMS accession number ML13059A240.

documentation of acceptability for the CP review. The NRC staff also noted that the findings required for issuance of a construction permit (defined in 10 CFR 50.35) are different from the findings for issuing a design certification (defined in 10 CFR 52.54), so even if the application content is the same, there will be some distinctions in the staff's conclusions. However, the staff said that if a topic is addressed acceptably in the DC review, it is expected that it can be found acceptable in the CP review, assuming an adequate level of information is provided in the PSAR.

Typically, the NRC staff's evaluation of a construction permit provides only preliminary approval of plant design features and specification. However, it was noted that 10 CFR 50.35 includes provisions for final NRC approval of design features or specifications if such approval is specifically requested by an applicant. Meeting participants briefly discussed the possibility of such a request for Clinch River. It is expected that considerable information will be available for the mPower design which may make it practical to obtain NRC approval on some aspects of the design for the CP. A number of issues need to be considered beforehand, such as what process would be used to modify or amend a construction permit if it is determined a design change for an approved feature is necessary or desirable. Meeting participants agreed additional discussions to address legal and technical issues will be needed if this course of action is contemplated.

Meeting participants discussed interactions and meetings projected over the next several months. Technical issues for discussion in preparation for the Clinch River CP application include TVA's flooding analysis, groundwater analysis, and geology, seismology, and geotechnical analyses. TVA is also gathering environmental information in anticipation of preparing an Environmental Impact Statement, and expects to discuss these activities with the NRC staff. TVA also indicated interest in readiness review discussions with NRC for the PSAR and environmental report. NRC staff agreed these are important topics, and also suggested that a meeting with a cross section of NRC review staff could be beneficial to inform them of plans for the CP and DC applications. NRC staff also said that it expects to send a reply to TVA's June 14, 2013, letter.

NRC staff asked what information TVA expects to provide to address severe accident mitigation alternatives. TVA replied that it is expected that this issue will be addressed predominately in the operating license application.

NRC staff stated that it is supportive of the TVA and GmP's approach. Additional discussions as outlined above should help identify challenges and solutions in a timely manner before receipt of the applications.

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