Rulemaking Comments

From: John Runkle [jrunkle@pricecreek.com]
Sent: Thursday, June 16, 2011 8:38 AM
To: Rulemaking Comments
Subject: DOCKET ID NRC-2010-0131
Attachments: petition to jaczko 6-16-2011.pdf

June 16, 2011

Attached please find the PETITION TO TERMINATE THE RULEMAKING ON DESIGN CERTIFICATION OF THE AP1000 REACTOR AND DECLARE IT NULL AND VOID by Friends of the Earth, NC WARN and the AP1000 Oversight Group. We are also filing a copy of the petition with each of the Commissioners.

For Petitioners,

John D. Runkle
Attorney at Law
Post Office Box 3793
Chapel Hill, NC 27515
919-942-0600
jrunkle@pricecreek.com

FRIENDS OF THE EARTH -- NC WARN -- AP1000 OVERSIGHT GROUP

June 16, 2011

Gregory B. Jaczko
Chairman
U.S. Nuclear Regulatory Commission
Mail Stop O-16G4
Washington, D.C. 20555-0001

Re: PETITION TO TERMINATE THE RULEMAKING ON DESIGN CERTIFICATION OF THE AP1000 REACTOR AND DECLARE IT NULL AND VOID (DOCKET ID NRC-2010-0131)

Dear Chairman Jaczko:

The Friends of the Earth, the N.C. Waste Awareness and Reduction Network ("NC WARN") and the AP1000 Oversight Group[1] hereby request that you terminate the rulemaking on the design certification of the Westinghouse-Toshiba AP1000 reactor, Docket ID NRC-2010-0131, and declare it **null and void**, in light of:

(a) the subsequent and significant changes in design and design calculations leading to yet another revision of the AP1000 reactor design and operational procedures;

(b) the lack of resolution of unresolved issues relating to reactor design and operational procedures;

(c) the failure to release the unredacted version of the Nonconcurrence by Dr. John Ma[2];

---

[1] The AP1000 Oversight Group consists of the Bellefonte Efficiency and Sustainability Team, Blue Ridge Environmental Defense League, Citizens Allied for Safe Energy, Friends of the Earth, Georgia Women's Action for New Directions, Green Party of Florida, Mothers Against Tennessee River Radiation, NC WARN, Nuclear Information and Resource Service, Nuclear Watch South, SC Chapter - Sierra Club, and Southern Alliance for Clean Energy. These public interest groups represent citizens throughout the Southeast, where the AP1000 reactors have been proposed.

[2] ADAMS No. ML103370648.

(d) the NRC staff's failure to apply "lessons learned" from the Fukushima disaster in its review of the AP1000 reactors; and

(e) the failure to establish a meaningful and transparent review process which allows the public time to review design changes and an ample period in which to comment on the final design and procedures used in reviewing the design.

As you know, more than 13,000 comments were received from the public in the rulemaking docket expressing concerns about the reactors. Technical studies and expert reports were submitted by Friends of the Earth, NC WARN and the AP1000 Oversight Group on substantive issues concerning the fundamental flaws in the AP1000 containment structure, strength of the shield building, emergency cooling systems and high-density spent fuel pools. The Petitioners raised issues about the need to incorporate "lessons learned" from Fukushima into the NRC Staff review of the AP1000 reactors. Additionally, in spite of countless requests to extend the comment period, which should have been *pro forma* in a matter of such importance, these requests were rejected and the NRC decided to prematurely close what should have been a lengthy comment period.

As a result, the present rulemaking should be terminated and declared **null and void** because it is meaningless without the changes in the recently filed Design Control Document ("DCD") Revision 19. Petitioners further expect there to be a DCD Revision 20 with the potential changes in the design and operational procedures that seem certain as result of the lessons learned at Fukushima.

SERIOUS ISSUES REMAIN UNRESOLVED.

The NRC has not fully disclosed its analysis of the AP1000 design's weaknesses and the responses that it receives from Westinghouse-Toshiba. Subsequent to the end of the comment period on the certification rulemaking, May 10, 2011, Westinghouse-Toshiba has been required by the NRC to recalculate and reanalyze, among other major components:

(a) the tensile strength of the shield building;

(b) the design of the passive containment cooling system tank, and

(c) the effects of seismic impacts and peak pressure calculations

In addition, recent NRC inspections have been held on the Design Aircraft Impact Assessment and quality assurance programs, and numerous meetings have been held by the NRC and Westinghouse-Toshiba to discuss potential changes to the reactor design. These fundamental components of the reactor's design and operations should

be incorporated into the DCD Revision 19, although our experts and analysts have not had access to review Revision 19 and its supporting technical supplements.

Significant issues in the review process of the AP1000 still remain unresolved. As noted in the report by Fairewinds Associates for Friends of the Earth, May 10, 2011, the earlier concerns expressed by Dr. Susan Sterrett of the lack of due diligence in analyzing the unexpected consequences of power increases from the AP600 to the AP1000, and explaining calculations and components based on the AP600 design, have never been addressed by Westinghouse-Toshiba nor have they been properly reviewed by the NRC staff.

Dr. Sterrett, formerly a design engineer for Westinghouse-Toshiba, also raised serious concerns about the impact of solar thermal heating that could diminish the effectiveness of the containment and the passive cooling system, concerns that continue to be ignored by NRC.

In his reports submitted in the rulemaking docket, Mr. Arnie Gundersen of Fairewinds Associates points to several flaws in the containment structure at the AP1000 reactors and in calculation errors that might seriously impact public safety and emergency planning. Mr. Gundersen concludes "post accident radiation doses to the public could be several orders of magnitude higher (one hundred to one thousand times higher) than those assumed by Westinghouse in its AP1000 design."

Others have found similar calculation errors which lead to potentially serious release of radiation. Even the heavily redacted version of Dr. John Ma's Nonconcurrence indicates several major problems with the AP1000 shield building, including that it failed physical tests for ductility, and that reviewers at Brookhaven National Laboratory concluded that the computer simulation results contained "numerous confusing, misleading, or erroneous statements."

As such, we continue to find it extremely troublesome that the unredacted version of Dr. John Ma's Nonconcurrence regarding the shield building has not been released, as requested by Rep. Ed Markey earlier this year, and again in our Petition filed in the rulemaking docket on April 6, 2011. The failure to release the unredacted Nonconcurrence remains a major impediment to an open, transparent review process, and we again call on you to release the document immediately, and not make the public wait for the results of our Freedom of Information Act request filed last week.

LESSONS LEARNED FROM JAPAN.

Our comments further looked at the preliminary lessons learned from the disaster at the Fukushima Daiichi reactors, and pointed out that the AP1000 design would need to be reexamined in light of the cascading failures from loss of off-site power (from any number of causes), fires and explosions, and the failure of cooling systems to prevent meltdowns in at least three of the reactors and major damage to spent fuel storage

pools. It is questionable whether there would be adequate circulation of cooling water at an AP1000 reactor if debris from an explosion, Loss of Coolant Accident or other causes were to clog the long-term recirculation cooling systems, a concern noted by the NRC's Advisory Committee on Reactor Safeguards. Emergency planning areas of at least fifty miles in diameter may be required in order to protect public health and safety. It will only be after both the NRC's 90-day review of the consequences of the Fukushima accident and subsequent long-term review that the impacts on the AP1000 design will begin to emerge. What seems certain is that an analysis is required for multiple points of vulnerability.

During and since NRC's 30-day preliminary report on Fukushima, NRC Staff indicated that potentially extensive safety changes across multiple regulatory sections are being considered regarding operating U.S. nuclear power plants. Most knowledgeable industry observers and even licensees such as Duke Energy CEO Jim Rogers have publicly acknowledged the potential for such extensive changes. Because most areas of safety regulation also apply to new reactor designs, it seems arbitrary and capricious for the NRC to ignore that extensive changes are likely for the AP1000 as well.

ARBITRARY PROCESS.

The importance of transparency in the design certification process is heightened by your own statement, as summarized by the NEW YORK TIMES article on May 20, 2011:

> The chairman, Gregory B. Jaczko, said that **computations submitted by Westinghouse, the manufacturer of the new AP1000 reactor, about the building's design appeared to be wrong and "had led to more questions."** He said the company had not used a range of possible temperatures for calculating potential seismic stresses on the shield building in the event of an earthquake, for example.
>
> Mr. Jaczko said the commission was asking Westinghouse not only to fix its calculations **but also to explain why it submitted flawed information in the first place.** Earlier this year the commission staff said it needed additional calculations from Westinghouse to confirm the strength of the AP1000's shield building. The building has not been built; the analysis of its strength and safety is all computer based. [emphasis added].

However, the process has not been transparent as critical issues continue to be evaluated and analyzed, subsequent to the certification rulemaking. To date, there has been no finality to the AP1000 reactor design and operational procedures. It is apparent that Westinghouse-Toshiba has failed to "define a point during the review process at which the licensing-basis information is considered final," i.e., the so-called "freeze-point," OR if it has, the freeze-point remains a fluid concept, changing with the latest DCD revision. This is contrary to Final Interim Staff Guidance on Finalizing

Licensing Basis Information, DC/COL-1SG-011,[3] which requires a completed engineering package prior to Staff review and public comment.

In its presentation to the NRC, "AP1000 Design Control Document -- Containment Pressure Analysis," June 2, 2011, Westinghouse-Toshiba stated "after the freeze point for the AP1000 Design Certification amendment review in 2008, Westinghouse continued to evaluate the containment pressure analysis as part of design finalization efforts." The pressure calculations for the steel containment are of primary importance to determine if the AP1000 reactors can safely operate.

The rulemaking to certify Revision 18 was premature. Even while the comment period on the rulemaking on DCD Revision 18 was open, Westinghouse-Toshiba and the NRC staff were negotiating what was to be included in Revision 19. At the present time, it is unknown how long the staff will review Revision 19 and the other documents related to the testing and calculations and be able to fully resolve outstanding safety issues in the AP1000 design and operating procedures. When that happens, the Commission will then need to vote on whether to accept the new revision for rulemaking. The public must be allowed a full opportunity to review and comment on the final DCD, no matter how many revisions it takes.

Obviously, questions continue to arise regarding both the competence and credibility of the design certification process. How could the design certification process be advanced into the rulemaking phase when both the company and NRC have made such serious omissions and mistakes, involving critical design components and systems, that were admitted by the NRC only after public exposure of the concerns by Dr. Ma, Dr. Sterrett, engineer Gundersen, anonymous whistleblowers[4] and others?

It is apparent Westinghouse-Toshiba and the NRC are making up the design certification process as they go along, rather than establish one based on the need to have full review of a final design. The present schedule is so tentative as to be arbitrary; no one can reasonably expect the issues with the AP1000 reactor design and operating procedures to be resolved in any time in the near future.

The current arbitrary process being followed by the Commission violates the mandates of 10 CFR § 52.54 for the issuance of standard design certification. The Commission

---

[3] ADAMS Nos. ML092890577 and ML092890623, November 2, 2009.

[4] Reports on flaws in AP1000 process from anonymous whistleblowers were sent by NC WARN to the NRC Office of Inspector General on January 27, 2011 and April 4, 2011.

may only issue the certification if after a rulemaking procedure it makes the following determinations:

> (1) The application meets the applicable standards and requirements of the Atomic Energy Act and the Commission's regulations;
> (2) Notifications, if any, to other agencies or bodies have been duly made;
> (3) There is **reasonable assurance** that the standard design conforms with the provisions of the Act, and the Commission's regulations;
> (4) The applicant is technically qualified;
> (5) The proposed inspections, tests, analyses, and acceptance criteria are necessary and sufficient, within the scope of the standard design, to provide reasonable assurance that, if the inspections, tests, and analyses are performed and the acceptance criteria met, the facility has been constructed and will be operated in accordance with the design certification, the provisions of the Act, and the Commission's regulations;
> (6) Issuance of the standard design certification will not be inimical to the common defense and security or to the health and safety of the public;
> (7) The findings required by subpart A of part 51 of this chapter have been made; and
> (8) The applicant has implemented the quality assurance program described or referenced in the safety analysis report. [emphasis added].

Of these, subsections (5) and (6) are especially relevant in that all inspections, tests and analyses are required for review for the rulemaking to be valid and further, the issuance of the design certification is not inimical to public health and safety. Given the lack of a final design and operational procedures, there cannot be a reasonable assurance the standard design conforms with statutes and regulations.

The Commission's challenge is to resolve the issues related to the AP1000 reactors before operating licenses are issued and before there are more and more "new and revised" designs. The Commission is allowing new reactors to be built WITHOUT operating licenses and WITHOUT a final design and operating procedures that are fully reviewed by the NRC staff with all issues resolved to protect public health and safety.

The utilities in the Southeast have already committed significant resources to major components of the reactors and construction activities; construction has already begun in varying degrees at the Plant Vogtle "reference reactor," the V.C. Summer nuclear plant and Lee Nuclear Station. Modules, such as the containment building, are currently being fabricated by the Shaw Modular Systems, based on a potentially misguided assumption the containment structure will not change. Steel plates to be welded into the primary containment have been received at the V.C. Summer site and welding of them may soon begin in spite of failure of Westinghouse-Toshiba to demonstrate that the thin containment steel can survive anticipated peak pressure during an accident. Petitioners have a great concern given the margin of error in calculations presented at the June 2 meeting, and the methodology in reaching those figures. All of this activity is being undertaken without design finalization.

To capriciously certify a design, issue an operating license and then expect problems to be resolved during construction is unfair to ratepayers in the Southeast who have already spent more than one billion dollars on the AP1000 reactors. The expected changes to the reactor design in Revision 19, and the potential Revision 20, could lead to extensive re-engineering during construction, causing delays, cost increases and the risk of project failure.

As a result of the new design calculations and in particular, new designs and operating procedures stemming from Fukushima lessons learned, there will have to be a new rulemaking on the expected new revisions. The rulemaking that closed on May 10, 2011, was only one futile step in a shifting schedule. What is more important, staying on an unrealistic schedule or protecting public health and safety?

The public must be allowed, under NRC regulations, to comment on the actual design to be built, which necessitates that comments must be solicited on DCD Revision 19 and any subsequent designs in a new rulemaking proceeding. The Commission cannot issue a certification until such comments are solicited and reviewed.

CONCLUSION.

Given the above failures to safely resolve significant issues with the AP1000 design and operational procedures, the failure to incorporate inevitable lessons learned from Fukushima into NRC staff review of the AP1000 design and new calculations, analyses and design changes constituting a new DCD revision, the Commission is required to terminate the present rulemaking and declare it **null and void**.

Please notify me of your decision on this timely matter.

Sincerely,

John D. Runkle
Attorney at Law
Post Office Box 3793
Chapel Hill, North Carolina 27515
telephone: 919-942-0600
email address: jrunkle@pricecreek.com

cc. Commissioner Kristine L. Svinicki
Commissioner George Apostolakis
Commissioner William D. Magwood, IV
Commissioner William C. Ostendorff
Annette L. Vietti-Cook, Secretary of the Commission
Stephen Burns, General Counsel
Representative Edward Markey