November 7, 2007

Mr. Timothy G. Mitchell
Vice President, Operations
Arkansas Nuclear One
Entergy Operations, Inc.
1448 S. R. 333
Russellville, AR 72802

SUBJECT: ARKANSAS NUCLEAR ONE, UNIT NO. 2 - REQUEST FOR ADDITIONAL INFORMATION REGARDING LICENSE AMENDMENT REQUEST TO REVISE TECHNICAL SPECIFICATION 3.1.3.4, "CEA DROP TIME" (TAC NO. MD6627)

Dear Mr. Mitchell:

By letter dated August 30, 2007, Entergy Operations, Inc. proposed to revise Technical Specification (TS) 3.1.3.4, CEA [Control Element Assembly] Drop Time for Arkansas Nuclear One, Unit 2. The TS change proposed to revise the limit on the drop time for an individual CEA.

The U.S. Nuclear Regulatory Commission staff has reviewed the request, and determined that we require additional information to complete our review. A request for additional information is enclosed. This request was discussed with David Bice of your staff on October 29, 2007, and it was agreed that a response would be provided within 60 days of receipt of this letter.

If you or your staff have any questions concerning the resolution of this matter, please contact me at (301) 415-1445.

Sincerely,

/RA/

Alan B. Wang, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-368

Enclosure: Request for Additional Information

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

ARKANSAS NUCLEAR ONE, UNIT 2

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-368

OPERATING LICENSE NO. NPF-6

By letter dated August 30, 2007, Entergy Operations, Inc. proposed to revise Technical Specification (TS) 3.1.3.4, CEA [Control Element Assembly] Drop Time for Arkansas Nuclear One, Unit 2 (ANO-2). The TS change proposed to revise the limit on the drop time for an individual CEA. During a conference call on October 29, 2007, the U.S. Nuclear Regulatory Commission (NRC) staff discussed our concerns with the licensee regarding the licensees analyses to support its statement that the "…average CEA drop time concept has been verified …" Based on the conference call, the NRC has determined that additional information is needed to complete our review.

As the submittal pointed out, the two major factors in the CEA drop time are core ΔP (change in differential pressure) and the weight of the extension shafts. It is assumed that other factors do not change, i.e., fuel management and control element drive mechanism circuits. In your submittal you state that "… While the slowest individual CEA is expected to fall up to 0.2 seconds slower and the distance between the fastest and slowest CEAs is increasing, the average CEA drop time concept has been re-verified for a NGF [Next Generation Fuel] core…" The NRC staff has the following questions regarding this conclusion:

1. If all other factors are the same and the slowest CEA slows by 0.2 seconds, the NRC staff believes that the average drop time should be slower by 0.2 seconds. Entergy has stated that the average stays unchanged. Please justify this conclusion.

2. If the slowest CEA drop time gets slower and the distance (slowest to fastest) increases, how does the average stay constant?

3. In the submittal, Entergy indicates that the full NGF core to be the limiting case. Please discuss the transition core (ANO-2 Cycle 20) expected drop times especially if some NGF and Combustion Engineering (CE) assemblies are not in uniformly mixed regions.

4. Entergy states that an evaluation was performed for the CE and the NGF cores that added the difference of the calculated insertion time to the worst average drop time. The result showed that there is sufficient margin compared to the limit of 3.2 seconds. With regard to this conclusion:

   (a) How did you perform those calculations and what were the numerical results?

(b) How are the calculations relevant for time differences of 0.2 seconds?

(c) What were the criteria of sufficiency?

(d) Did the CEA drop distribution that produced less fission energy include the 0.2 second delay in the slowest CEA drop?

5. The 0.2 second change represents almost the entire spread in the drop distribution for both fuels, i.e., 3.2x.079 = 0.25 seconds. Therefore, the proposed change appears to be significant. Why does Entergy believe it is not?

6. Has Entergy accounted for the case in Cycle 20 when the new fuel will be at its peak reactivity? (That is about 10 to 14 megawatt days/metric ton of burn up.)

cc:
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