FPL

September 13, 2006
L-2006-220

Mr. Ivan Kingsley
Sonalysts, Inc.
215 Parkway North
Waterford, CT 06385

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
Generic Fundamentals Examination Comments

As stated in the NRC's letter dated August 28, 2006, FPL is allowed the opportunity to make comments on the written GFE exam that was administered at Turkey Point on September 6, 2006.

This letter documents that Florida Power and Light Co. is submitting comments for GFE Questions #21 and # 24 for your evaluation and resolution before final exam grading. Specifically, FPL is requesting NRC to consider changing the answers to GFE Questions #21 and #24. The basis for this request is presented in Attachments 1 and 2, respectively.

Should you have any questions, please contact Gregory Laughlin at (305) 246-6274.

Very truly yours,

Terry Jones

Terry Jones
Vice President
Turkey Point Nuclear Plant

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cc: Regional Administrator, Region II
Chief, Operator Licensing and Human Performance Branch, Region II, USNRC
Chief Examiner, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant
Document Control Desk, USNRC, Washington, D.C.

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ATTACHMENT 1

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QUESTION # 21 FORM A

Question 21 states:

"A main generator is about to be connected to an infinite power grid. Closing the generator output breaker with the generator voltage slightly lower than grid voltage and with generator frequency slightly higher than grid frequency with initially result in: (Assume no generator breaker protective trip occurs.)

A. The generator picking up reactive load from the grid.

B. The generator attaining a leading power factor.

C. The generator shedding real load to the grid

D. Motoring of the generator."

Discussion and Basis for Request

Per the exam answer key the correct answer is B. "The generator attaining a leading power factor." Although, FPL agrees that answer B is correct, FPL believes that exam answer A (as stated above) is also correct in that the generator does pick up reactive load and this distracter does not differentiate if that load is inductive or capacitive in nature.

FPL Request

FPL requests that both answers A and B to Question #21 be considered correct.

ATTACHMENT 2

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QUESTION # 24 FORM A

Nuclear reactors A and B are identical except that reactor A is operating at beginning of a fuel cycle (BOC) and reactor B is operating near the end of a fuel cycle (EOC). Both reactors are operating at 100% thermal power with all control rods fully withdrawn.

Which reactor would have the lower K_{eff} five minutes after a reactor trip?

Discussion and Basis for Request

The shutdown margin for a core at BOC is larger than the shutdown margin at EOC. But in both cases, the amount of reactivity inserted due to a reactor trip is sufficient to put both reactors on a -1/3 dpm start up rate. The question stipulates the time in question is five minutes after a reactor trip. At 5 minutes after a trip, the decay of the delayed neutron precursors has a significant effect on the neutron population. By the definition of K_{eff}, the reactor with a lower K_{eff} will have a lower neutron population for the given time period. The differences in shutdown margins will affect the equilibrium neutron level present for a given source neutron strength.

As the core ages, the depletion of U-235 and the subsequent buildup of Pu-239 results in a smaller delayed neutron fraction at EOC than at BOC.

Based on this information, the correct answer is reactor B will have a lower neutron population (K_{eff}) at time equal 5 minutes due to reactor B having a smaller delayed neutron fraction than reactor A. The reason for this smaller delayed neutron fraction is due to the shift of power production from uranium towards plutonium as the core ages.

Evaluation of selections provided

Selection A: "Reactor A, because the power coefficient is less negative near the BOC"

This answer is incorrect because reactor B will have the lower neutron population at 5 minutes.

Selection B: "Reactor A, because the concentration of U-235 in the fuel rods in higher at BOC"

This answer is incorrect because reactor B will have the lower neutron population at 5 minutes.

Selection C: "Reactor B, because the power coefficient is more negative near EOC"

While both terms of this statement are true, the fact the power coefficient is more negative near EOC is not a basis for why reactor B will have a lower neutron population at 5 minutes. This statement would account for reactor B having a lower equilibrium neutron population for a given source strength. So, this selection is not a viable answer for this question.

Attachment 2

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Selection D: "Reactor B, because the concentration of U-235 in the fuel rods in lower near the EOC."

This selection is correct but not entirely complete, because it neglects to address the build-up of plutonium. However, selection D is the "best" answer.

The above approach is consistent with the following question, which is currently in the approved NRC GFE PWR exam bank.

Topic: 192003 Knowledge: K1.07 [3.0/3.0] QID: P1649 (B1649)

Two nuclear reactors are identical in every way except that reactor A is at the end of core life and reactor B is at the beginning of core life. Both reactors are operating at 100% power when a reactor trip occurs at the same time on each reactor.

If the reactor systems for each reactor respond identically to the trip and no operator action is taken, a power level of 10^{-5}% will be reached first by reactor **[A]** because it has a **[smaller]** delayed neutron fraction.

FPL Request

FPL requests that answer D to Question #24 be considered as the correct answer.

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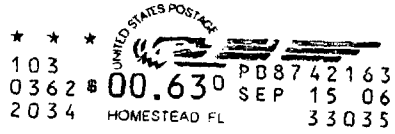

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