FPL Energy
Seabrook Station

FPL Energy Seabrook Station
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June 8, 2006
SBK-L-06131
Docket No. 50-443

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Seabrook Station
Response to Request for Additional Information Regarding
Emergency License Amendment Request 06-07
"Containment Enclosure Emergency Air
Cleanup System Allowed Outage Time One Time Change"

Reference: FPL Energy Seabrook, LLC letter SBK-L-06127 to USNRC, "Emergency License Amendment Request 06-07, Containment Enclosure Emergency Air Cleanup System Allowed Outage Time One Time Change," dated June 7, 2006.

The FPL Energy Seabrook, LLC response to the Nuclear Regulatory Commission request for additional information regarding License Amendment Request 06-07 is enclosed.

Should you have any questions concerning this response, please contact Mr. James Peschel, Regulatory Programs Manager, at (603) 773-7194.

Very truly yours,

FPL Energy Seabrook, LLC

Michael Kiley for Gene St. Pierre

Gene St. Pierre
Site Vice President

A001

cc: S. J. Collins, NRC Region I Administrator
G. E. Miller, NRC Project Manager
G. T. Dentel, NRC Resident Inspector

Mr. Bruce Cheney, ENP, Director, Division of Emergency Services
NH Department of Safety,
Division of Emergency Services, Communications and Management
Bureau of Emergency Management
33 Hazen Drive
Concord, NH 03305

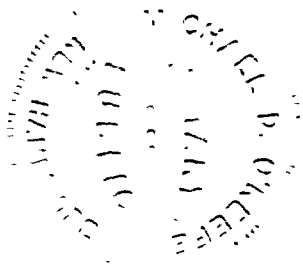
Oath and Affirmation

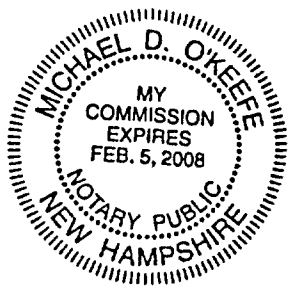
I, Michael Kiley, Station Director of FPL Energy Seabrook, LLC hereby affirm that the information and statements contained within this correspondence are based on facts and circumstances which are true and accurate to the best of my knowledge and belief.

Sworn and Subscribed
Before me this
8 day of June, 2006

Notary Public

Michael Kiley
Station Director





Enclosure to SBK-L-06131

Based on the FPL Energy Seabrook, LLC submittal dated June 7, 2006, the NRC requested the following additional information on June 8, 2006:

Request 1

Section 5.0 page 7 states that the probabilistic risk assessment (PRA) model is a full scope model. This statement implies to the staff that all initiating events, including internal fires and floods, are included in the model. However, page 9 states that fires and internal flooding are not included. Regulatory Position 2.3.2 of Regulatory Guide 1.177 states "For changes to TS requirements defined for the power operation mode, the scope of analysis should include internal fires and flooding if appropriate (e.g., when the subject TS equipment is located in areas identified as vulnerable to fires and flood)." The licensee is requested to provide a basis as to why internal fires and flooding risk is not relevant to the proposed TS change, or to provide applicable quantitative or qualitative analyses of these risks during the proposed extension of the limiting condition of operation 3.6.5.1, including any compensatory measures which may be necessary to reduce the likelihood of such events. Specifically, the staff is concerned about fires or floods in areas of the plant which could disable the remaining operable EAHF, either directly impacting the fan, directly interrupting normal AC power, or causing a loss of offsite power and failure of the diesel generator supporting the fan.

Response

The 14-day AOT Incremental Core Damage Probability (ICCDP) for the Average Maintenance Model, Truncation of 1E-14 for initiators, and including the fire and internal flooding initiators is 1.43E-06.

Request 2

Section 5.0 page 9 identifies that the containment enclosure emergency air cleanup system is modeled in the PRA, and the success criteria of the system is for one train to operate for the 24-hour mission time. The submittal does not address the severe accident mitigation functions provided by the system in the PRA model, and the failure effects if the system is unavailable. The licensee has identified in Section 3.0 page 4 two specific design functions of the system: 1) control of radiological releases following a loss of coolant accident, and 2) area and equipment cooling for selected safety-related components. The licensee is requested to confirm how the PRA models the EAHFs, by providing a comparison of the design basis functions with the PRA modeled functions, and justify that any differences would not impact the incremental conditional core damage probability (ICCDP) and incremental conditional large early release probability (CLERP) results.

Response

The Enclosure Air Handling (EAH) fault tree models the Emergency Core Cooling System (ECCS) equipment cooling function. This function provides cooling for all ECCS pumps: Charging, Safety Injection, Residual Heat Removal (RHR), Containment Spray. This cooling is required for all modes of operation including the RHR decay heat removal function. Failure of the EAH system is modeled to immediately fail the cooling support function for all of the ECCS pumps.

The radiological release control function of EAH is not credited in the PRA model. ICLERP is dominated by containment bypass events where the filtration and draw-down function would not participate.

This modeling may be somewhat conservative for the high head injection (i.e. charging) pumps, but provides a best estimate calculation for ICCDP and ICLERP.

With the unavailability of both containment EAH equipment vault exhaust fans EAH-FN-31A and EAH-FN-31B, exhaust airflow from the equipment vaults is greatly reduced. However, a supply of cooled air to the vaults is still supplied by the operating Containment Enclosure Cooling Unit (EAH-AC-2A or 2B) supply fan, EAH-FN-5A or 5B. The air supplied to the equipment vaults results in establishing a differential pressure across the exhaust ducting and exhaust fans EAH-FN-31A and B. This results in some return airflow back to the containment enclosure ventilation area where the cooling units and supply fans are located. The ability to achieve safe shutdown conditions is maintained with both fans inoperable for both normal and accident conditions.

Contingencies have been developed to increase the amount of cooling airflow that would be provided to the equipment vaults if necessary. These contingency plans will be included in an Operations Standing Order. Without either exhaust fan operating, it has been estimated that the equipment vault area temperatures could approach 165°F. A review of equipment Environmental Qualification temperatures has determined that the lowest qualified temperature of the components located in the equipment vaults is 250°F. Therefore, these contingencies may not be needed to maintain equipment temperatures below their qualified limits. In our Engineering judgement, these contingency plans enhance the ability to achieve safe shutdown conditions for both normal and accident conditions.

Request 3

Section 5.0 page 10 provides the quantitative results of the internal events ICCDP analysis, and compares the calculated risk of completing repairs while operating over a 14-day period (1.31E-6 ICCDP), compared to the risk of shutting down to conduct repairs (1.5E-6 ICCDP). The staff is unable to confirm the validity of the analyses. Specifically, the licensee identified that the 14-day ICCDP for on-line repair is 1.31E-6, which represents the delta risk above the nominal full power risk over 14 days. The staff infers that the seven day ICCDP would be 50% of this value, or approximately 6.5E-7. The licensee states (page 10) that if it were to shut down the plant to repair the inoperable EAHF, an additional ICCDP risk of 2.0E-7 to 3.0E-7 would be incurred for shutting down and returning to power. The staff calculates that the total risk of operating for 7 days, then shutting down to repair the EAHF and return the unit to service, would involve 8.5E-7 to 9.5E-7 ICCDP, which is inconsistent with the licensee's estimate of 1.5E-6. The licensee is requested to provide a more detailed basis for its ICCDP value of 1.5E-6 for shutting down to make repairs.

Response

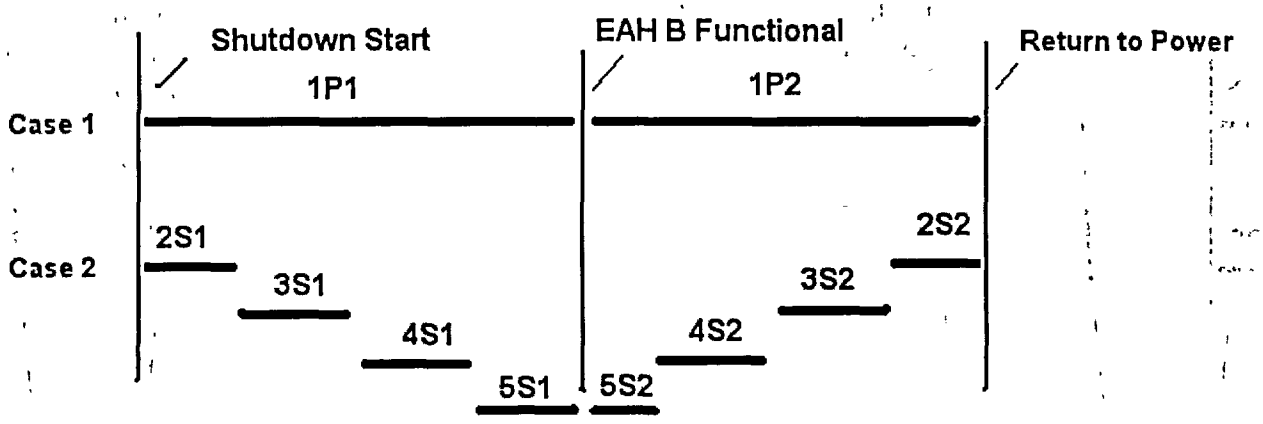
The integrated, full scope, all modes PRA model was used to calculate the incremental risk assuming the plant stays at power for the 7 day AOT, then shuts down to Mode 5 to repair EAH-FN-31B. The current schedule as of 6/7/06 1100 was used to develop the duration in the various shutdown modes. Note that EAH is required to provide equipment cooling to the RHR pumps in the shutdown cooling mode such that the calculation reflects the impact of EAH-FN-31B out of service throughout Mode 5, in accordance with the schedule.

The shutdown risk evaluation is as follows:

SHUTDOWN RISK EVALUATION

Additional risk is incurred by transitioning through the shutdown modes. An average maintenance model was used to generate the CDF numbers below. The numbers generated include all external and internal events. The truncation level for this analysis was set at 1.0E-14.

Two cases were identified. Case 1 is the case for staying at power to repair EAH fan 31B. Case 2 is the case that quantifies the incremental core damage probability for shutting down to repair EAH fan 31B. The starting point (Shutdown Start) for the analysis uses the end of the current action statement. The return to full power was used as the end point for the analysis. Both cases use the same total time. A graphic of the individual configurations quantified is shown below



Case 1: Stay at power to replace EAH Fan 31B

At Power Configurations	EAH Non-Functional	Mode	Seabrook Plant Operating States (POS)	Conditional CDF (a)	Hours (b)	ICCDP Zero Base = (a) X (b)/8760
1P1	TRUE	1	1A1	6.98E-05	55	4.38E-07
1P2	FALSE	1	1A1	3.06E-05	78	2.72E-07
				Total	133	**7.1E-07**

Case 2: Shutdown to replace EAH Fan 31B

Shutdown Configurations	EAH Non-Functional	Mode	Seabrook Plant Operating States (POS)	Conditional CDF (a)	Hours (b)	ICCDP Zero Base = (a) X (b)/8760
2S1	TRUE	1,2	1BA, 2BM	3.92E-04	8	3.58E-07
3S1	TRUE	3	3C1,3C2	1.26E-04	6	8.63E-08
4S1	TRUE	4	4D1	5.18E-04	6	3.55E-07
5S1	TRUE	5	5D2	1.45E-05	35	5.79E-08
5S2	FALSE	5	5K1	1.16E-05	14	1.85E-08
4S2	FALSE	4	4K2	4.50E-04	9	4.62E-07
3S2	FALSE	3	3L1,3L2	4.71E-05	26	1.40E-07
2S2	FALSE	1,2	2MM,1MA	7.04E-05	29	2.33E-07
				Total	133	**1.71E-06**

These durations are based on a best estimate schedule. The relative differences would be the same, even if the schedule included the full seven-day AOT extension

Conclusion: The best option, from an overall risk perspective, is to remain at power and repair the EAH fan. Using the same overall duration, the ICCDP for the shutdown case is a factor of 2.4 higher than the case for staying at power to repair the fan. Both cases use the same start and endpoints, so that the numeric results can be directly compared.

In addition, the plant is optimized to operate at full power, all systems are in their normal alignments, all automatic functions are available, and the maintenance related configuration can be closely controlled in accordance with 10CFR50.65 a(4). Shutting the plant down requires significant human actions and realigning of systems while the plant maneuvers through the various modes, both while shutting down and starting up. The function of the EAH system is still required for the residual heat removal pumps in Mode 5, so risk is still elevated above a normal shutdown until the EAH fan is returned to service.

Request 4 (From Conference Call)

Your submittal regarding PRA Quality concludes that 5 of the 12 open significant Peer Review comments would not be expected to impact results. Would any of the other 7 Level 2 related comments potentially impact the ICCDP or ICLERP results?

Response

The remaining 7 Level 2 related significant Peer Review comments would not be expected to impact the results for an AOT since they equally impact the base case and the AOT change case. A number of the Level 2 comments were related to updating the Level 2 analysis to the latest version of the MAAP code, and to more explicit documentation of various results. ICLERP results for Seabrook Station are dominated by Containment bypass events, so would not be significantly impacted by containment performance. Therefore, the open items do not adversely affect the License Amendment Request (LAR) or the response to this Request for Additional Information (RAI).