FPL Energy
Seabrook Station

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Docket No. 50-443
SBK-L-06243

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

Seabrook Station
Facility Operating License NPF-86

Response to Request for Additional Information Regarding
License Amendment Request 06-03
"Application for Amendment to the Technical Specifications for Miscellaneous Changes"

References:

1. FPL Energy Seabrook, LLC letter SBK-L-06059, License Amendment Request 06-03, Application for Amendment to the Technical Specifications for Miscellaneous Changes, August 7, 2006.

2. NRC letter to FPL Energy Seabrook, LLC, Request for Additional Information Regarding License Amendment Request for Miscellaneous Technical Specification Changes (TAC NO. MD 2791), November 22, 2006.

By letter dated August 7, 2006, (Reference 1) FPL Energy Seabrook, LLC submitted License Amendment Request (LAR) 06-03, Application for Amendment to the Technical Specifications for Miscellaneous Changes. In Reference 2, the NRC requested additional information in order to complete its evaluation of the LAR.

Enclosed in Attachment 1 is the FPL Energy Seabrook, LLC response to the request for information. Attachment 2 contains a revised markup of Technical Specification 3.7.4, Service Water System/Ultimate Heat Sink as modified in response to the request for additional information. A revised No Significant Hazards Consideration Determination (NSHCD) is included in Attachment 3. The changes do not alter the conclusion discussed in Reference 1 that the proposed changes do not involve a significant hazard consideration pursuant to 10 CFR 50.92. A copy of this letter has been forwarded to the New Hampshire State Liaison Officer

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pursuant to 10 CFR 50.91(b). The Station Operation Review Committee and the Company Nuclear Review Board have reviewed the proposed change to Technical Specification 3.7.4, Service Water System/Ultimate Heat Sink and the revised NSHCD.

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

Very truly yours,

FPL Energy Seabrook, LLC

Gene St. Pierre
Site Vice President

Enclosure

cc: S. J. Collins, NRC Region I Administrator
G. E. Miller, NRC Project Manager, Project Directorate I-2
G. T. Dentel, NRC Resident Inspector

Mr. Christopher M. Pope, Director Homeland Security and Emergency Management
New Hampshire Department of Safety
Division of Homeland Security and Emergency Management
Bureau of Emergency Management
33 Hazen Drive
Concord, NH 03305

OATH AND AFFIRMATION

I, Gene St. Pierre, Site Vice President of FPL Energy Seabrook, LLC, hereby affirm that the information and statements contained within this response to the request for additional information to License Amendment Request 06-03 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

22nd day of January, 2007

Gene St. Pierre
Site Vice President

Shirley Sweeney
Notary Public

Attachment 1

FPL Energy Seabrook Response to Request for Additional Information

Attachment 1

Response to Request for Additional Information Regarding
License Amendment Request 06-03
"Application for Amendment to the Technical Specifications for Miscellaneous Changes"

RAI #1

1. TS Table 3.3-9 lists components requiring operable remote safe shutdown controls. The table currently includes the turbine driven emergency feedwater (TDEFW) pump steam supply valves MS-V127 and MS-V128. These valves were also relied upon for addressing Title 10 of the *Code of Federal Regulations* (CFR50), Appendix A, General Design Criteria (GDC) 57. FPLE stated that a design change was implemented in 1991 to replace the pneumatic actuators on these valves with gear operated manual actuators. The design change also upgraded the downstream branch header remote/manual isolation valves MS-V393 and MS-V394 for use as the containment isolation valves.

   a. Among other things, GDC 57 states that the containment isolation valve be located as close to the containment as practical, and valves MS-V393 and MS-V394 are located downstream of valves MS-V127 and MS-V128. Please elaborate on the 1991 plant design changes that were made and justify how they continue to address this particular provision of GDC 57.

   b. Explain what impact the 1991 plant design change has on the capability to mitigate a high energy line break of the TDEFW pump steam supply line, taking into consideration single active failure considerations.

Response

a. UFSAR Section 6.2.4.2f states:

   "All isolation valves outside the containment are located as close to the containment as practical. All exterior isolation valves are located within 15 feet of containment, except for the main steam, feedwater, and combustible gas control isolation valves. The main steam isolation valves are located within 75 feet of penetrations X-1 (westside) and X-2 (eastside), and 85 feet away from penetrations X-4 (westside) and X-3 (eastside)."

   and

   "The distances of the main steam isolation valves from the containment mentioned above are required to accommodate the main steam safety valves and power-operated relief valves."

The containment isolation function for valves 1-MS-V-127 and V-128 was deleted and this function assigned to valves 1-MS-V-393 and V-394 by Seabrook design change 90DCR032. This change was initiated to address the unreliability of valves 1-MS-V-127 and V-128 and the unavailability of spare parts for the actuators. The containment isolation boundary was relocated to the downstream valves, encompassing approximately 23 feet of piping, which was upgraded from ANS Safety Class 3 to ANS Safety Class 2 as part of the design change. The relocation of the containment isolation boundary results in a total distance from the containment of approximately 62 feet (MS-V-393) and 64 feet (MS-V-394), which continues to conform to the 75 foot and 85-foot distances cited for the main steam isolation valves, which function to isolate the same source.

Therefore, although the isolation location for the branch line containment isolation valves has been relocated downstream in the piping, these valves remain closer to the containment boundary than the previously reviewed main steam isolation valves.

b. UFSAR Appendix 3A provides the following information:

The main steam and feedwater lines are the largest high energy lines located outside Containment, and a rupture in these lines could, therefore, result in more severe environmental conditions locally than any other line outside Containment. The portions of the main steam and feedwater lines in the containment penetration area between the first pipe whip restraint inside Containment and the first pipe whip restraint outside Containment meet all of the requirements of paragraph B.1.b of MEB 3-1, and are excluded from postulation of circumferential ruptures in this area.

In accordance with Branch Technical Position ASB 3-1, paragraph B1.a.(1), longitudinal breaks of the main steam and feedwater lines have been postulated to occur in the penetration areas. A break area of 1.0 square feet has been postulated for this study.

Outside the Containment in the annulus between the containment structure and the containment enclosure, the main steam and feedwater lines are enclosed in guard pipes, composed of the containment penetration sleeves, which prevent pressurization of the Enclosure Building.

The containment penetrations have been designed to withstand without failure the maximum combination of forces and moments that can be transmitted by the attached piping, so that containment boundary integrity would be assured even without the use of pipe rupture restraints. The pipe rupture restraints are designed to prevent pipe rupture forces and moments from being applied to the containment penetrations and the isolation valves and to limit piping stresses to less than the values required by paragraph B.1.b of MEB 3-1, so that pipe ruptures between the inner and outer pipe whip restraints need not be postulated.

In the main steam and feedwater pipe chases outside Containment, a maximum temperature of 450°F and pressure of 4.8 psig can be attained as a result of the postulated 1.0 square foot rupture. The P-T effects on essential structures and components have been addressed as follows:

a. The main steam and feed water valve operators are designed to close the valves in the event of loss of instrument air. In addition, the operators are qualified to operate with the 4.8 psig overpressure.

   Direct impingement of steam from a one square foot rupture of the adjacent line would result in mechanical forces and torsion which would not cause failure of the valve body or bonnet, or the attached piping. Possible failure of valve operator solenoids, limit or position switches, or instrument, power, and control cables would not activate the valve because redundant solenoids, switches and instrument, power, and control cables are located on the far side of the valve and are protected by the valve body and operator from direct impingement from the postulated break. A failure of one steam or feedwater line would therefore not result in the loss of function of the other loop.

b. One emergency feedwater steam supply line is located in each pipe chase, so that a single failure in one chase would not affect the steam supply from the other chase.

c. A series of seven "blow-out" panels have been incorporated in the design of the upper walls near the roof line of each pipe chase. The panels are designed to blow out at a differential pressure of 0.5 psi to relieve internal pressure following a large high energy line break.

d. The seismic Category I structure housing the main steam and feedwater pipe chases was analyzed for the temperature and pressure resulting from the 1.0 square foot rupture of the main steam line. It was concluded that the structure can withstand the 450°F and 4.8 psig conditions, concurrent with SSE, without failure.

In the evaluation of temperature response following a Main Steam Line Break outside Containment, a break spectrum initiated from 100% and 70% of maximum analyzed power has been analyzed at the conditions associated with a core power level of 3659 MWt. The break sizes analyzed are 1.0, 0.9, 0.7, 0.6, 0.5, 0.4, 0.3, 0.2, and 0.1 sq. ft. Each main steamline break outside Containment is represented as a non-mechanistic split piping rupture. Prior to steamline isolation, the steam flow is supplied from all four steam generators, through the postulated break area represented by the spectrum noted. After steamline isolation, the steam release through the break is supplied by a single steam generator.

UFSAR Section 3.11.2.1 states that, based on a detailed review of the MS&FW pipe chase design, Seabrook Station can achieve a safe shutdown under any postulated superheated temperature profile due to a MSLB. This is achieved principally by the separation criteria conceptually designed into these building areas. Seabrook has two

separated MS&FW pipe chase areas exiting the east and west sides of containment. Each pipe chase houses the feedwater and main steam piping for two of the four steam generators. The piping is designed under the concepts of "superpipe" (i.e., low stress allowables and upgraded ISI program). Since the requirement is for a minimum of two steam generators for cooldown, the plant can safely shut down under the postulated MSLB in the MS&FW pipe chase designed with "superpipe," using the alternate pipe chase.

The MS&FW pipe chase houses the MS&FW containment isolation valves, Main Steam Safety valves, atmospheric dump valves and MS supply valves to the emergency feed pump turbine. This equipment has been Environmentally Qualified to perform its design basis function during a postulated MSLB outside containment.

Any potential break of the 4" steam supply piping to the steam driven emergency feedwater pump is bounded by this 1.0 square foot area. Therefore, the relocation of the containment isolation valves approximately 23' further down the pipe does not have an adverse affect on the capability to mitigate a high energy line break of the turbine driven emergency feedwater pump steam supply line.

RAI #2

2. Seabrook TS 3.7.4 specifies the actions that are required for an inoperable service water system/ultimate heat sink. Action e. requires the portable tower makeup pump system to be restored to its required condition within 72 hours if the system is not stored in its operational readiness state. Action e. also contains a requirement to notify the NRC within one hour in accordance with 10 CFR 50.72 if the portable tower makeup pump system is not restored to its design operational readiness state within 72 hours. The LAR proposes to eliminate the 1 hour reporting requirement because the condition does not meet the immediate reporting requirements of 10 CFR 50.72; and the LAR also proposes a requirement to implement actions, within the next 96 hours, that ensure an adequate supply of makeup water for the service water cooling tower for a minimum of 30 days.

   TS 3.7.4 for Seabrook differs from the Standard Technical Specifications (STS) in that it allows continued plant operation when the UHS is inoperable due to insufficient water inventory; whereas the STS requires that the plant enter a shutdown action requirement. Because the cooling tower basis for Seabrook is not large enough to store 30 days worth of cooling water, the NRC staff allowed the makeup capability of a portable cooling tower makeup pump system to be credited. However, means other than the portable cooling tower makeup pump system for ensuring the required 30 day cooling water inventory for Seabrook have not been approved by the NRC. Therefore, if the portable cooling tower makeup pump system should become inoperable for more than the allowed outage time, prompt NRC notification and oversight would be necessary to assure that: (1) the situation is being adequately resolved, and (b) alternate means that are credited in the interim for ensuring cooling tower makeup capability are acceptable to the NRC staff.

Although the current 1-hour reporting requirements specified by 10 CFR 50.72 may no longer be applicable to the condition referred to in TS 3.7.4, the considerations discussed above continue to be valid. Therefore, to justify that the proposed changes are still considered to be appropriate, please address the considerations referred to above.

Response

Proposed TS 3.7.4.e. is revised as follows to incorporate a prompt NRC notification should the portable cooling tower makeup pump system become inoperable for more than the allowed outage time.

e. *With the portable tower makeup pump system not stored in its design operational readiness state, restore the portable tower makeup pump system to its required condition within 72 hours, or continue operation and notify the NRC within the following 8 hours of actions to ensure an adequate supply of makeup water for the service water cooling tower for a minimum of 30 days.*

Attachment 2

Revised Markups of Technical Specification Page

3/4.7.4 SERVICE WATER SYSTEM/ULTIMATE HEAT SINK

LIMITING CONDITION FOR OPERATION

3.7.4 The Service Water System shall be OPERABLE with:

a. An OPERABLE service water pumphouse and two service water loops with one OPERABLE service water pump in each loop,

b. An OPERABLE mechanical draft cooling tower and two cooling tower service water loops with one OPERABLE cooling tower service water pump in each loop, and

c. A portable cooling tower makeup system stored in its design operational readiness state.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

a. With one service water loop inoperable, return the loop to OPERABLE status within 72 hours, or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

b. With one cooling tower service water loop or one cooling tower cell inoperable, return the affected loop or cell to OPERABLE status within 7 days, or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With two cooling tower service water loops or the mechanical draft cooling tower inoperable, return at least one loop and the mechanical draft cooling tower to OPERABLE status within 72 hours, or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

d. With two loops (except as described in c) or the service water pumphouse inoperable, return at least one of the affected loops and the service water pumphouse to OPERABLE status within 24 hours, or be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

e. With the portable tower makeup pump system not stored in its design ~~operational readiness~~ state, restore the portable tower makeup pump system to its required condition within 72 hours, or continue operation and notify the NRC within the following 1 hour ~~in accordance with the requirements of 10 CFR 50.72~~ of actions to ensure an adequate supply of makeup water for the service water cooling tower for a minimum of 30 days.

Attachment 3

Revised No Significant Hazards Determination

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

1. The proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The probability or consequences of accidents previously evaluated in the UFSAR are unaffected by this proposed change. There is no change to any equipment response or accident mitigation scenario, and this change results in no additional challenges to fission product barrier integrity. The proposed change does not alter the design, configuration, operation, or function of any plant system, structure, or component. As a result, the outcomes of previously evaluated accidents are unaffected.

   This change limits availability of the charging pumps to one pump when in Mode 4 with the temperature of any RCS cold leg less than or equal to 290°F, in Mode 5, and in Mode 6 with the reactor vessel head on and the vessel head closure bolts not fully detensioned. Nonetheless, imposing this limitation does not alter the configuration or operation of the charging pumps from those specified in current administrative controls. Technical Specification (TS) 3/4.5.3, ECCS Subsystems - Tavg Less Than 350°F, presently stipulates that only one charging pump is maintained operable in Mode 4. Similarly, Technical Requirement 26, Boration Systems, requires that all but one operable charging pump be demonstrated inoperable in Modes 4, 5, and 6. Also, the Seabrook Station Updated Final Safety Analysis Report (UFSAR) describes the configuration of the charging pumps during shutdown conditions: Prior to decreasing RCS temperature below 350°F, the safety injection pumps and the non-operating charging pumps are made inoperable. Consequently, the change does not alter the configuration or operation of the charging pumps; rather, it only relocates an existing limitation to the technical specifications.

   This proposed change also revises the minimum water level in the service water system pump house required for operability of the service water system. The value currently specified in the technical specifications is in error and will be corrected with this change. Increasing the minimum required water level from five feet to 25.1 feet does not alter the configuration or operation of the service water system. Following discovery of this discrepancy, administrative controls established a minimum water level of approximately 25 feet. The service water pump house level is determined by the ocean tides and is normally greater than 26 feet. Therefore, this administrative change has no affect on the actual operation or configuration of the service water system.

   The proposed revision to TS Table 3.3-9, Remote Shutdown System, eliminates valves MS-V127 and MS-V128 from the table. Located in the main steam supply line to the turbine-driven emergency feedwater (TDEFW) pump, these are locked open, manually operated, valves. Supplement 4 of NUREG 0896, Safety Evaluation

Report, discusses the modification that changed MS-V127 and MS-V128 to normally open valves and added new automatic isolation valves in the TDEFW pump steam supply line. A subsequent design change in 1991 modified MS-V127 and MS-V128 by replacing the valves' pneumatic actuators with gear-operated manual operators. As a result, the elimination of MS-V127 and MS-V128 from TS Table 3.3-9 does not alter the design, configuration, operation, or function of these valves with regard to TS 3.3.3.9.

The proposed change corrects errors, removes an outdated license condition, removes an inconsistency between indexes and revises a reporting requirement. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

   No new accident scenarios, failure mechanisms, or limiting single failures are introduced as a result of the proposed change. The proposed change does not challenge the performance or integrity of any safety-related system. The proposed change neither installs or removes any plant equipment, nor alters the design, physical configuration, or mode of operation of any plant structure, system, or component. No physical changes are being made to the plant, so no new accident causal mechanisms are being introduced. The proposed change corrects errors, removes an outdated license condition, removes an inconsistency between indexes and revises a reporting requirement. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. *The proposed changes do not involve a significant reduction in the margin of safety.*

   The margin of safety associated with the acceptance criteria of any accident is unchanged. The proposed change will have no affect on the availability, operability, or performance of the safety-related systems and components. The proposed change does not alter the design, configuration, operation, or function of any plant system, structure, or component. The ability of any operable structure, system, or component to perform its designated safety function is unaffected by this change. The proposed change corrects errors, removes an outdated license condition, removes an inconsistency between indexes and revises a reporting requirement. Therefore, the margin of safety as defined in the TS is not reduced and the proposed change does not involve a significant reduction in a margin of safety.

   Based on the above, FPL Energy Seabrook concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92 (c), and accordingly, a finding of "no significant hazards consideration" is justified.