

April 7, 2005

Mr. Joseph E. Venable
Vice President Operations
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17265 River Road
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SUBJECT: WATERFORD STEAM ELECTRIC STATION, UNIT 3 - REQUEST FOR
ADDITIONAL INFORMATION ON PROPOSED UPGRADED EMERGENCY
ACTIONS LEVELS (EALs) (TAC NO. MC2241)

Dear Mr. Venable:

By letter dated February 5, 2004, you submitted proposed EALs using the methodology outlined in Nuclear Energy Institute 99-01, "Methodology for Development of Emergency Action Levels." In response to the NRC's questions that were provided to your staff on June 16, 2004, you submitted a complete revision to your initial submittal on December 15, 2004. On January 14, 2005, the NRC staff sent you a second round of questions where additional information is needed to complete the review (enclosed).

These questions were discussed during a conference call on March 3, 2005. Following the call, a response date of April 15, 2005, for these questions was proposed by Oscar Pipkins of your staff. Accordingly, the NRC staff requests that you provide responses to the enclosed questions by April 15, 2005.

Also, as discussed during our conference calls with the Entergy South sites, please ensure consistency in your responses on generic EAL issues, as applicable. If you have any questions, please contact me at (301) 415-1326.

Sincerely,

/RA by D. Holland for/

Thomas W. Alexion, Project Manager, Section 1
Project Directorate IV
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-382

Enclosure: As stated

cc w/encl: See next page

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June 2004

REQUEST FOR ADDITIONAL INFORMATION (RAI) ON RESPONSE
TO RAIs FOR PROPOSED UPGRADED EMERGENCY ACTION LEVELS (EALs)
USING NUCLEAR ENERGY INSTITUTE (NEI) 99-01 (REVISION 4) METHODOLOGY
DATED DECEMBER 15, 2004 (ADAMS ACCESSION NO. ML043550283)
WATERFORD STEAM ELECTRIC STATION, UNIT 3
DOCKET NO. 50-382

ABNORMAL RADIATION LEVELS / RADIOLOGICAL EFFLUENTS CATEGORY

1. [Initiating Condition (IC) AU1 / IC AA1] The licensee included a NOTE stating, "If monitor reading is sustained for the time period indicated in the EAL AND the required assessments using procedure calculations can not be completed within this period, then declaration must be made based on the valid radiation monitor reading." The addition of this note is inconsistent with the NEI 99-01 and licensee Bases, which indicates that the Emergency Director should not wait until the designated time has elapsed, but should declare the event as soon as it is determined that the release duration has or will likely exceed the designated duration time. Resolve this inconsistency.
2. [IC AU2 / EAL 1.b] Identify why the following effluent monitors, listed under licensee IC AA2 / EAL 1, are not applicable:
 - CONTAINMENT +46 STAIRS MONITORS, (ARM-IRE-5014 or 5015, RE5014-1 or RE5015-1
 - REFUELING BRIDGE AREA RADIATION MONITOR (ARM-IRE-5013, RE5013-1)
3. [IC AA3 / EAL 2] The licensee Basis (Attachment 4) states, "the single value of 10 R/hr [rem/hour] was selected because it is a value that would result in exposure control measures intended to maintain doses within normal occupational guidelines and limits..." However, the licensee Basis also states that Entergy establishes an administrative limit of 2000 millirem per year Total Effective Dose Equivalent (TEDE) which would limit stay time to 12 minutes (at 170 mrem/minute), thus likely requiring multiple entries with multiple personnel to accomplish a task. The licensee's response to Specific Comment 8.b states that Entergy procedures do not require specific action prior to an expected dose of 5 rem and that, per Radiation Work Permit RP-105, stay times are required for activities that will result in an exposure of > 5000 mrem/entry. Provide a dose rate threshold within Entergy or the station's normal administrative guidelines that would reflect the need to obtain a dose extension, calculation of stay times, or additional radiation protection measures (e.g., calculation of stay times, etc.) prior to entry, thus impeding immediate access.

4. [IC AA3 / EAL 2] The licensee identified the lack of a site-specific list of areas as a deviation in response to Specific Question 8.a. In the deviation statement (Attachment 5), the licensee states, "The decision maker will have to take into consideration the plant configuration and the ability to access areas necessary to maintain safe operation or perform a safe shutdown for the conditions present." Provide the guidance for the decision maker in the Basis, consistent with the NEI 99-01 Basis, regarding what constitutes a "plant vital area requiring infrequent access."
5. [IC AU1 / EAL 2, IC AA1 / EAL2, IC AS1 / EAL 1 and IC AG1 / EAL 1] The licensee Basis states, "The calculations assume the same meteorology (annual average meteorology) and source term (Updated Final Safety Analysis Report (UFSAR) table normal and expected radionuclide concentrations) for all emergency classifications." The NEI 99-01 guidance indicates that the default source term as specified in the Offsite Dose Calculation Manual (ODCM) should be used in calculations. Clarify whether UFSAR concentrations are consistent with the ODCM default source term, and provide the technical justification for any deviation from the NEI 99-01 guidance.

FISSION PRODUCT BARRIER DEGRADATION

6. In Attachment 5, the licensee identifies that while Waterford 3 does not use Critical Safety Function Status Trees (CSFSTs), Safety Function Status Checks, "which are based on logic similar to that used for CSFSTs developed for Westinghouse PWRs," are used at Waterford 3. Clarify whether these Safety Function Status Checks provide equivalent indications to the following (the CSFST statuses associated with the barrier failures in NEI 99-01, Section 3.9):
 - Core Cooling - Red
 - Core Cooling - Orange
 - Heat Sink - Red
 - Reactor Coolant System Integrity - Red
 - Containment - Red
7. [EAL Containment Barrier Criterion 4: Loss] Clarify whether the site emergency operating procedures provide for the venting of the containment during an emergency as a means of preventing catastrophic failure per the NEI 99-01 guidance. Provide a proposed site-specific change to the EAL for containment loss if intentional venting of the containment is addressed in the site emergency operating procedures. Your application did not indicate that site emergency operating procedures provided for venting.

HAZARDS AND OTHER CONDITIONS AFFECTING PLANT SAFETY

8. [IC HU6 / EAL 1 and IC HA6 / EAL 1] The licensee Basis contains the qualifying statement, "As part of the validation process, decision makers may call the offsite experts listed in Emergency Planning documentation or local authorities to preclude declaration based on anomaly caused by something other than a VALID earthquake." However, this qualifier is not contained in licensee EAL threshold or addressed in the NEI 99-01 guidance, and may delay event classification. Provide the change

incorporating the qualifier into the EAL criterion and the justification for deviation, or eliminate the qualifier from the licensee's Basis.

9. [IC HA6 / EAL 3 Basis] The licensee Basis contains the statement, "If the crash is confirmed to affect a plant VITAL AREA with significant VISIBLE DAMAGE, then the Alert should be declared." The criteria in the NEI 99-01 guidance and the licensee's EALs (Attachment 3) state that vehicle crash results in visible damage to the identified plant structures or equipment therein "or Control Room indication of degraded performance of those systems." Resolve this inconsistency.
10. [IC HA6 / EALs 2 & 3] The licensee identifies the Containment, Reactor Auxiliary Building, and Cooling Towers as structures and areas containing functions and systems required for the safe shutdown of the plant. Provide the technical justification for not including or addressing the turbine building as plant structures containing systems/functions for safe shutdown of the plant per the NEI 99-01 guidance.
11. [IC HA6 / EAL 4] The licensee identifies the Containment, Reactor Auxiliary Building, and Cooling Towers as plant areas containing safety related equipment. Clarify whether other areas, containing their controls or power supplies (e.g., transformers, distribution panels) per the NEI 99-01 guidance, were considered.
12. [IC HS3 / EAL 1.a] The licensee's EAL identifies that either the required time critical steps outside the Control Room per Operations Procedure OP-901-502 cannot be completed in less than or equal to 10 minutes, or that plant control cannot be established within 15 minutes per OP-901-502. The NEI 99-01 guidance only requires that control of the plant cannot be established per (site-specific) procedures within (site-specific) minutes, based on analysis or assessments as to how quickly control must be re-established without core uncovering and/or core damage. Provide the technical basis for an additional criterion.

EVENTS RELATED TO INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)

13. Provide the statement of applicability in Attachments 5 and 6 for the NEI 99-01 Event Category "Events Related to ISFSI" and associated ICs (E-HU1 and E-HU2).

SYSTEM MALFUNCTIONS (including Cold Shutdown / Refueling Modes)

14. [IC SG3 / EAL 1.a] The NEI 99-01 guidance indicates that an extreme challenge to cool the core is intended to mean that the core exit temperatures are at or approaching 1200°F or that the reactor vessel water level is below the top of active fuel (TOAF). The licensee's EAL criterion, indicating that core cooling is extremely challenged, is limited to core exit thermocouple temperatures ">1200°F," and does not identify the reactor vessel water level below the TOAF per the NEI 99-01 guidance. Provide the change to resolve these inconsistencies, or identify as a deviation and provide the technical justification.
15. [IC CU5 / EAL 1.b] The EAL criterion for Modes 5 or 6 is inconsistent with that provided in licensee IC SU1 for Modes 1, 2, 3 or 4. Under IC SU1, the licensee's criterion states, "At least 'A' and 'B' emergency diesel generators supplying power to emergency busses." [underline added] Under IC CU5, the licensee's criterion states, "At least

emergency diesel generator 'A' or 'B' is supplying power to emergency busses” [underline added]. Provide the technical justification for this inconsistency.

16. [IC CS2 / EAL 1 and IC CG1 / EAL 2] The NEI 99-01 Bases for IC CS2 and IC CG1 state that calculations for the Containment High Range Monitor reading should be performed to conservatively estimate a site-specific dose rate setpoint indicative of core uncover (i.e., level at TOAF). The licensee proposes a threshold of 10 R/hr, which is based on being sufficiently above the normal indication of 0.74 R/hr (normal shutdown) to avoid an unnecessary entry into the EAL. Provide the technical evaluation that would more accurately reflect the expected Containment High Range Monitor reading with the reactor pressure vessel water level at the TOAF in Modes 5 and 6.

ADMINISTRATIVE ITEMS

17. The staff considers that the technical content of the Attachment 2 categories should be the same as the Attachment 3 & 4 entries in the table below. Resolve these inconsistencies in the wording of the following IC statements:

<u>Attachment 2: E-Plan Table 4-1</u>	<u>Atts. 3 & 4: Proposed EALs/Basis</u>
<p>Category A: Site Area Emergency #1 “Exclusion Area Boundary (EAB) dose resulting from an actual or imminent release of gaseous radioactivity exceeds 100 mR TEDE or 500 mR CDE [committed dose equivalent] Thyroid for the actual or projected duration of the release”</p>	<p>AS1: “Offsite dose resulting from an actual or imminent release of gaseous radioactivity exceeds 100 mR TEDE or 500 mR CDE Thyroid for the actual or projected duration of the release”</p>
<p>Category S: Site Area Emergency #4 “Complete loss of heat removal capability necessary to reach hot shutdown”</p>	<p>SS5: “Complete loss of heat removal capability“</p>