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Docket No.: 50-382

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Dear Mr. Maurin:

Subject: Request for Additional Information - Waterford 3 Radiological
Emergency Plan

The staff has completed its review of the Emergency Classification Scheme contained in Section 4 of the Waterford 3 Radiological Emergency Plan, Revision 4 and procedure EP-1-001. As a result of our review we find that additional information/clarification is required on the Emergency Action Levels (EALs) listed in Table 4-1 of Section 4 of the Plan before we can conclude that the EALs conform to the guidelines expressed in Appendix 1 to NUREG-0654.

Please provide your response to the enclosed staff comments within 15 days.

If you desire any discussion or clarification on the information requested, please contact Mr. D. J. Perrotti, EPLB on (301)492-4871.

Sincerely,

George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing

Enclosure:
As stated

cc: See next page

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NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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Vice President - Nuclear Operations
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Sincerely,

A handwritten signature in cursive script that reads "George W. Knighton".

George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing

Enclosure:
As stated

cc: See next page

REVIEW OF EMERGENCY ACTION LEVELS (EALs) FOR THE WATERFORD-3 NUCLEAR POWER STATION

General Comment

The licensee's initiating conditions are found in Table 4-1 (Rev. 4) Summary of Emergency Action Levels, of the emergency plan. The table is divided into eight categories under which the initiating conditions are listed for each emergency classification (i.e., Unusual Event, Alert, Site Area Emergency, General Emergency). This methodology is acceptable. The corresponding EALs are found in the licensee's Emergency Plan Implementing Procedures (EPIP-1-001 Rev. 0).

The licensee lists two EALs in EPIP-1-001 (Rev. 0) that cannot be clearly identified with a NUREG-0654 initiating condition. These are EAL number 3 in category A - Uncontrolled Release of Radioactivity under Unusual Event, and EAL number 7 in category C - DNB/Degraded Core Sequence under Unusual Event. Most of the initiating conditions of NUREG-0654, Appendix 1, and their corresponding EALs were addressed by the licensee. Following are comments on the ones that were found to be not satisfactory and a list of the initiating conditions not addressed.

Unusual Event

Initiating Condition 4 (Abnormal coolant temperature and/or pressure or fuel temperatures.) In Table 4-1, in the licensee's Emergency Plan, under category C - DNB/Degraded Core Sequence, Unusual event, initiating conditions 3, 4, and 5 all pertain to Unusual Event initiating condition 4 of NUREG-0654, Appendix 1. The licensee should consider using the initiating condition version of NUREG-0654, Appendix 1, in place of the initiating conditions listed above. All of the EALs for these initiating conditions would be adequate if "ORed", and applied to the NUREG-0654, Appendix 1, initiating condition version.

Initiating Condition 10 (Fire within the plant lasting more than 10 minutes.) In the licensee's EAL "fire within the plant which is not brought under control within 10 minutes", it is unclear what is meant by "brought under control"; that is, does it mean the fire is put out or the fire is kept from spreading, etc. Observation of fire within the plant lasting more than 10 minutes is reason for the shift supervisor to declare an Unusual Event. The licensee should consider rewording this EAL.

Initiating Condition 12 (Security threat.) The licensee's EAL is incomplete. A security threat, attempted entry, or attempted sabotage should be reported, when observed, to the shift supervisor who has the responsibility for declaring an Unusual Event.

Initiating Condition 13 (50-year flood or low water.) The licensee should consider listing a low water level in this EAL set at which point an Unusual Event should be declared.

Initiating Condition 15 (Other plant conditions exist.) The licensee's EAL which is a repeat of the initiating condition, is not an adequate response. An acceptable EAL would be "shift supervisor's opinion". In the licensee's initiating condition, the word "stage" should be changed to "state". This is believed to be a misprint.

Initiating Condition 17 (Rapid depressurization of PWR secondary side.) The licensee should consider providing specific setpoints for the steam generator pressure signals indicated on MS-IPT-0301AS, (0301BS), (0303AS), (0303BS).

Alert

Initiating Condition 2 (Rapid gross failure of one steam generator tube with loss of offsite power.) It is assumed that the licensee is equating the "RCS to secondary leakage greater than 10 gpm" of this initiating condition with the "rapid gross failure of one steam generator tube" of NUREG-0654, Appendix 1, initiating condition. If not, the licensee should consider using the initiating condition version given in NUREG-0654, Appendix 1, and the corresponding EAL set given in NUREG-0818. If the above assumption is correct, since the term "rapid gross failure" is open to interpretation, the licensee's corresponding term "greater than 10 gpm" seems acceptable. The licensee's EAL set is adequate except that a setpoint that is indicative of a RCS to secondary leak greater than 10 gpm should be listed for the "main steam line monitor valid alarm" EAL.

Initiating Condition 4 (Steam line break with significant primary to secondary leak rate.) The licensee should consider providing specific setpoints for the steam generator pressure signals indicated on MS-IPT-0301AS, (0301BS), (0303AS), (0303BS), and for the Condenser Vacuum Pump Monitor Alarm that would be indicative of a significant primary to secondary leak (e.g., greater than 10 gpm).

Initiating Condition 12 (Fuel damage accident.) It is suggested that the "reported fuel damage accident concurrent with" portion of the licensee's EAL be dropped, since it infers that fuel damage must be observed before being reportable. Observation of fuel damage may not be possible after an accident. The licensee should consider adding a "shift supervisor's opinion" EAL to take into account such possible observations as well as false alarms or radiation releases from other events that would give the same instrument readings on the monitors listed in their EALs.

Initiating Condition 16 (Ongoing security compromise.) The licensee's EAL should be more definitive to aid the judgment of the shift supervisor, who has the responsibility of declaring an Alert. An adequate EAL would be, "An ongoing security compromise in the plant, but not to vital areas as defined in the Modified Amended Security Plan".

Initiating Condition 17b (Flood, low water.) The licensee should consider listing a low water level in his EAL set at which point an Alert should be declared.

Initiating Condition 19 (Other plant conditions exist.) The licensee should consider adding "and are reported to the shift supervisor" to the EAL.

Initiating Condition 20 (Evacuation of control room anticipated or required.) The licensee removed the words "anticipated or" from the EAL. It will be adequate provided these words are reinserted.

Site Area Emergency

Initiating Condition 1 (Known LOCA greater than makeup pump capacity.) The licensee's EAL is too general. For example, an EAL set such as "RCS pressure decreasing uncontrollably" and "high reactor building pressure" and "steam pressure not lower in one steam generator than the other(s)" would be adequate. However, the suggestions given in NUREG-0818 should be considered in developing an acceptable EAL set.

Initiating Condition 3 (Rapid failure of steam generator tubes with loss of onsite power.) The licensee's initiating condition and corresponding EAL set seems to partially address both initiating condition 3 and 5 of NUREG-0654, Appendix 1. The licensee should consider deleting this initiating condition and making two new ones using the versions given in NUREG-0654, Appendix 1. The licensee should then consider using the EAL sets given in NUREG-0818 for these initiating conditions. Concerning the licensee's EAL set, the "equilibrium charging flow minus total letdown flow greater than 50 gpm" EAL would pertain to initiating condition 5; the "undervoltage alarms (D-0701 and D-0703) on both ESF 4kV buses" EAL would pertain to initiating condition 3; and the "ARM-IRE-5500A,(B) Main Steam Line Monitor Valid Alarm" EAL would pertain to both initiating conditions 3 and 5.

Initiating Condition 5 (PWR steam line break.) The licensee should consider providing specific setpoints to indicate uncontrolled decrease in steam generator pressures on MS-IPT-0301AS, (0301BS), (0303AS), (0303BS). Also, the "RCS dose equivalent I-131 greater than 1.0 μ Ci/gm determined by isotopic analysis" EAL is acceptable if the analysis can be performed within 15 minutes.

Initiating Condition 9 (Transient requiring operation of shutdown systems with failure to SCRAM.) The licensee should consider using the initiating condition version in NUREG-0654, Appendix 1. The licensee's EAL is the same as the initiating condition and is not adequate. Also, the note "(see "General Emergency" for Core Melt Sequence)" does not indicate where one should look for this information in the General Emergency classification. The licensee should consider, for example, using an EAL set such as "failure to bring the reactor subcritical with the control rods" and "no indication of core damage" and "shift supervisor's opinion that a transient is in progress". If evidence of fuel core damage exists, a General Emergency must be called immediately.

Initiating Condition 10 (Major damage to spent fuel.) It is suggested that the "reported major fuel damage accident concurrent with" portion of the licensee's EAL be dropped, since it infers that fuel damage must be observed before being reportable. It may not be possible to make such observations

following an accident. The licensee should consider adding a "shift supervisor's opinion" EAL to take into account such possible observations as well as the possibility of false alarms or other accidents causing trips of the alarms.

Initiating Condition 15b (Flood, low water.) The licensee should consider listing a low water level in his EAL set at which point a Site Area Emergency should be declared.

Initiating Condition 17 (Other plant conditions exist.) The licensee should consider adding "and are reported to the shift supervisor" to the EAL.

General Emergency

Initiating Condition 1 (Effluent monitors detect radiation levels.) In the licensee's Emergency Plan in Table 4-1 under category A - Uncontrolled Release of Radioactivity, four separate initiating conditions are listed that correspond to initiating conditions 1a and 1b of NUREG-0654, Appendix 1. The licensee should consider omitting the terms "greater than" and ">" in initiating conditions 2, 3, and 4, and in corresponding EALs 2, 3, 4, and 5, so as to be consistent with the initiating conditions in NUREG-0654, Appendix 1. Also, the licensee does not include the term "under actual meteorological conditions" in the initiating conditions as is stated in the NUREG-0654 version. In the licensee's EAL number 1, the same monitor and release rate (i.e., plant stack noble gas monitor indicate noble gas release rate > (TBD) Ci/min.) is listed in the EAL corresponding to Site Area Emergency Initiating Condition number 13. The licensee should consider changing this EAL so as to distinguish between a Site Area Emergency and General Emergency radiation level indication. An acceptable EAL would be "plant stack noble gas monitor indicates release rate exceeding those specified for a Site Area Emergency".

Initiating Condition 2 (Loss of two of three fission product barriers.) The licensee's EAL is incomplete. The licensee should consider using the suggestions in NUREG-0818 in arriving at a more complete EAL set.

Example PWR Sequences 5a, b, c, d, and e. The licensee lists three core melt sequences in Table 4-1 under categories B, C, and D. The licensee's EALs listed for these three core melt sequences are adequate. However, the licensee should consider using the Example PWR Sequence versions given in NUREG-0654, Appendix 1, and the EAL suggestions given in NUREG-0818.

Initiating Condition 7 (Any major events which could cause massive damage.) The licensee lists two separate initiating conditions in categories E and F that pertain to the initiating condition in NUREG-0654. This is acceptable. The licensee should consider adding "in the shift supervisor's opinion" to the beginning of this EAL.

Protective Action Decision Making EALs

General Emergency Initiating Condition 4 (Other plant conditions.) The licensee repeated the initiating condition for this EAL. This is not an adequate response. In the licensee's Emergency Plan Implementing Procedures, under Protective Action Guidelines (EP-2-052), some protective action guides and corresponding recommended actions are listed: for a whole body dose of >1

but <5 rem, the recommended action is to "recommend shelter and access control to affected area(s), consider evacuation". For a whole body dose of >5 rem the recommended action is to "recommend evacuation and access control to 10 mile EPZ, shelter if evacuation not immediately possible". In order to assure that all criteria in General Emergency Initiating Condition 4 are met, the licensee should consider preparing EAL sets and protective actions that specifically address the conditions and actions given in notes a, b, c, and d of General Emergency Initiating Condition 4 of NUREG-0654, Appendix 1.

The following EALs were not addressed by the licensee:

Unusual Event 6, 14a
Alert 3, 9