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From:	Thomas Alexion
То:	LENGLAN@entergy.com
Date:	6/16/04 11:14AM
Subject:	EAL RAIs for ANO and Waterford

Les,

See the attached files.

Tom

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REQUESTS FOR ADDITIONAL INFORMATION (RAIs) REGARDING ADOPTION OF NEI 99-01, REVISION 4 FOR ARKANSAS NUCLEAR ONE, UNITS 1 AND 2 DOCKET NUMBERS 50-313 AND 50-368

By letter #OCAN020407, dated February 27, 2004 (ML040630161), Entergy Operations, Inc. submitted proposed changes to the Arkansas Nuclear One Emergency Plan, Tables D-1 and D-2, and proposed changes to emergency action levels (EALs) in EPIP 1903.010. This submittal revises the ANO EALs for Units 1 and 2 from the current NUREG-0654, Appendix 1 basis to Revision 4 to NEI 99-01.

The NRC staff has the following questions related to this submittal:

General Comments:

- 1. 10 CFR 50, Appendix E -- Section IV.B (Assessment Actions) states, "...emergency action levels shall be discussed and agreed on by the applicant *[licensee]* and State and local governmental authorities, and approved by NRC." (Italics added) Provide documentation indicating that these discussion have occurred and that there is agreement with State and local governmental authorities on the implementation of the proposed EAL changes based on NEI 99-01, Revision 4.
- 2. Provide update to Attachment 4 (ANO Deviations and Differences from the NEI 99-01, Revision 4 EALs) based on a evaluation of changes proposed to NEI 99-01 guidance in submittal to ensure that any deletions to NEI 99-01 Initiating Condition (IC) statements, example EALs criterion and basis, or significant content changes (other than format, nomenclature, simple terminology or system names, etc.) that may impact intent or thresholds established or guidance provided in NEI 99-01, are listed as deviations. In addition, provide site-specific technical justification for any deviations, as appropriate. (Specific examples are listed under "Specific Comments", but are not all inclusive.) Also, revise definitions of deviation and difference in Attachment 4, under General Comments, to reflect this logic in identifying a deviation vs. a difference.
- 3. Provide rational for the inconsistent use of unit nomenclature "ANO-1 / ANO-2" versus "Unit 1 / Unit 2", or revise accordingly to ensure consistency in terminology.
- 4. Provide a simplified drawing or schematic illustrating unit auxiliary and start-up transformers and describe inter-relationship regarding conditions needed for a loss of off-site power and the ability of emergency diesel generators to supply on essential busses.
- 5. Describe whether temporary RCS water level instrumentation is installed in Modes 5 and 6, and if installed, whether ANO-1 and ANO-2 instrumentation capabilities in Modes 5 and 6 would monitor water level at or below the bottom ID of the RCS loop and at the top of active fuel (TOAF) for either unit.
- 6. Provide a copy or include a detailed description in licensee Bases of calculations used to determine effluent monitor thresholds under AG1, AS1, AA1 and AU1, and specify any deviations in Attachment 4 from guidance contained in Appendix A to NEI 99-01 (Basis for Radiological Effluent Initiating Conditions).

Specific Comments:

- <u>AU1 / EAL 2 (corresponds to NEI 99-01, AU1 / EAL 2)</u> Licensee inserted the statement "...during a discharge", which is not addressed under NEI 99-01, AU1 / EAL 2. Provide discuss regarding the reason for adding this qualifier, since criterion already requires that monitor reading be valid. In addition, address insertion of statement as either deviation or difference under Attachment 4, including justification, or provide change to reflect NEI 99-01, AU1 / EAL 2 criterion.
- AU1 / EAL 4 (corresponds to NEI 99-01, AU1 / EAL 5) AA1 / EAL 4 (corresponds to NEI 99-01, AA1-EAL 5) Licensee modified NEI 99-01criteria under AU1 (and AA1) / EAL 4 to reflect "RDAC data indicating NUE (Alert)." While justification provide is adequate, describe modification of EAL as a deviation vs. difference in Attachment 4.
- 3. <u>AU1 Basis (corresponds to NEI 99-01, AU1 / Basis)</u> Licensee under AU1 Basis does not address NEI 99-01 Basis guidance, which states "...if an ongoing release is detected and the starting time for that release is unknown, the Emergency Director should, in the absence of data to the contrary, assume the release has exceeded 60 minutes." Statement is included under licensee AA1 Basis. Address deletion of Basis statement and justification in Attachment 4, or provide change to comply with NEI 99-01 guidance in Basis.
- 4. <u>AU2 / EAL 1 (corresponds to NEI 99-01, AU2 / EAL 1)</u> <u>AA2 / EAL 2 (corresponds to NEI 99-01, AA2 / EAL 2)</u> Licensee does not address the "fuel transfer canal", which is identified under NEI 99-01, AU2 / EAL 1 and AA2 / EAL 2. Identify deletion and provide justification for change in Attachment 4, or provide proposed changes to comply with NEI 99-01 guidance.
- 5. <u>AA2 (corresponds to NEI 99-01, AA2)</u> Initiating Condition (IC) statement under Index of EALs, contained in Attachment 1 to EAL classification procedure, does not contain statement "outside the reactor vessel", as reflected in NEI 99-01, AA2 and Attachments 2 and 3 of the proposed EAL classification procedure. Provide change to address inconsistency.
- 6. AA3 / EAL 1 (corresponds to NEI 99-01, AA3 / EAL 1)
 - a. Under Differences in Attachment 4, the licensee states that "[f]or EAL #1...of the ANO's EALs, a site-specific list is not provided since the possible plant conditions and configurations are very diverse." However, the licensee does provide a listing of site-specific areas under AA3 / EAL 1, contrary to the statement made in Attachment 4. Provide change to Attachment 4 to resolve inconsistency, and provide logic used for selection of the technical support center (TSC) and Controlled Area Access entry control point as areas requiring continuous occupancy.
 - b. The site-specific listing under AA3 / EAL 1 in Attachment 2 (EAL Matrix) states "Control Room, TSC...", while Attachment 3 (EAL Basis) states "Control Room/TSC...". Provide change to address inconsistency.

7. AA3 / EAL 2 (corresponds to NEI 99-01, AA3 / EAL 2)

- a. Licensee states in Attachment 4 that "[f]or EAL...#2 of the ANO's EALs, a sitespecific list is not provided since the possible plant conditions and configurations are very diverse." However, the licensee Basis (last paragraph) states that "[a]pplicable areas requiring infrequent access are identified in the site's Abnormal Operating Procedures, Emergency Operating Procedures, the 10 CFR 50 Appendix R analysis, and/or analyses performed in response to Section 2.1.6b of NUREG-0578..." Based on this statement, describe why the referenced documents cannot be used to identify areas containing safe shutdown equipment, or provide proposed changes to comply with NEI 99-01 guidance. If specific areas are not to be listed, describe technical justification for modification of NEI 99-01 criteria as a deviation vs. difference under Attachment 4, and revise licensee Basis accordingly.
- b. Licensee specifies a threshold of 5000 mR/hr. Describe whether the station's normal occupational exposure guidelines and limits would impede (delay) access to areas, i.e., the need for administrative approvals and briefings prior to entry, as discussed in NEI 99-01, AA3 Basis. If so, provide further justification or proposed change to dose rate threshold that would ensure unimpeded access during an emergency. In addition, clarify whether if standard Radiation Protection procedures are used, is the proposed threshold consistent with other Entergy stations currently using NESP-007 scheme or proposing adoption of NEI 99-01.
- c. Licensee has expanded EAL 2 criteria to add qualifier: "and access is required for safe plant operation, but is impeded due to radiation dose rates." Per the NEI 99-01 guidance, access to the affected area is not a requirement, but rather that the threshold value in these infrequently accessed areas is exceeded. In addition, per the NEI 99-01 guidance, exceeding the threshold value is intended to reflect that access would be impeded, thus rendering statement "but is impeded due to radiation dose rates" redundant. Provide site-specific technical justification for deviations from NEI 99-01 guidance in Attachment 4, or provide change to reflect NEI 99-01 AA3 / EAL 2 guidance.
- 8. <u>CU2 (corresponds to NEI 99-01, CU2)</u> Licensee IC statement in Attachment 4 is inconsistent with that listed in Attachment 1 (Index of EALs), Attachment 2 (EAL Matrix) and under NEI 99-01 CU2. Correct inconsistency between IC statements.
- 9. <u>CU2 / EAL 1 (corresponds to NEI 99-01, CU2 / EAL 2)</u> Licensee states "UNPLANNED RCS level drop below the reactor vessel flange greater than 15 minutes," rather than NEI 99-01, CU2 / EAL 1 criterion of "[greater than or equal to] ≥ 15 minutes." Provide justification for deviation, or proposed changes to comply with NEI 99-01 guidance.

10. CU3-EAL 1 (corresponds to NEI 99-01, CU3-EAL 1) /

SU1-EAL 1 (corresponds to NEI 99-01, CU3-EAL 1)

NEI 99-01 IC statements and Example EALs for both CU3 and SU1, with the exception of mode applicability, are identical. However, listing of offsite power sources and criteria used for threshold 1.b, "At least (site-specific) emergency generators are supplying power to emergency busses," are inconsistent between licensee CU3 / EAL 1 and SU1 / EAL 1. Describe rational for inconsistencies between criteria in CU3 and SU1 based on common NEI 99-01 guidance, or provide proposed changes to eliminate inconsistency.

11. CU3 (corresponds to NEI 99-01, CU3)

Licensee has chosen to make IC applicable for modes 5 (Cold Shutdown), 6 (Refueling) and D (Defueled). NEI 99-01, CU3 guidance limits applicability to Cold Shutdown and Refueling only. Basis merely states that licensee chose to add Defueling to mode applicability. Provide technical justification for deviation in Attachment 4 regarding applicability to Defueled mode, or provide proposed change to comply with NEI 99-01 guidance.

12. CU5 (corresponds to NEI 99-01, CU5 / EAL 1) SU4 (corresponds to NEI 99-01, SU4 / EAL 1)

Licensee states that "ANO uses the letdown radiation monitor (if available) as a qualitative measure of potential fuel clad degradation", but does not provide monitor per NEI 99-01, CU5 / EAL 1. Provide the alarm setpoint(s) for the letdown radiation monitor in ANO-1 and ANO-2, and describe how the setpoint(s) correlate to Technical Specification allowable limits. If alarm setpoint does correspond to Technical Specification allowable limits, provide further technical justification for deviation from NEI 99-01 guidance, or provide change to comply with NEI 99-01 guidance.

- 13. CU6 (corresponds to NEI 99-01, CU6) SU6 (corresponds to NEI 99-01, SU6)
 - a. Licensee lists the Station Radio System under offsite communications equipment in Tables C2 and M2, but NEI 99-01 CU6 / SU8 Basis describes radio transmissions as an extraordinary means of offsite communications. Clarify in Attachment 4 whether implementing procedures address the use of the Station Radio System as a back-up means of offsite communications, as technical justification for consideration under these EALs.
 - b. Licensee includes cellular telephones under onsite and offsite communications capability in Tables C1/C2 and M1/M2. Clarify in Attachment 4 whether implementing procedures address the use of cellular phones as a means of offsite communications as technical justification for consideration under these EALs. In addition, confirm that cellular phones will function effectively within or in close proximity to plant structures to be considered a means of onsite and/or offsite communications.

14. <u>CA1 (corresponds to NEI 99-01, CA1 / EAL 1)</u> CA2 (corresponds to NEI 99-01, CA2 / EAL 1) CS1 (corresponds to NEI 99-01, CS1 / EAL 1) CS2 (corresponds to NEI 99-01, CS2 / EAL 1)

Licensee states that NEI 99-01 criterion: "Loss of RCS inventory as indicated by RPV level less than the bottom ID of the RCS loop", was not considered since RVLMS will not monitor level below the bottom ID of the RCS loop. However, CA1 and CA2 Basis discussions state that RCS level indication <u>may be lost</u> below the bottom ID of the RCS loop, rather than is not available. If instrument design may allow for RPV level indication under certain conditions, then provide specific justification why criterion was not addressed, or provide proposed changes to comply with NEI 99-01 guidance.

15. CA1 (corresponds to NEI 99-01, CA1 / Basis)

Licensee incorrectly included discussion regarding refueling mode from CA2 Basis in CA1 Basis (3rd paragraph), rather than discussion on cold shutdown provided in NEI 99-01, CA1 Basis. Licensee Basis also incorrectly references CA2 and CS2 due to this error, and in 1st paragraph states "a loss of heat removal" versus NEI 99-01 discussion of "a loss of ability to adequately cool the core." Provide changes to licensee Basis to address cold shutdown guidance in NEI 99-01 CA1 Basis.

- 16. CA3 (corresponds to NEI 99-01, CA3)
 - SS1 (corresponds to NEI 99-01, SS1)
 - a. ICs for NEI 99-01, CA3 and SS1, state that "Loss of All Offsite Power and Loss of All Onsite Power to Essential Busses." Licensee defines "essential busses" as "required 4.16 KV busses" under CA3 IC and "vital 4.16 busses" under SS1 IC. Licensee also uses term "emergency busses" in CA1 EAL criterion, which is consistent with NEI 99-01 guidance, but uses the term "vital busses" in SS1 EAL criterion. Provide technical justification for inconsistency or proposed change to address inconsistent use of terminology.
 - b. NEI 99-01 example EAL criterion for CA3 and SS1 are identical, with the exception of mode applicability, but licensee criteria under CA3 and SS1 are not consistent. Licensee criterion under SS1 would not allow credit for the restoration of offsite power to an essential bus, but only from an emergency diesel generator. Provide technical justification in Attachment 4 for deviation in interpretation of EAL criterion between licensee CA3 and SS1, and the apparent failure to address a restoration of offsite power to an essential bus within 15 minutes under SS1.

17. <u>CS1 / EAL 2 (corresponds to NEI 99-01, CS1 / EAL 2.a)</u> <u>CS2 / EAL 2 (corresponds to NEI 99-01, CS2 / EAL 2.a)</u> <u>CG1 / EAL 2 (corresponds to NEI 99-01, CG1 / EAL 2.a)</u> Licensee does not address NEI 99-01 criterion: "(RPV inventory as indicated by) RPV level less than TOAF [top of active fuel]", based on justification that RVLMS will not monitor level below the bottom of ID of the RCS loop. Provide description and justification as a deviation to NEI 99-01 guidance vs. difference in Attachment 4.

18. CS2 (corresponds to NEI 99-01, CS2)

Licensee EAL 1.a criteria is not consistent with NEI 99-01 guidance, but rather duplicates that in NEI 99-01, CS2 / EALs 2.b, with the exception of source range monitor (SRM) and core exit thermocouple (CET) indication. In addition, the criterion "Reactor vessel level cannot be monitored for greater than 30 minutes", was inserted under licensee CS2 - EAL 1.b and 2.b; however, this criterion is not provided under NEI 99-01 CS2 example EALs or basis, nor are deviations adequately justified by licensee. Provide further technical justification for deviations in Attachment 4, or provide proposed change to comply with NEI 99-01 guidance.

19. <u>CS2 / EAL 2 (corresponds to NEI 99-01, CS2 / EAL 1.a & 2.b)</u> CG1 / EAL 2 (corresponds to NEI 99-01, CG1 / EAL 2.a)

- a. NEI 99-01 guidance establishes "Containment High Range Radiation Monitor reading > [site-specific] setpoint" as a criterion as evidence that RPV level cannot be monitored with indication of core uncovery. Licensee does not consider this criterion because ANO's monitors have not been analyzed for this setpoint. However, the intent of this "site-specific" criterion is for the licensee to perform calculation which should be performed at TOAF with both Containment Closure established and not established configurations. Address site-specific Containment High Range Radiation Monitor setpoints (readings) in CS2 / CG1 criteria, or provide further technical justification in Attachment 4 why setpoint (reading) cannot be calculated per NEI 99-01 guidance.
- b. Criterion, "RPV level cannot be monitored with indication of core uncovery", is not reflected in licensee criteria. Address NEI 99-01 statement "RPV level cannot be monitored with indication of core uncovery" in CS2 / CG1, or provide further justification in Attachment 4 why statement was not considered.

20. E-HU1 (corresponds to NEI 99-01, E-HU1)

E-HU2 (corresponds to NEI 99-01, E-HU2)

Mode applicability is considered "not applicable" per NEI 99-01 guidance, since classification based on a ISFSI / dry storage-related event is not tied to plant operating mode. Licensee chose to list all operating modes, including Defueling. Provide justification in Attachment 4 for deviation from NEI 99-01 guidance.

21. E-HU1 / EALs 1 & 2 (corresponds to NEI 99-01, E-HU1 / EALs 1 & 2)

Thresholds for natural phenomena and accident conditions established by the licensee appear to provide insufficient detail. Per NEI 99-01 Basis, the license needs to determine the magnitude or consequence of an event for classification purposes (e.g., high winds *resulting in a loss of shielding due to missile impact*, tornado resulting in a long-term loss of heat transfer due to blockage of air inlets, case drop *greater than X ft.*, etc. In addition, EALs do not address a tipped-over cask or a seismic event as listed in NEI 99-01 E-HU1 Basis and licensee Basis. Provide specific thresholds for identified natural phenomena and accident conditions listed, based on description in licensee Basis. In addition, provide a listing of natural phenomena and accident conditions considered in the results of the ISFSI Safety Analysis Report (SAR) per NUREG-1536 or SAR referenced in the cask's Certification of Compliance and related NRC Safety Evaluation Report.

- 22. <u>RCB4 (corresponds to NEI 99-01, Table 5-F-4:RCS Barrier Example EAL #4)</u> Indications for an RCS Barrier LOSS, based on Containment Radiation Monitoring, were omitted from EAL Matrix in Attachment 2, but are provided under EAL Basis (Attachment 3). Provide change to EAL Matrix to address inconsistency.
- 23. Fission Product Barrier Degradation (corresponds to NEI 99-01, Table 5-F-4: RCS Barrier Example EAL #5) Provide discussion in Attachment 4 of evaluation performed to identify other site-specific indications of a loss or potential loss of the Fuel Clad Barrier per NEI 99-01 guidance.
- 24. <u>CNB1 2nd LOSS (corresponds to NEI 99-01, Table 5-F-4: Containment Barrier</u> Example EAL #2)

Licensee states, "Containment pressure not consistent with event response". This is inconsistent with NEI 99-01 criterion, which states "Containment pressure or sump level not consistent with LOCA conditions". Identify as a deviation and provide technical justification under Attachment 4, or provide proposed change to comply with NEI 99-01 guidance.

25. <u>CNB1 - 1st POTENTIAL LOSS (corresponds to NEI 99-01, Table 5-F-4: Containment</u> Barrier Example EAL #2)

EAL criteria statement in Attachment 4 is worded, "Design pressure and increasing hydrogen concentration > 4%". This is inconsistent with licensee criteria established in EAL Matrix (Attachment 2) and EAL Basis (Attachment 3), which creates two separate criterion. Provide proposed change to Attachment 4 to address inconsistency.

26. CNB1 - 2nd POTENTIAL LOSS (corresponds to NEI 99-01, Table 5-F-4: Containment Barrier Example EAL #2)

CG1 - EAL 3 (corresponds to NEI 99-01, CG1-EAL 3)

- a. NEI 99-01 guidance establishes criterion, "Explosive mixture exists", which per the NEI 99-01 Basis means a hydrogen and oxygen concentration of at least the lower deflagration limit curve exists. The licensee's criterion only states "Containment Hydrogen Concentration greater than 4%", and does not address oxygen component. Provide hydrogen and oxygen concentrations reflective of the lower deflagration limit for ANO1 and ANO 2 containment structures, or provide further technical justification why oxygen concentration is not applicable to ANO1 and 2.
- b. Criteria identified for an "explosive mixture inside containment" under CG1 / EAL 3 is not consistency with threshold in CNB1. Provide proposed change to address inconsistency.
- 27. <u>CNB2 POTENTIAL LOSS (corresponds to NEI 99-01, Table 5-F-4: Containment</u> Barrier Example EAL #3)
 - a. NEI 99-01 guidance defines a POTENTIAL LOSS as "core exist thermocouples in excess of 1200 degrees and restoration procedures not effective within 15 minutes." Licensee has revised NEI 99-01 statement for ANO-1 to state, "Significant ICC exists as evidenced by CETs indicating superheated conditions...", but does identify change as a deviation. Provide technical justification for deviation in Attachment 4, or provide proposed change for ANO-1 to comply with NEI 99-01 guidance.

b. NEI 99-01 guidance also defines a POTENTIAL LOSS as "core exit thermocouples in excess of 700 degrees with reactor vessel level below top of active fuel and restoration procedures not effective within 15 minutes." Licensee states that this criterion is not considered since RVLMS is used as an indication of potential core uncovery only if core exit thermocouple (CET) indication is unavailable. Provide change to Attachment 4 to reflect a deviation from NEI 99-01 criteria, rather than a deviation.

28. <u>CNB3 - LOSS (corresponds to NEI 99-01, Table 5-F-4: Containment Barrier Example EAL #4, 1st criterion)</u>

Licensee considers NEI 99-01 criterion, "RUPTURED S/G is also faulted outside of containment", as redundant, and therefore, does not address or provide further justification. However, NEI 99-01 Basis (3rd paragraph) acknowledges that "[u]sers should realize that the two "loss" EALs described above could be considered redundant," as a caution to licensees. Per NEI 99-01 Section 5.4, this criteria is defines as preliminary-to-secondary leakage of sufficient leakage to require or cause a scram and safety injection (RUPTURED) <u>AND results in uncontrolled S/G pressure or S/G being drained completely</u>. This differs from Containment Barrier Example EAL 4 (2nd criterion) which reflects a non-isolable (prolonged) release path to the environment from the affected S/G. Provide further technical justification for deviation in Attachment 4, or provide proposed change to comply with NEI 99-01 guidance.

- 29. <u>CNB4 LOSS (corresponds to NEI 99-01, Table 5-F-4: Containment Barrier Example EAL #5)</u> Licensee chose not to incorporate NEI 99-01 Basis discussion into CNB4 Basis. Describe rational for the failure to address NEI 99-01 Basis guidance, or provide proposed change to address NEI 99-01 Basis guidance.
- 30. <u>CNB5 POTENTIAL LOSS (corresponds to NEI 99-01, Table 5-F-4: Containment</u> <u>Barrier Example EAL #6)</u> Clarify in licensee Basis that Containment high range radiation monitor reading of 4,000 R/hr corresponds to 20% fuel clad damage, or other sitespecific analysis value, per the guidance in NEI 99-01 Basis.
- 31. <u>CNB6 (corresponds to NEI 99-01, Table 5-F-4: Containment Barrier Example EAL #7)</u> NEI 99-01 Basis states this EAL should cover other site-specific indications, including: area or ventilation monitors in containment annulus or other contiguous buildings that may unambiguously indicate a loss or potential loss of the containment barrier, or venting of containment per site emergency operating procedures. Provide rational in Attachment 4 why these criteria are not considered applicable to ANO-1 and/or ANO-2 Containment structures, or proposed wording to comply with NEI 99-01 Basis guidance.
- 32. <u>CNB6 POTENTIAL LOSS (corresponds to NEI 99-01, Table 5-F-4: Containment Barrier Example EAL #6 & 7)</u> Licensee chose to include "at least 20% fuel damage failure as determined from core damage assessment" as a POTENTIAL LOSS of containment, based on basis for CNB5 (Significant Radioactive Inventory in Containment). In CNB6 Basis, licensee justifies EAL by stating that "[r]egardless of whether containment is challenged, this amount of activity in containment, if released, could have such severe consequences that it is prudent to treat this as a potential loss of containment." Describe why the licensee believes that this concern is not adequately address under CNB5, based on containment radiation monitor readings, since this is intent as outlined in NEI 99-01 Table 5-F-4, Containment Barrier Example EAL 6 Basis.

33. HU1 / EAL 2 (corresponds to NEI 99-01, HU4 / EAL 2)

Licensee deleted the term "site-specific" from EAL wording and chose not to include the NEI Basis discussion, which states "Only the plant to which the specific threat is made need declare the Notification of an Unusual Event". Describe how EAL 2 would allow for the differentiation between a general (i.e., threat issues by State or region, or against company facilities / property) versus directed at station, since "site-specific" criteria was deleted from EAL wording and basis. In addition, identify changes as deviations or differences and provide justification for further consideration, or provide proposed change to comply with NEI 99-01 guidance.

34. HU5 / EAL 1 (corresponds to NEI 99-01, HU3 / EAL 1)

NEI 99-01 qualifier "...enter the site boundary area..." was replaced with "...enter normally occupied areas of the site". This interpretation is not consistent with NEI 99-01 guidance, which considers the impact of any toxic or flammable gases that has or could enter the site area boundary, and not just occupied areas, on normal plant operations (as defined in Section 5.4 to NEI 99-01). The site boundary, as defined by the safety analysis report (SAR), should apply. Identify change as a deviation and provide justification in Attachment 1 for further consideration, or provide proposed change to comply with NEI 99-01 guidance.

- 35. <u>HU6 / EAL 2 (corresponds to NEI 99-01, HU1 / EAL 2)</u> Please provide specific reference to SAR for Units 1 and 2 high winds design basis under Reference Document listing in Attachment 3 (Basis).
- 36. <u>HU6 / EAL 6 (corresponds to NEI 99-01, HU1 / EAL 6)</u> Provide site-specific listing, as specified by NEI 99-01 guidance, of areas of the plant where uncontrolled flooding has the potential to affect safety-related equipment.
- 37. <u>HU6 / EALs 7 & 8 (corresponds to NEI 99-01, HU1 / EAL 7)</u> Describe technical basis for low and high lake water level and provide reference to basis under Reference Documents in Attachment 3 (Basis).

38. <u>HU6 (corresponds to NEI 99-01, HU1 / EAL 7)</u> Describe whether the ANO site is subject to other site-specific phenomena, such as hurricanes, or subject to severe weather as defined in the NUMARC station blackout initiative (i.e., activation of severe weather mitigation procedures) per guidance in NEI 99-01 Basis. If applicable, include site-specific EALs.

39. HA3 (corresponds to NEI 99-01, HA5 / EAL 1)

- a. Provide justification in Attachment 4 for use of qualifier, "in progress", rather than "has been initiated" as stated in IC, or provide proposed change to comply with IC statement.
- b. Provide site-specific procedure or equivalent objective measure in EAL criteria, which upon entering procedure, initiating specific procedural step or action, or reaching criteria, would reflect requirement for control room evacuation. Entry into this procedure or meeting a designated procedural step or criteria is used under licensee HS3 to determine whether control of plant was established outside the control room within 15 minutes.

40. HA4 / EAL 1 (corresponds to NEI 99-01, HA2 / EAL 1)

Licensee Basis does not include 1st paragraph from NEI 99-01 guidance providing basis for selection of site-specific areas. Describe the basis for the selection of Table H1 areas based on NEI 99-01 guidance (i.e., safe shutdown analysis, etc.).

41. HA5 / EAL 1 (corresponds to NEI 99-01, HA3 / EAL 1)

Licensee inserted the following qualifier in Basis: "Areas that require only temporary access that can be supported by the use of respiratory protection should not be considered as exceeding this threshold. However, this qualifier is not addressed under NEI 99-01 guidance. In addition, licensee fails to identify the addition of this qualifying Basis statement under Deviations in Attachment 4. Identify change as a deviation in Attachment 4 and provide justification for consideration, or provide proposed change to comply with NEI 99-01 guidance.

42. <u>HA6 / EAL 1 (corresponds to NEI 99-01, HA1 / EAL 1)</u> Provide description that supports the selection of 0.1g as indicative of an Operating Basis Earthquake (OBE) and provide reference to site-specific technical basis (i.e.,

Basis Earthquake (OBE) and provide reference to site-specific technical basis (i.e., SAR, etc.) In EAL Basis (Attachment 3).

43. HA6 / EAL 2 (corresponds to NEI 99-01, HA1 / EAL 2)

Licensee does not include the "Turbine Building", since it does not contain a vital area. Clarify whether damage to equipment in the turbine building due to high winds could cause, either directly or indirectly, damage to safety functions and systems <u>required for</u> <u>the safe shutdown of the plant</u> per NEI 99-01, HA1 Basis. If so, provide proposed change to comply with NEI 99-01 guidance to include the Turbine Building in Table H-2.

44. HA6 / EAL 3 (corresponds to NEI 99-01, HA1 / EAL 3)

Licensee Basis contains statement, "If the crash is confirmed to affect a plant vital area, escalation to ALERT is appropriate"; however, this statement is applicable to licensee HU6 Basis rather than HA6 Basis per NEI 99-01 guidance. Provide justification for including statement in HA6 Basis, or provide proposed change.

45. HA6 / EAL 4 (corresponds to NEI 99-01, HA1 / EAL 4)

License references Table H-2 areas rather than developing a site-specific listings of areas, containing safety functions and systems <u>required for the safe shutdown of the plant</u>. Provide justification in Attachment 4 for referencing Table H-2, or provide change identifying site-specific areas based on NEI 99-01 guidance to reflect areas that could realistically be impacted by turbine failure-generated missiles.

46. HA6 / EAL 5 (corresponds to NEI 99-01, HA1 / EAL 5)

Provide justification in Attachment 4 for the failure to identify site-specific areas, per NEI 99-01 guidance, which include areas that contain systems required for safe shutdown of the plant, that are not designed to be wetted or submerged.

47. HA6 / EAL 6 (corresponds to NEI 99-01, HA1 / EAL 6)

Provide reference to technical basis (i.e., SAR, etc.) for ALERT classification based on low lake level and reference to technical basis(es) under EAL Basis (Attachment 3).

48. HS3 / EAL 1.b (corresponds to NEI 99-01, HS2 / EAL 1)

Provide justification in EAL Basis (Attachment 3), based on site-specific analysis or assessments per NEI 99-01 guidance, as to how quickly control must be re-established to ensure that core uncovering and/or core damage will not occur with the 15 minute time threshold established.

49. SU1 / EAL 1 (corresponds to NEI 99-01, SU1 / EAL 1)

Under the Basis, the licensee has chosen to include a discussion, which states that "...failure of the offsite power sources results in a loss of RCPs..." Intent of NEI 99-01 guidance is to reflect a prolonged loss of offsite power, and is not intended to consider the loss of specific station loads. Provide further clarification whether Basis statement, included by licensee, would preclude classification of event based on the loss of offsite power if specific station loads were not lost. If so, provide further technical justification for deviation or proposed change to comply with NEI 99-01 guidance.

50. SU3 / EAL 1 (corresponds to NEI 99-01, SU3-EAL 1)

- a. Provide description of deviation in Attachment 4 and technical justification fur further evaluation as a deviation to NEI 99-01 guidance for the use of "50% of Control Room annunciators" for Unit 1, versus the definition of "most" as 75% per NEI 99-01 SU3 Basis, or provide proposed change to comply with NEI 99-01 guidance.
- Provide a description of the number of Control Room annunciator panels in Unit 2 (ANO-2) and what systems / functions (in general terms) are provided on each panel. In addition, describe how the loss of 9 panels in Units 2 (ANO-2) constitutes a loss of most (75%) of annunciators, or provide proposed change to comply with NEI 99-01 wording.
- Licensee has chosen to insert the qualifier "Loss of AC and DC" as reason for annunciator loss. Provide justification in Attachment 4 for including qualifier. In addition, clarify whether 50% of annunciators (Unit 1) or 9 annunciator panels (Unit 2) would be lost based on a loss of AC or DC, rather than stated loss of AC and DC.

51. <u>SU8 / EAL 1 (corresponds to NEI 99-01, SU8 / EAL 2)</u> CU8 / EAL 1 (corresponds to NEI 99-01, CU8 / EAL 2)

- a. Describe in Basis (Attachment 3) the rational for Unit 1 (ANO-1) and Unit 2 (ANO-2) EAL thresholds established by licensee in SU8 / EAL 1.
- b. Provide justification in Attachment 4 for inclusion of site-specific thresholds for inadvertent criticality in SU8 (Modes 3 / 4), but not under CU8 (Modes 5 / 6), or provide proposed change to address inconsistency.

52. SA2 / EAL 1 (corresponds to NEI 99-01, SA2 / EAL 1)

a. Licensee has revised EAL wording in EAL Basis (Attachment 3) to include qualifier "...and a successful manual trip <u>or DSS trip</u> occurred," which is not consistent with NEI 99-01 guidance. Define "DDS trip" and provide technical justification for deviation in Attachment 4.

 Addition of qualifier, "...and a successful manual trip <u>or DSS trip</u> occurred," is not consistent with the criterion contained in EAL Matrix (Attachment 2) for SA2 / EAL 1. Provide proposed change to address inconsistency between EAL Matrix and Basis.

53. SA2 / EAL 1 (corresponds to NEI 99-01, SA2 / EAL 1)

Under examples of what constitutes a "manual trip", licensee inserted example: "deenergizing rod drive mechanism". Clarify that, based on NEI 99-01 guidance, the rod drive mechanism(s) can be de-energized from main control rod panels, and does not require action in other adjacent Control Room auxiliary (side or back) panels (i.e., pulling fuses) or actions outside of control room, which are not to be considered under a manual scram. Provide justification for including "de-energizing rod drive mechanism" inn Attachment 4, or provide proposed changes to eliminate if action(s) can not be performed from the main control rod panels.

54. SA4 / EAL 1 (corresponds to NEI 99-01, SA4 / EAL 1)

- a. Provide proposed change to define what constitutes a loss of most or all <u>indicators</u>, consistent with licensee's SU3-EAL 2, or identify as a deviation and provide technical justification in Attachment 4 for further consideration.
- b. Licensee uses term "Plant Transient", which is defined differently than a "Significant Transient" per Sections 4.34 and 4.39, and NEI 99-01, Section 5.4. Intent of providing definition of a "significant transient" in NEI 99-0q was to provide consistency across Industry. Identify as deviation and provide technical justification in Attachment 4 supporting change from NEI 99-01 guidance regarding a "Significant Transient", or provide proposed change to comply with NEI 99-01 guidance.

55. <u>SS3 / EAL 1 (corresponds to NEI 99-01, SS3 / EAL 1)</u> <u>CU7 / EAL 1 (corresponds to NEI 99-01, CU7 / EAL 1)</u> Provide justification in Attachment 4 for inclusion of unit-specific busses in SS3 (Modes 1-> 4), but not in CU7 (Modes 5 / 6), or provide proposed change to address inconsistency.

56. <u>SS4 / EAL 1 (corresponds to NEI 99-01, SS4 / EAL 1)</u> While not required per NEI 99-01 guidance, licensee has chosen to insert specific system availability to provide core cooling and heat sink. Describe basis in Attachment 4 for the selection of Criteria 1.a, 1.b and 1.c.

57. SS6 (corresponds to NEI 99-01, SS6)

a. Licensee uses term "Transient" in IC and EAL 1.d, which is not consistent with the use of "Plant Transient" by licensee in SA4 or the use of term "Significant Transient" under NEI 99-01 guidance. Identify as deviation in Attachment 4 and provide technical justification supporting change from NEI 99-01 guidance and inconsistency with SA4, or provide proposed change to comply with NEI 99-01 guidance. b. NEI 99-01, SS6 / EAL 1.c states that "Indications needed to monitor (sitespecific) safety functions are unavailable". However, licensee SS6 / EAL 1.c has established a threshold of a "loss of 75% of indicators associated with safety systems." This is not consistent with NEI 99-01 guidance, which is intended to reflect that indication is not available to monitor a listing of site-specific safety functions, rather than a percent loss of total indicators. Identify as a deviation in Attachment 4 and provide justification supporting changes, or provide proposed changes to comply with NEI 99-01 guidance.

58. SG2 (corresponds to NEI 99-01, SG2)

- a. NEI 99-01, SG2 Basis for EAL 1.a states that "For PWRs, the extreme challenge to the ability to cool the core is intended to mean that the core exit temperatures are at or approaching 1200 degrees F or the reactor vessel water level is below the top of active fuel." This definition is consistent with that contained in licensee SG2 Basis (3rd paragraph). However, licensee EAL 1.a states "Outside Region 1 of EOP Figure 4" (Unit1) or "CET average temperature greater than 700F" (Unit 2), but does not identify deviation in Attachment 4 and provide technical justification. Provide proposed changes to identify and justify deviations or to comply with NEI 99-01 guidance.
- b. Describe in Attachment 4 the correlation and technical basis between the thresholds indicating heat removal is extremely challenged (EAL 1.b), with the NEI 99-01 Basis guidance of "emergency feedwater flow is insufficient to remove the amount of heat required by design from at least one steam generator."

REQUESTS FOR ADDITIONAL INFORMATION (RAIs) REGARDING ADOPTION OF NEI 99-01, REVISION 4 FOR WATERFORD STATION, UNIT 3 DOCKET NUMBER 50-382

By letter #W3F1-2004-0003, dated February 5, 2004 (ML040480318), Entergy Operations, Inc. submitted proposed revisions to the Waterford 3 Emergency Plan, Table 4-1, and emergency action levels (EALs) in EPIP W3-EP-001-001. This submittal revises the EALs from the current NUREG-0654, Appendix 1 basis to Revision 4 to NEI 99-01.

The NRC staff has the following questions related to this submittal:

General Comments:

- 1. 10 CFR 50, Appendix E -- Section IV.B (Assessment Actions) states, "...emergency action levels shall be discussed and agreed on by the applicant *[licensee]* and State and local governmental authorities, and approved by NRC." (Italics added) In its submittal cover letter, the licensee states that "[t]hese changes have been reviewed and approved by...the State of Louisiana and local governmental authorities." Provide documentation indicating that these discussion have occurred and that there is agreement with State and local governmental authorities on the implementation of the proposed EAL changes based on NEI 99-01, Revision 4.
- 2. Provide a copy or include a detailed description in licensee Bases of calculations used to determine effluent monitor thresholds under AG1, AS1, AA1 and AU1, and specify any deviations from guidance in NEI 99-01 (Basis for Radiological Effluent Initiating Conditions) and Appendix A. In addition, provide ranges for effluent monitor instrumentation referenced.
- 3. Provide a simplified drawing or schematic illustrating unit auxiliary and start-up transformers and describe inter-relationship regarding conditions needed for a loss of off-site power and the ability of emergency diesel generators to supply on essential busses.
- 4. Licensee Basis (under CU3) states that "[t]emporary instrumentation and jumpers are maintained in service such that the operators are able to monitor RCS temperature and reactor vessel level...Redundant means of reactor vessel level indication are procedurally installed to assure that the ability to monitor level will not be interrupted." Describe instrument range of RPV water level indication in Modes 5 and 6, specifically ability to monitor level at the top of active fuel and the bottom ID of the RCS loop, and identify any periods during mode transition when indication would not be available. In addition, provide reference to specific procedural requirements for installing temporary instrumentation, and describe means in place to preclude modification of this procedural requirement without concurrent evaluation and revision of EALs.

5. Provide update to Attachment 5 (Waterford 3 NEI EAL Differences Document) based on a evaluation of changes proposed to NEI 99-01 guidance in submittal to ensure that any deletions to NEI 99-01 Initiating Condition (IC) statements, example EALs criterion and basis, or significant content changes (other than format, nomenclature, simple terminology or system names, etc.) that may impact intent or thresholds established or guidance provided in NEI 99-01, are listed as deviations. In addition, provide site-specific technical justification for any deviations, as appropriate. (Specific examples are listed under "Specific Comments", but are not all inclusive.)

Specific Comments:

- <u>AU1 / EAL1 (corresponds to NEI 99-01, AU1 / EAL 1)</u> <u>AA1 / EAL1 (corresponds to NEI 99-01, AA1 / EAL 1)</u> EAL Basis (Attachment 4) provides a listing of applicable effluent radiation monitors. However, listing is not provided in EAL matrix (Attachment 3) for event classification purposes. Clarify justification for inconsistency between attachments, or provide listing of applicable effluent radiation monitors in EAL matrix.
- AU1 / EAL 3 (corresponds to NEI 99-01, AU1 / EAL 3) AA1 / EAL 3 (corresponds to NEI 99-01, AA1 / EAL 3) Provide listing of applicable, site-specific technical specification references for gaseous and liquid releases per NEI 99-01 guidance.
- 3. <u>AU1 / EALs 4 and 5 (corresponds to NEI 99-01, AU1 / EALs 4 and 5)</u> <u>AA1 / EALs 4 and 5 (corresponds to NEI 99-01, AA1 / EALs 4 and 5)</u> Basis lists the deletion of EALs 4 and 5 as a difference. While deletion is technically justified, provide further clarification why change does not constitute a deviation, based on the elimination of specific NEI 99-01 example EAL criteria, or provide change listing deletion as a deviation and providing technical justification in deviations document (Attachment 5).
- <u>AU2 / EAL 1 (corresponds to NEI 99-01, AU2 / EAL 1.a)</u> Provide site-specific indication of uncontrolled water level decrease in EAL per NEI 99-01 guidance, or provide site-specific technical justification for deviation in deviations document (Attachment 5).
- 5. AA1(corresponds to NEI 99-01, AA1)
 - a. Licensee Basis states that "[f]or this IC *[initiating condition]*, it is expected that PIG monitors on the release pathway will be over-ranged." Identify the specific monitors in question, and clarify whether designated monitor thresholds will be on-scale. If off-scale, provide further justification for use of designated monitor threshold vs. off-scale high. (Italics added)

- b. Licensee Basis states, "...effluent radiation monitor readings that exceed 200 times the Technical Specification limit..." This is inconsistent with licensee EAL 1 criterion and NEI 99-01 guidance, which specifies "...effluent radiation monitor readings that exceed 200 times the alarm setpoint established by the radioactivity discharge permit." Provide technical justification in Basis (e.g., alarm setpoint established by the radioactivity discharge permit are based on Technical Specification limit, etc.), or provide the proposed change to Basis to comply with EAL 1 criterion and NEI 99-01 guidance wording.
- c. Provide change to address inconsistency in EAL 2 for instrument numbering between EAL Matrix (Attachment 3) and Basis (Attachment 4) for the Fuel Handling Building Exhaust ERGM (e.g., PRM-*IRE*-3032).

6. AA2 (corresponds to NEI 99-01, AA2)

- a. Licensee inserted the qualifier: "...for this IC to apply the event must have radiological consequences high radiation monitor alarm for this classification to apply," in 1st paragraph of Basis. This statement is applicable to EAL 1 only, and not EAL 2 per NEI guidance, which is declared based on the actual or likely uncovery of irradiated fuel outside the reactor vessel. Provide further technical justification for Basis qualification statement as being applicable to IC in general, or provide change to apply basis statement to only EAL 1.
- Licensee inserted the qualifier: "For this event, by definition, the loss of water inventory would have to exceed makeup capacity," in 1st paragraph of Basis. This statement may be misleading, since EAL is applicable if irradiated fuel is uncovered, regardless of make-up capacity. For example, sufficient make-up capacity may have been available, but not initiated in a timely manner to prevent the uncovery of irradiated fuel. Provide further clarification of qualifying statement in Basis to address concern.
- c. Provide a correlation between site-specific radiation monitors designated licensee EAL 1 and those listed in NEI 99-01, AA2 / EAL 1. In addition, specifically provide technical justification for deviation in deviations document (Attachment 5), due to the apparent lack of a Refuel Bridge Area Radiation Monitor.
- d. Licensee EAL 2 lists the deletion of site-specific water level indication as a difference, rather than a deviation. While deletion is technically justified, provide further clarification why change does not constitute a deviation, based on the elimination of specific NEI 99-01 EAL 2 criteria, or provide change listing deletion as a deviation, with appropriate technical justification in deviations document (Attachment 5).

7. AA3 / EAL 1 (corresponds to NEI 99-01, AA3 / EAL 1)

- a. Licensee EAL 1 deviates from NEI 99-01 guidance by using "radiation survey" vs. site-specific radiation monitor reading. Licensee's justification is that Control Room radiation monitor is not safety-qualified, and therefore, would be validated by survey. Per NEI 99-01 guidance, the term "VALID" is used in conjunction with radiation monitor to address this contingency. The radiation monitor is used to provide prompt assessment of accident conditions, and considered VALID unless proven otherwise per definition. If radiation monitor is unavailable or determined to be invalid, then the use of direct survey readings would apply under EALs, in lieu of specific radiation monitors. This interpretation is consistent with licensee Basis, which states that "[t]he radiation levels in the EALs for this IC may be identified by a radiation monitor value or direct survey. Provide further technical justification supporting deviation, or provide change specifically addressing NEI 99-01 EAL 1 criterion.
- b. NEI 99-01, AA3 / EAL 1 requires licensee to identify site-specific areas requiring continuous occupancy to maintain plant safety functions, and specifically references under Basis the Control Room, Radwaste Control Room and Central Alarm Station (CAS). The licensee only addresses the Control Room, and does not reflect changes as deviations from NEI 99-01 EAL 1 criterion. Describe evaluation performed for determining areas requiring continuous occupancy to maintain plant safety functions, and provide technical justification for deviation by eliminating the Radwaste Control Room and CAS from consideration.

8. AA3 / EAL 2 (corresponds to NEI 99-01, AA3 / EAL 2)

- a. Licensee identifies as a difference the decision not to include a site-specific list of areas requiring infrequent access to maintain plant safety functions. While technically justified, change should be considered a deviation due to the elimination of specific criterion based on NEI 99-01 guidance. Provide discussion of technical justification for change as a deviation.
- b. Licensee established a site-specific value of 20 R/hr, which per licensee Basis represents a value that would require a restrictive stay time of 15 minutes or less in order to remain within the 10CFR20 normal occupational exposure guidelines and limits (5 Rem TEDE). As described in licensee Basis, the actual site-specific value should be "5 R/hr" or "20 R/hr based on a stay time of ≤15 minutes". Explain the apparent inconsistency between EAL 2 threshold value and Basis discussion, or provide appropriate change to address inconsistency. Provide clarification that under the existing station radiation protection program, no actions (e.g., dose extensions, briefings, etc.) would be required until an expected dose of 5 Rem that would "impede" operator actions per NEI 99-01 guidance. In addition, clarify whether if standard Radiation Protection procedures are used, is the proposed threshold consistent with other Entergy stations currently using NESP-007 scheme or proposing adoption of NEI 99-01.

c. Licensee has expanded EAL 2 criteria to add qualifier: "and access is required for safe plant operation, but is impeded due to radiation dose rates." Per the NEI 99-01 guidance, access to the affected area is not a requirement, but rather that the threshold value in these infrequently accessed areas is exceeded. In addition, per the NEI 99-01 guidance, exceeding the threshold value is intended to reflect that access would be impeded, thus rendering statement "but is impeded due to radiation dose rates" redundant. Provide site-specific technical justification for deviations from NEI 99-01 guidance in deviations document (Attachment 5), or provide change to reflect NEI 99-01 AA3 / EAL 2 guidance.

9. AS1 (corresponds to NEI 99-01, AS1) AG1 (corresponds to NEI 99-01, AG1)

- a. In NEI EAL Differences Document, under General Comments, the licensee states that "...the Emergency Plan Exclusion Area Boundary is the site boundary." However, the term Exclusion Area Boundary is not defined for user reference in EAL matrix or EAL Basis definitions. Define term "Exclusion Area Boundary" in EAL AG1/AS1 Bases or under Definitions consistent with that provided under General Comments in the NEI EAL Differences Document.
- b. Licensee proposes to consolidate dose assessment and field survey data EAL criteria under a common EAL for TEDE (whole body) EAL 2, and thyroid CDE EAL3. However, while identifying the threshold dose at or beyond the site boundary, the proposed AS1 / EALs 2 and 3 do not address specific NEI 99-01 EAL 4 criteria for interpreting field survey data. NEI 99-01 EAL 4 criteria states that "[f]ield survey results indicate *closed window dose rates* exceeding 100 mR/hr *expected to continue for more than one hour*, or analysis of field survey samples indicate thyroid CDE of 500 mR *for one hour of inhalation*, at or beyond the site boundary." Provide further justification for the deletion of criteria from EAL statements in deviations document (Attachment 5), or provide change to comply with NEI 99-01 guidance.
- c. NEI 99-01 AS1/AG1 Bases guidance states that the meteorology and source term used should be the same as those used for determining the monitor reading EALs in ICs AU1 and AA1. However, the licensee's Basis states that a methodology consistent with AU1 and AA1 was not used for AS1/AG1. Rather, licensee appears to determine AS1/AG1 thresholds based on a ratio from AU1 dose rates. NEI 99-01 Basis and Appendix A state that thresholds for AU1 and AA1 are developed using ODCM methodology, and AS1 and AG1 using dose assessment method. Provide calculations for AS1 EAL 1 monitor readings based on meteorology and source term used in AU1 and AA1 using station dose assessment model, versus ODCM calculational methodology, for comparison with proposed licensee AS1/AG1 EAL monitor readings. In addition, provide justification for deviation from NEI 99-01 guidance in deviations document (Attachment 5).

10. CU1 (corresponds to NEI 99-01, CU2)

a. Deviations document (Attachment 5) does not reflect IC statement in NEI 99-01 CU2, but rather duplicates IC statement in NEI 99-01 CU1. Provide change to address inconsistency with IC statement wording.

- b. Licensee identifies the consolidation of NEI 99-01 CU1 and CU2 under licensee CU1 as a difference, rather than a deviation. Provide technical justification for consolidation, including impact on overall NEI 99-01 EAL criteria, as a deviation in deviations document (Attachment 5).
- 11. <u>CU1 (corresponds to NEI 99-01, CU1 and CU2)</u> <u>CA1 (corresponds to NEI 99-01, CA1 and CA2)</u> <u>CS1 (corresponds to NEI 99-01, CS1 and CS1)</u> Provide further technical justification in deviations document (Attachment 5) for proposed modification to Mode 6 applicability by adding qualifier "with reactor vessel water level below the reactor vessel flange," which deviates from NEI 99-01 mode definitions, criteria guidance.
- 12. <u>CU4 (corresponds to NEI 99-01, CU5 / EAL 1)</u> <u>SU9 (corresponds to NEI 99-01, SU4 / EAL 1)</u> Clarify whether letdown monitor is currently disabled, and identify whether other radiation monitors would be available to monitor fuel clad degradation based on Technical Specification allowable limits. In addition, provide technical justification in deviations document (Attachment 5) for identifying elimination of radiation monitor criterion as a deviation, rather than difference, since proposed change eliminates a specific EAL criterion listed in NEI 99-01 guidance.
- 13. <u>CU5 (corresponds to NEI 99-01, CU6 / EALs 1 & 2)</u> SU8 (corresponds to NEI 99-01, SU6 / EALs 1 & 2)
 - a. Licensee includes cellular telephones under onsite and offsite communications capability in Tables C1/C2 and M1/M2. Clarify in deviations document (Attachment 5) whether implementing procedures address the use of cellular phones as a means of offsite communications as technical justification for consideration under these EALs. In addition, confirm that cellular phones will function effectively within or in close proximity to plant structures to be considered a means of onsite and/or offsite communications.
 - b. Licensee lists civil defense radios under offsite communications equipment in Tables C2 and M2, but NEI 99-01 CU6 / SU8 Basis describes radio transmissions as an extraordinary means of offsite communications. Clarify in deviations document (Attachment 5) whether implementing procedures address the use of civil defense radios as a back-up means of offsite communications, as technical justification for consideration under these EALs.
- 14. <u>CU6 (corresponds to NEI 99-01, CU7 / EAL 1)</u> Provide change to address inconsistency with licensee SS4 for DC voltage indication (i.e., "<" 108 VDC in CU6 vs. "of" 108 VDC in SS4).

15. CA1 / EAL 1 (corresponds to NEI 99-01, CA1 and CA2 / EAL 1)

- a. Licensee Basis states that the Bottom ID of the RCS loop is 11.8 ft. MSL, and that level monitoring systems in Modes 5 and 6 provide indication to 12.0 ft. Provide further technical justification in deviations document (Attachment 5) why the conservative use of 12.0 ft MSL or indication off-scale low would not be appropriate, rather than proposed deletion of EAL criterion, since level difference between the Bottom ID of the RCS loop and the lowest indication is only 0.2 ft.
- b. Licensee identifies the consolidation of NEI 99-01 CA1 and CA2 under licensee CA1 as a difference, rather than a deviation. Provide technical justification for consolidation, including impact on overall NEI 99-01 EAL criteria, as a deviation in deviations document (Attachment 5).

16. CA2 (corresponds to NEI 99-01, CA3)

Licensee Basis discussion substitutes the term "available" in lieu of NEI 99-01 term "operable", which is defined per technical specifications. Use of the term "available" is also inconsistent with licensee SS1 Basis, which uses term "operable". Provide further technical justification for deviation from NEI 99-01 guidance in deviations document (Attachment 5) and define "available" in relation to technical specifications under Basis definitions, or provide changes to comply with NEI 99-01 guidance.

17. CA2 Basis (corresponds to NEI 99-01, CA3 / EAL 1.b)

SA1 Basis (corresponds to NEI 99-01, SA5)

SS1 Basis (corresponds to NEI 99-01, SS1)

SG1 Basis (corresponds to NEI 99-01, SG1)

Licensee Basis takes credit for temporary emergency diesels that may be used to supplement onsite AC power in the event emergency diesels are lost. Provide technical justification in deviations document (Attachment 5) for deviation from NEI 99-01 CA3 / EAL 1.b criterion, which requires licensee to list site-specific emergency diesel generators that are part of plant design and safety analysis, or provide change to comply with NEI 99-01 guidance. In addition, identify specific reference to where credit is taken for temporary diesel generators in safety analysis report accident analyses, station blackout coping analysis, or technical specifications for applicable operating modes (1 thru 6).

18. CA3 / EAL 3 (corresponds to NEI 99-01, CA4 / EAL 3)

Provide discussion in licensee Basis that the 20 psig is the lowest RCS pressure that can be read on installed Control Room instrumentation (that is equal to or greater than 10 psig) per guidance in NEI 99-01 Basis for EAL 3. In addition, provide technical justification in deviations document (Attachment 5) for including qualifier, "...due to reactor vessel inventory temperature increase" in EAL 3 criterion, which is a deviation from NEI 99-01 guidance.

19. CS1 (corresponds to NEI 99-01, CS1 and CS2 / EAL 2.a)

CG1 (corresponds to NEI 99-01, CG1 / EAL 2.a)

Licensee does not address NEI 99-01 criterion associated with RPV level corresponding to the top of active fuel (TOAF). This is inconsistent with licensee FCB3 and SG1, which defines TOAF as "RVLMS upper plenum level \leq 20%." Provide further technical justification as deviation for the deletion of TOAF criterion in deviations document (Attachment 5), or provide changes in CS1 and CG1 to comply with NEI 99-01 guidance and criteria provided in licensee FCB3 and SG1.

20. CS1 (corresponds to NEI 99-01, CS1 and CS2)

- a. Licensee identifies the consolidation of NEI 99-01 CA1 and CA2 under licensee CA1 as a difference, rather than a deviation. Provide technical justification for consolidation, including impact on overall NEI 99-01 EAL criteria, as a deviation in deviations document (Attachment 5).
- Per NEI 99-01 guidance for CS1 / EAL 2.b, with CONTAINMENT CLOSURE established, the inability to monitor RPV level for > 30 minutes with EITHER an unexplained sump and tank level increases OR erratic source range monitor indication would require classification. Describe how in Mode 5 (cold shutdown) with CONTAINMENT CLOSURE established, criterion "erratic source range monitor indication with the inability to monitor RPV level for > 30 minutes" is met. In addition, provide technical justification as deviation in deviations document (Attachment 5), or provide change to licensee CS1 to address NEI 99-01 guidance.
- c. Licensee CS1 provides a valid high alarm on the Containment High Range Radiation Monitor, rather than exceeding a site-specific setpoint as established under NEI 99-01 Basis guidance for CS2 / EALs 1.b and 1.b. Licensees justification for this deviation is that this value was not calculated due to the range of unknowns involved, including time after shutdown and reactor vessel head installation status and installation of external structures. However, NEI 99-01 Basis guidance states that calculations should be performed to conservatively estimate a dose rate indicative of core uncovery (i.e., level at TOAF), and in specifically required monitor reading for both CONTAINMENT CLOSURE established and not established to account for reactor vessel head installation status and installation of external structures. Provide site-specific setpoints for Containment High Range Radiation Monitor readings within indicate core uncovery based on NEI 99-01 guidance for CONTAINMENT CLOSURE established and not established.
- d. Provide technical justification in deviations document (Attachment 5) for the designation of "Core Exit Thermocouple > 700°F" as a site-specific indication of core uncovery, per NEI 99-01 guidance for CS2 / EALs 1.b and 1.b.

21. <u>CG1 / EAL 2 (corresponds to NEI 99-01, CG1 / EAL 2.b)</u> Provide site-specific setpoint for Containment High Range Radiation Monitor reading within indicate core uncovery based on NEI 99-01 guidance for CONTAINMENT CLOSURE established.

22. CG1 / EAL 3 (corresponds to NEI 99-01, CG1 / EAL 3)

CNB1 - Potential Loss (corresponds to NEI 99-01, Table 5-F-4: Containment Barrier Example EAL #2) Licensee states that a Containment $H_2 > 3.4\%$, though not representative of an explosive mixture of hydrogen and oxygen, is consistent with the concentration used in site EOPs as a safety function parameter following a LOCA. Describe EOP basis or intent for Containment $H_2 > 3.4\%$.

23. <u>Proposed Emergency Plan Pages (Attachment 2) / Table 4-1 (Summary of Initiating Conditions)</u>

Under Unusual Event #1 and Alert #1, titles are inconsistent with Fission Product Barrier Degradation matrix (i.e., missing "Any" prior to "Loss or any potential loss...").

- 24. Fission Product Barrier Degradation (corresponds to NEI 99-01, Table 5-F-4: Fuel Clad Barrier Example EAL #6) Provide discussion in deviations document (Attachment 5) of evaluation performed to identify other site-specific indications of a loss or potential loss of the Fuel Clad Barrier per NEI 99-01 guidance.
- 25. <u>RCB2 Potential Loss (corresponds to NEI 99-01, Table 5-F-4: RCS Barrier Example EAL #2)</u> Provide technical justification in deviations document (Attachment 5) for establishing a site-specific RCS leak rate versus NEI 99-01 guidance criterion statement of "...exceeding the capacity of one charging pump in the normal charging mode", since pump discharge rate may vary based on plant conditions, or provide change to comply with NEI 99-01 Table 5-F-4 criterion.
- 26. <u>CNB3 Loss (corresponds to NEI 99-01, Table 5-F-4: Containment Barrier Example EAL #4)</u> Provide EAL corresponding to NEI 99-01 criterion for a "RUPTURED S/G *[steam generator]* is also FAULTED outside the containment," per Basis definitions, or provide specific technical justification for deviation from NEI 99-01 guidance in deviations document (Attachment 5).
- 27. <u>Fission Product Barrier Degradation (corresponds to NEI 99-01, Table 5-F-4:</u> <u>Containment Barrier Example EAL #7)</u> Provide discussion in deviations document (Attachment 5) of evaluation performed to identify other site-specific indications of a loss or potential loss of the Containment Barrier per NEI 99-01 guidance.

28. HU6 / EAL 6 (corresponds to NEI 99-01, HU1 / EAL 6) HA6 / EAL 5 (corresponds to NEI 99-01, HA1 / EAL 5) Clarify inconsistency between HU6 / EAL 6 and HA6 / EAL 5, regarding site-specific areas containing systems required for the safe shutdown of the plant, that are not designed to be wetted or submerged, that would be impacted by internal flooding per NEI 99-01 guidance (e.g., HU6 states -35 elevation areas vs. HA6 which states Reactor Auxiliary Building). In addition, identify the basis used for determining these areas (i.e., IPEEE, etc.).

29. HA3 (corresponds to NEI 99-01, HA5 / EAL 1)

HS3 (corresponds to NEI 99-01, HS2 / EAL 1)

Provide site-specific procedure or equivalent objective measure in EAL criteria, which upon entering procedure, initiating specific procedural step or action, or reaching criteria, would reflect requirement for control room evacuation. Entry into this procedure or meeting a designated procedural step or criteria is used under licensee HS3 to determine whether control of plant was established outside the control room within 15 minutes.

- 30. <u>HA4 (corresponds to NEI 99-01, HA2 / EAL 1)</u> Discuss in the licensee Basis the logic used for determining site-specific areas containing functions and systems required for the safe shutdown of the plant (i.e., sitespecific safe shutdown analysis, etc.).
- 31. HS3 / EAL 1 (corresponds to NEI 99-01, HS2 / EAL 1) Please provide technical justification in licensee Basis, based on site-specific analysis or assessments per NEI 99-01 guidance, as to how quickly control must be re-established to ensure that core uncovering and/or core damage will not occur with the 15 minute time threshold established.
- 32. <u>SU3 (corresponds to NEI 99-01, SU3)</u> SA3 (corresponds to NEI 99-01, SA4) SS3 (corresponds to NEI 99-01, SS6) Describe logic in licensee Basis and in de

Describe logic in licensee Basis and in deviations document (Attachment 5) for referencing Reg. Guide 1.97, rather than listing specific Control Room indicator panels containing safety system instrumentation per Table 3 to Reg. Guide 1.97. In addition, clarify how operators are trained to promptly recognize and quantify a loss of Reg. Guide 1.97 instrumentation or if specific measures are in place to label instrumentation to allow for the prompt classification of event.

- 33. SU7 Basis (corresponds to NEI 99-01, SU5) CU1 Basis (corresponds to NEI 99-01, CU1) Provide technical justification for licensee Basis statement, "[a]t Waterford 3, steam generator leakage is considered to be identified leakage." In addition, clarify why this statement would also not be applicable during cold shutdown mode per CU1.
- 34. <u>SU10 (corresponds to NEI 99-01, SU8)</u> <u>CU7 (corresponds to NEI 99-01, CU8)</u> Clarify use of terms "extended" vs. "sustained" for consistency with EAL thresholds and use of terms in licensee SU10 and CU7 Bases.
- 35. SA2 (corresponds to NEI 99-01, SA2) Clarify whether rod withdrawal would occur in hot standby (Mode 3), as part of a plant start-up, prior to entering Mode 2. If rod withdrawal would initiate in hot standby, prior to entering Mode 2 (Start-up), then provide change to address Mode 3 applicability per NEI 99-01 guidance. If not, then address deletion of Mode 3 applicability in deviations document (Attachment 5).

36. SA2 Basis (corresponds to NEI 99-01, SA2)

Intent of the NEI 99-01 IC is to address the failure of an automatic shutdown, whenever an automatic reactor trip is initiated. While steam generator high level per the Waterford 3 Technical Specifications does not correspond to a safety limit, its functional capability at the specified trip setting is required to enhance the overall reliability of the Reactor Protection System (RPS), and therefore, should be applicable to this IC. This is also applicable to RCS flow-low. Provide further technical justification in deviations document (Attachment 5) as to why not to address the failure to initiate or complete a reactor trip whenever any automatic reactor trip signal is initiated which would potentially create an Anticipated Transient Without Scram (ATWS) event, or provide change to comply with intent of NEI 99-01 guidance.

37. **SS3** (corresponds to NEI 99-01, SS6 / EAL 1.c)

NEI 99-01 does not require that all Reg. Guide 1.97 indication be lost as reflected in licensee EAL criteria, but rather that indication is not available to monitor a required safety function(s). Provide further technical justification as deviation in deviations document (Attachment 5) or change to comply with NEI 99-01 guidance.

38. SS5 / EALs 1 and 2 (corresponds to NEI 99-01, SS4 / EAL 1)

Licensee inserted qualifier, "...necessary to reach Hot Shutdown", in IC statement. Describe modification of IC and technical justification as a deviation vs. difference in deviations document (Attachment 5).

39. SG2-EAL 2 (corresponds to NEI 99-01, SG2 / EAL 1.b)

NEI 99-01 Basis guidance, and that provided in licensee Basis, state that an indication that heat removal is extremely challenged is "if emergency feedwater flow is insufficient to remove the amount of heat required by design from <u>at least one</u> steam generator ." (Underline added) However, licensee EAL criterion 2 states that "heat removal is extremely challenges by **BOTH** steam generators < 50% Wide Range <u>and</u> not feedwater available." Provide technical justification in deviations document (Attachment 5) for inconsistency between licensee EAL criterion and justification in NEI 99-01 and licensee Bases, or provide changes to EAL criterion to comply with NEI 99-01 guidance.