

March 31, 2004

Mr. Bryce L. Shriver
Senior Vice President
and Chief Nuclear Officer
PPL Susquehanna, LLC
769 Salem Boulevard, NUCSB3
Berwick, PA 18603-0467

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION (RAI) - SUSQUEHANNA STEAM
ELECTRIC STATION, UNITS 1 AND 2 (SSES 1 AND 2) - REVISION TO
EMERGENCY ACTION LEVELS (TAC NOS. MC1270 AND MC1271)

Dear Mr. Shriver:

In reviewing your submittal of October 27, 2003, concerning a request to implement new emergency action levels based on Nuclear Energy Institute's 99-01, Revision 4, "Methodology for Development of Emergency Action Levels," the Nuclear Regulatory Commission staff has determined that additional information contained in the enclosure to this letter is needed to complete its review. These questions were discussed with your staff during a teleconference on March 9, 2004. As agreed to by your staff, we request you respond by April 30, 2004.

If you have any questions, please contact me at 301-415-1030.

Sincerely,

/RA/

Richard V. Guzman, Project Manager, Section 1
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-387 and 50-388

Enclosure: RAI

cc w/encl: See next page

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REQUEST FOR ADDITIONAL INFORMATION (RAI)
REVISION TO EMERGENCY ACTION LEVELS FOR
SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2
DOCKET NOS. 50-387 AND 50-388

Susquehanna Emergency Action Level (EAL) RAI Questions

1. The licensee states in the cover letter dated October 27, 2003, that “These proposed EALs have been discussed and agreed to by the Commonwealth of Pennsylvania and the counties of Columbia and Luzerne.” Please provide documentation of discussions with and agreement by the Commonwealth of Pennsylvania and the Counties of Columbia and Luzerne for the proposed EAL change.
2. Section 1.2, “EAL Technical Bases,” states, “The EAL user should refer to bases information prior to making an emergency classification.” However, Section 1.3, “General EAL Implementation Philosophy,” states, “If there is any doubt with regard to applicability of any EAL the technical basis should be reviewed.” Please clarify the inconsistent statements regarding the use of bases.
3. Section 1.3, “General EAL Implementation Philosophy,” states that “Events that meet the Emergency Action Level criteria for event declaration, but which are terminated before they are identified and declared, should still be classified, declared and reported.” However, the licensee does not appear to address guidance under Section 3.12, “Classifying Transient Events,” in Nuclear Energy Institute’s (NEI) 99-01, Revision 4 (Rev. 4) for a “missed event” in which a plant condition that exceeded an EAL threshold was not recognized at the time of occurrence, but is identified well after the condition (e.g., as a result of routine log or record review) and the condition no longer exists. Please clarify and provide specific information that addresses this NEI guidance.
4. In Section 1.3, “General EAL Implementation Philosophy,” the term “spike” is used to describe an EAL condition which is rapidly exceeded and then decreases below threshold and where entry or escalation to a higher classification is not appropriate. The term “spike” is not defined or used in NEI 99-01, Rev. 4. Please identify the specific initiating conditions and EAL thresholds where the use of the term “spike” would be applicable.
5. Section 1.4, “EAL Downgrading,” does not address recommendations under Section 3.11, “Emergency Class Downgrading” of NEI 99-01, Rev. 4, regarding termination from NOUEs [Notification of Unusual Events], Alerts, and certain Site Area Emergencies causing no long-term plant damage. Please clarify intent for EAL downgrading from an NOUE, Alert, or Site Area Emergency.

Enclosure

6. In “Emergency Classification Descriptions” under Section 2, “Emergency Action Levels,” the following differences in wording were identified from that contained in Section 3.7, “Emergency Class Description,” in NEI 99-01, Rev. 4. Please provide justification for the deviation in emergency class descriptions or the proposed changes to comply with NEI 99-01 guidance. (The wording from NEI 99-01 that the licensee does not address is italicized below).

NOUE Discussion

- “...by exceeding plant technical specification Limiting Condition for Operation (LCO) Required Action Time *for achieving mode change.*”
- “...however, releases do not require monitoring or offsite response (*e.g., dose consequences of less than 10 millirem.*)”

Alert Discussion

- “...whether de-escalation or termination of the emergency class declaration is warranted. *Dose consequences from these events are small fractions of the EPA PAG [Environmental Protection Agency Protective Action Guides] plume exposure levels, i.e., about 10 millirems to 100 millirems TEDE [total effective dose equivalent].*”

7. The definitions for “explosion” and “immediately dangerous to life and health (IDLH),” contained in Section 2 under “Definitions”, are not consistent with wording provided in Section 5.4, “Definitions,” of NEI 99-01, Rev. 4. Please provide justification for deviating from the definition guidance or the proposed changes to comply with NEI 99-01 guidance.
8. Please provide a copy of the calculations used to determine effluent monitor thresholds under Recognition Category R, Abnormal Rad Levels/Radiological Effluent Bases for Initiating Conditions (ICs) RG1, RS1, RA1 and RU1, and specify any deviations from calculational guidance in Appendix A to NEI 99-01, “Basis for Radiological Effluent Initiating Conditions.”
9. Under “Recognition Category R, Abnormal Rad Levels/Radiological Effluent,” ICs RG1 and RS1, the term “offsite” is defined in the IC statement and in the EAL Threshold Values 2, 4 and 5 as “at the Emergency Planning Boundary (EPB),” which is considered the Susquehanna Steam Electric Station Exclusion Area (1800 foot radius), rather than “at or beyond the site boundary” as described in NEI 99-01, Rev. 4, AG1 (AS1) basis. As such, RG1 and RS1 are inconsistent with NEI 99-01 guidance and with the licensee’s ICs RA1 and RU1 which use site boundary. Please provide the justification for deviation and impact related to inconsistency with RA1 and RU1, which defines “offsite” as the site boundary, or proposed changes to comply with NEI 99-01 guidance.

10. Under "Recognition Category R, Abnormal Rad Levels/Radiological Effluent," ICs RG1 and RS1/EAL 1 specifies a "Noble Gas" vent stack monitor reading(s)", and this Basis for determining the monitor reading threshold states, "The meteorology and source term used are the same as that used for determining the monitor reading EAL in IC RS1 [RG1]." However, the Basis for AG1 (AS1) in NEI 99-01, Rev. 4, states that the meteorology and source term, which includes not only noble gases, but also particulates and halogens, should be the same as that used for determining the monitor reading EALs in AU1 (RU1) and AA1 (RA1). Please provide justification for deviation and impact related to inconsistency with RA1 and RU1 or for the proposed changes to comply with NEI 99-01 guidance.
11. Under "Recognition Category R, Abnormal Rad Levels/Radiological Effluent," ICs RG1 and RS1, EAL 1 states that the reading exceeds or is expected to exceed the designated release rate "for greater than 15 minutes," rather than the NEI 99-01 guidance for AG1 and AS1/EAL 1 which states "for 15 minutes or longer." Provide justification for this deviation regarding release duration or the proposed changes to comply with NEI 99-01 guidance.
12. Under "Recognition Category R, Abnormal Rad Levels/Radiological Effluent," ICs RG1 and RS1/EAL 2 reflects NEI 99-01 guidance that dose assessment indicates a designated dose "at or beyond..."; however, EALs 4 and 5 state that field survey "results" or analysis of sample surveys "at", rather than "at or beyond..." as specified in NEI 99-01 guidance for AG1 and AS1/EAL 4. Provide justification for this deviation or the proposed changes to comply with NEI 99-01 guidance.
13. Under "Recognition Category R, Abnormal Rad Levels/Radiological Effluent," ICs RG1 and RS1, the "Basis" 3rd paragraph states, "For EAL 1, the Emergency Director should not wait until 15 minutes has elapsed..." Provide further justification why this interpretation should not also apply to release duration statement in EAL 3 for the RMS perimeter monitoring system, or provide justification for the proposed changes to clarify inconsistency.
14. Under "Recognition Category R, Abnormal Rad Levels/Radiological Effluent," ICs RA1 and RU1, the licensee does not appear to address NEI 99-01, AA1 and AU1/EAL 1, which is intended to cover a scheduled or routine release under a planned radioactivity discharge permit. Omission is not identified in the Section 3, "Deviations to NEI 99-01, Rev. 4" listing, nor does the licensee provide an explanation in the basis why this may be covered by other EALs intended for non-routine releases (where a discharge permit would not normally be prepared). Provide justification for this apparent deviation or the proposed changes to comply with NEI 99-01 guidance.
15. Under "Recognition Category R, Abnormal Rad Levels/Radiological Effluent," ICs RA1 and RU1/EAL 1 specifies a "Noble Gas vent stack monitor reading(s)". Provide further clarification why reading is limited to noble gas releases and does not take into account particulates and halogens, or provide the proposed changes to comply with NEI 99-01 guidance.
16. Under "Recognition Category R, Abnormal Rad Levels/Radiological Effluent," ICs RA1 and RU1, the "Basis" 5th paragraph states in part that "The ODCM specifies default source terms and,... prescribes the use of pre-determined annual average meteorology in

the most limiting downwind sector for showing compliance with regulatory commitments.” Per the Basis for AG1 and AS1 in NEI 99-01, the meteorology and source term used should be the same as those used for determining the monitor reading EAL in NEI 99-01 AA1 and AU1. Since the meteorological conditions used are not listed, please provide confirmation that consistent source terms and meteorology were used or the justification for the deviation from NEI 99-01 guidance.

17. Under “Recognition Category R, Abnormal Rad Levels/Radiological Effluent,” ICs RA1 and RU1, a note in the “Basis” states that “NEI EAL AA1 No. 4 is not included in the Susquehanna SES EALs. The remote monitoring system (RMS) perimeter radiation monitoring system is not normally operating or alarmed in the Control Room.” This logic does not address circumstances where the RMS perimeter radiation monitoring system may be initiated at the Shift Manager’s discretion, or by the technical support center (TSC) if activated prior to an Alert, in response to elevated effluent monitor indication. Please provide clarification regarding the use of the RMS perimeter radiation monitoring system for the classification of an NOUE or Alert, if activated.
18. Under “Recognition Category R, Abnormal Rad Levels/Radiological Effluent,” IC RA2/EAL 1 identifies the Control Room, or both the Security Control Centers (SCC) and the Alternate Security Control Center (ASCC), as areas requiring continuous occupancy. The NEI 99-01 AA3 Basis also identifies the Radwaste Control Room, which is not contained in EAL 1 or discussed in the basis. Please provide justification for not including the Radwaste Control Room under EAL 1 as an area which may require continuous occupancy based on radwaste activities underway, or provide justification for the proposed changes to address deviation from NEI 99-01 guidance.
19. Under “Recognition Category R, Abnormal Rad Levels/Radiological Effluent,” IC RA2 “Basis,” the licensee included radiography and the movement of large components, which are not listed under NEI 99-01 AA3, as examples of anticipated radiation level increases due to planned events. Please provide clarification that the inability to store radiography sources that result in exceeding threshold levels would require classification.
20. Under “Recognition Category R, Abnormal Rad Levels/Radiological Effluent,” IC RA2/EAL 2, the licensee established 10 R/hr as the site-specific reading for areas requiring infrequent access to maintain plant safety functions, based on emergency guidelines for saving plant equipment and safe shutdown of the plant under emergency conditions. However, the AA3 Basis in NEI 99-01 specifies that these site-specific value(s) should be based on radiation levels which result in exposure control measures intended to maintain doses within normal occupation exposure guidelines and limits. Provide justification supporting this deviation or the proposed changes to comply with NEI 99-01 guidance.
21. NEI 99-01 AU2/EAL 1 specifies an uncontrolled water level decrease in the reactor refueling cavity, spent fuel pool or fuel transfer canal. The licensee does not list the “fuel transfer canal” in “Recognition Category R, Abnormal Rad Levels/Radiological Effluent,” IC RU2/EAL 1, nor identify as a deviation in the Section 3 listing. Provide justification based on plant design for deviation in not considering the fuel transfer canal, or provide the justification for the proposed changes to comply with NEI 99-01 guidance.

22. NEI 99-01 AU2/EAL 1.b specifies an increase in direct area radiation monitors reading concurrent with an uncontrolled water level decrease, but does not designate a specific threshold (i.e., a factor of 1000 over normal levels) as provided in NEI 99-01, AU2/EAL 2. The licensee in "Recognition Category R, Abnormal Rad Levels/Radiological Effluent," IC RU2/EAL 1, Criterion A, establishes "increase by a factor of 1000 over normal levels," which is outside NEI 99-01 guidelines. In addition, the licensee's basis states that for EAL 1, "These radiation increases represent a loss of control over radioactive material and may represent a potential degradation in the level of safety of the plant." Per the NEI 99-01 AU2 Basis, this statement is applicable only to EAL 2, since EAL 1 is intended to indicate a potential for increased doses to plant staff. Please provide further justification for applying this monitor reading threshold or the proposed changes to comply with NEI 99-01 guidance.
23. Under "Recognition Category R, Abnormal Rad Levels/Radiological Effluent," IC RU2/EAL 1, the licensee proposes an OR statement and inserts Criterion B, "Visual observations of an uncontrolled water level drop below either unit's fuel pool skimmer surge tank inlet OR observation of water draining down the outside wall of Primary Containment." However, the justification (reasoning) for including Criterion B under EAL 1 was not provided in the basis. NEI 99-01 AU2 Basis provides a statement that the declaration threshold may be based on indications of the water make-up rate or a decrease in refueling water storage tank, but this (or similar justification) was not included by the licensee in the basis discussion. Please provide further justification for deviation or the proposed changes to comply with NEI 99-01 guidance.
24. Under "Recognition Category R, Abnormal Rad Levels/Radiological Effluent," IC RA3/EAL 1, the licensee establishes a monitor reading threshold of "greater than 500 mR/hr"; however, the justification for this specific threshold value is not described in the Basis. Provide justification in the basis for the selection of a radiation monitor threshold of 500 mR/hr.
25. Under "Recognition Category F Fission Product Barrier Degradation," Reactor Coolant Activity/Fuel Clad 1.a, the licensee has included an additional Criterion 2, "Clad damage calculations indicate >5% fuel clad damage," based on the NEI 99-01 Basis discussion that 300 uCi/gm I₁₃₁ (Iodine-131) equivalent corresponds to <5% fuel clad damage. In the basis, the licensee states that the use of >5% to represent a loss of the fuel clad barrier is based on site-specific calculations. Please provide the site-specific calculations/assumptions used and describe what impact the time after shutdown will have on calculation determination that 300 uCi/gm I₁₃₁ dose equivalent will remain equal to 5% fuel clad damage, or provide the proposed changes to comply with NEI 99-01 guidance.
26. Under "Recognition Category F Fission Product Barrier Degradation," Drywell Pressure/Reactor Coolant System 2.d, the licensee added the qualifier "AND Indication of an RCS leak inside drywell," but did not list as a deviation by the licensee in Section 3. Please provide justification for deviation or the proposed changes to comply with NEI 99-01 guidance.
27. Per the licensee's discussion in the basis under "Recognition Category F Fission Product Barrier Degradation," Drywell Radiation/Reactor Coolant System 2.e, an instantaneous

release would result in ~2 R/hr, including a normal background reading of 3-5 R/hr, for a total dose reading of 5-7 R/hr. The licensee stated this value was rounded up to 10 R/hr for human factoring purposes, which results in a 25% increase. Please provide further information regarding the readout capability for the containment high-radiation monitor to justify that operator would not be able to clearly identify a dose rate below 10 R/hr.

28. Under "Recognition Category F Fission Product Barrier Degradation," RCS Leak Rate Or Containment Isolation Failure Or Breach/Bypass/Primary Containment 3.c, Loss No. 1, the licensee added the qualifier "resulting from an isolation actuation signal," but did not provide a justification in the basis, nor was the qualifier listed as a deviation in Section 3. Please provide justification in the basis for the addition of the qualifier or the proposed changes to comply with NEI 99-01 guidance.
29. Under "Recognition Category F Fission Product Barrier Degradation," RCS Leak Rate Or Containment Isolation Failure Or Breach/Bypass/Primary Containment 3.c, Loss No. 1, the licensee states in the Basis, 2nd Paragraph, "If the affected valve or other containment isolation valve in the same line can be closed by prompt (within 1-2 minutes) Control Room actions..." Please provide justification for the use of "1-2 minutes" to establish time frame for closure, which is not described in NEI 99-01 guidance under Primary Containment Example EAL No. 3 (Containment Isolation Failure or Bypass).
30. Under "Recognition Category F Fission Product Barrier Degradation," RCS Leak Rate Or Containment Isolation Failure Or Breach/Bypass/Primary Containment 3.c, Loss No. 3, the licensee states that unisolable primary system leakage outside primary containment is indicated by "two or more" reactor building areas in excess of maximum safe temperatures or radiation levels. Use of maximum safe temperatures or radiation levels is consistent with the use of "high setpoint" as outlined in the NEI 99-01 Basis under Primary Containment Barrier Example EAL No. 3 Containment Isolation Failure or Bypass. However, no deviation was identified or justification provided for the addition of the qualifier "two or more Reactor Building areas," which is inconsistent with the logic used under "Recognition Category F Fission Product Barrier Degradation," RCS Leak Rate or Containment Isolation Failure Or Breach/Bypass/Reactor Coolant System 2.c, Potential Loss No. 2. Please provide justification for the use of the qualifying statement or the proposed changes to comply with NEI 99-01 guidance.
31. Under "Recognition Category F Fission Product Barrier Degradation," Drywell Pressure/ Primary Containment 3.d, Loss No. 1, the licensee added a qualifier that drywell pressure is above "1.72 psig" prior to unexplained pressure decrease, but did not list this under deviations in Section 3. This is an inappropriate application of the NEI 99-01 Basis statement that drywell pressure should increase as a result of mass and energy release into containment from a loss-of-coolant accident (LOCA), meaning that the LOCA pressure setpoint of 1.72 psig must be exceeded as a prerequisite. As such, a scenario where drywell pressure may have been significantly elevated to 1.65 psig, but below the LOCA setpoint (1.72 psig) prior to an unexplained decrease, would not be classified under the proposed criteria. Provide further justification for inclusion of the qualifier or the proposed changes to comply with NEI 99-01 guidance.

32. NEI 99-01, Table 5-F-2 (Example EALs Fuel Clad #4/RCS #4/Primary Containment #5) requires the evaluation of site-specific "other indications" which may constitute a loss or potential loss of fuel clad, RCS or containment barriers. Section 3, "Deviations to NEI 99-01, Rev. 4," does not identify whether these evaluations were performed. Please provide documentation that an evaluation was performed per NEI 99-01, Table 5-F-2, to identify "Other (Site-Specific) Indications" for each barrier.
33. Under "Recognition Category M System Malfunctions," MG1 Criterion 1, the licensee, while identifying site-specific transformers which would constitute a loss of offsite power, also inserted the qualifier "> 15 minutes." This qualifying statement is not identified under NEI 99-01 SG1, nor was it listed as a deviation in Section 3 or described in the MG1 Basis. Please provide justification for the addition of the qualifier and address the deviation under Section 3 listing and the MG1 Basis, or provide the proposed changes to comply with NEI 99-01 guidance.
34. Under "Recognition Category M System Malfunctions," MG1 Criterion 1.B, the licensee selected "RPV [reactor pressure vessel] Level is < -161" as the site-specific indication of continuing degradation of core cooling based on fission product barrier monitoring per NEI 99-01 SG1. While the use of this threshold is considered acceptable, based on its use as an indicator of a potential loss of fuel clad barrier and a loss of the RCS barrier under "Recognition Category F Fission Product Barrier Degradation," the specific rationale for selecting this threshold is not provided in its Basis under MG1. Please provide the rationale for the selection of "RPV Level is < -161" under MG1 Basis.
35. Under "Recognition Category M System Malfunctions," MS1 Criterion 1, and "Recognition Category C Cold Shutdown/Refueling System Malfunctions," CA1 Criterion 1, the licensee applies the qualifier for restoration of power ">15 minutes" to the 1st criterion based on a loss of power to site-specific transformers. Based on the guidance in NEI 99-01 MS1, the time frame qualifier, to allow for the restoration of either offsite or onsite power to the required essential buses, would be applicable to the 2nd AND Criterion "All 4.16 kV ESS Buses on either unit are de-energized," rather than restoration of offsite power (start-up transformers) to ESS buses. Please provide justification for applying time frame qualifier (">15 minutes") only to the loss of start-up transformers or the proposed changes to comply with NEI 99-01 guidance.
36. Under "Recognition Category M System Malfunctions," MG3, the licensee inserted a qualifier, "...once a reactor protection system setpoint has been exceeded..." under the initiating condition statement. This qualifier is not contained in the NEI 99-01 SG2 initiating condition statement. Please provide justification for including a qualifying statement in the initiating condition, or provide the proposed change to comply with statement wording in NEI 99-01 SG2.

37. NEI 99-01 SG2 Basis defines “core cooling is extremely challenged” to mean that reactor vessel water level cannot be restored and maintained above minimum steam cooling RPV water level as described in the Emergency Operating Procedures (EOP) bases. Under “Recognition Category M System Malfunctions,” MG3 Criterion 1.A, the licensee provides a site-specific value of “-161,” the top of active fuel (TOAF), to indicate an extreme challenge to the ability to cool the core. Please provide further justification for use of “-161” TOAF versus minimum steam cooling RPV water level, or provide the proposed changes to comply with NEI 99-01 guidance.
38. Under “Recognition Category M System Malfunctions,” MS5/MA5, listing of significant transients provided by the licensee in Table M-2 differs from the thresholds provided in the NEI 99-01 definition under Section 5.4. Provide justification for the deviation from the NEI 99-01 definition of a “significant transient,” or provide the proposed changes to comply with NEI 99-01 guidance.
39. Under “Recognition Category M System Malfunctions,” MA5, the licensee’s IC contains the statement “for greater than 15 minutes,” which is provided for in the NEI 99-01 SA4 example EAL, but not in the IC statement itself. As written in IC MA5, the time qualifier may be misinterpreted that compensatory non-alarming indicators are unavailable for greater than 15 minutes, which is not the intent. Provide justification for including the time qualifier “for greater than 15 minutes” in the IC statement as written, or provide the proposed changes to comply with NEI 99-01 guidance.
40. Under “Recognition Category M System Malfunctions,” MA5/MU5, the licensee identifies the loss of safety system annunciators or safety function annunciators, while NEI 99-01 SA4/SU3 specifies the loss of site-specific annunciators or indicators associated with safety systems (but not safety functions). In addition, EAL threshold does not provide for the loss of annunciators or indicators for greater than 15 minutes as specified in NEI 99-01, SA4/SU3. Please provide justification for this deviation from NEI 99-01 guidance or the proposed changes to comply with NEI 99-01 guidance.
41. Under “Recognition Category M System Malfunctions,” MU7, Reference No. 2 identifies only Technical Specification 3.4.7, “RCS Specific Activity.” Please clarify whether this reference is applicable to both EAL Threshold Values 1 (DE I-131) & 2 (Off-Gas Pretreatment Monitor High-High Alarm), or provide additional technical specification references.
42. Under “Recognition Category M System Malfunctions,” MU8 and “Recognition Category C Cold Shutdown/Refueling System Malfunctions,” CU7, the licensee includes VHF Radio under offsite communications capability in Table M-1. However, the NEI 99-01 SU6 Basis states that the EAL is intended to be used only when extraordinary communications (e.g., relaying of information from radio transmissions, etc.) are being utilized to make communications possible. Listing of offsite communications with offsite authorities only addresses emergency notification systems, commercial telephone lines, telecopy transmissions and dedicated phone systems. Provide justification for deviation in NEI 99-01 SU6 guidance regarding radio communications, or provide the proposed changes to comply with NEI 99-01 guidance.

43. Under "Recognition Category M System Malfunctions," MU8 and "Recognition Category C Cold Shutdown/Refueling System Malfunctions," CU7, the licensee includes portable cellular telephones under offsite communications capability in Table M-1. Clarify whether implementing procedures address the use of cellular phones as a backup for offsite notification purposes and that cellular phones will function effectively within or in close proximity to plant structures.
44. Under "Recognition Category M System Malfunctions," MU7, the licensee provides the following statement in the Basis which is not addressed under NEI 99-01 SU2 "...if another Technical Specification provides alternate means of compliance, the NOUE should not be declared unless that action time is exceeded." Provide clarification and examples of when this statement would be applicable to justify deviation from NEI 99-01 SU2, or provide the proposed changes to comply with NEI 99-01 guidance.
45. Under "Recognition Category O Hazards and Other Conditions," OG1, the licensee's EAL threshold values address the loss of physical control of the Control Room or either unit's remote shutdown capability due to a security event. However, the NEI 99-01 HG1 basis specifically states that "[l]oss of physical control of the control room or remote shutdown capability alone may not prevent the ability to maintain safety functions per se." The intent is that a hostile force has taken control of plant equipment, whether by taking over the control room/remote shutdown area(s) or vital area in-plant, such that plant personnel are unable to operate required equipment to maintain safety functions. In addition, the NEI 99-01 HG1 Basis, 2nd Paragraph, also states, "This EAL should also address loss of physical control of spent fuel pooling cooling systems if imminent fuel damage is likely." Please provide justification for deviation from NEI 99-01 HG1 example EAL 1 and basis, or provide the proposed changes to comply with NEI 99-01 guidance.
46. NEI 99-01 HS1 Example EAL 2 states, "Other security events as determined from (site-specific) Safeguards Contingency Plan..." the NEI 99-01 HS1 Basis also specifies that consideration should be given to SABOTAGE and HOSTAGE / EXTORTION based on criteria in site-specific Security Contingency Plan. Under "Recognition Category O Hazards and Other Conditions," OS1 Criterion 2, the licensee is limited to any act of sabotage, and does not specifically address hostage/extortion situations nor directly evaluate security events based on the site security contingency plan as required under NEI 99-01 HS1. Rather, the licensee appears to simply apply definition of scope provided in the NEI 99-01 HS1 basis. Please provide justification for deviation from NEI 99-01 HS1 guidance and clarify whether evaluation of security events was performed against site Security Contingency Plan.
47. Under "Recognition Category O Hazards and Other Conditions," OS1, the licensee's basis, 2nd Paragraph, states that "An act of sabotage against the Interim Spent Fuel Storage Facility Installation (ISFSI) may result in the release of radioactivity. Therefore, acts against the ISFSI meet the criteria of this EAL." However, Initiating Condition (IC) is "Confirmed Security Event In A Plant Vital Area." Per the definitions contained in Section 2, the licensee defines the ISFSI as a Plant Vital Structure, rather than a Plant Vital Area. In addition, per NEI 99-01, security events related to the ISFSI are limited to an NOUE per E-HU2. Please provide further explanation regarding apparent discrepancies in OS1 between IC, EAL threshold value and basis, and with NEI 99-01, regarding the ISFSI applicability.

48. NEI 99-01 HA4/EAL 2 states, "Other security events as determined from (site-specific) Safeguards Contingency Plan..." The NEI 99-01 HA4 Basis also specifies that consideration should be given to sabotage, hostage/extortion and strike ACTION based on criteria in the site-specific security contingency plan using Basis guidance. Under "Recognition Category O Hazards and Other Conditions," OA1 Criterion 2, the licensee is limited to any act of sabotage and does not address hostage/extortion situations nor direct evaluation of security events based on the site security contingency plan as required under NEI 99-01 HA4. The licensee appears to simply apply the definition of scope provided in the NEI 99-01 HA4 Basis. Please provide justification for the deviation from NEI 99-01 HA4 guidance and clarify whether evaluation of security events was performed against the site security contingency plan.

In addition, under "Recognition Category O Hazards and Other Conditions," OA1, the licensee's Basis, 3rd Paragraph, states that "Escalation to a Site Area Emergency is based upon a hostile intrusion or act of sabotage in plant Vital Areas or the Interim Spent Fuel Storage Installation (ISFSI)." Please revise the Basis statement accordingly, based on changes made to OS1 regarding ISFSI.

49. The NEI 99-01 HU4 Basis states that consideration should be given to sabotage, hostage/extortion, civil disturbance and strike action situations, which have been evaluated against the site security contingency plan as indicating a potential degradation in the level of safety of the plant. While discussed in the Basis, the licensee does not specifically address hostage/extortion situations. Please clarify how hostage/extortion situations would be classified under OU1 or provide the proposed changes to comply with NEI 99-01 guidance.
50. In Section 3, "Deviations to NEI 99-01 Rev. 4," the licensee provides conflicting statements that NEI 99-01 IC E-HU2 (Confirmed Security Event With Potential Loss of Level Of Safety of the ISFSI) is not used since the ISFSI is within the Protected Area, but also states that this IC would be covered under OU1. Under "Recognition Category O Hazards and Other Conditions," OU1 Criterion 3, any legitimate attempted act of sabotage that impacts the ISFSI would be classified as an NOUE under OU1. Based on the NEI 99-01 E-HU2 Basis, security events, which represent a potential degradation in the level of safety of the ISFSI based on the site-specific security plan, should be addressed. Please provide further justification for limiting security events against the ISFSI to attempted acts of sabotage, based on evaluation against the security plan. In addition, please clarify in Section 3, "Deviations to NEI 99-01 Rev. 4," how NEI 99-01 E-HU2 is being addressed under the licensee's proposed EAL scheme.
51. The NEI 99-01 HS2 Basis states that a site-specific time for transfer, not to exceed 15 minutes (without additional justification), should be based on analysis or assessments as to how quickly control must be re-established without core uncovering and/or core damage. Under "Recognition Category O Hazards and Other Conditions," OS2 Basis, the licensee states that 15 minutes were established "as a reasonable time period for personnel to leave the control room, arrive at the remote shutdown areas, and re-establish plant control." Please provide reference to a site-specific analysis or assessment performed to determine that core uncovering and/or core damage would not occur if control could not be re-established in a time period less than 15 minutes.

52. NEI 99-01 HA1/EAL 1, states “(Site-specific) methods indicate seismic events greater than the operating basis earthquake [OBE].” Under “Recognition Category O Hazards and Other Conditions,” OA3/EAL 1, the licensee correctly establishes the OBE level. However, rather than specify a site-specific method used to indicate a seismic event in the EAL threshold value (as specified in NEI 99-01 guidance), the licensee specifies in the Basis, rather than in the EAL threshold value itself, that detection will be based on seismic instrumentation in the control room. Please provide justification for not including reference to a site-specific method used to indicate a seismic event in EAL threshold value No. 1, or provide the proposed changes to comply with NEI 99-01 guidance.
53. NEI 99-01 HA1/EAL 2, states, “tornado or high winds greater than (site-specific) mph within the protected area boundary and resulting in VISIBLE DAMAGE to...plant structures/equipment or control room indication of degraded performance of those systems.” Under “Recognition Category O Hazards and Other Conditions,” OA3/EAL 2, the licensee inserts the qualifier “sustained high winds of greater than 80 mph within the Protected Area,” but does not define or justify the use of the term “sustained,” does not provide reference to the source of 80 mph threshold, and does not address the NEI 99-01 HA1/EAL 2 criterion regarding “control room indication of degraded performance of those systems.” Please provide the definition for the term “sustained” and basis for wind speed threshold. In addition, provide justification for failure to address the criterion “Control Room indication of degraded performance of those systems,” or provide the proposed changes to comply with NEI 99-01 guidance.
54. Under “Recognition Category O Hazards and Other Conditions,” OA3/Table O-2, the licensee lists what are considered plant vital structures for event classifications purposes, but does not identify the source in the OA3 basis used to develop this listing. Provide reference in the source document or analysis used to identify plant vital structures, and clarify whether there are any areas, outside of these designated plant vital structures, that contain systems and functions required for safe shutdown of the plant. In addition, based on the NEI 99-01 guidance in “Events Related to ISFSI,” events which may result in damage to a loaded cask confinement boundary under E-HU1 are limited to classification as an NOUE. Please clarify why ISFSI is defined as and listed as a plant vital structures under Table O-2 and in Section 2, “Definitions.”
55. Section 5.4 of NEI 99-01 provides a specific definition of “visible damage.” However, this definition is not referenced, nor is “visible damage” defined in the licensee’s submittal. Please define what constitutes “visible damage” for event classification purposes under “Recognition Category O Hazards and Other Conditions,” OA3/OU3.
56. NEI 99-01 HA1/EAL 3, states “[v]ehicle crash within the protected area boundary and resulting in visible damage to...plant structures or equipment therein or Control Room indication of degraded performance of those systems.” Under “Recognition Category O Hazards and Other Conditions,” OA3/EAL 3, the licensee does not address this NEI 99-01 statement. Please provide justification for this deviation, or provide the proposed changes to comply with NEI 99-01 guidance.

57. NEI 99-01 HA1/EAL 5, states, “uncontrolled flooding in (site-specific) areas of the plant that results in degraded safety system performance as indicated in the control room or that creates industrial safety hazards (e.g., electric shock) that precludes access necessary to operate or monitor safety equipment...” Under “Recognition Category O Hazards and Other Conditions,” OA3/EAL 5, the licensee states, “Flooding that exceeds the maximum safe water level in two or more areas of the plant as designated in Table O-1 requiring a reactor shutdown.” Please provide justification for deviations listed below, or provide the proposed changes to comply with NEI 99-01 guidance:
- Flooding in excess of maximum safe water level in two or more areas requiring a reactor shutdown, versus a single area that results in degraded safety system performance as indicated in the control room (as specified in NEI 99-01 HA1/EAL 5). Why is it that flooding in any one of these areas shouldn’t be considered an industrial safety hazards (e.g., electric shock) if access is necessary to operate or monitor safety equipment (as specified in NEI 99-01 HA1/EAL 5), even though maximum safe water level has not yet been reached.
58. Under “Recognition Category O Hazards and Other Conditions,” OU3/EAL 1, the licensee states, “Earthquake detected by seismic instrumentation systems.” Please provide the lower range of plant seismic instrumentation, setpoints for seismic switches (if applicable), and backup assessment means if seismic instrumentation is out of service. In addition, define what seismic instrumentation setpoint/reading or other means (e.g., activation of seismic switches), in combination with vibratory ground motion felt onsite, will be established per NEI 99-01 HU1 basis.
59. NEI 99-01 HU1/EAL 2, states “Report by plant personnel of tornado or high winds greater than (site-specific) mph striking within the protected area boundary.” Under “Recognition Category O Hazards and Other Conditions,” OU3, EAL 2, the licensee inserted the qualifier “sustained high winds greater than 70 mph impact on site within the Protected Area”, but does not justify use of term “sustained.” Per NEI 99-01 HU1/EAL 2, high wind site-specific value should be consistent with that used under OU3/EAL 2, with confirmed damage to plant vital structures escalating the event to an Alert. Provide the basis for the wind speed threshold.
60. Under “Recognition Category O Hazards and Other Conditions,” OU3/EAL 6, the licensee states, “Flooding that exceeds the maximum normal water level in Vital Areas of the plant as designated in Table O-1 [reactor building water level].” However, Table O-1 in OU3 lists setpoints for the “maximum safe water level” (which is used under OA3), rather than the “maximum normal water level” referenced in OU3/EAL 6. Revise Table O-1 to provide the maximum normal water level in Vital Areas of the plant.
61. NEI 99-01 HA2/EAL 1 establishes a threshold where a fire or explosion occurs in any site-specific area containing functions and systems required for the safe shutdown of the plant and “affected system parameter indications show degraded performance or plant personnel report visible damage to permanent structures or equipment within the specified area.” Under “Recognition Category O Hazards and Other Conditions,” OA4/EAL 1, the licensee specifies in the 1st criterion that 2 or more safe shutdown systems or subsystems of a safe shutdown system are rendered potentially inoperable. This is inconsistent with the NEI 99-01 HA2 basis since the EAL is not intended to address the

- degradation in the performance of affected systems. Provide justification for deviation, or provide the proposed change to comply with NEI 99-01 HA2 guidance.
62. Under "Recognition Category O Hazards and Other Conditions," OA4, the licensee established an EAL threshold stating, "Plant personnel report Visible Damage to 1 or more plant Vital Structures (Table O-2) containing Safe Shutdown Equipment." While Table O-2 (plant vital structures) provides a reference to the ISFSI, the table's title and EAL threshold value state that the table applies to plant vital structures containing safe shutdown equipment which is not applicable to the ISFSI. The IC title also refers to plant systems required to establish or maintain safe shutdown, which is also not applicable to the ISFSI. Finally, NEI 99-01 does not require the classification of an Alert based on the guidance for events related to ISFSI, which are only classified at the NOUE level. Provide further justification for the deviation, or provide the proposed changes to comply with NEI 99-01 E-HU1 guidance.
 63. Under "Recognition Category O Hazards and Other Conditions," OA5/EAL 1, the licensee added the following qualifier, which does not exist under the example EALs for NEI 99-01 HA3, "Access to this area is required for the safe operation of the plant but personnel are not able to access this area." Per the guidance in the NEI 99-01 HA3/EAL 1 basis, this EAL is met if measurement of toxic gas concentration results in an atmosphere that is IDLH within a vital area or any area or building contiguous to a vital area. Thus, per NEI 99-01 HA3, access to the affected area is not considered. Provide justification for the deviation, or provide the proposed change to comply with NEI 99-01 HA2 guidance.
 64. NEI 99-01 HA3/EAL 2 states "[r]eport or detection of gases in concentration greater than the lower flammability limit within or contiguous to a vital area." Under "Recognition Category O Hazards and Other Conditions," OA5/EAL 2, the licensee states, "Report or detection of flammable gases within or contiguous to a plant Vital Area in concentrations that will affect the safe operation of the plant." Under the OA5 Basis for EAL 2, the licensee also states that flammable gas concentrations exceed the lower flammability limit. Please provide clarification with inconsistencies between wording in OA5/EAL 2 and the basis consistent with guidance provided under NEI 99-01 HA3/EAL 2. In addition, provide justification for the deviation, or provide the proposed changes to comply with NEI 99-01 HA2 guidance.
 65. Under "Recognition Category O Hazards and Other Conditions," OU5/EAL 1, the threshold value is consistent with NEI 99-01 HU3/EAL 1 in that gases are, or believed to be, in amounts that can affect normal plant operations. However, the licensee does not define "normal plant operations" in the OU5 Basis or under definitions in Section 2. In Section 5.4 to NEI 99-01, entry into abnormal or EOPs, or deviations from normal security or radiological control postures is a departure from normal plant operations. Please define what constitutes "normal plant operations."
 66. Under "Recognition Category O Hazards and Other Conditions," OS6 Basis/OA6 Basis, the licensee states, "Any releases would be evaluated against the criteria of EAL 15 Radiological Effluent." Please clarify the intended reference to the specific EAL radiological effluent criteria.

67. Under "Recognition Category E ISFSI Malfunctions/Dry Fuel Storage," EU1, the IC states, "Damage to a loaded cask confinement boundary." However, the term "confinement boundary" is not defined in the EU1 Basis or under definitions in Section 2. Definition of "confinement boundary" is contained in Section 5.4 (Definitions) to NEI 99-01. Please define the term, "confinement boundary," as used in EU1, and justify any deviations from the NEI 99-01 definition.
68. Under Section 3, "Deviations to NEI 99-01, Rev. 4," the licensee states that NEI 99-01 E-HU1/ EALs 1 and 2 (natural phenomena/accident conditions events affecting a loaded cask confinement boundary) is addressed under OU3, since ISFSI is located within the protected area. However, the NEI 99-01 E-HU1 basis states that a site-specific listing of natural phenomenon and accident conditions that may affect a loaded cask confinement boundary shall be identified as part of an evaluation performed per the NEI 99-01 E-HU1 Basis, using the results of the ISFSI Safety Analysis Report (SAR) per NUREG-1536 or an SAR referenced in the cask's certification of compliance/related NRC SAR. Please provide documentation that a site-specific evaluation was performed per the NEI 99-01 E-HU1 Basis guidance to validate that OU3 covers all applicable natural phenomena and accident conditions, including (but not limited to) a dropped or tipped over cask.
69. The licensee states under Section 3, "Deviations to NEI 99-01, Rev. 4," that fire damage to the ISFSI is covered by EALs OA4 and OU4. Please clarify the reason for not referencing NEI 99-01 E-HU1 under OU4 as applicable to the ISFSI.
70. Under "Recognition Category E ISFSI Malfunctions/Dry Fuel Storage," EU1/EALs 1 & 2, the licensee provides EAL threshold values based on specific radiological survey readings. Please provide the justification and reference(s) to specific calculations performed for the radiological readings provided in EU1/EALs 1 & 2.
71. Under "Recognition Category C Cold Shutdown/Refueling System Malfunctions," CA1, the licensee's Basis does not contain the discussion from the 2nd paragraph of NEI 99-01 CA3 basis (or equivalent), regarding guidance on evaluating the loss of AC power to essential busses. Provide justification for not addressing the NEI 99-01 CA3 basis guidance under the licensee's CA1 Basis, or provide the proposed changes to comply with NEI 99-01 guidance.
72. Under "Recognition Category C Cold Shutdown/Refueling System Malfunctions," CU2/ EAL 1, the licensee requires classification based on less than 105 VDC (direct current) on all four unit 125 VDC main distribution busses. This is inconsistent with NEI 99-01 CU7/EAL Criterion 1.b, that does not require classification if >105 VDC can be restored to at least one required DC bus, rather than all four busses. Please provide justification for the deviation, or provide the proposed change to comply with NEI 99-01 guidance.

73. NEI 99-01 CG1/EAL Criterion 2.b states that RPV level cannot be monitored with indication of core uncover for >30 minutes as evidenced by one or more of the following:
- For Containment High Range Radiation Monitor reading >(site-specific) setpoint, per NEI 99-01 Basis, calculations should be performed to conservatively estimate a site-specific dose rate setpoint indicative of TOAF. Under "Recognition Category C Cold Shutdown/Refueling System Malfunctions," CG4/EAL 2.B, the licensee established that an unexplained containment high range radiation monitor "significantly increased over normal shutdown levels," while the CG4/EAL 2 basis states a threshold of "...greater than 3 times normal reading for the past 24 hours - excluding the current peak..." Please provide justification for the deviation from NEI 99-01 CG1/EAL 2.B criteria and the basis for site-specific containment high range monitor reading. In addition, clarify the apparent inconsistency between the licensee's proposed threshold in the EAL criterion and the basis.
 - For Erratic Source Range Monitor indication, per the NEI 99-01 Basis, the post-Three Mile Island studies indicated that the installed nuclear instrumentation will operate erratically when the core is uncovered. Under "Recognition Category C Cold Shutdown/Refueling System Malfunctions," CG4/EAL 2.B, the licensee does not address this criterion, nor identify and justify it as a deviation. Please provide justification for the deviation from NEI 99-01 CG1/EAL 2.B criteria and the basis regarding the use of source range monitor indication, or provide the proposed changes to comply with NEI 99-01 guidance.
74. NEI 99-01 CG1/EAL 3 provides indication for a containment challenge, one of which is "containment closure not established." Per Section 5.4 to NEI 99-01, this is defined as secondary containment for a boiling-water reactor. Under "Recognition Category C Cold Shutdown/Refueling System Malfunctions," CG4/EAL 3, the licensee states "Primary containment not established." Provide justification for the deviation from NEI 99-01 CG1/EAL 3 criteria, and the basis regarding "containment closure," or provide the proposed change to comply with NEI 99-01 guidance.
75. Example EALs for NEI 99-01 CS1 and CS2 provide criteria for conditions with containment closure (secondary containment) "not established" and "established." Under Section 3, "Deviations to NEI 99-01 Rev. 4," the licensee has chosen to assume that secondary containment has not been established, based on the perceived difficulty to verify that secondary containment is established or re-established, and does not address NEI 99-01 CS1/EAL 2 Criteria. Please provide guidance under "Recognition Category C Cold Shutdown/Refueling System Malfunctions," CS4 and CS5, to address the criteria for conditions with containment closure (secondary containment) established.
76. While addressed in NEI 99-01 CS1 and CS2 Criteria, the licensee under Section 3, "Deviations to NEI 99-01 Rev. 4," states that erratic source range monitor indications were not used since they would be difficult to quantify and assess. The intent of source range monitor indication is not to quantify, but rather to provide supporting indication following a loss of RPV inventory where RPV level cannot be monitored. Provide guidance under "Recognition Category C Cold Shutdown/Refueling System Malfunctions," CS4 and CS5, to address the erratic source range monitor indications, or further technical justification for the elimination of the NEI 99-01 criterion.

77. Per the NEI 99-01 CS2 Basis, calculations should be performed to conservatively estimate a site-specific containment high range radiation monitor dose rate setpoint indicative of the TOAF. However, under "Recognition Category C Cold Shutdown/Refueling System Malfunctions," CS5/EAL 5, the licensee establishes an unexplained containment high range radiation monitor "greater than 3 times normal shutdown levels." Please provide justification for the deviation from NEI 99-01 CS2/EAL 1.b & 2.b Criteria and Basis, or provide the proposed change to comply with NEI 99-01 guidance.
78. NEI 99-01 CU2/EAL 1 states, "unplanned RCS level decrease below the RPV flange for \geq (greater than or equal) 15 minutes." However, under "Recognition Category C Cold Shutdown/Refueling System Malfunctions," CU5/EAL 1, the licensee states only "...>15 minutes." Provide justification for the deviation, or provide the proposed changes to comply with NEI 99-01 guidance.
79. Under Section 3, "Deviations to NEI 99-01 Rev. 4," the licensee states that NEI 99-01 CU5/EAL 1 was not included under "Recognition Category C Cold Shutdown/Refueling System Malfunctions," CU6, since the off-gas pre-treatment radiation monitors are not designed to be in service during the refuel mode. However, NEI 99-01 CU5/EAL 1 does not specifically refer to the off-gas pre-treatment radiation monitors, but rather states that site-specific radiation monitor readings should be used to indicate fuel clad degradation in Mode 5 (Refueling). Please provide the evaluation of other site-specific radiation monitor readings that could be used in Mode 5 as indication of fuel clad degradation.
80. Please list the applicable technical specification(s) for coolant sample activity level used which are not listed in the "References" section of "Recognition Category C Cold Shutdown/Refueling System Malfunctions," CU6.

Susquehanna Steam Electric Station, Unit Nos. 1 and 2

cc:

Richard L. Anderson
Vice President - Nuclear Operations
PPL Susquehanna, LLC
769 Salem Blvd., NUCSB3
Berwick, PA 18603-0467

Dale F. Roth
Manager - Quality Assurance
PPL Susquehanna, LLC
769 Salem Blvd., NUCSB2
Berwick, PA 18603-0467

Aloysius J. Wrape, III
General Manager - Nuclear Assurance
PPL Susquehanna, LLC
Two North Ninth Street, GENPL4
Allentown, PA 18101-1179

Herbert D. Woodeshick
Special Office of the President
PPL Susquehanna, LLC
634 Salem Blvd., SSO
Berwick, PA 18603-0467

Terry L. Harpster
General Manager - Plant Support
PPL Susquehanna, LLC
769 Salem Blvd., NUCSA4
Berwick, PA 18603-0467

Bryan A. Snapp, Esq
Assoc. General Counsel
PPL Services Corporation
Two North Ninth Street, GENTW3
Allentown, PA 18101-1179

Robert A. Saccone
General Manager - Nuclear Engineering
PPL Susquehanna, LLC
769 Salem Blvd., NUCSB3
Berwick, PA 18603-0467

Supervisor - Document Control Services
PPL Susquehanna, LLC
Two North Ninth Street, GENPL4
Allentown, PA 18101-1179

Rocco R. Sgarro
Manager - Nuclear Regulatory Affairs
PPL Susquehanna, LLC
Two North Ninth Street, GENPL4
Allentown, PA 18101-1179

Richard W. Osborne
Allegheny Electric Cooperative, Inc.
212 Locust Street
P.O. Box 1266
Harrisburg, PA 17108-1266

Walter E. Morrissey
Supervising Engineer
Nuclear Regulatory Affairs
PPL Susquehanna, LLC
769 Salem Blvd., NUCSA4
Berwick, PA 18603-0467

Director - Bureau of Radiation Protection
Pennsylvania Department of
Environmental Protection
P.O. Box 8469
Harrisburg, PA 17105-8469

Michael H. Crowthers
Supervising Engineer
Nuclear Regulatory Affairs
PPL Susquehanna, LLC
Two North Ninth Street, GENPL4
Allentown, PA 18101-1179

Senior Resident Inspector
U.S. Nuclear Regulatory Commission
P.O. Box 35, NUCSA4
Berwick, PA 18603-0035

Regional Administrator, Region 1
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Susquehanna Steam Electric Station, Unit Nos. 1 and 2

cc:

Board of Supervisors
Salem Township
P.O. Box 405
Berwick, PA 18603-0035

Dr. Judith Johnsrud
National Energy Committee
Sierra Club
443 Orlando Avenue
State College, PA 16803