Tennessee Valley Authority

Pre-Submittal Meeting for License Amendment Request to Change Emergency Action Level Scheme

October 13, 2021

TVA TENNESSEE VALLEY AUTHORITY

Agenda

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- Background
- Description of the License Amendment
- Precedent
- Conclusion
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Introduction

- The purpose of this meeting is to brief the Nuclear Regulatory Commission (NRC) regarding a TVA license amendment request for Browns Ferry (BFN), Sequoyah (SQN), and Watts Bar (WBN) to change their Emergency Action Level (EAL) scheme to make an exception in Initiating Condition (IC) HU2 to provide an additional method to declare the event.
- This IC is specified in Emergency Plan Implementing Procedures (EPIPs):
  - BFN EPIP-1 “Emergency Classification Procedure”
  - SQN EPIP-1 “Emergency Plan Classification Matrix”
  - WBN EPIP-1 “Emergency Plan Classification Logic”
- NRC approval is requested one year from submittal of the license amendment request.

Background

- Browns Ferry, Sequoyah, and Watts Bar all use Nuclear Energy Institute (NEI) 99-01 Rev. 6 EAL scheme.
- The proposed change will make an exception in IC HU2 (Seismic event greater than Operating Basis Earthquake [OBE] levels) to provide an additional method to declare the event if the OBE seismic alarm is out of service.
- The proposed change is consistent with the NRC-approved guidance presented in Nuclear Energy Institute (NEI) 99-01, “Development of Emergency Action Levels for Non-Passive Reactors,” Revision 6, dated November 2012.

Description – Reason for Request

- The proposed change will prevent avoidable notifications of unusual events by giving operators more flexibility to determine if an OBE event occurred.
- Under the current EAL, there is no method of determining an OBE event if the seismic monitoring equipment is out of service. This forces the Shift Manager or Shift Emergency Director to seek additional guidance in order to make a declaration within 15 minutes of a potential event.

Description – Proposed EAL – BFN

HU2

ECL: Unusual Event
Initiating Condition: Seismic event greater than OBE levels.
Operating Mode Applicability: All
Emergency Action Levels:

Note: For emergency classification, if EAL 2.b is not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director in **< 15 mins** of the event.

(1) Seismic event greater than Operating Basis Earthquake (OBE) as indicated by:
- Unit 1 Control Room Panel 1-XA-55-22C Window 6, 1/2 SSE RESPONSESPECTRUM EXCEEDED

OR

(2) When Seismic Monitoring Equipment is not available:
a. Control Room personnel feel an actual or potential seismic event.

AND

b. ANY one of the following confirmed in **< 15 mins** of the event:
- The earthquake resulted in Modified Mercalli Intensity (MMI) **> VI** and occurred **< 3.1 miles** of the plant.
- The earthquake was magnitude **> 6.0**.
- The earthquake was magnitude **> 5.0** and occurred **< 124.5 miles** of the plant.

Description – Proposed EAL – SQN

HU2

ECL: Unusual Event
Initiating Condition: Seismic event greater than OBE levels.
Operating Mode Applicability: All
Emergency Action Levels:

Note: For emergency classification, if EAL 2.b is not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director in **< 15 mins** of the event.

(1) Seismic event greater than Operating Basis Earthquake (OBE) as indicated by Panel 1-XA-55-15B alarm windows E-2 and D-1 activated.

OR

(2) When Seismic Monitoring Equipment is not available:
a. Control Room personnel feel an actual or potential seismic event.

AND

b. ANY one of the following confirmed in **< 15 mins** of the event:
- The earthquake resulted in Modified Mercalli Intensity (MMI) **> VI** and occurred **< 3 miles** of the plant.
- The earthquake was magnitude **> 6.0**.
- The earthquake was magnitude **> 5.0** and occurred **< 120 miles** of the plant.

Description – Proposed EAL – WBN

HU2

ECL: Unusual Event
Initiating Condition: Seismic event greater than OBE levels.
Operating Mode Applicability: All
Emergency Action Levels:

Note: For emergency classification, if EAL 2.b is not able to be confirmed, then the occurrence of a seismic event is confirmed in manner deemed appropriate by the Shift Manager or Emergency Director in **< 15 mins** of the event.

(1) Seismic event greater than Operating Basis Earthquake (OBE) as indicated by AlarmWindow 166-D, OBE SPECTRA EXCEEDED lit.

OR

(2) When Seismic Monitoring Equipment is not available:

a. Control Room personnel feel an actual or potential seismic event.

AND

b. ANY one of the following confirmed in **< 15 mins** of the event:

- The earthquake resulted in Modified Mercalli Intensity (MMI) Level **VI** or greater within 5km **(3 miles)** of the plant.
- The earthquake was felt within plant and was magnitude **6.0** (Richter scale) or greater.
- The earthquake was magnitude **> 5.0** and occurred **< 120 miles** of the plant.

Description – Available Guidance

- The proposed EAL change includes guidance from Regulatory Guide 1.166 and site abnormal operating procedures for earthquakes. The additional language includes methods of verification if seismic instrumentation is not available and metrics for declaration of events.
- The inclusion of this information will assist operators in making a determination in a timely manner. This will prevent unnecessary declarations.
- This proposed EAL scheme change is consistent with regulatory guidance in NEI 99-01 Revision 6 that provides alternative EAL for sites that do not have readily assessable OBE indications within the Control Room.

Precedent

- Exelon Generation submitted a license amendment request for Calvert Cliffs Nuclear Plant, Nine Mile Point Nuclear Station, and R.E. Ginna Nuclear Power Station to change their EAL schemes. (Letter from Exelon Generation to NRC, *License Amendment Request to Adopt Emergency Action Level Schemes Pursuant to NEI 99-01, Revision 6, "Development of Emergency Action Levels for Non-Passive Reactors"*, dated May 31, 2017 [ML17164A139])
- Subsequently, Exelon Generation responded to a request for additional information (RAI) in a letter to the NRC, dated January 31, 2018 [ML18037A721].
- The NRC approved the LAR in a letter from the NRC to Exelon Generation, *Issuance of Amendments Revising Emergency Action Level Schemes*, dated June 26, 2018 [ML18137A614].
- The scope of that precedent is the same as the scope of this request, with respect to HU2.

Conclusion

- NRC-approved guidance in NEI 99-01 Revision 6 provides TVA methods for BFN, SQN, and WBN to include additional criteria to the EAL in the event the OBE alarm is not available or out of service.
- Plant operators will still be able to provide notification to the NRC following a seismic event, but they will have more methods to make the determination in a timely manner.
- The proposed EAL changes meet the regulatory requirements of Regulatory Guide 1.101 and Regulatory Guide 1.166.

Schedule Milestones

- October 13, 2001 – Pre-submittal meeting with NRC
- November 2021 – TVA submittal of the EAL HU2 change license amendment request
- November 2022 – Requested NRC approval date (one year following submittal)
- April 2023 – Expected implementation deadline for BFN, SQN, and WBN

Closing Remarks


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