

March 20, 2011

A LIST OF ISSUES THAT STUK IS PLANNING TO ASSES TOGETHER WITH NPP LICENSE HOLDERS AND REPORT TO THE MINISTRY IN THE AFTERMATH OF FUKUSHIMA NPP

1. Extreme weather and natural conditions at the plant site that can have effect on the reliability of plant's off-site or on-site power supply or on the functionality of the residual heat removal systems.
 - Design basis limits and assumptions regarding each weather and natural condition. Assessment of the suitability of these limits and assumptions compared to today's knowledge taking into account the historical information of the weather and natural phenomena, and the predicted development of these during the planned lifetime of the plant. Assessment of the possible needs to modify the previous design basis.
 - Short description of the design provisions against each weather and natural condition.
 - Assessment of the sufficiency of the provisions.
 - Potential possibilities to improve provisions if it is assessed to be necessary.
2. Earthquakes taken into account in the design
 - Design basis earthquake and the methods used to define it.
 - Summary of the safety analysis concerning earthquakes and of the measures done based on the analysis to ensure the safety.
 - Potential possibilities to improve provisions if it assessed to be necessary.
3. Other external threats that have been taken into account in the design. Threats shall include also the threats to the plant's electrical systems that are caused by disturbances in the national electric grid, plant's switchyard, transformers or main generator. Threats of lightning are assessed together with other threats to electrical systems. In addition, a short summary will be presented on how the reliability of the normal and emergency AC power systems of the plant has been evaluated and improved, taking into account reported operating experience from other nuclear power plants.
 - Assessment of the suitability of assumptions concerning each threat and the need to modify the assumptions.

- Short description of the provisions concerning each threat
 - Assessment of the sufficiency of the provisions
 - Potential possibilities to improve provisions if it is assessed to be necessary.
4. Under items 1-3 one should consider also the mutual dependencies of the external events and the possibility that they coincide. In addition, one should take into account the possible disturbances or loss of communications (traffic and data transfer).
5. Reliability of power supply in a situation of the loss of off-site power
- Short description of the reserve power sources designed in case of loss of off-site power and possibilities for crossed pinning between plant unit's safety divisions and different plant units. Assessment of the time required to make the crossed pinning.
 - Other AC power sources at the plant site or nearby that can be connected to supply power directly to the plant. Information of the time needed to connect each electricity source and information of the place where the connection can be performed. Information how these connections are protected against extreme weather conditions and external threats.
 - Possibilities to get portable AC power sources to the plant, and information on these devices concerning the maximum power, voltage levels, and capability to carry transient loads related to start-up of electrical motors. Assessment of the time needed to transport these devices and risks related to the transport in extreme conditions.
 - Information of the arrangements enabling the connection of the portable AC power sources to the plant's electric power supply system.
 - Assessment of the possibilities to improve the availability and connection possibilities of those AC power devices that would function as AC power sources in a situation where the on-site reserve power sources were lost.
6. A summary of the heat sinks suitable for the cooling of the reactor and spent fuel, their adequacy, and reliability. References to provisions described in Sections 1-3 can be used if necessary.
- Provisions in case the sea water intake tunnel is blocked.
 - Possibilities to remove the heat to the atmosphere.
 - Water storage tanks containing demineralized water that is available for feeding coolant into the reactor and the spent fuel pools. Possibilities and arrangements to fill these water tanks, taking into account also water of lower quality that is available in the neighborhood of the plant. Assessment of the need and possibilities to improve these arrangements.
 - Temporary provisions for feeding water directly from portable water sources (fire trucks) in extreme conditions into the reactor cooling

system, pressure water reactor secondary system or spent fuel storage pools. Assessment of the time needed to make these temporary arrangements and the availability of the personnel needed for this task. Assessment of the need and possibilities to improve the pipeline connections necessary to enable these temporary arrangements.

7. A summary of the alternative possibilities to remove the residual heat when the reactor is at a hot shutdown state.
 - Verification of the availability of skilled personnel and appropriate procedures for utilization of each possibility.
8. A summary of the alternative possibilities to get the reactor into cold shutdown state from the hot shutdown state.
 - Verification of the availability of skilled personnel and appropriate procedures for utilization of each possibility
9. A summary of the alternative possibilities to remove the residual heat from the containment so that the pressure and the temperature do not exceed the design basis values.
 - Verification of the availability of skilled personnel and appropriate procedures for utilization of each possibility.
10. A summary of the alternative possibilities to cool each of the spent fuel pools. Assessment of the largest possible heat power that can be released as a sum of the fuel assemblies in each spent fuel pool.
 - Verification of the availability of skilled personnel and appropriate procedures for utilization of each possibility.
11. Assessment of the adequacy of the available personnel for each of the relevant key tasks, taking into account potential accident situations lasting long and concerning more than one plant unit.