Evaluations done for the purposes of definition of environmental qualification zones at Krško NPP have shown that, due to potential pipe rupture event in the Steam Generator Blowdown Processing (BD) System, a significant area in the Intermediate Building could become a “harsh” zone. As a consequence, a number of important components, including the Safety Class DC Batteries, Battery Chargers and Motor Driven Auxiliary Feedwater Pumps could, potentially, be lost following the break in the SG BD line. The same hazard would also affect the Remote Shutdown Panels (Evacuation Panels), located in the affected area, which could result in interactions that would possibly affect safety mitigation systems.

The SG BD high energy line break (HELB) would, therefore, represent an initiator with possible significant degradation in plant mitigation capability. Recognizing this, Krško NPP decided to implement a design modification and install the equipment that would detect the SG BD line break and isolate the ruptured pipe in a short time. Additionally, a shielding in the form of steel plates for the Cable Trays in the plant room / area IB021 will be installed. This is necessary in order to protect the control and power cables for the Remote Shutdown Panels from the dynamic effects produced by a HELB event, such as steam jet impingement, should the postulated break occur in the IB021 area.

The Krško NPP PSA model was updated with regard to these plant design modifications and the updated model used to estimate the residual risk from the SG BD HELB events. This included the characterization of hazard in the form of hazard damage states, plant response analysis to determine the impact of hazard on the plant equipment in the affected rooms, considering also the containment systems, and Level 1 and Level 2 PSA modelling and risk quantification.

The paper presents the analysis and the results.

**Keywords:** Krško NPP, PSA, HELB, SG blowdown processing