

## Analysis of Beyond-design Basis Accident as a Result of Tornado in the Wet-Type Spent Fuel Storage Facility

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### **Abstract:**

The analyses presented in this paper consist of two parts. In the first part, the dynamic structural analysis for F3 class tornado at ISF-1 is performed taking into account the size and velocity of tornado, time of passing through the ISF-1 building, pressure distribution in the tornado funnel and on its periphery. The initial time interval is determined during which the limit values of loads on certain ISF-1 structures are reached. Possible failures of certain structures are analyzed. In the second part, thermal-hydraulic processes associated with possible loss of water in ISF-1 are analyzed. In this part, the time interval is determined when spent fuel assemblies reach temperature of 100°C (373 K) and during which the pool is to be filled with water to avoid the evaporation process. Also, the later water supply case, when the temperature of fuel assemblies exceeds 300°C, accompanied with steam generation and ejection, is analyzed.