

DISCUSSION ON SEVERE ACCIDENT MANAGEMENT OF MULTI-UNITS NUCLEAR POWER PLANTS

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Abstract

After Fukushima nuclear accident, international nuclear industry further paid attention to the severe accident management of nuclear power plants. Various design units, research institutes, and nuclear power plants (NPPs) proposed and implemented various design improvement measures to enhance severe accident prevention and mitigation capabilities of nuclear power plants. Multi-units severe accident management issue has also received increasing attention. Nuclear power plants in China all belong to multi-unit sites. However, the management of severe accidents in NPPs is mainly focused on the development and exercise of severe accident management guidelines (SAMGs) for single or double units of same reactor type, which is lacking for the consideration of multi-units. Severe accident management of multi-units needs to consider two aspects. First, for severe accident itself, consider the difference in mitigation methods between multi-units accident and single unit accident; second, the emergency resource sharing issue for multi-units site should also be concerned. Starting from the cause of multi-units severe accident, and based on the characteristics of multi-units sites, this paper determines the severe accident management problems that need to be paid attention to by multi-units sites compared to single unit site, and analyzes main points of multi-units sites' severe accident management from the aspects of emergency response personnel allocation, mitigation measures and their implementation, and emergency facilities and equipment in detail. The issues discussed in this paper can provide reference for the serious accident management of multi-units sites.

Keywords: Multi-units, severe accident management, nuclear power plant, emergency response, mitigation measures