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ЕФЕКТИВНІСТЬ ТА ПЕРСПЕКТИВИ РЕАЛІЗАЦІЇ ЗАХОДІВ КВАЛІФІКАЦІЇ ОБЛАДНАННЯ, ВАЖЛИВОГО ДЛЯ БЕЗПЕКИ У ВІТЧИЗНЯНІЙ ЯДЕРНІЙ ЕНЕРГЕТИЦІ

Аналізуються результати впровадження кваліфікації обладнання, критичного для ядерної і технічної безпеки вітчизняних АЕС, особливо важливих для здійснення програми подовження термінів позапроектної експлуатації енергетичних реакторів, які ще потенційно здатні використовуватися як потужні джерела електроенергії. На основі порівняння опублікованих показників надійності вітчизняних АЕС до та після введення кваліфікації показано, що все ще існують проблеми, які вимагають вирішення. Розглядається перспектива подальшого підвищення надійності експлуатації вітчизняної ядерної енергетики шляхом впровадження методів радіаційних функціональних випробувань, що вже тривалий час розробляються в ІЯД НАН України. В основі цього методу докладне дослідження, а потім й оперативний контроль усіх процесів, що відбуваються в критичному обладнанні в будь-яких режимах роботи ядерних реакторів для формування ресурсної історії обладнання та надання on-line оператору об'єкта оперативної інформації про залишковий ресурс та очікуваний час його відмови.

Ключові слова: ядерний енергетичний реактор, надійність, критичне обладнання, кваліфікація, радіаційні функціональні дослідження.

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EFFICIENCY AND PROSPECTS FOR THE IMPLEMENTATION OF MEASURES FOR QUALIFICATION OF EQUIPMENT IMPORTANT FOR SAFETY IN DOMESTIC NUCLEAR ENERGETICS

The results of implementing equipment qualification are analyzed. Such equipment is critical for the nuclear and technical safety of domestic nuclear power plants that are especially important for the implementation of the Program for extending the terms of out-of-project operation of power reactors that are capable of being used as powerful sources of electricity. Based on the comparison of published reliability indicators of domestic nuclear power plants before and after implementing the qualification, it is shown that still there are problems to be solved. The perspective of further enhancing the reliability of the operation of domestic nuclear energetics is considered, by implementing radiation functional testing methods that are been developed at the INR NAS of Ukraine for a long period. The basis of this method is detailed research and operational control of all processes that occur in critical equipment in any operating modes of nuclear reactors to form a resource history of the equipment and to provide operational information about the remaining resource and the expected time of its failure to an on-line object operator.

Keywords: nuclear power reactor, reliability, critical equipment, qualification, radiation functional research.

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