Summaries

V. Bykov, N. Valigun

Quality management system of the state nuclear and radiation safety regulation in nuclear energy use

The issue was considered on implementing quality management system based on the international standards of ISO 9000 series in the State Nuclear Regulatory Committee of Ukraine. The main services provided by the SNRCU to its consumers as well as the quality assessment parameters of these services are generalized, the main processes and their interaction are stated.

Iu. Bonchuk, G. Ratia, O.Kashparov

Radiation Protection Institute of Academy of technological sciences of Ukraine

Principles of dose calculation for the population at normal operation of a nuclear power plant are considered. The received calculation results are analysed from the point of view of establishment of radiation-hygienic rules of first group (reference and permissible levels of discharge) for which recommendations are given.

Discharges at normal operation of the nuclear power plant and the public exposure

T. O. Pavlenko, I. P. Los'

Existing dose for public of the Ukraine

Paper encloses estimations of irradiation effective dose for public of Ukraine caused by technogenically enhanced irradiation sources natural origin (indoor radon, radioactivity of building materials and potable water). Dose estimation of non-controlled origin is enclosed as well. Total irradiation dose (average-weighted) for all public of Ukraine is calculated to be 3,5 mSv per year where 2,8 mSv per year is controlled component of total irradiation dose.

V. O. Davydov, O. V. Maslov, O. V. Nedelin

Estimate of quality of reconstruction of allocation of a burnup on volume of fuel assemblies by methods of a passive computer tomography

The passive algebraic reconstructive tomography allows to estimate a state of fuel inside fuel assemblies. The analysis of results of reconstruction of radioactivity in fuel pins by volume FA has been carried out. It was offered to use for an estimation of quality of reconstruction of radioactivity in fuel pins the relative dispersion of a deviation of radioactivity in fuel pins in limits of the tomogram, the relative dispersion of a deviation of radioactivity in fuel pins in limits of one lines, the peak deviation of radioactivity in limits of one lines and a histogram of a deviation of radioactivity in fuel pins. It was offered to use simultaneously for reconstruction of radioactivity results of spectrometer measurements for various energy. The analysis of the submitted histograms has confirmed perceptivity of the offer on use several energy for restoration of activity.

V.Navalikhin, A.Nosovsky, O.Polovinkin, L. Saliy

Selection of the decommissioning strategy for power units Rovno NPP

In this article an analysis of the factors that influenced selection of decommissioning strategy for SE "Rovno NPP" power units based on international and Ukrainian national experience is performed. The preliminary decommissioning cost estimations are given and selection of the Rovno NPP power units decommissioning optional strategies is proposed.

Ali Kalvand, I. Kazachkov

Problem of corium melt coolability in passive protection systems against severe accidents in the containment. Part 1

This paper is devoted to an analysis of the problem of corium melt interaction with water and low-melting temperature blocks in the passive protection systems against severe accidents at the NPP, which is of high importance for substantiation of the nuclear power safety, for building and successful operating of the passive protection systems. In the third-generation reactors the passive protection systems against severe accidents at the NPP are mandatory, therefore this paper is of importance for the nuclear power safety. A few such systems have been considered, which are in different stage of completeness. An analysis of the unsolved thermal hydraulic problems, which solution might help to improvement of the current systems or development of the new, more effective ones has been provided. The ways for solution of the stated problems and the methods for their successful elaboration were discussed. The mathematical models developed and the analysis performed in the paper might be helpful for design of the passive systems of the corium melt retention inside the containment after a corium melt eruption from the failed reactor vessel.

S. Kondratyev, O. Kilina, Ye. Kadkin, V. Domnikov

Reliability of sorting radioactively contaminated soil during excavation at Chernobyl NPP object shelter industrial site

It is considered the issue on reliable sorting of confaminated soil at excavations on the Shelter Object during New Safe Confienment construction.

The Criteria on reliable sorting that are based on the requirements for current and potential exposure limiting were offered.

It was offered a variant for sorting that is based on measuring of expository dose rate cartogram and limiting of soil layer thickness that is removed at the same time.

P. Aryasov, S. Nechaev, A. Dmitrienko, S. Konstantinenko

Radioactive aerosol monitoring program with personal impactors usage during the work at the Object Shelter

A structure of developed and implemented special program of radioactive aerosol monitoring using personal air samplers (PAS) and personal impactors (PASI) is presented in the given paper. Realization of the program in practical activity allow to obtain whole set of the real data, regarding the characteristics of the radioactive aerosol (in the breathing zone of the personnel) and their dependence from different work types.

L. I. Aslamova, K. M. Solodovnyk

Influence of rontgenologic researches conditions on determination of dose medical irradiation of patients

The analysis of X-ray imaging conditions influence on determination effective dose of patients irradiation at diagnostic procedures is conducted.

A. Nosovsky

Development of nuclear engineering in Russia and Ukraine as a factor of reliable intergovernmental cooperation

The information was stated on the joint meeting-workshop that took place on 21–23 October 2008 in Russia (Kolontayevo) under the initiative of the Russian Academy of Science and the National Academy of Science of Ukraine. The prospect of cooperation of the two countries on nuclear engineering development was considered.