

components of safe handling: physical protection, control and accounting of nuclear materials.

The main purpose of the activities on accounting and control of nuclear materials - providing the enterprise with the possibility of determining available amount of nuclear material, as well as providing with necessary information to compile, register and keep records and reports in the enterprise. In addition, properly organized control and accounting (C&A) system of NM should contribute to the prevention of loss of nuclear material, as well as its theft and unauthorized use and movement [1].

In C&A of nuclear materials, information technologies occupy a special place. The amount of information on nuclear material which must be collected, processed, stored and used in procedures related to accounting and control requires the use of modern computer technologies. In parallel with the creation of these blocks we were working on the developing of a laboratory course in two directions – bar coding and databases in computerized system of accounting and control of NM.

Thus, by now, the following results of the work have been achieved:

- Database showing the main functions of the system of accounting and control of NM has been designed.
- For a training laboratory a training system of automated data collection has been created, which helps demonstrate the operation of the system of accounting and control on a conditional enterprise.
- A number of laboratory works have been developed in two directions - bar coding and databases in computerized system of accounting and control of NM.

Further, it is proposed to develop the block “Physical inventory”, namely the study of methods and procedures for physical inventory, control methods of nuclear materials, as well as the development of methodological recommendations for the use of the training system.

REFERENCES

1. The Black and White Solution: Bar Code and the IBM PC – Russ Adams and Joyce Lane, Helmers Publishing, ISBN 0-911261-01-X, p. 169.

THE APPLICATION OF IDENTIFICATION METHODS IN SECURITY SYSTEMS OF NUCLEAR FACILITIES

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To fulfill the requirements of nonproliferation of nuclear material (NM) at a nuclear facility (NF), it is necessary to implement activities designed to ensure physical protection of nuclear materials (NF), nuclear installation (NI) and storage facilities (SF). Proper organization the pass regime is the basis of the physical protection system. It is a combination of organizational-legal restrictions and rules, establishing the procedure for crossing check points on the borders of protected zones, as well as separate buildings and premises of facility personnel.

The mechanism for the implementation of the CRC is based on the application of the relevant prohibitions and restrictions in relation to subjects crossing the borders of protected objects, to ensure the safety of nuclear facilities. Such a mechanism should be obliged to conform to norms and rules of physical protection of NM, NF and SF [1].

One element of the pass regime is a system to monitor and control access of complex of technical means of physical protection of nuclear facilities. The system provides an exception or substantial difficulty in unauthorized access of violators into protected zones and facilities. Check of access rights is carried out by identifying and personalization of facility's personnel. An identifier may be an electronic key card-pass, a personal code or individual biometric data of the person (fingerprint, voice, iris is, etc.) [2].

A detailed analysis of existing methods and means of identification in order to analyze the effectiveness of their use in safety systems of NF has been carried out in the work. Design features of the various ways and methods of identification based on implemented system to monitor and control access "KODOS» and «Biosmart» have been considered [3]. The recommendations on accounting opportunities technology, based on the objectives of protection of the object, the degree of threat and economic factors have been made.

REFERENCES

1. "The approval of rules for the physical protection of nuclear materials, nuclear plants and storage facilities of nuclear materials: Resolution of the Government of the Russian Federation" № 456, 19.07.2007.
2. V.A.Vorona, V.A. Tikhonov, "Access monitoring and control system: a tutorial", М.: Goryachaya Liniya - Telecom, 2010
3. D.E. Evdokimov, "Reliability and security in AMCS", Sistemy bezopasnosti, №5, pp 20-25, 2006.

ВЫБОР СТРУКТУРЫ СИСТЕМЫ ФИЗИЧЕСКОЙ ЗАЩИТЫ ПО КРИТЕРИЮ «ЭФФЕКТИВНОСТЬ-СТОИМОСТЬ»

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Одной из составляющих обеспечения режима ядерного нераспространения является подготовка квалифицированных кадров по вопросам учета и контроля, физической защиты ЯМ. Проектирование эффективных СФЗ проводится в учебном процессе.

Целью данной работы явилось разработка методики оценки системы физической защиты по критерию «эффективность-стоимость» по нескольким выбранным вариантам построения системы безопасности.

Детальный анализ конкурирующих технических средств, существующих на рынке, необходимо проводить систематически, поскольку их предложения изменяются.

Такой анализ помогает вносить коррективы в выбор структуры проектируемой СФЗ. Важно оценить эффективность элементов комплекса инженерно-технических средств физической защиты не только по фактическим показателям, но и по экономическим параметрам.

С решения данной задачи может быть использована вся имеющаяся информация о конкурентных разработках:

- технические характеристики комплекса и устройств;
- конкурентоспособность текущего устройства;
- бюджет на разработку устройства;
- уровень проникновения на рынок (доступность для установки и использования).