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WORKSHOP FOR DEVELOPMENT OF FORMAL MC&A PLANS*

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Abstract

Upgrades to both physical protection and material controls and accountability (MC&A) are progressing at many nuclear facilities in the Russian Federation. In general, Russian facilities are well prepared to address issues related to physical protection. The infrastructure to plan and implement physical protection upgrades is already in place in Russia. The infrastructure to integrate new and existing MC&A capabilities is not as well developed. Our experience has shown that working with Russian facility management and technical personnel to draft an MC&A plan provides a way of moving MC&A upgrades forward. Los Alamos has developed a workshop for Russian nuclear facilities to facilitate the preparation of their facility MC&A plans. The workshops have been successful in bringing together facility management, safeguards specialists, and operations personnel to initiate the process of drafting these MC&A plans. The MC&A plans provide the technical basis for scheduling future MC&A upgrades at the facilities. Although facility MC&A plans are site specific, the workshop can be tailored to guide the development of an MC&A plan for any Russian nuclear site.

Introduction

For several years, a program has been supported by the US and Russia to upgrade both physical protection and material controls and accountability (MC&A) at Russian nuclear facilities. US/Russian project teams typically have initiated projects at Russian facilities by performing site surveys, becoming familiar with operations at the facilities, and characterizing the nuclear materials inventory and flow at the facilities. Existing physical protection and MC&A operations at the facilities are reviewed. The next step is for the US and Russian team members to discuss the observations. Potential upgrades to both physical protection and MC&A systems are addressed in these discussions. When agreement is reached concerning recommended upgrades, detailed task orders are drafted under an umbrella contract agreement. Initially, physical protection upgrades are given higher priority because they lead to more immediate improvements in protecting potentially sensitive nuclear materials. We have found that Russian nuclear facilities are often interested in moving more quickly with upgrades to physical protection than to MC&A systems.

Russian and US Safeguards Approaches

In the Former Soviet Union (FSU), emphasis was placed on strict item control established through the supervisory chain. Manufacturers' values of the isotopic content of items were used for accountability purposes. Each item's mass and identification number were verified at the facility, but quantitative measurements of radiation attributes were generally not performed. At bulk facilities, supervisors were responsible for bulk materials as well as items in their custody. An allowance was made for processing losses; typically 15% of process input. Measurements of bulk materials were used for process and quality control, but generally not used for materials accounting purposes. Accounting of bulk materials was performed to satisfy financial reporting requirements.

The discussion during the workshop follows the outline that has been finalized by the Russian team before the workshop begins. The facilitator keeps the discussion on schedule and encourages the Russian team to discuss all issues pertinent to the topics in the agenda. A summary of all issues discussed is captured on flip charts by the moderator, and more detailed notes are recorded by a "workshop secretary." A copy of all these notes are provided to workshop participants at the conclusion of the workshop. During the discussion sessions, the moderator and the meeting secretary try to capture the viewpoints of all participants. All Russian participants need to be satisfied that their concerns have been heard and discussed.

Product of the Workshop

By the end of the workshop, the outline for the Russian facility MC&A plan has been filled in with site-specific information provided by the Russian experts. A few "holes" in the information may have been identified and may require further study and discussion on the part of the Russian facility experts. Using the detailed information generated at the workshop, the Russian team drafts the facility MC&A plan, typically within a few weeks. These workshops have provided a constructive approach for helping to define MC&A implementation plans at Russian sites.

We have recommended to Russian facility operators that the facility MC&A plan should be a policy-level document that describes the MC&A functions to be performed at the facility. We think the document will be of more value if it is short (20 to 30 pages) including diagrams, tables, and appendices.

Conclusions

A workshop length of four to five days is adequate, assuming that there is good rapport between the US and Russian participants and that highly skilled interpreters are available. The discussion time spent on each subject contained in the outline is roughly proportional to the number of pages that will be devoted to the subject in the facility MC&A plan. Factoring in time for tours of local nuclear facilities and their MC&A operations, the workshop discussion requires about one hour per page of text in the facility MC&A plan.

Some key factors have made the workshops successful. It is important to thoroughly discuss the purpose and goals of the workshop with the Russian facility management prior to the workshop. The development of a draft outline of the facility MC&A plan by the US/Russian team initiates the process. The outline is modified and finalized by the Russian team and serves as the agenda and guide for discussions in the workshop. The attendees from the Russian facility should be able to represent the interests of technical management, operations, and MC&A; and they must be prepared to openly discuss the topics that are contained in the outline of the MC&A plan. Similarly, US participants should be selected who have management, technical operations, and MC&A experience that is relevant to operations at the Russian facility. The workshop facilitator should have a broad background in MC&A and should understand how physical protection and MC&A elements function together to provide an integrated safeguards system.

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