

EFCOG Best Practice #179

Facility: Y12 National Security Complex

Best Practice Title: NMC&A Requirements for Non-Special Nuclear Material (NSNM)

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Brief Description of Best Practice:

During the Winter EFCOG meeting, the MC&A sub-group conducted a matrix discussion to compare and contrast each site's requirements for NSNM in the following topics:

- Material Balance Area (MBA) accounting structures
- Inventory frequency and methods
- Measurement requirements
- Credible substitution and co-location configurations
- Assessment schedules

The key distinction in comparable requirements centered around the MBA structure and whether NSNM was co-located in the same MBA as SNM, because DOE O 474.2 requires the same controls for NSNM and SNM in that case. Sites that had co-located MBAs had efficiency and protection justifications for that decision. Likewise, sites with separate MBAs for NSNM had efficiency and protection justifications for their decision. This variable drove the differences for all other points of discussion because the co-located NSNM was subject to the requirements on the specific MBA they were in.

Why the best practice was used:

In an era of diminishing budgets and increasing interest in safeguards programs as a preventive measure, MC&A programs have a regulatory responsibility to manage their programs with a graded safeguards approach.

What are the benefits of the best practice:

Non-special nuclear material (NSNM) is the lowest attractiveness level, which generally results in the lowest risk association. DOE O 474.2 directs the sites to mandate appropriate requirements based on the site level needs and graded safeguards considerations. This process prompts the question, "How much is enough?" which was proposed to be answered through a multi-site discussion of their own local requirements.

What problems/issues were associated with the best practice:

Three sites have MBAs where NSNM is not co-located with SNM. In comparing their inventory frequency, measurement requirements and assessment schedules, the results are consistently either 1 year or 2 year timeframes. Only one site performed statistical inventory at the site level for the NSNM MBAs.

Consideration should be given at the site level for benefits to having separate NSNM MBAs, and the use of statistical inventory methods.

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How the success of the Best Practice was measured:

Ultimately the assignment of best practices goes to NNSA policy and program offices for the determination that site decisions for NSNM are the most practical and efficient. Due to the disparity in each of the site missions, it would be illogical to standardize an MC&A program for the lowest attractiveness, lowest risk material.

The monetary and efficiency benefits have been seen over time, as regulatory policy has evolved to allow site nuances to be considered in requirements decisions.

Description of process experience using the Best Practice:

This process for completing the site matrices and determining the assignment of best practice uses several functions of the Integrated Safeguards and Security Management System. However, the best practice is emphatically focused on the primary function, "Define the scope of work."

The scope is significant in identifying cost/benefit results in how NSNM requirements are implemented. Recognizing the graded safeguards concept, it places perspective in the risk and consequence determination that allows creative solutions.