

## **Criteria for Determination of Material Control & Accountability System Effectiveness**

### **ABSTRACT**

The Nevada Test Site (NTS) is a test bed for implementation of the Safeguards First Principles Initiative (SFPI), a risk-based approach to Material Control & Accountability (MC&A) requirements. The Comprehensive Assessment of Safeguards Strategies (COMPASS) model is used to determine the effectiveness of MC&A systems under SFPI. Under this model, MC&A is divided into nine primary elements. Each element is divided into sub-elements. Then each sub-element is assigned two values, effectiveness and contribution, that are used to calculate the rating. Effectiveness is a measure of sub-element implementation and how well it meets requirements. Contribution is a relative measure of the importance, and functions as a weighting factor. The COMPASS model provides the methodology for calculation of sub-element and element ratings, but not the actual criteria. Each site must develop its own criteria. For the rating to be meaningful, the effectiveness criteria must be objective and based on explicit, measurable criteria. Contribution (weights) must reflect the importance within the MC&A program. This paper details the NTS approach to system effectiveness and contribution values, and will cover the following: the basis for the ratings, an explanation of the contribution “weights,” and the objective, performance based effectiveness criteria. Finally, the evaluation process will be described.

This work was done by National Security Technologies, LLC, under Contract No. DE-AC52-06NA25946 with the U.S. Department of Energy.