

# STRATEGY FOR STRENGTHENING TRAINING AND QUALIFICATION FOR UNITED STATES NUCLEAR REGULATORY COMMISSION'S INTERNATIONAL SAFEGUARDS ANALYSTS

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## Abstract

Challenges associated with strengthening international safeguards implementation in the United States of America (U.S.) are being addressed through a progressive training and qualification program at the Nuclear Regulatory Commission (NRC). The basis for this program utilizes a qualification plan specifically designed to ensure the U.S. NRC International Safeguards Analysts, Import and Export Analysts, and Nuclear Materials Management and Safeguards System Analysts are evaluated against a standard of knowledge outlined in a qualification plan. The knowledge standard is designed to qualify analysts to effectively represent NRC and U.S. interests in domestic and international meetings on non-proliferation issues, and to ensure the NRC and its commercial licensees comply with international treaties and agreements. The scope of the program plan includes initial training on the NRC and its domestic regulatory responsibilities, then focuses on required core training for each analyst position. The course focus provides trainees with an opportunity to understand how the U.S. State System of Accounting for and Control of nuclear materials was established and how it is now being maintained. This paper will examine the strategy used to develop and then satisfy the requirements for the training and qualification program.

## 1. INTRODUCTION

Strengthening the training and qualification program of the United States of America (U.S.) Nuclear Regulatory Commission (NRC) International Safeguards Analysts, Import and Export Analysts, and Nuclear Materials Management and Safeguards System (NMMSS) Analysts provides for well-informed technical support and expertise in the national safeguards implementation infrastructure. Individuals selected for analyst positions are asked to design, develop, and evaluate international safeguards systems and programs in order to improve organizational performance with the goal of achieving mission and performance goals of the NRC. These goals include licensing and regulation of the U.S. civilian use of radioactive material to protect the public health and safety, promote the common defense and security and protect the environment.

Analysts assigned to the Office of Nuclear Material Safety and Safeguards need the knowledge and expertise to analyze international safeguards issues and other generic studies related to commercial fuel cycle facilities, and recommend NRC positions and policies as they relate to nuclear nonproliferation. Additionally, analysts will assess complex safeguards and threat information and evaluate the safeguards significance associated with threats to nuclear facilities, materials, or the transportation of licensed material. Each category of analysts requires a slightly different focus in order to fulfill the position, which requires the qualification program to be flexible. The trainee's supervisor will decide what parts of the qualification journal must be completed for a particular analyst. The journal includes goals and objectives that are broken down into two main parts: 1) training and 2) qualification cards.

## 2. TRAINING

The primary training material used for establishing a knowledge base is included in the NRC Inspection Manual under Manual Chapter 1246 Appendix C5; *Training Requirements and Qualification Journal for International Safeguards Analysts, Nuclear Materials Management and Safeguards System (NMMSS) Analysts, and Import/Export Analysts*<sup>1</sup>. This journal is a self-paced training and qualification plan that focuses on providing a list of resources that will help the trainee obtain the requisite levels of knowledge for qualification in

their specific analyst position. Each employee should also gain an understanding of how an independent regulatory authority is formed, its structure, and impacts from regulatory history on the regulatory framework under which today's NRC staff function.

#### 2.1 Part 1:

Initial training includes familiarization with the day-to-day NRC organization at an agency-level, office-level and professional level in their work environment. Ethics, objectivity and professional conduct are important concepts that are learned in this program through on-line training and some classroom training provided by the NRC training department. Initial training activities provide the trainee information on the structure of the NRC and some impacts from regulatory history on the regulatory framework. However, an employee may be transferred into the Office of Nuclear Material Safety and Safeguards analyst position from another Office and already qualified in this area. An exemption to re-performing this qualification may be granted based on a conclusive supervisory decision.

#### 2.2 Part 2:

Core training is designed to provide guidance to trainees on the knowledge level required for qualifying as an International Safeguards Analysts, Import and Export Analysts, or NMMSS Analyst. Explicit course criteria are outlined within each qualification guide to ensure an analyst is provided information necessary to comprehend what is required to become proficient in their particular analyst position. Suggested training classes are outlined in each qualification guide, to help augment knowledge deficiencies. Some classes are held outside of the NRC training program and may be postponed until attendance can be arranged through another Agency of the U.S. Government.

### 3. Qualification Journal

Minimum training requirements for personnel assigned as International Safeguards Analysts, NMMSS Analysts, or Import/Export Analysts is established by the qualification journal. The document consists of a series of qualification guides with its associated individual signature card. Each signature card is used to document task completion, as indicated by the appropriate signature blocks. The journal establishes the minimum knowledge levels and areas of study that must be completed for each signature card. These signature cards provide traceable documentation to show that minimum requirements are met for each analyst position. Any qualified member of the staff, as approved by the supervisor, may review with the trainee and initial specific items on the qualification cards.

The qualification guides are divided into the following sub-sections:

- Evaluation criteria establish the basic knowledge needed to demonstrate proficiency in each focused area of the guide. The criteria listing describes various discipline perspectives of technical information or government policy which assist the analyst in understanding the subject's relation to global nonproliferation policy and practices.
- Training tasks include suggested reading, appropriate training courses, and on-the-job activities that would support completion of agreed upon training activities. These training tasks assist the trainee in obtaining knowledge and understanding of the focus area.
- Generic questions have been introduced into each guide in order to evaluate an analyst's knowledge level.
- Performance of agreed upon activities listed within a qualification guide must be signed-off by the supervisor or a proctor approved by the supervisor. Tasks are labeled with a review tag to help identify the amount of effort the individual is expected to undertake. A review level is established for each category of analyst in the qualification card sections of the journal.

#### 4. Knowledge and Review Levels:

Demonstration of an adequate understanding of each assigned activity is specific for each of the analyst positions. Knowledge levels can be characterized by the following:

#### 4.1 Basic = B:

Scan the information, but do not read word for word. Become knowledgeable of the purpose and general content. Be aware that the information exists, know where it can be accessed, and know how it is used. Expect Qualification Questions regarding awareness of the information and where to find it.

#### 4.2 Intermediate = I:

Review the entire body of information. Understand how the information correlates to the roles, responsibilities, and assignments of the position. Expect Qualification Questions to be drawn from key concepts in the material. Be prepared to give basic examples of how the information would be used on the job.

#### 4.3 Comprehensive = C:

Study the entire body of information thoroughly. Be prepared to explain the basic steps needed to complete key tasks associated with the subject. Understand and be able to describe the process, the regulatory basis, and the importance of applicable guidance.

### 5. On-the-Job Training

Strengthening of the NRC training and qualification program is further achieved through providing International Safeguards Analysts, NMMSS Analysts, or Import/Export Analysts greater exposure to various constituents of the U.S. State system for Accounting for and Control (SSAC) of nuclear material. Some important experience is achieved through on-the-job training in activities related to the national objective to account for and control nuclear material in the U.S. and the international objective to provide the basis for the application of IAEA safeguards under the *Agreement between the United States of America and the International Atomic Energy Agency for the Application of Safeguards in the United States of America*, (the "U.S.-IAEA Safeguards Agreement").<sup>ii</sup>

On-the-job training identified in several of the qualification guides supports improving the trainee's integrated knowledge of the U.S. SSAC. Usually, a Senior International Safeguards Analyst is responsible for the overview of ensuring the integrated knowledge is applicable and the qualifying individual is mentored through the process.

Mentoring is a dynamic, reciprocal, personal relationship in which the Senior International Safeguards Analyst assists in the development of the International Safeguards Analysts, NMMSS Analysts, or Import/Export Analysts. Mentors share advice, experience, perspectives, proficiencies, resources and skills in their role as teacher, sponsor, role model and guide through the qualification process. Typically, analyst mentoring is performed using a one-on-one relationship, however, group analysis of a complex problem is sometimes used to provide the analyst a broader scope of understanding of domestic and international safeguards relationships.

### 6. Board

Once all assigned material has been reviewed by the trainee and signed-off to the satisfaction of the individual's supervisor, completion of the qualification cards is acknowledged by his/her supervisor's signature. A three-member oral Qualification Board is organized for the trainee that requires him/her to answer a series of comprehensive questions regarding their specific analyst position. After the successful completion of this Board review, a subject matter expert, the Analyst's Supervisor, a Senior Executive Service manager must provide approval signatures.

### 7. Responsibilities

International Safeguards Analyst is responsible for providing technical support and expertise in the design, development, and evaluation of international safeguards systems and programs. Applies knowledge and expertise to analyze international safeguards issues and generic studies related to commercial facilities, and recommends NRC positions and policies. Serves as an NRC staff expert in IAEA safeguards systems and methodology. Supports NRC and the U.S. Government at interagency and international technical meetings on international safeguards matters. Provides advice and assistance to the IAEA and representatives of foreign

governments, consistent U.S. Government and NRC policy, in the development of safeguards programs and methodology. Also supports government to government technical assistance, in accordance with NRC policy.

Import-Export Licensing Analyst, reviews applications for licenses to export or import nuclear material, components, and special materials to determine compliance with appropriate rules and regulations of the NRC. Organizes licensing actions to ensure nuclear material imports are properly documented to allow the U.S. Government to satisfy the tracking and reporting of nuclear material subject to numerous Agreements for peaceful nuclear cooperation. Provides technical support to the Branch in the implementation of international safeguards programs at commercial facilities.

NMMSS Analyst provides technical support and expertise in the design, development, and evaluation of international safeguards systems and programs. Applies knowledge and expertise to analyze international safeguards issues and generic studies related to commercial facilities, and recommends NRC positions and policies. Provides project management of the U.S. national accounting system for tracking inventory and transfers of special nuclear material through the Nuclear Materials Management and Safeguards System (NMMSS).

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<sup>i</sup> Training Requirements and Qualification Journal for International Safeguards Analysts, Nuclear Materials Management and Safeguards System (NMMSS) Analysts, and Import/Export Analysts, 2016, <http://www.nrc.gov/docs/ML1603/ML16035A147.pdf>

<sup>ii</sup> The U.S.-IAEA Safeguards Agreement is also sometimes known as the U.S. Voluntary Offer Agreement (VOA), which is reproduced in IAEA Information Circular (INFCIRC)/288