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Selection of Material Balance Areas and Item Control Areas

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Selection of Material Balance Areas and Item Control Areas; Draft Regulatory Guide for Comment

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General Comment

DG-5057 comments from South Carolina Electric & Gas VC Summer Nuclear Station

Contact:

Damon Bryson, Senior Reactor Engineer

Summary

The General Performance Objectives in Section C are overly detailed and unnecessary. ANSI N15.8-2009 provides sufficient guidance to meet the MC&A requirements in Subpart B of 10 CFR Part 74 at nuclear power plants. DG5057 is attempting to expand the scope of RG 5.29 beyond nuclear power plants, to include all other licensees with SNM in quantity besides fuel cycle facilities. The large expansion in requirements for nuclear power plants appears to be unjustified. Given the history of secure SNM controls at nuclear power plants, there does not appear to be a problem with SNM diversion. Other SNM licensees (e.g. well drillers) may have much less physical security than an established, stationary nuclear power plant. In that case, a more frequent inventory of a small number of SNM items would seem to be an acceptable burden on the licensee to prevent or detect SNM diversion in a prompt manner. For a nuclear power plant, a physical inventory is a much larger burden, given the large number of SNM items and the physical radiological inaccessibility of storage locations. In this case, credit for the substantial physical

E-RFDS = ADH-03
 Cdd = P. Pham (TWP)
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security requirements in place should easily justify a longer time period between inventories.

Specific comments

GPO 1A.(2) The use of the term confirm underlined above implies a periodic measurement that typically does not take place. The terms records or tracks would be more accurate. The later sentences on reliable information are not consistent with the initial term of valid information. Nuclear power plants use item control for 99%+ of all SNM tracking, so there are no measurements to confirm.

GPO 1A. (3) This description does not add any useful information beyond that already contained in ANSI N15.8-2009.

GPO 1A. (4) This description does not add any useful information beyond that already contained in ANSI N15.8-2009.

GPO 1A. (5) This requirement does not appear to have a justified purpose. In many cases, the operations organization does not have responsibility for movement and/or controls on SNM. In cases where the operations organization does have responsibility for control of SNM, operations would be the correct organization with the expertise to perform a physical inventory. It would be difficult and inefficient to maintain fuel expertise in two independent organizations.

GPO 1B. The formal program that nuclear power plants use to respond to any SNM inventory anomalies is the Corrective Action Program. For other licensees, this program might not be available. For nuclear power plants, this section is duplicative and overly specific. The plant has onsite NRC resident inspectors who monitor the programs and verify compliance. This is a very strong example of why nuclear power plants and other SNM licensees should not be lumped together into a single Reg Guide. The following GPO B2 through B5 are unnecessary for a nuclear power plant following ANSI N15.8-2009.

GPO 1C. In the case of nuclear power plants, physical barriers and the large Security and Radiation Protection staffs serve to prevent diversion of SNM. The MC&A program provides only a backup system to periodically inventory the SNM.

GPO 1D. This GPO is very vague. It is not clear how a licensee can comply with the intent of the descriptive paragraphs, especially (2). If the investigators don't know what information they want, how is the licensee supposed to know?

GPO 1E. This GPO is also very vague. Is the MC&A information categorized as Safeguards Information? Sensitive Information? Withhold from public disclosure? Proprietary Information? At a nuclear power plant, there is very little information that can be withheld from the plant staff. Everyone knows there is spent fuel in the spent fuel pool. There is no purpose to preventing the staff from knowing which assembly is in which location. Radiation Protection requires knowledge of any radioactive sources, so that access to the area can be controlled. Unescorted access to the nuclear plant is tightly controlled and monitored, so further secrecy in SNM locations is not necessary or desirable.

2. Item Control System

This entire section is overly detailed and duplicates ANSI N15.8-2009. The ANSI standard is entirely sufficient, so this section should be deleted. Numerous additional requirements in addition to the ANSI standard are proposed, but should be rejected. Specifically, the idea of doing monthly spot-checks on a sample of inventoried items is not practical. The requirements on TIDs are unnecessarily complex. The numbering and labeling requirements are unnecessarily detailed. The protections against insider diversion of SNM are completely unjustified.

*****Comments continued in the attached file, due to space limitations.*****

Attachments

DG-5057 comments SNM

DG-5057 comments from South Carolina Electric & Gas – VC Summer Nuclear Station

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Summary

The General Performance Objectives in Section C are overly detailed and unnecessary. ANSI N15.8-2009 provides sufficient guidance to meet the MC&A requirements in Subpart B of 10 CFR Part 74 at nuclear power plants. DG5057 is attempting to expand the scope of RG 5.29 beyond nuclear power plants, to include all other licensees with SNM in quantity besides fuel cycle facilities. The large expansion in requirements for nuclear power plants appears to be unjustified. Given the history of secure SNM controls at nuclear power plants, there does not appear to be a problem with SNM diversion. Other SNM licensees (e.g. well drillers) may have much less physical security than an established, stationary nuclear power plant. In that case, a more frequent inventory of a small number of SNM items would seem to be an acceptable burden on the licensee to prevent or detect SNM diversion in a prompt manner. For a nuclear power plant, a physical inventory is a much larger burden, given the large number of SNM items and the physical radiological inaccessibility of storage locations. In this case, credit for the substantial physical security requirements in place should easily justify a longer time period between inventories.

Specific comments

GPO 1A.(2) Valid information should be maintained on each item that confirms both the element and the isotope (such as U-233/235 or Plutonium), and weight that should be based on measured values or on other reliable factors. Reliable information means that the quantity values are known, and that item locations are specific enough so as to provide for the retrieval of the items in a prompt manner. Reliable information also means that the quantities and locations of all classes of material and items listed in the accounting records are correct and verifiable.

Comment: The use of the term “confirm” underlined above implies a periodic measurement that typically does not take place. The terms “records” or “tracks” would be more accurate. The later sentences on “reliable information” are not consistent with the initial term of “valid information”. Nuclear power plants use item control for 99%+ of all SNM tracking, so there are no measurements to “confirm.”

GPO 1A. (3) The licensee should accurately account for all SNM that is received and shipped by maintaining reliable records based on accurate measurements. When a shipment is received, the licensee should begin monitoring the movement and location of the material within the facility using item control procedures to monitor the location and integrity of items. All recorded SNM quantities associated with receipts, shipments, discards, and ending inventory need to be based on valid measurements. Licensees maintain a detailed system and

applicants demonstrate they have a detailed and accurate record keeping system for the generated data that provides knowledge of the material's location in a timely manner.

Comment: This description does not add any useful information beyond that already contained in ANSI N15.8-2009.

GPO 1A. (4) The licensee should verify the presence of all SNM that its accounting records show is present at the facility. The MC&A system should be capable of verifying the presence of 100 percent of all uniquely identified SNM items that are listed in the accounting records, and should enable the licensee to verify the identity and integrity of all encapsulated items, and items affixed with tamper-indicating seals.

Comment: This description does not add any useful information beyond that already contained in ANSI N15.8-2009.

GPO 1A. (5) The physical inventory program should be managed and maintained independent of the operations organization.

Comment: This requirement does not appear to have a justified purpose. In many cases, the operations organization does not have responsibility for movement and/or controls on SNM. In cases where the operations organization does have responsibility for control of SNM, operations would be the correct organization with the expertise to perform a physical inventory. It would be difficult and inefficient to maintain fuel expertise in two independent organizations.

GPO 1B. Detect, respond to, and resolve any anomaly indicating a possible loss, theft, diversion, or misuse of SNM.

(1) The purpose of this GPO is to ensure that a licensee develops and implements a formalized program to detect, respond to, and resolve any anomaly indicating a possible loss of SNM, including possible theft or unauthorized diversion.

Comment: The formal program that nuclear power plants use to respond to any SNM inventory anomalies is the Corrective Action Program. For other licensees, this program might not be available. For nuclear power plants, this section is duplicative and overly specific. The plant has onsite NRC resident inspectors who monitor the programs and verify compliance. This is a very strong example of why nuclear power plants and other SNM licensees should not be lumped together into a single Reg Guide. The following GPO B2 through B5 are unnecessary for a nuclear power plant following ANSI N15.8-2009.

GPO 1C. Permit rapid determination of whether an actual loss, theft, diversion, or misuse of SNM has occurred.

The purpose of this GPO is to ensure that a licensee's MC&A program provides the licensee with adequate capability to detect and quickly respond to indications of possible loss, theft, diversion, or misuse of SNM, and to rapidly determine whether or not a loss, theft, diversion, or misuse of SNM has occurred.

Comment: In the case of nuclear power plants, physical barriers and the large Security and Radiation Protection staffs serve to prevent diversion of SNM. The MC&A program provides only a backup system to periodically inventory the SNM.

GPO 1D. Provide information to aid in the investigation and recovery of missing SNM in the event of an actual loss, theft, diversion, or misuse.

- (1) The purpose of this GPO is to ensure that if the NRC or another government agency deems it necessary to conduct an investigation of an actual loss, theft, diversion, or misuse of SNM, the licensee will be ready to assist the investigating agency to perform its investigation.
- (2) The agency may require the licensee to provide any information the agency considers relevant to recover SNM. The burden will be on the licensee to provide all information that the licensee recognizes as relevant, as opposed to providing only information that the investigators request.

Comment: This GPO is very vague. It is not clear how a licensee can comply with the intent of the descriptive paragraphs, especially (2). If the investigators don't know what information they want, how is the licensee supposed to know?

GPO 1E. Control access to MC&A information that might assist adversaries to carry out acts of theft, diversion, misuse, or radiological sabotage.

- (1) The purpose of this GPO is to ensure that access to MC&A data is adequately controlled, to minimize the risk that SNM will be lost, stolen, diverted or misused.
- (2) Methods to control access to MC&A information, access control, material containment, and material surveillance should be multi-layered, to eliminate the consequence of a single-point failure.
- (3) An effective quality assurance program description should minimize the possibility of potential failures for the MC&A program. These control measures can provide necessary checks and balances that contribute to control access to MC&A information.

Comment: This GPO is also very vague. Is the MC&A information categorized as Safeguards Information? Sensitive Information? Withhold from public disclosure? Proprietary Information? At a nuclear power plant, there is very little information that can be withheld from the plant staff. Everyone knows there is spent fuel in the spent fuel pool. There is no purpose to preventing the staff from knowing which assembly is in which location. Radiation Protection requires knowledge of any radioactive

sources, so that access to the area can be controlled. Unescorted access to the nuclear plant is tightly controlled and monitored, so further secrecy in SNM locations is not necessary or desirable.

2. Item Control System

The regulations in 10 CFR 74.19(d) require that certain licensees establish, document, implement, and maintain an item control system. As discussed below, licensees implementing and maintaining an item control system also need to keep in mind the requirements of 10 CFR 74.11, 74.13, and 74.15. The guidance in this section on item control systems applies only to power reactors and ISFSIs.

Comment: This entire section is overly detailed and duplicates ANSI N15.8-2009. The ANSI standard is entirely sufficient, so this section should be deleted. Numerous additional requirements in addition to the ANSI standard are proposed, but should be rejected. Specifically, the idea of doing monthly spot-checks on a sample of inventoried items is not practical. The requirements on TIDs are unnecessarily complex. The numbering and labeling requirements are unnecessarily detailed. The protections against insider diversion of SNM are completely unjustified.

3. Physical Inventories

The regulations in 10 CFR Part 74.19(c) require that licensees conduct a physical inventory of all SNM in their possession under license at intervals not to exceed 12 months. The guidance in this section on physical inventories applies to all non-fuel cycle facilities, including power reactors, research and test reactors, ISFSIs, and certain licensees authorized to possess and use SNM in a quantity greater than 350 grams of uranium-235, uranium-233, or plutonium or any combination thereof.

Comment: This entire section is overly detailed and duplicates ANSI N15.8-2009. The ANSI standard is entirely sufficient, so this section should be deleted. Numerous additional requirements in addition to the ANSI standard are proposed, but should be rejected. Some might make sense at research reactors or using portable sources, but should not be applied to power reactors.

4. Recordkeeping

The regulations in 10 CFR 74.19(a) require that licensees keep records that show the receipt, inventory (including location and unique identity), acquisition, transfer, and disposal of all SNM in their possession. The guidance in this section on recordkeeping applies to all non-fuel cycle facilities, including power reactors, research and test reactors, ISFSIs, and certain licensees authorized to possess and use SNM in a quantity greater than 350 grams of uranium-235, uranium-233, or plutonium or any combination thereof.

Comment: This entire section is overly detailed and duplicates ANSI N15.8-2009. The ANSI standard is entirely sufficient, so this section should be deleted. Numerous additional requirements in addition to the ANSI standard are proposed, but should be rejected. The SNM located at nuclear power plants is not desirable for diversion to weapons use, so it should not be treated similarly to weapons-usable materials.