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NUCLEAR ENERGY INSTITUTE

3/26/2014
79 FR 16832



April 24, 2014

Ms. Cindy K. Bladey
Chief, Rules, Announcements and Directives Branch
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

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Subject: Industry Comments on Draft Regulatory Guide, DG-5038, "Special Nuclear Material Doorway Monitors," Docket ID NRC-2014-0062

Project Number: 689

Dear Ms. Bladey:

On behalf of the nuclear industry, the Nuclear Energy Institute (NEI)¹ appreciates the opportunity to provide comments on draft regulatory guide DG-5038, "Special Nuclear Material Doorway Monitors," which was published in the *Federal Register* on March 26, 2014 (79 FR 16832). This guide updates Regulatory Guide 5.27, which was issued in June 1974, and describes a method that the Nuclear Regulatory Commission (NRC) staff considers acceptable to implement the search requirement for concealed special nuclear material (SNM) applied to personnel exiting a material access area (MAA).

Attached are the nuclear industry comments on the subject draft regulatory guide, which we trust will be useful as the staff finalizes the update to Regulatory Guide 5.27. Thank you for the opportunity to comment on the document, and we look forward to reviewing the final version.

¹ The Nuclear Energy Institute (NEI) is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations and entities involved in the nuclear energy industry.

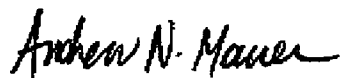
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Template = ADM - 013
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Mr. Cindy K. Bladey
April 24, 2014
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If you have any questions concerning these comments, please contact me or Janet Schlueter at jrs@nei.org; 202-739-8098.

Sincerely,

A handwritten signature in black ink that reads "Andrew N. Mauer". The signature is written in a cursive style with a large initial 'A'.

Andrew N. Mauer

Attachment

c: Mr. Albert N. Tardiff, Jr., NSIR/DSP/FCTSB, NRC
Mr. Peter J. Habighorst, NMSS/FCSS/MC&AB, NRC

Comments on DG-5038**Section C. Staff Regulatory Guidance****1. Considerations for SNM Doorway Monitors****1(a.)(1)**

- The draft guidance states that: "Metal detectors should be used in conjunction with an SNM doorway monitor as an SNM detection system and can be one of the two required separate searches for concealed SNM (10 CFR 73.46(d)(9)). The metal detector unit should be installed in the pedestrian passageway as described in Regulatory Guide 5.7, *"Entry/Exit Control of Personnel Access to Protected Areas, Vital Areas, and Material Access Areas"* (Ref. 6) with the SNM monitor in such a way that objects cannot be passed over, around, or under the detection area."
- We recommend modifying the italicized portion of the sentence above to read as follows: "...Entry/Exit Control of Personnel Access to Protected Areas, Vital Areas, and Material Access Areas" (Ref. 6) with the SNM monitor in such a way that objects cannot be passed over, around, or under the detection area unless the equipment is under the direct observation of security personnel."
- The revised wording meets the intent of ensuring that objects do not bypass the search process while providing the necessary flexibility in determining how to meet that intent.

1(a.)(2)

- The draft guidance states that: "Alarm actuation for detectable metal mass should be 100 grams or the amount necessary to shield SNM that would allow a protracted theft of a formula quantity of strategic SNM to occur before the inventory process identifies it as missing, whichever is the lesser mass. The minimum mass of metal to undergo testing should be constructed into the configuration that optimizes SNM shielding capability and minimizes metal detection capability."
- We recommend adding "or the metal mass amount as described in a licensee's NRC approved Physical Protection Plan" and deleting "whichever is the lesser mass."
- The revised sentence would read: "Alarm actuation for detectable metal mass should be 100 grams or the amount necessary to shield SNM that would allow a protracted theft of a formula quantity of strategic SNM to occur before the inventory process identifies it as missing, or the metal mass amount as described in a licensee's NRC approved Physical Protection Plan."

1(a.)(4)

- The draft guidance states: "Power, sensitivity, and other controls of the doorway monitor and metal detector should be tamper-safe when unattended."
- We recommend adding the following sentence: "Doorway monitors and metal detectors secured behind locked and alarmed doors when unattended are not to be required to have an individual tamper indicating device."

- The additional sentence meets the intent of preventing tampering with the search equipment while providing the necessary flexibility in determining how to meet that intent.

1(a.)(5)

- The draft guidance states that: "Metal and SNM detection equipment should be provided with uninterruptible power sources."
 - We recommend adding the following language: "and/or emergency generator power." The revised sentence would read: "Metal and SNM detection equipment should be provided with uninterruptible power sources and/or emergency generator power."

1(a.)(6)

- The draft guidance states: "Signal lines connecting alarm relays to the alarm monitors for both metal and SNM detectors should be supervised electronically."
 - We recommend modifying the wording to add the following: "unless located in areas that are manned by qualified security officers and only produce local alarms." The revised sentence would read: "Signal lines connecting alarm relays to the alarm monitors for both metal and SNM detectors should be supervised electronically, unless located in areas that are manned by qualified security officers and only produce local alarms."
- The revised wording provides the necessary flexibility in meeting the intent of preventing undetected tampering.

1(a.)(9)(b)

- The draft guidance states: "Uranium-235. A doorway monitor used to detect uranium-235 (U-235) should be capable of detecting highly enriched (i.e., 20 percent or more) uranium containing at least 93 percent U-235 and less than 0.23 percent impurities. *The form of the material should be a metallic sphere or cube. Encapsulation should be tin plastic or thin aluminum (≤ 0.32 cm thickness) to minimize unnecessary radiation absorption in the encapsulation.* The source should be encased in a minimum of 3 mm brass and detected at a 50 percent probability of detection with a 95 percent confidence limit. The false alarm rate should be less than 0.1 percent."
 - We recommend the guidance be less restrictive on the form of the material and encapsulation than currently written. We recommend removing the italicized sentence above.

2. Operations with Doorway and Hand-held Monitors

2(c.)

- This section calls for the doorway monitor system to automatically adjust the "alarm threshold" due to measured background radiation. This wording implies that the monitor automatically adjusts its alarm setpoint based on background radiation.

- A more acceptable wording would be to require the unit to measure and compensate for background every 15 minutes since the compensation is not normally an adjustment of the alarm setpoint (i.e., threshold) but rather an adjustment of the measurement offset. In other words, the monitor should alarm when a specific measured activity is detected above a reference value, which is typically based on the background radiation level to which the monitor is exposed. The reference value can be adjusted based on background radiation, but not the alarm setpoint.

2(d.)

- The intent of the requirement for doorway monitors to be attended by two armed guards at an MAA is not clear. The NRC should clarify that it is acceptable for one guard to operate the monitor while one remains within the protective booth.

2(f.)

- The draft guidance states: "With the individual in the doorway monitor detection area, an alarm should audibly and visually announce in the vicinity of the monitor if the activity in the detection area exceeds the set alarm threshold for radiation, possibly indicating the presence of SNM. At a facility containing a formula quantity of strategic SNM, the alarm shall also announce in the primary and secondary alarm stations, and at least one other alarm station (10 CFR 73.46(e)(5))."
- The proposed language appears to exceed the requirement in 10 CFR 73.46(e)(5), which states that "All alarms required pursuant to this section shall annunciate in a continuously manned central alarm station located within the protected area and in at least one other independent continuously manned onsite station not necessarily within the protected area, so that a single act cannot remove the capability of calling for assistance or responding to an alarm." This provision does not address three alarm stations as is implied by the current draft regulatory guide.
- The language in the draft regulatory guide implies that these doorway monitors report alarms to the CAS, SAS, and a third independent location, which is inconsistent with the referenced regulations. Since the monitors must be manned continuously by two armed guards, local alarms are sufficient.
- Therefore, we recommend deleting the following sentence, "At a facility containing a formula quantity of strategic SNM, the alarm shall also announce in the primary and secondary alarm stations, and at least one other alarm station (10 CFR 73.46(e)(5))."

2(g.)

- If it responds to the source in the anticipated manner, it should be concluded that the doorway monitor should be investigated, repaired if necessary, and recalibrated before reentry into service.
 - We recommend modifying the above sentence as follows, "... if it responds to the source in the anticipated manner, it should be concluded that the doorway monitor should be tested, repaired if necessary, and retested before reentry into service."

- The draft regulatory guide should also address the instance where an individual generates an alarm on the first pass and does not generate an alarm on the second pass. We would expect an individual receiving an alarm in a portal monitor would have to pass through the monitor twice without an alarm or be monitored manually using the hand-held monitor.

4. Calibration, Testing, Maintenance and Operating Instructions

4 (b.)(1) & 4(b.)(2)

- Doorway and hand-held monitors should be calibrated with a source of the amount, configuration, and variety of SNM to be detected. Doorway and hand-held monitor calibration should be conducted in accordance with Reference 5. Calibration should be conducted before initial use and after monitor repair measures. Consideration should be given to having SNM calibration standards traceable to certified reference standards or materials.
 - We recommend adding the following wording, "... in accordance with Reference 5, or as recommend by the manufacturer." The revised sentence would read: "Doorway and hand-held monitor calibration should be conducted in accordance with Reference 5, or as recommend by the manufacturer."
- The NRC should provide additional clarification regarding the differences between these tests and the expected frequency. For example, it would appear unnecessary to do an operational check on the same frequency as a calibration since the calibration is a much more extensive check than the operational check.

<u>Test</u>	<u>Frequency</u>	<u>Comment</u>
Calibration	3 months	
Routine operational evaluation	3 months or less	SNM monitor
Operability sensitivity	At least every 3 months	Metal detector
Daily testing (simple functional test)	Daily	