Response to Public Comments on Draft Regulatory Guide (DG)-5038
"Special Nuclear Material Doorway Monitors"
(Revision 1 of Regulatory Guide (RG) 5.27)

A notice that Draft Regulatory Guide, DG-5038 (Proposed Revision 1 of RG 5.27) was published for comment in the *Federal Register* March 21, 2014 on page 79 FR 16832. The public comment period ended April 25, 2014. Comments were received from the organizations listed below. The NRC has combined the comments and NRC staff disposition in the following table.

Comment [ASG1]: make sure to revise responses including revised to text to conform to revised RG, some of which are the subject of OGC comments.

Comment [ASG2]: in several places, I removed the term 'proposed' before revision since this is a final RG, and these revisions are therefore not mere proposals.

Comments were received from the following:

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[Mr. Mauer's and Mr. England's comments were the same.]

Commenter	Section of DG-5038	Specific Comments	NRC Resolution
Mauer/England	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 Considerations for SNM Doorway Monitors 1(a.)(1)	The draft guidance states that: "Metal detectors should be used in conjunction with an SNM doorway monitor as an SNM detection system and can be one of the two required separate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. "* o 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 NRC staff agrees with the comment in part. Accepted with modification. The following changes have been made to the guide: "...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 and continuous observation of security personnel during the entire monitoring process of an individual, package or other item. The entire process begins when the individual, package, or other item approaches the monitoring area and ends when the individual, package or other item is exiting the monitoring area after the completion of a monitoring event."

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		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.	NOTE from NRC staff: Direct observation should be continuous in order to maintain a high probability of visual detection of a bypass activity. Because a person approaching the monitoring area could toss special nuclear material (in some cases –based upon the physical configuration of the area) over the monitoring area for retrieval at a later time, if not precluded to do so, the direct continuous observation should begin at that phase (i.e.,when an individual is approaching the monitoring area) of the monitoring process.
Mauer/England	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."	The NRC staff agrees with the comment in part. The guidance correctly sets the criteria for a performance-based approach to detect a protracted theft amount of SNM. If a different criteria is utilized than that described in the guidance , then a technical basis for that criteria should be available. The guidance is revised as follows: "Alarm actuation for detectable metal mass should be 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 that is described."

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Mauer/England	1(a.)(4)	(4) Power, sensitivity, and other controls of the doorway monitor and metal detector should be tamper-safe when unattended. * Licensee recommends adding “Doorway monitors and metal detectors secured behind locked and alarmed doors when unattended are not required to have an individual tamper indicating device." * The revised wording meets the intent of preventing tampering with the search equipment while providing the Licensee the maximum flexibility in determining how to meet that intent.	The NRC staff agrees with the comment in part. The guidance is revised as follows: “Power, sensitivity, and other controls of the doorway monitor and metal detector should be tamper-safe when unattended. Doorway monitors and metal detectors that are secured behind locked and alarmed doors when unattended is an acceptable alternative measure to implementing tamper- safe devices on the SNM monitoring system.”
Mauer/England	1(a.)(5)	(5) Metal and SNM detection equipment should be provided with uninterruptible power sources. Licensee recommends adding "and/or emergency generator power."	The NRC staff agrees with the comment. Therefore, the guidance is revised as follows: Metal and SNM detection equipment should be provided with uninterruptible power sources and/or emergency generator power.
Mauer/England	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." o 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.”	The comment has been considered, and to provide flexibility, the statement was modified to: "Signal lines connecting alarm relays to the alarm monitors for both metal and SNM detectors should be supervised electronically or by direct surveillance to detect tampering."
Mauer/England	1(a.)(9)(b)	“The draft guidance states: "Uranium-235. A doorway monitor used to detect uranium-235 (U-235) should be	The NRC staff agrees with the comment in part. Accepted with modification. Guidance revised as

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		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." o 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."	follows: 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 applied in such manner that it minimizes 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.
Mauer/England	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."	The NRC staff agrees with the comment. Original text: During use, the doorway monitor system should check the radiation background and reset the alarm threshold of detected radiation at least every 15 minutes. Modified text: During use, the doorway monitor system should check the radiation background and reset the alarm threshold of detected radiation and adjust the measurement offset at least every 15 minutes.
Mauer/England	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	The NRC staff agrees with the comment in part. Accepted with modification. Revised as follows: An SNM monitoring system shall be attended by

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		booth."	two armed guards at an MAA (10 CFR 73.46 (d)(9)) within a facility containing a formula quantity of strategic SNM. The two armed guards may consist of a guard manning the SNM monitoring system and the other providing oversight of the SNM monitoring system activities by residing in an adjacent protective enclosure. Doorway monitors should be attended at non-power reactors.
Mauer/England	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	The NRC staff agrees with the comment. Second sentence will be removed. Modified text is as follows: 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.

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		sufficient."	
Mauer/England	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. o 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 NRC staff agrees with the comment. Revised 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 returning into service.