

24 July 2013

MEMORANDUM TO: Raymond K. Lorson, Director  
Division of Nuclear Materials Safety  
Region I

FROM: Brian J. McDermott, Director **/RA/**  
Division of Materials Safety and State Agreements  
Office of Federal and State Materials  
and Environmental Management Programs

SUBJECT: RESPONSE TO TECHNICAL ASSISTANCE REQUEST, OF  
FLORIDA EXEMPTION UNDER RECIPROCITY FOR  
RADIOGRAPHY LICENSE

Issue: This is a response to a Technical Assistance Request (TAR) from Region I (Agencywide Documents Access and Management System Accession Number ML13120A304) concerning a Florida licensee, URS Federal Technical Services (URS). Under reciprocity, in accordance with 10 CFR 150.20, URS conducted radiography activities with a State-approved rigid guide tube that met the license conditions of its Florida license, but would not meet the requirements in 10 CFR 34.20. The TAR requested assistance in responding to the following issues:

1. Are the licensee's activities involving the State-approved rigid guide tube permitted in NRC jurisdiction under the requirements of 10 CFR 150.20?
2. Can the NRC accept the State's exemption for use of associated equipment if modifications are not in accordance with ANSI N432-1980 standard criteria and 10 CFR 34.20 requirements?

Action: We have determined that the licensee's activities involving the State-approved rigid guide tube are permitted in NRC jurisdiction under the requirements of 10 CFR 150.20 and that the State's exemption should be accepted.

Background: 10 CFR 150.20(b) provides in part that when an Agreement State licensee engages in activities in an area under NRC jurisdiction, its general license is subject to all applicable NRC regulations.

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10 CFR 34.20(a)(1) requires that each radiographic exposure device, source assembly or sealed source, and all associated equipment must meet the requirements of American National Standards Institute, N432-1980, "Radiological Safety for the Design and Construction of Apparatus for Gamma Radiography" (ANSI N432-1980). Paragraphs 8.5 and 8.6 of ANSI N432-1980 specify that a kinking test and a crushing test, simulating a person stepping on the tube, must be performed on the flexible tubes of the equipment.

10 CFR 34.111 provides in part that the Commission may grant an exemption from the requirements of the regulations in Part 34 if it determines that the exemption is authorized by law and would not endanger life or property or the common defense and security and is otherwise in the public interest.

During a reciprocity inspection, URS radiographers were observed conducting radiography activities with an exposure device in which the traditionally flexible guide tube was replaced with a rigid tube in order to reach otherwise inaccessible locations. Such rigid tubes are called associated equipment in the radiography industry. The use of this associated equipment was authorized by the licensee's Florida license (License No. 4077-01, License Condition 23, accessible under ML13003A365). Rigid tubes cannot be physically subjected to kinking tests and crushing tests as required by ANSI N432-1980; therefore, Florida authorized the use of the rigid tube under an exemption from the requirements of ANSI N432-1980 based on compensatory operating procedures.

The State of Florida authorized the use of the rigid tube system on the basis of an engineering analysis and an accompanying procedure which addressed the design, fabrication, operation and emergency instructions (ML13120A342). The Florida license, issued to EG&G in 1997, authorized the use of the rigid tube system as auxiliary equipment with an exemption in the license from the requirements of ANSI N432-1980 (ML13120A328). Florida granted the exemption to EG&G on the basis of its engineering analysis, and to URS on the basis of the engineering analysis supported by use of performance-based implementing procedures. Authorization of such a use of auxiliary equipment is also in compliance with the current NRC guidance; i.e., RIS 2005-10, "Performance-Based Approach for Associated Equipment in 10 CFR 34.20." Specifically, RIS 2005-10 delineates that alternate methods to those in ANSI N432-1980 are acceptable for authorizing the use of associated equipment, such as an engineering analysis or an established performance-based inspection and maintenance program.

#### Discussion:

10 CFR 150.20, "Recognition of Agreement State licenses," provides in part that any person who holds a specific license from an Agreement State to conduct certain activities is granted a general license to conduct the same activity in non-Agreement States, provided certain conditions are met. However, the general license is subject to all regulations of the Commission, including applicable regulations in 10 CFR Part 34.

While 10 CFR 34.20 provides that each radiographic exposure device and associated equipment must meet the requirements of ANSI N432-1980, Section 34.111 provides that the Commission may grant an exemption from these requirements if authorized by law and would not endanger life or property or the common defense and security and is otherwise in the public interest.

In order to determine whether URS' activities would be permitted in NRC jurisdiction under 10 CFR 150.20 and whether the NRC can accept the State's exemption for use of URS' equipment, two issues must be considered: (a) the scope of reciprocity requirements and (b) engineering safety issues:

(a) Scope of Reciprocity Requirements:

As indicated above, under the reciprocity provisions in 10 CFR 150.20, URS' general license is subject to the provisions for granting an exemption in 10 CFR 34.111. The State of Florida authorized the exemption from its requirements compatible with 10 CFR 34.20 based upon the adequacy of the licensee's operating procedures to compensate for regulatory requirements. An NRC licensee would require authorization for the use of the rigid tubes under an exemption from the requirements of 10 CFR 34.20(a) regarding the provisions of ANSI N432-1980. The URS license issued by Florida is identical in this respect to an NRC license with regard to associated equipment. Further, 10 CFR 150.20(b)(5) explicitly requires that under the NRC general license granted by that 10 CFR 150.20 the entity must comply with all the terms and conditions of the state license.

(b) Engineering Safety Issues:

URS, and its predecessor, EG&G Nondestructive Evaluation (EG&G), have been using radiography equipment with the rigid guide tube since 1997 without any incidents. The safe use of the URS associated equipment (i.e., rigid tube) has been demonstrated by an engineering analysis and by performance-based operational history. Both of these methods are acceptable under the current NRC guidance in RIS 2005-10.

It must be noted that if an NRC licensee were to request an exemption at this time for use of a rigid tube as associated equipment, the NRC would consider granting an exemption from the requirements of 10 CFR 34.20(a)(1) in accordance with RIS 2005-10 on the basis of an engineering analysis or the licensee's use of performance-based operational and implementing procedures. In fact, in the past, NRC granted similar exemptions to NRC licensees. For example, in 1996, the NRC granted an exemption to American Airlines for the use rigid guide tubes, approximately 5 feet long, for performing radiographic inspections of jet engine turbine blades and vanes on aircraft (ML13120A309). In 2000, the NRC granted an exemption from 10 CFR 34.20(a)(1) to Gulf Coast International Inspection, Inc., for radiography equipment to be used off-shore on lay barges in the Gulf of Mexico under Federal jurisdiction (ML13120A314). In that case, the State of Louisiana had already authorized such use, and the NRC exemption mirrored the State exemption. Consequently, the URS license should be accepted including the State-issued exemption and the licensee's activities involving the State-approved rigid guide tube should be permitted in NRC jurisdiction.

In order to determine whether URS' activities would be permitted in NRC jurisdiction under 10 CFR 150.20 and whether the NRC can accept the State's exemption for use of URS' equipment, two issues must be considered: (a) the scope of reciprocity requirements and (b) engineering safety issues:

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