



**U.S.NRC**

United States Nuclear Regulatory Commission

*Protecting People and the Environment*

**IRRS UNITED STATES 2010**

# *Question and Response Report*

*for:*

**Module 02: Global Nuclear Safety Regime**

# IRRS Question and Response Report

Question No: 016AS

Module 02: Global Nuclear Safety Regime

## Question

Does the regulator have the authority to adapt and adopt international standards for domestic use?

## Response

The U.S. Nuclear Regulatory Commission (NRC) has the authority to endorse standards, either international or domestic, for use in its regulations and regulatory guidance. It has been the practice of the NRC, in most cases, to use standards developed by domestic voluntary consensus standards bodies and to use international standards only for technical guidance.

Federal law requires that, “All Federal agencies and departments shall use technical standards that are developed or adopted by voluntary consensus standards bodies, using such technical standards as a means to carry out policy objectives or activities determined by the agencies and departments,” with exceptions for cases in which such use would be “inconsistent with applicable law or otherwise impractical” (National Technology Transfer and Advancement Act of 1995, Pub. L. No. 104 113, 110 Stat. 775 (1995)). Executive Branch guidance for the application of this law states that, “This policy does not establish a preference between domestic and international voluntary consensus standards. However, in the interests of promoting trade and implementing the provisions of international treaty agreements, your agency should consider international standards in procurement and regulatory applications” (Office of Management and Budget, Circular A 119, “Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities”).

Because many domestic codes and standards are widely recognized and applied by regulatory agencies in other countries, some of these standards could be considered international standards. For example, the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (ASME Code) governs construction and inspection of pressure vessels, piping, and related components. This code has been endorsed by regulatory bodies in other countries, including Belgium and Japan. Representatives from those agencies attend meetings and participate in the ASME code development process. Technical guidance documents produced by industry groups, such as the Electric Power Research Institute, also are widely recognized and are considered in the development of technical bases for regulatory decisions. In other cases, the NRC cooperates with the Electric Power Research Institute in research on topics of mutual interest but draws independent conclusions and regulatory applications from the results.

NRC staff members participate in international organizations that develop guidelines that are later incorporated into regulatory actions. For example, the International Commission on Radiological Protection (ICRP) develops recommendations and guidance on protection against ionizing radiation. Although its recommendations are not binding standards, they are taken into consideration by the NRC and other regulators in the development of regulations.

This response does not address activities related to new reactor designs or applications, nor the differences between operating reactors and new reactors.

# IRRS Question and Response Report

Question No: 038

Module 02: Global Nuclear Safety Regime

## Question

If independent advice or assistance is unavailable does the Regulatory Body seek advice or assistance from other States or from international organizations whose expertise in the field is well established and recognized?

## Response

The NRC has sufficient resources to regulate all aspects of operating power plant safety and security programs. The NRC uses bilateral and multilateral arrangements with international regulators to improve its efficiency and effectiveness through sharing of lessons learned and best practices.

The NRC's international activities are wide-ranging, encompassing international nuclear policy formulation, export-import licensing for nuclear materials and equipment, treaty implementation, nuclear nonproliferation, international safety cooperation and assistance, safeguards support and assistance, international regulatory and safety information exchange, and cooperative safety research. These activities support the NRC's domestic mission with respect to the safety and security of nuclear reactors, nuclear materials, and nuclear waste.

The legal bases for the NRC's international activities are contained in four principal pieces of legislation: the Atomic Energy Act of 1954, as amended; the 1978 Nuclear Non-Proliferation Act; the Cooperative Threat Reduction Act; and the Freedom Support Act. Therefore, as part of its mission, the NRC seeks to support U.S. interests in the safe and secure use of nuclear facilities and material and in nuclear nonproliferation. This use encompasses international nuclear policy formulation; the NRC's statutory obligations with respect to nuclear nonproliferation matters such as export-import licensing, treaty implementation, and international safety and safeguards assistance activities; and influence and partnership in the international nuclear community. The NRC also participates in a variety of multilateral and bilateral programs in international safety cooperation, safety assistance, regulatory and safety information exchange, and safety research. A principal basis for the NRC's participation in these international activities is the role these activities play in facilitating the accomplishment of the NRC's domestic regulatory responsibilities.

The NRC coordinates its international interests and activities with the National Security Council, the U.S. Departments of State, Energy, Commerce, and Homeland Security, the U.S. Environmental Protection Agency, and other agencies, as appropriate, because they are enhanced by integration with the U.S. Government's foreign policy. These Executive Branch agencies and others that promote U.S. interests abroad typically inform the NRC of international activities in its areas of interest and expertise and invite NRC participation. In turn, the NRC submits for Executive Branch comment and clearance or approval its proposed international agreements, planned Commission-level foreign travel, and requests for funding or support from other agencies.

One of the objectives of the NRC's highest priority international activities is to obtain and use non-U.S. safety and safeguards information that will alert the NRC to potential safety and security problems and threats, help identify potential accident precursors, and provide accident and incident analyses, including lessons learned, directly applicable to the safety of U.S. nuclear power plants and other facilities and the safe and secure use of nuclear materials. Examples of activities supporting this objective include the following:

- Maintain appropriate levels of NRC research cooperation with countries having mature nuclear power programs directly or through the International Atomic Energy Agency (IAEA), the Organization for Economic Co-operation and Development's (OECD's) Nuclear Energy Agency (NEA), or the European Union to leverage NRC resources to examine key technical issues in regulating the safety and security of existing and proposed U.S. commercial nuclear facilities and the safe and secure use of nuclear materials.
- Assess the safety and security significance of foreign nuclear accidents or incidents for civilian power reactors and uses of radioactive materials, including all those rated 2 or higher on the International Nuclear Events Scale, to understand the implications for the NRC and its licensees.
- Exchange information with countries having experience of special relevance to the NRC's programs concerning the safety and security of nuclear materials, waste, and reactors.

# IRRS Question and Response Report

Question No: 068

Module 02: Global Nuclear Safety Regime

## Question

- 1) How does the Regulatory Body establish arrangements for the exchange of safety related information:
- bi-laterally or regionally;
  - with neighboring States and other interested States;

## Response

The NRC exchanges safety-related information through both formal and informal arrangements, including conventions, codes of conduct, bilateral agreements with States, and memoranda of understanding to fulfill safety obligations and to promote cooperation.

### Conventions and Codes of Conduct

The United States is a contracting party to the Convention on Nuclear Safety, the Joint Convention on Radioactive Waste Management and Spent Fuel Management, the Conventions on Early Notification and Assistance in the Event of a Radiological or Nuclear Accident, the Convention on the Physical Protection of Nuclear Material, and the Convention on Supplementary Compensation for Nuclear Damage. In particular, the NRC has had the lead on activities related to the Convention on Nuclear Safety. In addition, the United States has committed to the Codes of Conduct on the Safety and Security of Radioactive Sources and Research Reactors. The former was included in the U.S. Energy Policy Act of 2005, thereby making its tenets binding in the United States. The United States actively participated in the development of these Conventions and Codes of Conduct and in the subsequent review and competent authority meetings associated with them.

### Multilateral Activities

For many years, the NRC has provided both regular-budget and cost-free expert staff support to IAEA, as well as numerous participants in safety missions, conferences, steering groups, safety standards committees, consultancies, and technical meetings. The NRC supports roughly 100 IAEA meetings and missions each year. The NRC also serves in various membership and leadership capacities at OECD NEA, with representation at a variety of levels on NEA's standing technical committees and associated working groups. The NRC similarly supports ICRP, the United Nations Scientific Committee on the Effects of Atomic Radiation, and other multilateral activities.

### Bilateral Activities

The NRC has bilateral agreements with numerous States, including information and general cooperation agreements with 40 States (plus Taiwan) and research agreements with approximately 100 States. Agreements like these have existed since 1974, typically have 5-year terms, and are regularly renewed if both parties agree. The NRC also is a party to several multinational agreements, including the Multinational Design Evaluation Program Terms of Reference (with OECD NEA) and a regional North American Security and Prosperity Partnership with Canada and Mexico.

The terms of these bilateral arrangements provide for the exchange, as appropriate, of information including, but not limited to, the following:

- topical reports concerning technical safety, radiation protection, waste management, and environmental effects written by or for one of the parties as a basis for, or in support of, regulatory decisions and policies
- documents relating to significant licensing actions and safety and environmental decisions affecting nuclear facilities
- detailed documents describing the NRC process for licensing and regulating certain U.S. facilities designated by the other party as being similar to certain facilities being built or planned in that country, and equivalent documents on the other party's facilities
- reports on operating experience, such as reports on nuclear incidents, accidents, and shutdowns, and compilations of historical reliability data on components and systems
- regulatory procedures for the safety, radiation protection, waste management, and environmental impact evaluation of nuclear facilities
- early advice of important events, such as serious operating incidents and government-directed reactor shutdowns, that are of immediate interest to the parties
- copies of regulatory standards

On a routine basis, the NRC hosts its regulatory counterparts for bilateral information exchanges at both staff and Commission levels. In addition, NRC Commissioners visit a variety of countries each year to meet with their counterparts and visit facilities in those countries, which provides invaluable insights that benefit the NRC's programs. Further, NRC Commissioners and senior managers participate in bilateral meetings with foreign counterparts during international events such as the IAEA general conference and convention review meetings. The NRC also has hosted more than 300 foreign assignees, representing approximately 50 countries, for on-the-job training.

It should be noted that NRC cooperation is not constrained to formal bilateral agreements; the NRC engages with regulatory counterparts in a variety of other ways, including multinational workshops and IAEA fellowships.

The NRC's annual Regulatory Information Conference provides an opportunity for the NRC to engage bilaterally with visiting counterparts and encourage them to participate in panel discussions in both internationally and technically focused topical sessions.

### NRC Reporting on Operating Experience and Incidents

The NRC submits about 20 reports each year to the Web-Based Incident Reporting System (WBIRS), which is available to regulators and other nuclear organizations in foreign countries. The NRC typically submits reactor-related generic communications to this system. A number of operating experience

# IRRS Question and Response Report

documents, such as NRC generic communications, event notifications, and licensee reports to the NRC under Title 10 of the Code of Federal Regulations (10 CFR) Part 21, "Reporting of Defects and Noncompliance," are published on the NRC's public Web site, which is available to the international community as well. The NRC continues to strive for excellence in the use and sharing of international operating experience (OpE), working closely with the international community and organizations such as the IAEA and the NEA. In addition, the NRC evaluates all reported domestic incidents using the International Nuclear Events Scale (INES) and reports all events rated Level 2 or above. The NRC communicates on a regular basis with foreign and domestic stakeholders to discuss operating experience matters of mutual interest. Further information about the NRC's processes for INES and operating experience reporting are available in the responses to Questions 069 and 126, respectively.

Question No: 069

Module 02: Global Nuclear Safety Regime

## Question

Does the country participate in the IAEA Incident Reporting System? What are the arrangements for this reporting?

## Response

As discussed in the response to Question 068, the NRC participates in the IAEA's WBIRS. The NRC submits all reactor-related generic communications to the WBIRS on at least a quarterly basis. Other generic communications, which are available on the NRC public Web site, are considered for submission if specifically requested by IAEA. All reports from other countries submitted to the WBIRS are reviewed by the Operating Experience Branch as they are posted for consideration of their safety significance and generic applicability to U.S. plants. Actions taken may include forwarding the information to relevant technical review groups, posting an internal communication on the issue, or screening the issue for further review as an issue for resolution in accordance with the criteria of Office of Nuclear Reactor Regulation Office Instruction LIC 401, "NRR Reactor Operating Experience Program," dated May 17, 2005.

In addition, it is NRC policy to participate in the INES, jointly developed by IAEA and OECD NEA. This participation includes the evaluation of all events (reactor, fuel facility, and licensed materials), except medical misadministrations, reported to the NRC Operations Center for potential reporting using the INES. Reports are transmitted to IAEA and made available to the U.S. public for all events rated as Level 2 or higher, or as requested by another INES member nation. Participation in INES is in addition to the U.S. national four-level emergency classification system that has been in use at commercial nuclear power plants for over 20 years.

Question No: 070

Module 02: Global Nuclear Safety Regime

## Question

Does the country participate in other relevant international activities including the various safety review services the Agency provides e.g. OSART, ASSET, INSARR?

Describe this involvement.

## Response

The NRC regularly supports numerous safety missions and activities, as noted in the response to Question 068. The NRC supports two operational safety assessment review teams (OSARTs) per year, as well as numerous other missions including Integrated Regulatory Review Service (IRRS). Other U.S. agencies and entities, including the U.S. Department of Energy, individual State agencies, licensees, and private contractors, also support IAEA safety missions. In addition, several U.S. nuclear power plants have been the subject of OSART missions.

NRC international cooperation activities do not relieve the NRC of its responsibility for making decisions and recommendations.

Information on inspection activities is shared by NRC participation in OSART missions.

# IRRS Question and Response Report

Question No: 126

Module 02: Global Nuclear Safety Regime

## Question

To what extent does the Regulatory Body use international experience to benefit its own review and assessment activities? E.g., How would the Regulatory Body approach the assessment of an imported technology or material?

## Response

The NRC routinely participates in and supports a wide range of international forums and activities to learn about international experience. These include but are not limited to multinational groups like IAEA and NEA as well as conferences and other types of meetings. NRC staff members who participate in these activities report on them through avenues that include formal trip reports, and incorporate their insights in developing improvements in NRC programs and processes. The NRC also often uses international experience in its review activities. The NRC processes international OpE information in the same manner as domestic OpE. The OpE received through various channels is collected, screened, evaluated, and applied. The key OpE sources include the events reported through the INES and WBIRS. Other international OpE sources considered include media reports, reports from staff traveling internationally, formal international agreements, and meetings. When these sources are screened, a decision is made on whether or not they should be communicated to interested stakeholders or evaluated further. This screening of international events is performed to determine the applicability to the current fleet of operating reactors. However, events that are screened out are stored. From this screening, several international events have been shared internally with cognizant technical staff through the Web-based OpE community forum. In addition, a few international events have been screened in for further evaluation because of their risk significance and potential generic applicability to current operating reactors. These evaluations have led to management briefings, generic communications, and interactions with the inspection staff.

The NRC has several international programs and agreements that provide light-water reactor operational information as well as research related to various technical disciplines. For example, in the area of materials degradation at international light-water reactors, the NRC participates in a program that documents all available OpE for stress corrosion cracking events worldwide. The NRC is a participant in the NEA's Halden Reactor Project and cooperates in international initiatives on nuclear safety culture. NRC activities have benefitted from this mutual cooperation.

The NRC has also benefitted greatly from participation in IAEA review services, such as IRRS and OSART missions. These activities provide another avenue for the NRC to consider its practices in the context of other nuclear programs, share information and lessons learned, and evaluate potential ways to enhance the effectiveness of NRC programs.

The NRC has a history of dealing with imported components for power reactor facilities and has made inspections of components in other countries during their fabrication. The NRC has import licensing authority for nuclear production and utilization facilities, as well as for special nuclear material, source material, and byproduct material. Imports are considered for either a general or specific import license in accordance with the criteria set forth in 10 CFR 110, "Export and Import of Nuclear Equipment and Material."

As with the use of any contractor support, whether domestic or imported, the licensee is responsible for ensuring the quality and suitability of the material or services provided. Licensees must demonstrate the suitability of imported technologies or materials as part of license applications for their use. The NRC treats imported technologies, materials, and methodologies in the same manner as novel technical solutions (see the response to Question 130 regarding novel technical solutions). All contractor services and components for installation in a nuclear power plant must meet the requirements of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." This requires, in part, that measures be established to ensure that any purchased material or equipment conforms to the procurement documents. These procurement documents must include or reference any applicable regulatory requirements or design bases necessary to assure quality (see the response to Question 118 regarding licensee use of contractors).