

## **POLICY ISSUE (Information)**

December 14, 2009

SECY-09-0182

FOR: The Commissioners

FROM: Michael R. Johnson, Director  
Office of New Reactors

SUBJECT: LEGAL CONSTRAINTS OF RELYING ON VENDOR INSPECTION  
RESULTS OF FOREIGN REGULATORS AND THE NEED FOR  
ADDITIONAL RESOURCES TO ACHIEVE THE APPROPRIATE  
NUMBER OF NRC VENDOR INSPECTIONS

PURPOSE:

The purpose of this paper is to inform the Commission of the legal constraints of relying on the vendor inspection results of foreign regulators, and the need for additional resources to achieve the appropriate number of vendor inspections. This paper is in response to staff requirements memorandum (SRM) M090603, "Briefing on New Reactors – Component Fabrication and Oversight," dated June 12, 2009.

SUMMARY:

This paper describes the U.S. Nuclear Regulatory Commission (NRC) staff's interactions with foreign regulators through the Multinational Design Evaluation Program, specifically, in the Vendor Inspection Cooperation Working Group (VICWG) and the legal constraints of relying on the vendor inspection results of foreign regulators. The staff has not identified any legal constraints on leveraging foreign authority vendor inspections results and gaining insights from them to help inform the prioritization of the Office of New Reactors (NRO) vendor inspection resources. As long as the NRC retains the ultimate authority to decide whether any particular combined license (COL) holder or licensee satisfies NRC requirements, NRO may choose to gain insights from a foreign regulator's vendor inspection results. Should the staff identify any other purpose for which the staff proposes to rely on foreign authority inspection results, the NRO staff will inform the Commission of the bases for the proposed reliance.

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The NRO staff will continue to evaluate and explore additional areas in which the NRC can benefit from its interactions with the VICWG and will continue to keep the Commission informed, as appropriate, with respect to the outcomes resulting from VICWG activities.

Additionally, this paper informs the Commission of the further expansion of NRO's vendor inspection program (VIP), based on the potential increase of activities within the nuclear industry associated with the construction of new plants and the expected increases in the number of suppliers and allegations received. As such, NRO intends to increase vendor inspections from the current 10 inspections per year to 20–25 inspections per year by 2013 and 2014.

#### BACKGROUND:

In SECY-07-0105, "Enhancement to the Vendor Inspection Program within the Office of New Reactors" dated June 27, 2007, the NRC staff from the Division of Construction Inspection and Operational Programs in NRO described the VIP and the planned enhancements to that program as a result of an expected increase in activities within the nuclear industry associated with new plant design and construction. On June 3, 2009, the NRC staff, an industry panel, and a peer regulator, briefed the Commission on the fabrication and oversight of new reactor components.

During this briefing, the staff provided an overview of the implementation of the enhanced new reactor VIP and discussed vendor oversight, lessons learned, and global regulatory cooperation in vendor oversight.

Following the briefing, the Commission directed the staff in SRM M090603 to continue to seek insights from other industries' and countries' efforts to ensure quality and regulate fabricated components and to inform them of the legal constraints of relying on vendor inspection results of foreign regulators. The SRM also directed the staff to inform the Commission of the need for any additional resources to achieve the appropriate number of vendor inspections.

#### DISCUSSION:

The NRC staff performs routine vendor inspections on a sampling basis to examine whether vendors of safety-related components or services have complied with the requirements of Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities" (hereafter referred to as Appendix B), and 10 CFR Part 21, "Reporting of Defects and Noncompliance," as required under vendor procurement contracts with applicants or licensees. The NRO staff, based on the effort described in SECY-07-0105, issued Inspection Manual Chapter (IMC) 2507, "Construction Inspection Program: Vendor Inspection Program," dated October 3, 2007, to describe the new reactor VIP and the associated inspection procedures that govern staff inspection of contractors and suppliers of safety-related components or services to the commercial nuclear industry.

Under Criterion VII, "Control of Purchased Material, Equipment, and Services," of Appendix B, applicants and licensees are required to establish measures to ensure that purchased material, equipment, and services, conform to procurement documents. While the ultimate responsibility for the quality of procured components and services resides with the applicants and licensees,

the NRC performs vendor inspections to verify effective implementation of vendor quality assurance programs as a means of assuring the quality of materials, equipment, and services supplied to the commercial nuclear industry. In addition, under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," combined license (COL) holders are responsible for demonstrating that they have met the inspections, tests, analyses, and acceptance criteria (ITAAC) before plant operation. The NRO staff, through a sampling inspection basis, verifies the adequacy of the COL holder's conclusions that the acceptance criteria in ITAAC are met. The quality of procured components and services will be an integral part of the basis for a COL holder's determination that the ITAAC are met. As such, NRO's vendor inspections and its knowledge of vendor performance, when combined with the submitted ITAAC closure letters and with insights from other inspection and review activities, will provide the basis for the NRC to make a determination on whether the COL holder has performed and successfully completed the ITAAC.

#### Leveraging the Results of Foreign Vendor Inspections

Since the last large-scale construction of domestic nuclear power plants, new reactor construction has shifted from a mostly domestic market to a broader international market for the design, engineering, procurement and fabrication of items and services. This shift from the domestic to the international market has resulted in an increase in the number of nuclear component suppliers that are based overseas.

The NRO staff participates in the VICWG of the Multinational Design Evaluation Program. Some of the goals of the VICWG are to identify areas of commonality and differences between vendor inspection practices of member countries and to establish a multi-national regulatory framework in vendor oversight that provides all participants access to vendor inspection information from peer regulators. Through the use of best practices and information sharing, the NRO staff expects to improve the efficiency and effectiveness of the vendor inspection program. For example, the NRO staff has implemented a best practice by enhancing its use of technical experts to supplement the programmatic reviews conducted during vendor inspections.

Currently, 10 countries participate in the VICWG: Canada, China, France, Finland, Japan, the Russian Federation, South Korea, South Africa, the United Kingdom, and the United States (U.S.). The VICWG has made significant progress in improving the understanding of the practices and regulatory framework under which vendor oversight is conducted worldwide. The member countries have begun to exchange information, including a list of scheduled vendor inspections and samples of recent inspection reports. In addition, the VICWG conducted an assessment of the different national quality assurance regulatory requirements and is currently assessing the differences in oversight practices to build a common understanding of the regulatory framework of each country.

The NRO staff has also undertaken significant bilateral and, through the VICWG, multilateral efforts that have resulted in an unprecedented level of international cooperation and the sharing of knowledge on vendor inspections. For example, the NRO staff conducted a vendor inspection of a South Korean-based vendor in parallel with the Korean Institute of Nuclear Safety—the South Korean regulatory authority. This was the first time the NRC conducted an inspection in parallel with a foreign regulator. The NRO staff has also participated as observers

for several vendor inspections conducted by South Korea and France; regulatory authorities from South Korea, France, Japan, Finland, and Canada have also observed NRC vendor inspections.

The NRO staff will continue to participate in the VICWG to explore additional areas in which the NRC can benefit from these interactions. Early interactions have revealed that there are many similarities in regulatory framework and vendor inspection practices. Currently, the NRO staff is gaining insights from inspections performed by peer regulators to help inform the prioritization of NRO staff vendor inspection resources. These insights are another input into the selection process for NRO vendor inspections along with other items, including but not limited to the safety significance of the component or service, operational and construction experience (domestic and foreign), construction inspection program insights, and licensee and applicant procurement plans. Further, NRO staff participation in inspections led by foreign regulatory authorities could also provide additional insights relative to the effectiveness of licensee (both foreign and domestic) oversight of these vendors.

However, some aspects of international cooperation in this area still remain a challenge. For instance, the regulations, laws, and design codes used for the fabrication of components vary from country to country. As the VICWG continues to make progress in this area, the NRO staff expects to be able to expand its understanding through its participation in foreign-led inspections.

The Office of the General Council (OGC) and the NRO staff have not identified any legal constraints on leveraging foreign authority inspection results and gaining insight from them to help inform the prioritization of NRO vendor inspection resources, as described above. This practice is acceptable because the foreign authority inspection results are merely one source of information, and the NRC retains the ultimate authority to decide whether any particular vendor satisfies NRC requirements.

The NRC may choose to rely on a foreign regulator's inspection results for purposes other than setting priorities for inspection resources, provided it has an adequate basis to do so. At this time, the staff has not identified any such other purpose. Should the staff identify any such purpose for relying on foreign authority inspection results, the staff will inform the Commission of the bases for the proposed reliance, which could include, among other things, consideration of the comparability of foreign standards to U.S. standards or the nature and extent of the foreign regulator inspections.

#### Future Vendor Inspection Program Growth

As a result of the development of the enhanced vendor inspection program in 2007, and within the framework of IMC 2507, the NRO staff currently conducts a minimum of 10 routine and reactive vendor inspections per year. The staff performs routine vendor inspections to verify effective implementation of a supplier's quality assurance program used to furnish safety-related components or services to the nuclear industry in compliance with Appendix B. The staff also performs focused, reactive inspections of nuclear component suppliers, when needed, to support technical staff review of design certification or COL applications or to address operational events or allegations. However, the NRO staff believes that further expansion of the oversight of nuclear component suppliers is appropriate, based on the potential increase of activities within the nuclear industry associated with the construction of new plants.

Construction commenced in 2009 with the issuance of a Limited Work Authorization (LWA) for Vogtle Unit 3, and construction activities are expected to increase beginning in 2011 if the Commission grants any of the COL applications now under review.

For the last 2 years, NRO vendor inspection activities have primarily focused on performing routine vendor inspections of suppliers of long-lead components as applicants procure heavy components in preparation to start construction. The staff has been performing inspections to ensure that suppliers are providing items and services of a quality commensurate with their importance to safety in a manner consistent with applicable regulatory requirements.

As anticipated, only a few facilities worldwide have the infrastructure and capability to support the manufacturing of heavy components. With the current resources, NRO has been able to perform at least one vendor inspection at most of these vendors' facilities. The NRO staff has also performed some inspection activities at other key suppliers that support construction activities. For example, the NRO staff has conducted inspections at engineering, procurement and construction (EPC) contractors for some applicants. This type of supplier provides engineering services and translates the certified design and licensing-basis information into procurement, fabrication, and construction drawings.

The NRO staff expects that, if construction commences, the number of nuclear component suppliers providing smaller safety-related components will increase in support of the construction activities. In addition to this challenge, the NRO staff anticipates that many of these suppliers will be new to the industry.

Should construction begin, and to support the expected increases in the number of suppliers and a potential increase of allegations, NRO expects that an increase in the number of vendor inspections would be appropriate. There are currently hundreds of suppliers to the nuclear industry, and the appropriate number of inspections to be conducted annually will always be a matter of judgment. At this time, NRO is recommending an increase in the number of vendor inspections from the current number of 10–12 per year to approximately 20–25 per year by fiscal year (FY) 2013–2014. To accomplish the recommended number of inspections in a given year, NRO estimates that it will need a modest growth in resources. The acquisition of these additional resources in FY 2011 and FY 2012 will be necessary to support inspector training and development. Depending on the location of the vendor inspections, interpreter services may also be required.

To meet the challenges of the increased NRO vendor inspections anticipated as a result of new reactor activities, the NRO staff, as mentioned above, has enhanced the new reactors VIP guidance, including inspection requirements and procedures, for all anticipated vendor inspection activities identified within the program, including reactive inspections to address allegations. Additionally, the NRO staff has developed and implemented a vendor inspector training qualification process to qualify staff as vendor inspectors. The successful implementation of the NRO VIP requires specific staff expertise related to design, engineering, procurement, and fabrication processes (e.g., welding, and non-destructive examination) and detailed knowledge of the related industry codes and standards.

RESOURCES:

The NRO FY 2010 budget includes \$250K (excluding travel) and 18.2 full-time equivalents (FTE) for an estimated 10 vendor inspections and other vendor related activities such as American Society of Mechanical Engineers codes and standards committee participation, oversight of the Nuclear Utilities Procurement Issues Committee joint utility audit process, and VICWG participation. The NRO FY 2011 budget plan requested \$231K (excluding travel) and 22 FTE to conduct approximately 15 inspections as well as to recruit and develop NRO inspection resources. NRO's resources for FY 2012 have not been determined but will be requested through the FY 2012 Planning, Budgeting, and Performance Management process. These resources will be sufficient to continue to recruit and develop inspection resources in order for the new reactors VIP to support an estimated 20-25 vendor inspections per year in FY 2013 and FY 2014.

COORDINATION:

The Office of the General Counsel has reviewed this paper and has no legal objection. The Office of Chief Financial Officer has reviewed this paper and concurs.

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