

POLICY ISSUE INFORMATION

June 27, 2011

SECY-11-0084

FOR: The Commissioners

FROM: R. W. Borchardt
Executive Director for Operations

SUBJECT: STAFF ACTION PLAN TO ADDRESS THE INTEGRATED
REGULATORY REVIEW SERVICE MISSION

PURPOSE:

The purpose of this paper is to inform the Commission of the actions planned by the staff to address the recommendations and suggestions of the International Atomic Energy Agency (IAEA) Integrated Regulatory Review Service (IRRS) mission conducted October 17–29, 2010. In addition, this paper discusses the third IAEA IRRS lessons-learned workshop scheduled for October 26–28, 2011.

BACKGROUND:

The IRRS mission focused on the U.S. operating power reactor program. The mission report was issued on March 1, 2011, and is publically available under Agencywide Documents Access and Management System Accession No. ML110630400. The report contains 2 recommendations, 20 suggestions, and 25 good practices.

DISCUSSION:

The following discussion provides information about the mission report and the staff's action plan to address the recommendations and suggestions.

CONTACT: Jon B. Hopkins, NRR/DPR
301-415-3027

IRRS Report Format

The IRRS report is formatted to address the 10 core IRRS modules and the optional module discussed during the mission. The two thematic modules, Periodic Safety Review and Feedback of Operating Experience, do not have their own report sections; rather, they are discussed within the other modules.

IRRS Report Findings

An IRRS mission has three types of findings: recommendations, suggestions, and good practices. The IAEA guidance for IRRS missions defines these findings as follows:

Recommendations are proposed where key aspects relative to the IAEA Safety Requirements are missing, incomplete, or inadequately implemented. Recommendations should be specific, realistic and designed to result in tangible improvements to regulatory effectiveness.

Suggestions are used to identify opportunities for improvement unrelated to a non-compliance with IAEA Safety Requirements. Suggestions may indirectly contribute to improvements in national regulatory arrangements but are primarily intended to address regulatory technical and policy issues, to make the regulatory body's performance more effective or efficient, to indicate useful expansions of existing programs and to point out possibly superior alternatives to current work. In general, suggestions should stimulate the regulatory body's management and staff to consider new or different approaches to regulatory technical and policy issues and enhance performance. A suggestion is either a proposal in conjunction with a recommendation or may stand on its own. Each suggestion shall have a basis either in IAEA Safety Requirements, Safety Guides or other relevant IAEA documents or regulatory body commitments (e.g., Conventions).

A good practice is identified in recognition of an outstanding organization, arrangement, program or performance superior to those generally observed elsewhere. It has to be worthy of the attention of other regulatory bodies. Good practices shall also reference a basis similar to suggestions.

The report's recommendations concern documenting and confirming that the Nuclear Regulatory Commission (NRC) has a fully integrated management system.

The report's suggestions include safety margin improvements by licensees; harmonization of codes and standards with international standards, operator training and Reactor Oversight Process (ROP) coverage of severe accidents, additional inputs to operating experience assessments, emergency preparedness and response, and the safety/security interface.

The report's good practices primarily address communication, transparency, human capital planning, vendor oversight, the operating experience program, the inspection program, the

rulemaking process, regulatory guides, the emergency exercise program, and the safety/security interface program.

Staff Action Plan

The staff has developed an action plan (Enclosure 1) to address the recommendations and suggestions contained in the IRRS mission report. The staff incorporated the need to assess lessons learned from the Fukushima accident into several of the suggestions. Currently, the staff has identified four potential policy issues stemming from the plan (see Suggestions S4, S7, S8, and S10 in Enclosure 1). Implementation of the action plan has commenced for several of the actions. The staff will seek appropriate Commission guidance on all policy issues identified when sufficient details have been developed to either recommend action or options for Commission consideration.

IRRS Followup Mission

As part of the IRRS mission process, a followup mission is conducted approximately 18–24 months after the original mission. The followup mission reviews the host country's activities to address the mission's recommendations and suggestions. In addition, the followup mission can review new areas, if agreed to by the host country.

The followup IRRS mission for the United States has not been scheduled. The NRC staff believes that the followup mission will likely take place more than 24 months after the original mission because of the number of missions scheduled to be conducted by IAEA.

IRRS Lessons Learned Workshop

The NRC has agreed to host an IAEA IRRS mission lessons-learned workshop, scheduled for October 26–28, 2011. This will be the third IAEA IRRS lessons-learned workshop. Spain hosted an IRRS lessons-learned workshop in 2008 following its IRRS mission, and France hosted a workshop in 2007 following its mission. The IAEA will invite countries that have recently hosted an IRRS mission to present lessons learned and any suggestions they may have for IAEA or future host countries. Countries that expect to host a future IRRS mission will also attend. The IAEA Deputy Director General for the Department of Nuclear Safety and Security typically attends this meeting.

Enclosure 2 provides several examples of the types of suggestions that the staff anticipates providing at the workshop.

Resources

1.7 FTE is included in the FY 2012 budget request for the IRRS mission. The planned staff actions discussed can be performed within these resources.

CONCLUSIONS:

The staff's planned actions include the following:

- Seek Commission guidance on policy issues involved in addressing the IRRS report recommendations and suggestions, if they arise.
- Coordinate planning with IAEA for hosting the IRRS lessons-learned workshop.
- Communicate with IAEA on the schedule for the followup IRRS mission.

COORDINATION:

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

/RA by Martin J. Virgilio for/

R. W. Borchardt
Executive Director
for Operations

Enclosures:

1. NRC Action Plan
2. Lessons Learned Examples

Integrated Regulatory Review Service (IRRS)
Recommendations and Suggestions

NRC Action Plan

June 2011

Recommendation R1:

The Nuclear Regulatory Commission (NRC) should identify/confirm and describe its organizational-wide core processes and support processes and include process inputs, flows, and outputs (e.g., develop a process map) in order to confirm and document a fully integrated management system.

R1 Action:

From its self-assessment, the staff commenced development of a comprehensive document describing the many complex components of the agency's management system (also, see S3). The staff will complete the management systems document with the intent that it will confirm the comprehensiveness of the existing NRC management systems for the operating reactor program, to serve as a knowledge management tool, and to serve as a tool to support periodic management system reviews. (Also, see R2.)

Next Step: Develop a process map for inclusion in the management systems document by June 30, 2012.

Lead: J. Lubinski, NRR

Coordination: J. Golder, CFO
J. Corbett, OIS

Recommendation R2:

The NRC should develop a methodology and implement a holistic management system review at planned intervals to ensure the continuing effectiveness of the management system.

R2 Action:

Following the completion of the management systems document developed to support the staff self-assessment and IRRS Recommendation R1 and Suggestion S3, staff will evaluate existing performance measurement and audit activities to determine whether additional reviews of NRC's management system are necessary to periodically assess the effectiveness of the system.

Next Step: Following completion of R1 and S3, evaluate the need for additional periodic reviews to close any gaps from a holistic review perspective.

Lead: J. Lubinski, NRR

Coordination: J. Golder, CFO
N. Mamish, OEDO

ENCLOSURE 1

Suggestion S1:

In the absence of a direct legal statement about the prime responsibility for safety, the NRC should provide a consistent, clear message to the licensees that they have responsibility to take their own initiatives to improve safety whenever reasonably practicable.

S1 Action:

Develop a consistent message on safety responsibility that can be conveyed to licensees during management meetings, such as drop-in meetings, Nuclear Strategic Issues Advisory Committee (NSIAC) meetings, and Utility Working Conferences. Work through the Office of the Executive Director for Operations to endorse and implement the message across offices and regions. In addition, the staff included a statement in the Safety Culture Policy Statement, which was approved by the Commission and published in the *Federal Register* on June 14, 2011, to reflect the expectation that licensees have the prime responsibility for safety and security. (Also, see S14.)

Next Step: Develop a communication plan by September 30, 2011.

Lead: B. Boger, NRR

Coordination: C. Miller, Region I
R. Croteau, Region II
J. Lara, Region III
T. Pruett, Region IV
J. Cai, OE

Suggestion S2:

The NRC should evaluate the added value to safety of harmonizing its regulations and guides with the International Atomic Energy Agency (IAEA) safety standards and consider the possible means to take into account the IAEA safety standards in the regulations and regulatory guides.

S2 Action:

The NRC staff identified this issue from its self-assessment. The staff plans to:

(1) Update staff guidance to include consideration of IAEA safety standards as additional points of reference when developing new or revised regulations and guidance (or endorsing voluntary industry initiatives).

(2) Improve the effectiveness of the Knowledge Management Center's "IAEA Safety Standards Gap Analysis" by piloting a reference document that summarizes the differences between a set of NRC regulations and key IAEA safety standards (for example, the General Design Criteria and IAEA Safety Standard NS-R-1).

(3) Continue to support participation of agency experts in the development and revision process of IAEA safety standards in order to help ensure harmonization with U.S. practices and enhance the adaptability for reference in U.S. standards.
(Also, see S5, S12, and S13).

Next Step: Management Directive (MD) 6.6, “Regulatory Guides,” for the development of regulatory guides, was approved and issued on April 12, 2011. As a result of the NRC’s self-assessment in preparation for the IRRS mission, MD 6.6 was revised to include a section on harmonization with international standards. Staff will continue the current practice of developing a “gap analysis” to support NRC interactions with IAEA on proposed standards. Staff will draft an update to staff guidance for regulations to include consideration of IAEA safety standards by March 31, 2012.

Lead: D. Skeen, NRR

Coordination: Mike Case, RES

Suggestion S3:

The NRC should continue to develop its draft management system description document and accommodate in this document the results of the recommendations given above (R1 and R2).

S3 Action:

From its self-assessment, the staff commenced development of a comprehensive document describing the many complex components of the agency’s management system. The staff will consider Recommendations R1 and R2, and the staff’s response to those recommendations, in its development of this document. (Also see R1 and R2.)

Next Step: Develop a process map for inclusion in the management systems document by June 30, 2012.

Lead: J. Lubinski, NRR

Coordination: J. Golder, CFO
J. Corbett, OIS

Suggestion S4:

The NRC should develop means to verify that newly licensed operators have received adequate training on management of severe accidents.

S4 Action:

The staff will consider the adequacy of NRC’s current approach to the oversight of severe accident management guidelines (SAMGs). This will include development and maintenance of the procedures, as well as training and drills conducted by licensees. This will also include an assessment of how the NRC reviews SAMGs under the Reactor Oversight Process. (Also, see S10).

Next Step: Staff will develop a more detailed plan following the NRC staff’s report on near-term lessons learned from Fukushima, which will include consideration of the recently completed Temporary Instruction (TI) –183 and TI-184. Staff recognizes that changes to address this suggestion will likely involve changes to agency policy and will require Commission review and approval.

Lead: F. Brown, NRR

Coordination: C. Miller, Region I
J. Munday, Region II
J. Lara, Region III
T. Vogel, Region IV

Suggestion S5:

Future updates of the NRC's standard review plans should take into account scientific and technological developments in the area of safety assessment as reflected in the relevant IAEA safety standards.

S5 Action:

Staff will update the Office of New Reactors (NRO) Office Instruction NRO-REG-300 (ML073230703) and the Office of Nuclear Reactor Regulation (NRR) Office Instruction LIC-200 (ML060300069) to incorporate guidance on the use of IAEA safety standards as additional points of reference when updating review guidance, as is currently recommended in MD 6.6 "Regulatory Guides." (Also, see S2, S12, and S13)

Next Step: Complete review of NRO and NRR office instructions by December 31, 2011.

Lead: D. Skeen, NRR

Coordination: P. Madden, NRO

Suggestion S6:

NRC should consider limiting its approval of codes submitted by vendors to a specific period of time to ensure the codes are periodically evaluated and updated, as necessary, to reflect lessons learned and the latest knowledge.

S6 Action:

The staff will review its current requirements and expectations for code use. The results will be assessed to determine the benefit and practicality of establishing time limits on the use of NRC approved codes.

Next Step: NRR, NRO, and Office of Nuclear Regulatory Research (RES) to meet and draft a proposal by December 31, 2011.

Lead: B. Boger, NRR

Coordination: S. Elkins, RES
M. Lombard, NRO

Suggestion S7:

NRC should consider proper ways aimed at more direct implementation of the as low as reasonable achievable (ALARA) principle in setting up the radiological acceptance criteria for design basis accidents as well as in assessment of acceptability of the results of relevant safety analysis.

S7 Action:

The staff will explore this issue to better understand how international nuclear regulatory bodies have used the ALARA principle in this manner. The results will be assessed to determine the benefit and practicality of the use of the ALARA principle in establishing acceptance criteria in safety analyses.

Next Step: NRR will survey its international counterparts on their approach to this issue. Survey to be completed by June 30, 2012. Staff recognizes that changes to address this suggestion will likely involve changes to agency policy and will require Commission review and approval.

Lead: T. McGinty, NRR

Coordination: K. Henderson, OIP

Suggestion S8:

NRC should assess whether the current regulations adequately provide for an independent verification of the safety assessment under the responsibility of the licensee before its use or submittal to the regulatory body and whether this verification is adequately confirmed by the NRC.

S8 Action:

The staff will assess regulatory requirements on design control (Title 10 of the *Code of Federal Regulations* Part 50, Appendix B), the quality of licensing submittals, and inspection program results (e.g., component design bases inspections) to determine whether confidence exists that licensees are performing acceptable safety analyses. If a gap is identified, the staff will explore the potential benefit of independent verifications.

Next Step: NRR and NRO to meet and develop a proposal, if needed, by March 31, 2012. Staff recognizes that changes to address this suggestion will likely involve changes to agency policy and will require Commission review and approval.

Lead: B. Boger, NRR

Coordination: J. Tappert, NRO

Suggestion S9:

Although the NRC utilizes an alternate approach to meet the Periodic Safety Review (PSR) safety factors, NRC should incorporate lessons learned from PSRs performed in other countries as an input to the NRC's assessment processes.

S9 Action:

The staff identified this issue from its self-assessment. The NRC will conduct a limited scope pilot effort to obtain some example PSRs performed in other countries where an English version of the PSR results is available (or as a minimum, the regulator's review of the PSR). These will be reviewed for potential insights regarding nuclear power plant operating experience topics similar to the review performed prior to the IRRS mission. The pilot effort will review example

PSRs for potential insights to be assessed by the NRC's regulatory processes, which could include, for example, issuing a nuclear power plant generic communication or future revisions to NRC license renewal guidance documents. The pilot effort will seek to establish the value added from the review of the example PSRs.

In addition, the NRC will use bilateral meetings with other international regulatory bodies as a forum to obtain significant PSR findings from those countries for further evaluation by the NRC.

Next Steps: Finalize standard set of questions for bilateral meetings on PSR findings by July 15, 2011, and obtain PSRs for the pilot effort by September 30, 2011.

Lead: B. Holian, NRR

Coordination: K. Henderson, OIP

Suggestion S10:

NRC should ensure that Severe Accident Management (SAM) is properly addressed in the Reactor Oversight Process.

S10 Action:

The staff will consider the adequacy of NRC's current approach to the oversight of SAM. This will include operator training, emergency exercises, B.5.b follow-up, and inspection procedures. This will also include an assessment of how the NRC reviews SAM under the Reactor Oversight Process. (Also, see S4).

Next Step: Following the staff's report on near-term lessons learned from Fukushima, which will include consideration of the recently completed TI-183 and TI-184, the staff will assess NRC SAM oversight activities. Staff recognizes that changes to address this suggestion will likely involve changes to agency policy and will require Commission review and approval.

Lead: F. Brown, NRR

Coordination: C. Miller, Region I
R. Croteau, Region II
J. Lara, Region III
T. Vogel, Region IV
M. Thaggard, NSIR

Suggestion S11:

NRC should review its inspection event response guidance and interact with licensees with an objective of reconfirming that the role of the NRC is understood and does not unduly influence the actions taken by the licensee.

S11 Action:

The staff will assess agency guidance and expectations on event response to ensure the NRC doesn't unduly impact licensee incident response. An appropriate interaction with licensees to confirm a common understanding of NRC and licensee roles during incident response will be conducted.

Next Step: Staff will assess NRC guidance and expectations on event response and develop a proposal, if needed, by December 31, 2011. Lessons learned from the Office of Nuclear Security and Incident Response's assessment of the NRC's response to the Fukushima Daiichi event will be considered and incorporated, as appropriate.

Lead: F. Brown, NRR

Coordination: C. Miller, Region I
J. Munday, Region II
J. Lara, Region III
K. Kennedy, Region IV

Suggestion S12:

The NRC should prioritize the development of a formal procedure for development and revision of regulatory guides.

S12 Action:

Management Directive 6.6, "Regulatory Guides," for the development of regulatory guides, was under development prior to the IRRS mission. As a result of the NRC's self-assessment in preparation for the mission, the MD was revised to include a section on harmonization with international standards. Issuance of the final MD will address the IRRS suggestion. (Also, see S13.)

Next Step: MD 6.6 was approved and issued on April 12, 2011. This action is complete.

Lead: D. Skeen, NRR

Coordination: M. Orr, RES

Suggestion S13:

The NRC should consider making an implementing procedure to guide the periodic systematic review for its regulations and guides based on operating experience feedback and the development of international safety standards.

S13 Action:

The staff will assess the pros and cons of performing a periodic review of NRC regulations and guidance documents. In addition, similar to the effort to consider using international standards as points of reference in regulatory guides (also, see S12), the staff will consider developing an internal policy or MD that would direct NRC staff to consider IAEA safety standards as points of reference, when developing new or revised regulations (or when endorsing voluntary industry initiatives).

Next Step: NRR, NRO, and RES develop a proposal, if needed, by March 31, 2012.

Lead: D. Skeen, NRR

Coordination: M. Case, RES
P. Madden, NRO

Suggestion S14:

The NRC should consider possible measures to ensure that all licensees are more proactive in upgrading the systems, structures, and components of their facilities with the objective to improve safety margins.

S14 Action:

In conjunction with the development of a clear, consistent message to licensees identified in Suggestion 1, the staff will develop discussion points to address maintenance of safety margins and planned facility safety improvements for use in routine meetings with licensees.

Next Step: Develop a communication plan by September 30, 2011.

Lead: B. Boger, NRR

Coordination: C. Miller, Region I
R. Croteau, Region II
J. Lara, Region III
T. Pruett, Region IV

Suggestion S15:

The NRC procedure for the IAEA emergency notification system (ENAC) should be improved and the emergency exercise program should include routine testing of ENAC reporting to the IAEA.

S15 Action:

The staff will contact IAEA and the Department of State to (a) develop protocol for ENAC notifications of events, and (b) establish a method for routine testing of ENAC with IAEA, including during exercises.

Next Step: Develop protocol for ENAC notifications by March 31, 2012.

Lead: M. Thaggard, NSIR

Coordination: K. Henderson, OIP

Suggestion S16:

The NRC should discuss with its Federal partners the consideration of a proposal for the development of initial operational intervention levels in line with the IAEA Safety Standard GS-R-2 provisions.

S16 Action:

The staff will present this suggestion at a Federal Radiological Preparedness Coordinating Committee (FRPCC) meeting. The outcome will depend upon the direction provided by FRPCC members. Staff will review this issue to determine the acceptability of the interagency approach, and provide feedback to NRC leadership and FRPCC for any possible future actions.

Next Step: The initial action has been completed. Staff presented the suggestion at the January 20, 2011, FRPCC meeting. Initial feedback at the FRPCC was positive; however, no definitive commitment was made on where FRPCC will go with this suggestion. Staff will raise this issue again at future FRPCC meetings.

Lead: M. Thaggard, NSIR

Coordination: NRC Leadership

Suggestion S17:

The NRC should discuss with its Federal partners, the consideration of a proposal for merging all field measurements performed during an emergency by different stakeholders into a single database. This database should be made available online for decision-making purposes.

S17 Action:

The staff will present this suggestion at a Federal FRPCC meeting. The outcome will depend upon the direction provided by FRPCC members. Staff will review this issue to determine the acceptability of the interagency approach, and provide feedback to NRC leadership and FRPCC for any possible future actions.

Next Step: The initial action has been completed. Staff presented the suggestion at the January 20, 2011, FRPCC meeting. Initial feedback at the FRPCC was positive; however, no definitive commitment was made on where FRPCC will go with this suggestion. Staff will raise this issue again at future FRPCC meetings.

Lead: M. Thaggard, NSIR

Coordination: NRC Leadership

Suggestion S18:

The NRC should continue to explore options with the Federal and State partners in order to expand the scope of the emergency exercise program by adding elements to demonstrate the capability to respond to unpredictable courses of events and to make the exercise programme more challenging to all the participants.

S18 Action:

NRC staff and Federal Emergency Management Agency (FEMA) are participating in rulemaking and guidance development that, among other things, will help to ensure drills and exercises at nuclear plants are more challenging and less predictable. The draft final rule has been provided to the Commission for approval. Staff will review implementation to determine if this item has been fulfilled.

Next Step: Staff will review implementation of final rule for adequacy to address S18 by June 30, 2013.

Lead: M. Thaggard, NSIR

Coordination: C. Miller, Region I
J. Munday, Region II
J. Lara, Region III
T. Vogel, Region IV
R. Virgilio, FSME

Suggestion S19:

NRC's Operating Experience Branch procedures should be updated to include non-nuclear information which should be collected to evaluate understanding to any impact to safety or security that may inform the safety/security interface.

S19 Action:

Staff will assess current processes for collecting information that is used to identify potential impacts on safety, security, and the safety/security interface, with consideration of non-nuclear sources. Processes will be updated, as appropriate, to address gaps.

Next Step: Staff will complete its assessment by March 31, 2012, and propose changes, if appropriate.

Lead: F. Brown, NRR

Coordination: R. Correia, NSIR

Suggestion S20:

NRC should take further action to encourage industry to take actions to ensure the effective co-ordination of the safety/security interface issues.

S20 Action:

NRC staff has increased its attention to the safety/security interface, including the June 2009 issuance of Regulatory Guide 5.74, "Managing the Safety/Security Interface," which was issued to provide guidance on implementation of 10 CFR 73.58, "Safety/Security Interface Requirements for Nuclear Power Reactors." In addition, NRC met with industry at the Nuclear Energy Institute (NEI) organized Nuclear Security Working Group, discussed the IRRS mission Suggestion 20, and encouraged industry to take actions to ensure the effective coordination of the safety/security interface.

Next Step: Document that NRC action to address Suggestion 20 is complete.

Lead: M. Galloway, NRR

Coordination: R. Correia, NSIR

U.S. Integrated Regulatory Review Service (IRRS)

Mission Lessons Learned Examples

1. Even partial-scope IRRS missions require an agencywide commitment. Member states who agree to host an IRRS mission must commit the resources needed to develop a thorough and credible assessment. Pre-mission planning should draw on several recent IRRS missions to other member states. Multiple member state points of contact (POCs) should be established for each module and POC roles and responsibilities should be clear. POCs should have no higher priority responsibilities during the 2 week mission.
2. The partial-scope mission focused on the U.S. Nuclear Regulatory Commission's operating power reactor program was the correct size for the United States. A mission with a larger scope and a larger IRRS review team would likely have been too unwieldy.
3. Including a module overview along with the self-assessment within the advance reference material was helpful.
4. If possible, IRRS mission teams should observe an agency's response during an emergency preparedness exercise. If no such exercise is scheduled, consider conducting an agency tabletop exercise.
5. The agency provided two conference rooms with computer capability for the IRRS team. One room was outside the security area and the other was inside the security area. This arrangement provided flexibility and convenience for the IRRS team. One of the rooms should be large enough for the entire team to review the draft report on a projection screen.

