POLICY ISSUE
INFORMATION

April 5, 2013 SECY-13-0037

FOR: The Commissioners

FROM: R. W. Borchardt
Executive Director for Operations

SUBJECT: REACTOR OVERSIGHT PROCESS SELF-ASSESSMENT FOR CALENDAR YEAR 2012

PURPOSE:

The purpose of this paper is to present the results of the U.S. Nuclear Regulatory Commission (NRC) staff's annual self-assessment of the Reactor Oversight Process (ROP) for calendar year (CY) 2012. This paper does not address any resource implications.

SUMMARY:

The results of the CY 2012 self-assessment indicate that the ROP met its program goals and achieved its intended outcomes. The staff found that the ROP met the agency's strategic goals of ensuring safety and security through objective, risk-informed, understandable, and predictable oversight. The staff implemented several ROP improvements in CY 2012, and will continue to solicit input from the NRC's internal and external stakeholders to further improve the ROP based on feedback and lessons learned.

BACKGROUND:

The staff performed the CY 2012 self-assessment in accordance with Inspection Manual Chapter (IMC) 0307, "Reactor Oversight Process Self-Assessment Program," dated March 23, 2009. The staff has issued an ROP self-assessment Commission paper every year since the NRC implemented the ROP in 2000, and staff has briefed the Commission annually on the results following the Agency Action Review Meeting (AARM). The Commission provides the staff with direction in the form of a staff requirements memorandum (SRM) as a result of the briefing. In SRM M120601, "Briefing on the Results of the Agency Action Review Meeting," dated June 12, 2012, the Commission did not identify any new requirements for staff action.

The ROP self-assessment program uses program evaluations and performance metrics to evaluate the overall effectiveness of the ROP in meeting its preestablished goals and intended outcomes. The ROP includes the four specific program goals of being objective, risk-informed, understandable, and predictable, as well as the applicable organizational excellence objectives

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(e.g., openness and effectiveness) from the NRC's Strategic Plan for Fiscal Years (FY) 2008–2013. The program goals and organizational excellence objectives support the NRC's mission and its strategic goals of safety and security. IMC 0307 specifies the intended outcomes of the ROP, which help form its basis and are incorporated into the ROP processes.

DISCUSSION:

The staff conducted numerous activities and obtained data from many sources to ensure that it performed a comprehensive and robust self-assessment for CY 2012. Data sources included the ROP performance metrics described in IMC 0307, internal and external stakeholder feedback, and direction and insight that the Commission has provided in recent years. The staff analyzed this information to gauge ROP effectiveness and potential areas for improvement. The scope of the staff's self-assessment included key ROP program areas, ROP communication activities, independent and focused evaluations, ROP resources, and resident inspector (RI) demographics and staffing.

ROP Program Area Evaluations

The staff performed evaluations in the four key ROP program areas: the performance indicator (PI) program, inspection program, significance determination process (SDP), and assessment program. The staff noted that the PI program continued to offer insights into ensuring plant safety and security, and the staff made several improvements to PI program guidance and implementation in CY 2012. NRC inspectors independently verified that licensees operated plants safely and securely, and the staff improved the inspection program through ongoing enhancements to inspection procedures and continual integration of operating experience. The SDP continued to be an effective tool for determining the safety and security significance of inspection findings, and the staff made several improvements to the SDP guidance and made significant progress on other SDP initiatives. Staff implementation of the assessment program ensured that the NRC and licensees took appropriate actions to address performance issues in CY 2012, commensurate with their safety significance. As discussed in Enclosure 1, "Reactor Oversight Process Program Area Evaluations," the staff's evaluation of the two new deviations from the Action Matrix noted that IMC 2515, "Light-Water Reactor Inspection Program -- Operations Phase," dated November 19, 2012, allows for additional focused inspection for special or infrequently performed activities. To improve the transparency of these provisions, the staff plans to augment the program guidance to allow the regions to publicly document the application of additional inspection resources within the baseline inspection program and thereby reserve the Action Matrix deviation process solely for regulatory action that is inconsistent with the range of actions described in the pertinent column of the Action Matrix. In addition, the staff successfully reintegrated the Security Cornerstone into the assessment program as described in SECY-11-0073, "Staff Proposal to Reintegrate Security into the Action Matrix of the Reactor Oversight Process Assessment Program." Enclosure 1 provides details on these ROP program evaluations.

ROP Communications and Performance Metrics

The staff continued to improve the ROP based on feedback from internal and external stakeholders. The staff used a variety of communication vehicles to ensure that stakeholders have access to ROP information and have ample opportunity to provide feedback. The staff continued to conduct monthly public meetings with internal and external stakeholders, to use the

internal feedback process, and to hold periodic meetings and telephone conferences with internal stakeholders to discuss potential improvements to the ROP. The staff also maintained the ROP Web pages to ensure that they communicate accurate and timely information to all stakeholders. In addition, as part its ROP enhancement initiative described below, the staff is revising and developing communication tools to improve public awareness of the ROP.

The staff gathered direct feedback from NRC inspectors and management responsible for ROP implementation through the biennial internal survey in CY 2012. Most of the internal survey questions and responses contributed directly to the annual ROP performance metrics and self-assessment. The number of respondents decreased by 24 percent since the last internal survey was conducted in CY 2010. Although the approval rates dipped slightly for a significant number of survey measures this year, the responses were generally positive, with stable or improving trends over time in most areas. Some respondents noted concerns and areas for improvement, and the staff has considered or will evaluate them for possible opportunities to improve the ROP as discussed in this paper and the ROP performance metric report (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13063A009). The staff will also develop a more comprehensive response to the survey comments and make this consolidated response available to internal stakeholders. The staff noted a relatively low number of survey respondents compared to the large number of internal stakeholders throughout the agency involved in the maintenance and implementation of the ROP. Therefore, the staff plans to explore ways to improve or replace the survey tool to improve objectivity in the measurement of ROP performance and minimize the reliance on more subjective measures such as stakeholder perception.

Thirty-eight of the 45 performance metrics for the ROP met the established criteria as defined in IMC 0307, Appendix A, "Reactor Oversight Process Self-Assessment Metrics," dated March 23, 2009. The seven metrics that were not met included one in the PI program area, three in the assessment program area, and three in the overall ROP area. The program area metrics are discussed in the program area evaluations in Enclosure 1. In addition, an overall metric, "Stakeholders Perceive the ROP to be Understandable," was not met because there has been a declining trend in respondents' agreement that the ROP information is effectively communicated using plain language. Another overall metric, "Stakeholders Perceive the NRC to be Responsive to their Inputs and Comments," was not met because respondents indicated significantly less agreement in the timeliness of the ROP feedback process as compared to past surveys. Lastly, a third overall metric, "Stakeholders Perceive that the ROP is implemented as Defined," was not met because some stakeholders responded that aspects of the ROP are not implemented consistently throughout the agency. The staff's analysis of the performance metrics and actions taken to address the missed metrics, as well as its analysis of the survey responses, are further discussed in the annual performance metric report. Late in CY 2012, the staff revised some of the metrics and/or their criteria to improve their usefulness in evaluating the effectiveness of the ROP and to make the metrics more objective and measurable. The staff intends to use the revised Appendix A to IMC 0307 when performing its CY 2013 self-assessment.

Independent and Focused Evaluations

Based on feedback from headquarters and regional management and external stakeholders, the staff initiated an ROP enhancement effort to take a fresh look at several key areas of the ROP, including: (1) enhancing the baseline inspection program to improve its efficiency and

effectiveness, (2) improving ROP communications and openness, (3) improving the timeliness of supplemental inspections, and (4) responding to longstanding substantive cross-cutting issues. Efforts are underway to address the first two items as discussed in this paper, but the final two items and any additional considerations have been deferred pending completion of the independent assessment described below.

At the same time the staff was commencing its ROP enhancement, the Commission directed the staff to pursue an independent review of the ROP's objectives and implementation in its SRM to SECY-12-0081, "Risk-Informed Regulatory Framework for New Reactors," dated October 22, 2012. As a result, the staff initiated an independent assessment of the program to identify potential enhancements or areas for further examination. The review team is composed of NRC staff that have past experience with, but do not have current responsibility for, ROP maintenance or implementation. The independent assessment team expects to complete its report in June 2013. The staff will forward the report to the Commission and evaluate the potential for ROP enhancements based on the results, conclusions, and any recommendations.

The Government Accountability Office (GAO) commenced an audit of NRC Oversight of Commercial Reactor Safety in CY 2012 in response to a request made by the Senate Committee on Environment and Public Works. The GAO is focusing on processes, documentation, and consistency within the ROP and enforcement programs. The staff expects the audit report to be issued in CY 2013 and will evaluate the GAO's conclusions and recommendations for potential program improvements.

In the SRM for SECY-11-0076, "Improving the Public Radiation Safety Cornerstone of the Reactor Oversight Process," dated November 8, 2011, the Commission approved the staff's plan to work with internal and external stakeholders on potential enhancements to the Public Radiation Safety cornerstone of the ROP. In CY 2012, the staff hosted a public meeting with interested stakeholders to discuss the SRM, and the topic was further discussed during subsequent ROP working group meetings. Participants agreed that the existing PI and SDP within this ROP cornerstone had an appropriate focus on public dose, and no additional changes were recommended to either of these program areas. However, the participants noted that providing additional transparency of industry's and NRC's efforts to protect groundwater would improve public confidence in this area, consistent with the openness principle of good regulation. Therefore, the staff is augmenting NRC inspection program guidance to direct the inspectors to document nonconformances with or failures to meet the industry's Groundwater Protection Initiative and the Underground Piping and Tanks Integrity Initiative in NRC inspection reports. Documentation of licensee performance in meeting these initiatives also will enable NRC staff to monitor their effectiveness and present any information that demonstrates that they are not being conducted in a committed and enduring fashion. This enhancement was summarized and provided in a note to the Commissioners assistants dated December 14, 2012.

The staff continued to implement the ROP reliability initiatives in 2012. The Deputy Regional Administrators initiated these activities to improve ROP implementation through sharing inspection resources, conducting benchmarking visits to other NRC regions, assessing inspection report quality, and discussing reliability topics, such as the distinction between minor and more-than-minor issues. In 2012, the Problem Identification & Resolution (PI&R) inspection program was selected for an in-depth review. The report prepared as a result of this effort is currently being evaluated for additional enhancements to the inspection program.

The staff received and evaluated feedback from licensees as part of the regulatory impact process. Over the past year, the staff received and compiled feedback from numerous site visits to reactor sites across all four regional offices. The favorable percentage was slightly higher than previous years, and the few unfavorable comments received appear to be isolated. Enclosure 2, "Regulatory Impact Summary," discusses the feedback and the staff's evaluation.

The NRC also collects and analyzes industry-wide data to monitor the overall safety performance of operating plants and to serve as indicators of ROP effectiveness. The staff is reporting the FY 2012 results of the Industry Trends Program to the Commission in an annual paper that complements this paper. The results of the Industry Trends Program, along with the results of this annual self-assessment, will be reviewed at the AARM.

ROP Resources

Overall staff effort to implement the ROP in CY 2012 remained consistent with previous years. Fluctuations were noted in the resource expenditures for baseline, plant-specific, and generic safety issue inspections, which demonstrates the typical level of variation from year to year. Enclosure 3, "Reactor Oversight Process Resources," further discusses ROP resources.

Resident Inspector Demographics and Site Staffing

Based on the annual resident demographic and site staffing analysis, the staff concluded that sites continue to be staffed with knowledgeable and experienced resident inspectors (RIs) and senior resident inspectors (SRIs). Staff turnover rates in both the RI and SRI ranks have remained relatively stable. Enclosure 4, "Resident Inspector Demographics," provides the staff's analyses of the 2012 RI and SRI demographics and site staffing.

CONCLUSIONS:

The self-assessment results for CY 2012 indicate that the ROP met its program goals and achieved its intended outcomes. The ROP was successful in being objective, risk informed, understandable, and predictable. The ROP also ensured openness and effectiveness in support of the agency's mission and its strategic goals of safety and security. The NRC appropriately monitored operating nuclear power plant activities and focused agency resources on performance issues in CY 2012, and plants continued to receive a level of oversight commensurate with their performance. Because some performance metrics were missed and other opportunities for improvement were identified, the staff plans to address these areas to further improve various aspects of the ROP. The staff did not make any specific commitments as a result of the CY 2012 self-assessment, but it will continue to make program improvements based on feedback and lessons learned.

COORDINATION:

The Office of the General Counsel has reviewed this Commission paper and has no legal objection. The Office of the Chief Financial Officer has reviewed this Commission paper and determined that there is no unforeseen financial impact.

/RA/

R. W. Borchardt
Executive Director
for Operations

Enclosures:
1. Reactor Oversight Process Program Area Evaluations
2. Regulatory Impact Summary
3. Reactor Oversight Process Resources
4. Resident Inspector Demographics

Reactor Oversight Process Program Area Evaluations

In accordance with Inspection Manual Chapter (IMC) 0307, "Reactor Oversight Process Self-Assessment Program," dated March 23, 2009, the U.S. Nuclear Regulatory Commission (NRC) staff evaluated all four key program areas of the Reactor Oversight Process (ROP). The four areas are the performance indicator (PI) program, the inspection program, the significance determination process (SDP), and the assessment program. The annual ROP performance metric report provides data and a staff analysis for all of the program area metrics (Agencywide Documents Access and Management System (ADAMS) Accession No. ML13063A009). The results of the staff's review are provided below.

Performance Indicator Program

The PI program continued to provide insights to help ensure plant safety and security. The staff continued to improve PI program guidance and implementation. The staff revised Inspection Procedure 71151, "Performance Indicator Verification," to clarify guidance for documenting inspection results. The NRC staff is investigating potential updates to the public PI Web site to support openness and transparency of the PI program. The staff continues to discuss PI validity during and following extended shutdown with industry representatives at public ROP Working Group meetings. Industry has drafted PI validity guidance, which the staff is currently reviewing. The staff will revise ROP inspection manual chapters and procedures, as necessary, when the approach and infrastructure for determining PI validity are finalized. The staff and industry also will explore any potential impacts to the safety system functional failure PI resulting from changes to NUREG-1022, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73." The staff is currently evaluating the appropriateness of existing PIs and the related thresholds for new reactors as directed in staff requirements memorandum (SRM) for SECY-12-0081, "Risk-Informed Regulatory Framework for New Reactors."

In 2008, the staff discontinued two of three security PIs in the Security Cornerstone, noting that reasonable confidence exists through the conduct of the NRC Baseline Inspection Program (BIP) that regulatory oversight and performance assessment of power reactor licensees will remain effective and efficient, ensuring safe and secure operations. To date, the staff has not identified the need for additional security PIs. The Office of Nuclear Security and Incident Response (NSIR) will continue evaluating the effective and efficient use of PIs, along with the inspection program for the Security Cornerstone. If the staff identifies potential additional PIs, future pilot PI assessments may be conducted in coordination with the industry and other key stakeholders.

The staff continued efforts to improve and clarify emergency preparedness (EP) PIs and maintain EP baseline inspection procedures. The NRC revised the alert and notification system reliability PI guidance for sirens to allow sirens intentionally removed from service in areas deemed uninhabitable by State or local agencies as a result of a natural disaster to not be counted as siren failures. The staff and industry are currently working to revise the drill and exercise performance (DEP) PI to clarify the difference between the offsite notification timeliness criteria for the PI and offsite notification criteria for regulatory compliance.

The ROP met all but one of its PI program metrics for calendar year (CY) 2012. The timely PI data reporting and dissemination metric (PI-5) was not met because of a late quarterly posting to the external Web site. The late posting was caused by a miscommunication between the

Performance Assessment Branch (IPAB) and the Office of Nuclear Reactor Regulation (NRR) Web Services staff. The staff has implemented internal actions to ensure the timely posting and dissemination of PI data. The majority of internal ROP survey respondents indicated that the PI program provided insights to help ensure plant safety and security, provided an appropriate overlap with the inspection program, was clearly defined, and contributed to the identification of performance outliers. There was a decline in responses to the PI understandability metric. No major changes to Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Performance Indicator Guideline," have occurred since the last internal survey. A new revision to NEI 99-02 should occur in early 2013. Some survey respondents expressed concerns about the PI performance band thresholds, the NRC's enforcement response to PI reporting violations, the effectiveness of the frequently asked questions (FAQ) process, the complexity of indicators within the Mitigating Systems Cornerstone, and the potential need for new PIs. The staff will evaluate this feedback and consolidate all responses to the survey comments in a separate document.

Inspection Program

NRC inspectors independently verified that plants were operated safely and securely. All inspection program metrics were met, including the completion of the required baseline inspection program for CY 2012. The staff made changes to selected ROP inspection procedures (IPs) based on feedback from the regions. The staff continued to integrate operating experience information into the baseline inspection program.

The staff will review each baseline inspection procedure for CY 2013 in support of the ROP enhancement initiative review. The purpose of the ROP enhancement project is to evaluate whether the baseline inspection program remains relevant for the current environment, eliminate redundant or unnecessary inspection areas, maximize efficient and effective use of resources, and incorporate flexibility in program implementation, where appropriate. This project will validate the basic philosophy and key principles of the baseline inspection program while allowing changes where necessary. This in-depth baseline inspection program effectiveness review encompasses all baseline inspection procedures in all ROP cornerstones (Initiating Events, Mitigation Systems, Barrier Integrity, Occupational Radiation Safety, Public Radiation Safety, Emergency Preparedness, and Security). The staff plans to make changes to the IPs during summer and fall of 2013, with the goal of the revised IPs being effective in CY 2014.

Additionally, as part of the ROP Reliability Initiatives, regional and NRR inspection staff completed an internal review of the Problem Identification and Resolution (PI&R) inspection program to assess its effectiveness in several areas. Overall, the staff concluded that the PI&R inspection program is being effectively implemented and offered several recommendations to improve the reliability and effectiveness of the program. These recommendations are currently being evaluated in concert with the ROP enhancement project.

The staff developed and issued Temporary Inspection (TI) 2515/186, "Inspection of Procedures and Processes for Responding to Potential Aircraft Threats," TI 2515/187, "Inspection of Near-Term Task Force Recommendation 2.3—Flooding Walkdowns," and TI 2515/188, "Inspection of Near-Term Task Force Recommendation 2.3 – Seismic Walkdowns." The flooding and seismic walkdowns were performed by licensees at all sites in response to a letter from the NRC to licensees entitled, "Request for Information Pursuant to Title 10 of the *Code of Federal Regulations [10 CFR]* 50.54(f) Regarding Recommendations 2.1, 2.3, and 9.3 of the

Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident," dated March 12, 2012. The TIs provided guidance to inspectors on how to inspect licensee efforts as well as conduct independent inspector walkdowns.

The staff revised several existing EP inspection procedures to reflect the EP rulemaking as described in SECY-11-0053, "Final Rule: Enhancements to Emergency Preparedness Regulations (10 CFR Part 50 and 10 CFR Part 52) (RIN-3150-AI10)." The staff also created two new EP procedures: IP 71114.07, "Exercise Evaluation – Hostile Action Based Event," and IP 71114.08, "Exercise Evaluation – Scenario Review," to support the EP rule requirements.

NRC staff plans to transition the Kewaunee and Crystal River plants from the ROP to the decommissioning inspection program during CY 2013. The inspection programs for these facilities will be adjusted as necessary to address their transition to decommissioned status. Additionally, resident staffing for both Kewaunee and Crystal River will be reduced from the current staffing policy to no residents being assigned to these sites. Currently assigned resident inspectors at the Kewaunee and Crystal River plants will be reassigned to other sites or to the regional office. Additionally, during CY 2013, the staff is completing its transition to a Unique Site Budget Model at Indian Point. The staffing will change from two senior residents to one senior resident inspector. These units were previously treated as two single-unit sites for resident inspector staffing purposes.

The staff developed and implemented training in CY 2012 to ensure that the inspectors remain efficient and effective in their inspection activities. Specifically, inspectors completed refresher training on IMC 0620, "Inspection Documents and Records," and training to implement the TI 2515/187 and TI 2515/188 inspections discussed above. The staff added safety culture training to existing courses and issued safety culture assessor qualification guidance. In addition, NSIR staff conducted two cyber-security training courses and issued a cyber-security TI. The NSIR staff is also in the process of issuing a qualification standard for cyber-security inspectors.

The responses to the internal ROP survey were mixed. Although survey respondents' perception of the inspection program still remained relatively high and was generally positive, several areas for improvement were noted. Some respondents commented on the need to allow additional inspection samples in areas where licensees' programs have weaknesses. Some stakeholders suggested improving the clarity of some baseline inspection procedures and reducing over-reliance on licensees' corrective action programs to resolve issues of very low safety significance (Green). The staff will respond to these and other comments in the consolidated response to the survey.

Significance Determination Process

The SDP continues to be an effective tool for determining the safety and security significance of inspection findings. In CY 2012, the staff implemented several improvements to the SDP guidance and made significant progress on other initiatives. All SDP performance metrics were met for CY 2012, including the SDP timeliness metric for a seventh consecutive year.

In July 2012, the staff issued substantial revisions to SDP guidance documents that govern the significance determination of inspection findings during power operations. IMC 0609, Appendix A, "Significance Determination Process for At-Power Findings," was revised to transition from

using the pre-solved tables and site-specific, risk-informed notebooks to Systems Analysis Programs for Hands-On Integrated Reliability Evaluations (SAPHIRE) and the site-specific Standardized Plant Analysis Risk (SPAR) models. As part of this new transition, two new tools were developed to support the inspection staff. First, the SDP workspace, a module within the SAPHIRE program, is a tool that allows inspectors to roughly estimate the risk significance of a degraded condition. Secondly, the Plant Risk Information eBook (PRIB), an automatically generated file from the site-specific SPAR model, provides inspectors with a variety of risk insights to support inspection planning. The regional inspection staff was trained in the use of the SDP workspace and PRIB in June 2012.

NRR staff made significant improvements to IMC 0609, Appendix F, "Fire Protection Significance Determination Process," to expand the qualitative screening approach to very low risk fire issues. In this process, more qualitative screening questions were added, and there are now screening questions for each of the fire issue categories. The initial quantitative screening section also has been updated and expanded with initiating event frequency values from NUREG/CR-6850, "EPRI/NRC-RES Fire PRA Methodology for Nuclear Power Facilities." The NRC is scheduled to issue the revised IMC 0609, Appendix F, in the summer of 2013.

A project team was created in September 2012 consisting of headquarters staff from NRR and the Office of the Executive Director for Operations, as well as all four regions, to review SDP resource and timeliness data and identify efficiencies to improve the overall effectiveness of the process. The project is structured and implemented using a business process improvement approach that leverages the principles of Lean Six Sigma. Successful completion of the project will balance the goal of having reliable SDP outcomes against the need for efficient and timely regulatory decision-making. The project team is scheduled to provide conclusions and recommendations to senior level management by summer 2013.

The staff continued to develop and refine a new SDP for spent fuel pool (SFP) findings. The draft SDP focuses on findings involving SFP cooling and water inventory, fuel handling errors, and maintenance of subcritical conditions. The draft SFP guidance documents, IMC 0609, Appendix N, "Spent Fuel Pool Significance Determination Process," and IMC 0308, Attachment 3, Appendix N, "Technical Basis for the Spent Fuel Pool Significance Determination Process," were distributed to internal stakeholders in May 2012 for a formal 30-day review and comment period. Since several of the comments questioned the bases for the proposed thresholds, NRR and the Office of Research (RES) are working together to address the comments and revise the guidance as necessary.

The staff continued to evaluate the best approach for estimating the safety significance of licensed operator performance issues. The NRC considered a new SDP that focused on licensed operator performance; however, the staff believes that the most effective approach is to revise IMC 0609, Appendix M, "Significance Determination Process using Qualitative Criteria," to include a new table of qualitative attributes, based on defense-in-depth and safety margin principles, that apply to licensed operator performance issues. The proposed draft to IMC 0609, Appendix M, will be issued for review and comment in CY 2013.

NSIR staff, with (1) support from NRR, NRO, and all four regions; and (2) input from industry and the Federal Energy Regulatory Commission, developed a cyber-security SDP for findings identified in cyber-security inspections. The cyber-security SDP supports the significance determination of inspection findings associated with the licensee's protection of emergency

preparedness, physical protection, and reactor safety functions against cyber attacks. In addition, NSIR staff made significant changes to IMC 0609, "Significance Determination Process," Appendix E, "Physical Protection Significance Determination Process for Power Reactors," Part II, "Force-on-Force Significance Determination Process." After a multiyear effort to enhance the force-on-force (FOF) SDP, which began in September 2008 and involved both internal and external stakeholder interactions, the staff completed the revision to the FOF SDP in July 2012.

NSIR staff revised IMC 0609, Appendix B, "Emergency Preparedness Significance Determination Process," and the associated technical basis document, IMC 0609, Attachment 3, Appendix B, "Technical Basis for the Emergency Preparedness Significance Determination Process." These revisions incorporated changes to reflect the new EP rule, a new assessment protocol for 10 CFR 50.47(b)(4) findings, a basis for treatment of ineffective emergency action levels and over-classification of an emergency classification, and a newly defined term, "degraded planning standard function."

The responses to the internal survey indicated that the SDP results in an appropriate regulatory response to performance issues. Of the 13 survey items related to the SDP, 11 were stable in comparison to previous years, and two decreased by more than 10 percent from the previous internal survey in CY 2010. There was a noticeable decline in stakeholder agreement that SDP training is effective in understanding and using the SDPs. The staff is currently identifying specific training deficiencies in the use and understanding of the SDP guidance and will revise or develop new training tools as appropriate. In addition, there was a noticeable decline in stakeholder agreement on the correct use of the SDP by managers to make risk-informed decisions. Staff and management will be encouraged to attend the training course "Assessing the Adequacy of Models for Risk-Informed Decisions (P-109)" to improve awareness of the factors that contribute to uncertainty in predictive models and the need to identify, characterize, and communicate the uncertainties to the risk-informed decision-maker.

Assessment Program

Staff implementation of the assessment program ensured that the staff and licensees took appropriate actions to address performance issues in CY 2012, commensurate with their safety significance. In CY 2012, the staff successfully reintegrated the Security Cornerstone into the assessment program governed by IMC 0305, "Operating Reactor Assessment Program." Five of eight of the assessment metrics met their established criteria in CY 2012, and the responses to the internal ROP survey were generally positive.

The staff opened two new deviations in CY 2012: one at Seabrook and the other at Palisades nuclear plant. Both of these deviations were requested to provide additional inspection resources to address issues that were not directly related to the licensee's performance in the ROP Action Matrix. The staff evaluated these deviations and noted that IMC 2515, "Light-Water Reactor Inspection Program -- Operations Phase," dated November 19, 2012, allows for additional focused inspection for special or infrequently performed activities. However, there is no provision for making these adjustments transparent to the public. This aspect of using deviations to obtain program office agreement on use of additional resources has been an important tool in communicating the purpose of the deviation to the public. As a result, the staff has generated a feedback form to augment applicable program guidance to allow the regions to publicly document the application of additional inspection resources within the baseline

inspection program and thereby reserve the Action Matrix deviation process solely for regulatory action that is inconsistent with the range of actions described in the pertinent column of the Action Matrix. Feedback forms are the mechanism staff uses to track desired changes to program guidance pending regularly scheduled revisions to the documents.

The staff completed its effort to reintegrate the Security Cornerstone into the assessment program as described in SECY-11-0073, "Staff Proposal to Reintegrate Security into the Action Matrix of the Reactor Oversight Process Assessment Program." As required by the SRM to SECY-11-0073 dated July 20, 2011, the staff closely monitored this reintegration to ensure reliable regulatory response outcomes and effectively interfaced with internal and external stakeholders to ensure those outcomes were appropriate. The staff issued a revised IMC 0305 on June 16, 2012, and it was effective July 1, 2012. The staff updated the ROP web site to reflect this reintegration on August 6, 2012. Before the web site update, the staff issued publicly available letters to licensees with outstanding security findings, explaining their apparent shift in the Action Matrix; and a press release accompanied the issuance of these letters. The staff conducted the 2012 mid-cycle performance reviews using the new IMC 0305 guidance. The staff continues to perform integrated assessments of licensee's performance while ensuring that security-related information is not publicly released.

During CY 2012, Browns Ferry 1 remained in the Multiple/Repetitive Degraded Cornerstone Column (Column 4), and Fort Calhoun remained under the oversight process of IMC 0350, "Oversight of Reactor Facilities in a Shutdown Condition Due to Significant Performance and/or Operational Concerns," dated December 15, 2006. The staff will discuss their performance status during the Agency Action Review Meeting (AARM) in April 2013 and the subsequent Commission meeting on the results of the AARM, and will continue to monitor licensee performance at these two sites in CY 2013.

The staff continues to be actively engaged with the Institute for Nuclear Power Operations (INPO), NEI, and external stakeholders in developing a common safety culture language. This initiative will better align the industry's and the NRC's language to allow for a shared characterization of licensee performance. A series of public workshops were held in CY 2012 to work toward finalizing the language. Once this language has been finalized and documented, the NRC will incorporate the new terminology into applicable ROP inspection manual chapters and procedures and revise inspector training accordingly. In 2012, the staff incorporated safety culture assessor qualification guidance into IMC 1245 to prepare staff to review and conduct safety culture assessments, such as those required by IP 95002 and IP 95003. In addition, the staff has been working with the NRC Technical Training Center to enhance and update existing training courses with information about safety culture and how to assess it.

Based on the results from the 2012 internal survey, the perception of the assessment program was generally positive. Most respondents indicated that the assessment program is objective and predictable, and the information contained in the assessment reports is relevant and useful. Several respondents noted that assessment language could be made clearer, which affected metric AS-6 as discussed below.

Three of eight of the assessment metrics did not meet their established criteria in CY 2012. Metric AS-4 was missed based on an increase of the average number of days from issuance of the assessment letter to the completion of the supplemental inspection. However, delays in completing supplemental inspections often are a result of licensees not completing the

necessary corrective actions and, thus, not being ready for inspection in a timely manner. The staff had identified supplemental inspection timeliness as a potential improvement area to ensure a timely regulatory response to declines in performance, and will be exploring options as part of the ROP enhancement effort. Additionally, Metric AS-6 was missed because internal stakeholders' perceptions that assessment letters are written in plain language decreased across several of the survey questions. The staff intends to leverage the newly formed Operating Reactor Assessment Working Group to examine ways to make assessment letters clearer. Lastly, Metric AS-7 was missed because the number of plants that moved more than one column in the Action Matrix increased to six. The staff had previously questioned the basis of this metric and revised it to more accurately reflect the ROP's goal to provide adequate margin in the assessment of licensee performance so that appropriate licensee and NRC actions are taken before unacceptable performance occurs. As such, the new metric will measure the number of plants that move from Column 1 or 2 to Column 5 or IMC 0350. The metric criterion is for no instances to occur in which significant degradations in plant performance cause a prompt change in Agency response. This will ensure staff focuses on situations in which earlier indications existed that should have been acted upon, but were not, and not on situations where a plant is issued a significant inspection finding that is not indicative of a licensee programmatic breakdown. Given this criteria, the new metric would have been met using 2012 data. The revised AS-7 metric will be used for the CY 2013 metric analysis.

Regulatory Impact Summary

Scope and Objectives

On December 20, 1991, the Commission issued a staff requirements memorandum directing the staff of the U.S. Nuclear Regulatory Commission (NRC) to develop a process for obtaining continual feedback from licensees and to report it to the Commission each year. The staff described the continual feedback process in SECY-92-286, "Staff's Progress on Implementing Activities Described in SECY-91-172, 'Regulatory Impact Survey Report—Final'," dated August 18, 1992.

The feedback process requires regional management to solicit informal feedback from its licensees during routine visits to reactor sites. The managers record this feedback on forms that they forward to the Office of Nuclear Reactor Regulation (NRR) and the Office of Nuclear Security and Incident Response (NSIR). The NRC regions, NRR, and NSIR then evaluate the concerns and take any necessary corrective actions. This process has provided licensees with frequent opportunities to comment on the NRC's regulatory impact.

This enclosure reports on feedback received from licensees during fiscal year (FY) 2012. During this period, the staff received and compiled feedback from 94 site visits to 47 reactor sites across all four NRC regions. These visits resulted in 199 distinct comments that fell into two main categories: (1) inspector performance; and (2) formal communications with licensees. Of the comments compiled, 95 percent were favorable and 5 percent were unfavorable. The favorable percentage was slightly higher than previous years and the distribution of comments was similar. The few unfavorable comments appear to be isolated, and the staff has forwarded the specific feedback to the responsible managers for their consideration. The sections below summarize the feedback received and the staff's evaluation.

Inspector Performance

Feedback

Over half of the licensees' comments related to inspector performance. This category covers a wide range of inspector practices, but it excludes issues involving communication with licensees discussed in the following section. Well over 90 percent of the comments were positive with respect to the NRC's inspection staff, the high quality of NRC inspections, inspectors' technical competence, and the effective working relationship between the NRC and its licensees. Licensees described inspectors as tough but fair, professional, and focused on the issues of greatest significance. Nonetheless, a few licensees had unfavorable comments about concerns or disagreements they had with an inspector's characterization of an inspection issue, particularly whether an issue was minor or more-than-minor (and therefore, documented the issue in an inspection report).

Evaluation

The staff concludes that inspectors were professional, maintained effective working relationships, and appropriately characterized licensee performance. All but a few of the comments received this year were favorable. The staff reviewed the negative feedback for trends and found that each concern related to an isolated incident or a difference in professional opinion.

The NRC management continues to emphasize to the staff the importance of professional conduct. Senior NRC managers reinforce these expectations during inspector counterpart meetings, workshops, training courses, and site visits conducted in accordance with IMC 0102, "Oversight and Objectivity of Inspectors and Examiners at Reactor Facilities," dated August 22, 2005. The staff will continue to closely monitor the regulatory impact of inspector performance.

Formal Communications with Licensees

Feedback

Almost half of the licensees' comments related to the effectiveness of communications between the NRC staff and licensees. Almost all comments on communications with inspectors, staff, and management were favorable. Many licensees said that communications were good or excellent, with only a single licensee providing feedback that earlier communications on issues would be beneficial.

Evaluation

The staff concludes that communications between the NRC and its licensees are effective. The staff bases this conclusion on the large number of routine interactions between the NRC and its licensees, combined with the many favorable comments received during the past year. All of the comments except one were favorable; the reported communication problem was isolated and has been addressed.

The staff is aware of the importance of prompt and clear communication and emphasizes this goal in the guidance and training provided for inspectors and other NRC staff and management. Effective communications will remain a priority consistent with the openness and clarity principles of good regulation, and will receive continued monitoring and attention from regional and headquarters management.

Reactor Oversight Process Resources

Table 1 (on the next page) summarizes the U.S. Nuclear Regulatory Commission (NRC) staff resources expended, in hours, for the Reactor Oversight Process during the past 3 calendar year (CY) inspection cycles. Overall staff effort in CY 2012 remained consistent with CY 2010 and CY 2011 resource expenditures.

Baseline inspection hours include direct inspection effort, baseline inspection preparation and documentation, and plant status activity. Baseline inspection hours decreased slightly in 2012 when compared with 2010 and 2011. The staff attributes the slight reduction in baseline resource expenditures to the extended shutdowns at Crystal River, San Onofre, and Fort Calhoun nuclear power plants. Extended shutdowns effectively reduce the number of appropriate baseline inspection sample opportunities that the staff can complete under certain baseline inspection areas.

Plant-specific inspections include supplemental inspections conducted in response to greater-than-green inspection findings and performance indicators; reactive inspections, such as augmented team inspections and special inspections performed in response to events; and the infrequently performed inspections listed in Appendix C, "Special and Infrequently Performed Inspections," to NRC Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program—Operations Phase," dated April 26, 2012, and Appendix C, "Generic, Special, and Infrequent Inspections," to IMC 2201, "Security Inspection Program for Commercial Nuclear Power Reactors," dated September 8, 2009, which are not part of the baseline or supplemental inspection programs. Plant-specific inspection effort increased in 2012 when compared to 2010 and 2011. This can be attributed in part to the performance of three augmented team inspections, which were conducted at the Wolf Creek, San Onofre, and River Bend nuclear power plants. During 2010 and 2011, only one augmented team inspection was performed. In addition, substantial inspection activities were undertaken at Fort Calhoun in accordance with IMC 0350, "Oversight of Reactor Facilities in a Shutdown Condition Due to Significant Performance and/or Operational Concerns." Further, Palisades and Seabrook received additional inspections as a result of Action Matrix deviations. Considering these activities, the increase in plant-specific resources expenditures is expected given the scope of the required inspections compared to previous years.

Generic safety issue inspections are typically one-time inspections of specific safety and security issues, with significant variability in effort possible from year to year. Resource expenditures for generic safety issue inspections remain relatively high, primarily due to the seismic and flooding walk-down inspections being conducted in response to the events at the Fukushima Dai-ichi Nuclear Station in Japan.

Regional effort for licensee performance assessment continues to remain consistent with 2010 and 2011 resource expenditures.

The effort reported for other activities includes inspection-related travel, the significance determination process (SDP), and routine communication that encompasses regional support, enforcement support, and the review of technical documents. The effort in this area remained consistent with CY 2010 and CY 2011 resource expenditures.

Table 1 Resources Expended[1]
(Inspection-Related Staff Effort Expended at Operating Power Reactors)

	CY 2010 hrs	CY 2011 hrs	CY 2012 hrs
Baseline Inspections	**314,947**	**316,297**	**311,376**
Direct Inspection Effort	156,319	156,871	154,221
Inspection Prep/Doc	109,550	111,194	110,825
Plant Status	49,078	48,232	46,330
Plant-Specific Inspections	**26,229**	**21,670**	**27,382**
Direct Inspection Effort	16,552	11,700	13,974
Inspection Prep/Doc	9,677	9,970	13,408
Generic Safety Issue Inspections	**6,506**	**11,868**	**9,665**
Direct Inspection Effort	3,643	6,302	5,696
Inspection Prep/Doc	2,863	5,566	3,969
Performance Assessment (Regional Effort Only)	**10,439**	**10,247**	**10,417**
Other Activities[2]	**75,902**	**78,918**	**77,465**
Total Staff Effort	**434,023**	**439,000**	**436,377**
Total Staff Effort/Operating Site	**6,576**	**6,652**	**6,612**

[1] Resources expended include regional, Office of Nuclear Reactor Regulation, and Office of Nuclear Security and Incident Response hours.

[2] Other activities consist of inspection-related travel, the SDP, enforcement support, communications, regional support, and technical reviews

Resident Inspector Demographics

Scope and Objectives

This enclosure is the annual update on demographic data for inspectors assigned to the resident inspector (RI) program. It was originally requested by the Commission in its Staff Requirements Memorandum (SRM) for COMGJD-98-001/COMEXM-98-002, "Discussion of Resident Inspector Demographics and the Balance between Expertise and Objectivity," dated April 8, 1998 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML003753515). The scope and breadth of this annual update have evolved over the years to address requests from the Commission in subsequent SRMs, recommendations from the Davis-Besse Lessons Learned Task Force (DBLLTF), and other enhancements to provide a more focused review.

The RI program demographic analyses examine three primary functional areas: (1) inspector experience, (2) inspector turnover, and (3) site staffing. The results are discussed in Sections I, II, and III below and illustrated in Figures 1a through 7. Several of the analyses separately examine data from the RI and senior resident inspector (SRI) groups, while other analyses combine data from these groups into region-based or national analyses and trends. Section IV provides conclusions.

I. Inspector Experience

Under Appendix A to Inspection Manual Chapter (IMC) 0307, "Reactor Oversight Process Self-Assessment Program," dated March 23, 2009, experience analysis consists of the following four data sets:

(1) "NRC time" is the total number of years the individual has accumulated as a U.S. Nuclear Regulatory Commission (NRC) employee from hire date through November of the reported year.

(2) "Total resident time" is the total number of years the individual has accumulated as an RI or SRI through November of the reported year.

(3) "Current site time" is the total number of years spent as an RI or SRI at the current site through November of the reported year.

(4) "Relevant non-NRC experience" is nuclear power experience acquired outside of the NRC. Examples of relevant non-NRC experience include operation, engineering, maintenance, or construction experience with commercial nuclear power plants, naval shipyards, U.S. Department of Energy facilities, or the U.S. Navy's nuclear power program.

Median and average statistical descriptors of the above data sets are plotted for both resident and SRI groups in Figures 1a, 1b, 2a, 2b, 3a, 3b, 4a, and 4b. Figures 1a, 1b, 3a, and 3b plot national trend data from 2007 through 2012 while Figures 2a, 2b, 4a, and 4b plot 2012 data by region and nationally. Plotted data is presented in fractional years. Analysis of the plots describes (a) percent change over time in national trend analyses or (b) percent plus or minus regional variance from national data in regional comparison analysis. This provides the reader

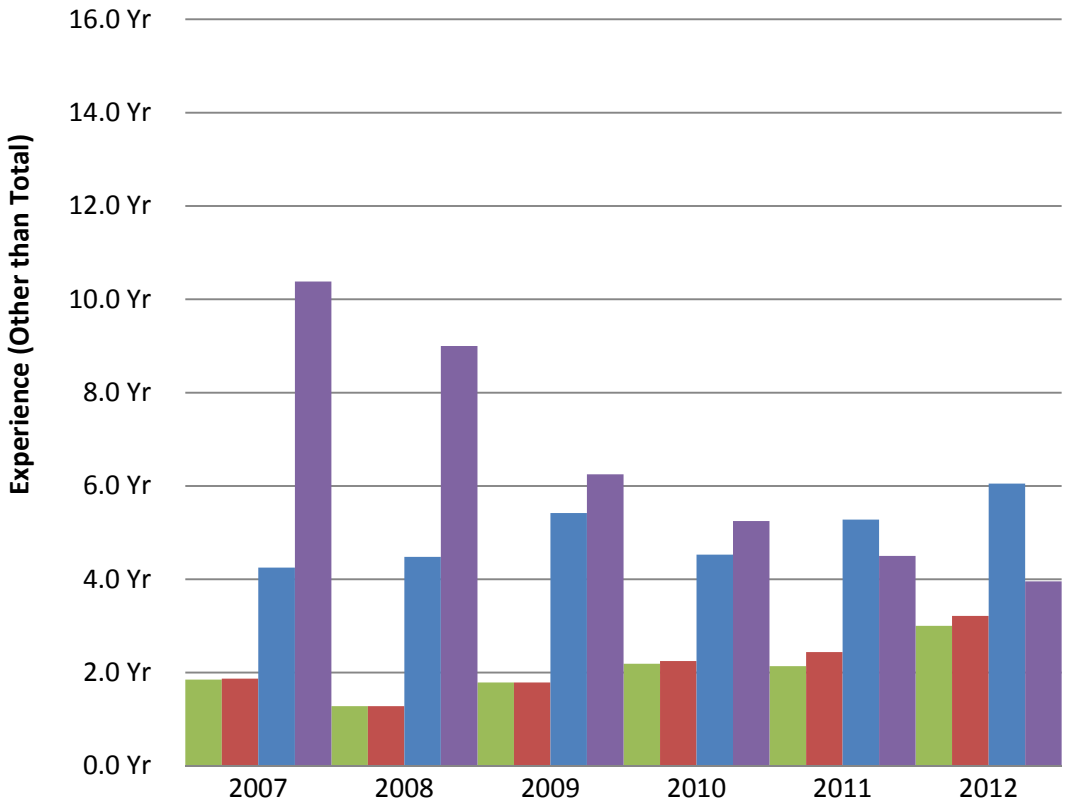
with a more intuitive and objective sense of the magnitude of the respective trend or region variation.

Resident Inspector Experience Analysis

The following analysis supports IMC 0307 Metric O-13 "Analysis of Resident Inspector Demographics and Experience," a trend-only metric. The following analysis is intended primarily for tracking and trending RI experience. The results of this analysis are used to make any necessary modifications to the RI program to attract and retain highly qualified inspectors to the program. Conclusions are discussed in Section IV.

Analysis of Figure 1a, below, reveals moderately increasing trends in *median* RI total resident time, current site time, and NRC time. However, it also reveals a more dominant declining trend in relevant non-NRC experience - down 62 percent from 10.4 to 4.0 years.

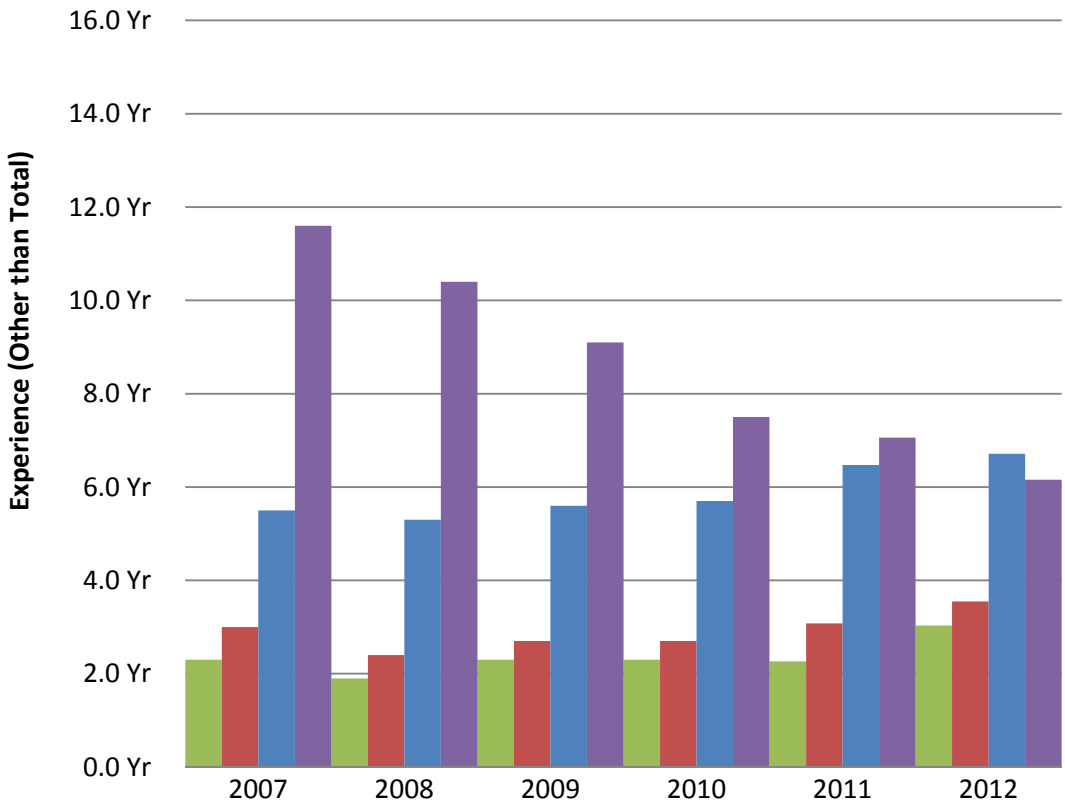
Figure 1a Median Resident Inspector Experience Trend (Metric O-13)



	2007	2008	2009	2010	2011	2012
Current Site Time	1.9 Yr	1.3 Yr	1.8 Yr	2.2 Yr	2.1 Yr	3.0 Yr
Total Resident Time	1.9 Yr	1.3 Yr	1.8 Yr	2.3 Yr	2.4 Yr	3.2 Yr
NRC Time	4.3 Yr	4.5 Yr	5.4 Yr	4.5 Yr	5.3 Yr	6.1 Yr
Relevant Non-NRC Experience	10.4 Yr	9.0 Yr	6.3 Yr	5.3 Yr	4.5 Yr	4.0 Yr

Analysis of Figure 1b, below, similar to Figure 1a, reveals increasing trends in *average* RI current site time, NRC time, and total resident time. However, it also reveals a more dominant declining trend in relevant non-NRC experience – down 47 percent from 11.6 to 6.2 years.

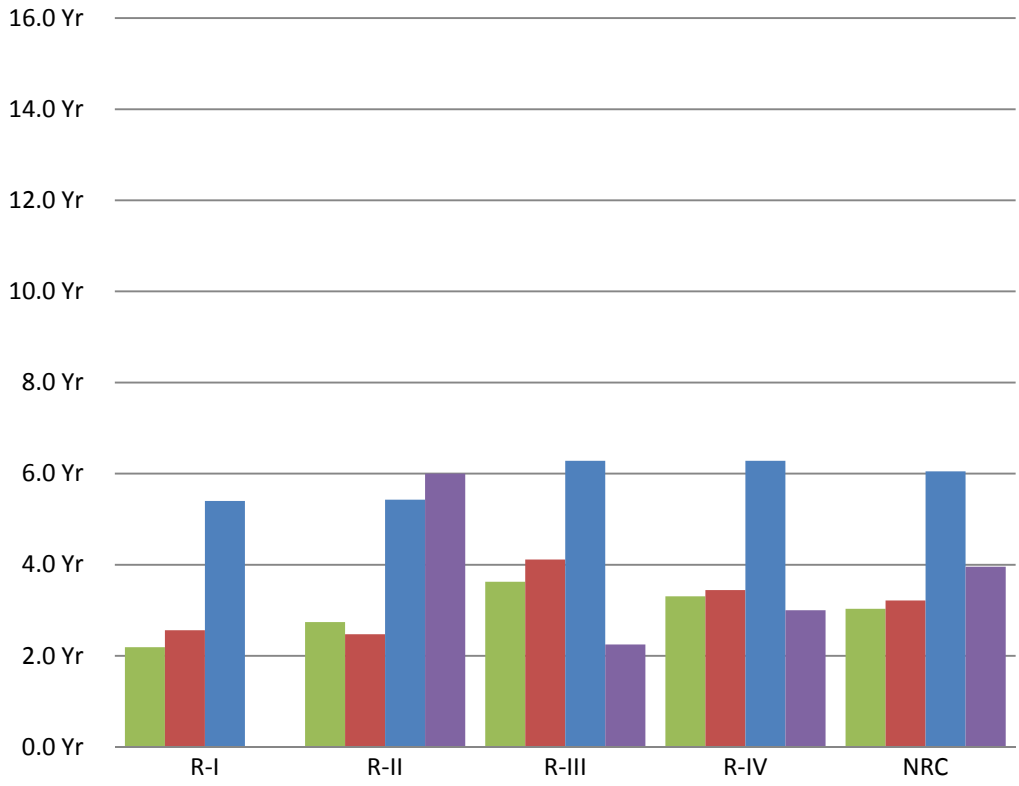
Figure 1b Average Resident Inspector Experience Trend (Metric O-13)



	2007	2008	2009	2010	2011	2012
Current Site Time	2.3 Yr	1.9 Yr	2.3 Yr	2.3 Yr	2.3 Yr	3.0 Yr
Total Resident Time	3.0 Yr	2.4 Yr	2.7 Yr	2.7 Yr	3.1 Yr	3.5 Yr
NRC Time	5.5 Yr	5.3 Yr	5.6 Yr	5.7 Yr	6.5 Yr	6.7 Yr
Relevant Non-NRC Experience	11.6 Yr	10.4 Yr	9.1 Yr	7.5 Yr	7.1 Yr	6.2 Yr

Analysis of Figure 2a, below, explores the variation between 2012 *median* regional RI experience. The analysis reveals the least regional variation in NRC time from 5.4 to 6.3 years compared with the NRC median of 6.1 years, a variance of minus 7 percent to plus 9 percent. The greatest regional variation was in relevant non-NRC experience from 0.0 to 6.0 years compared with the NRC median of 4.0 years, a minus 100 percent to plus 41 percent variance. Regional variations for total resident time and current site time fell between the above extremes.

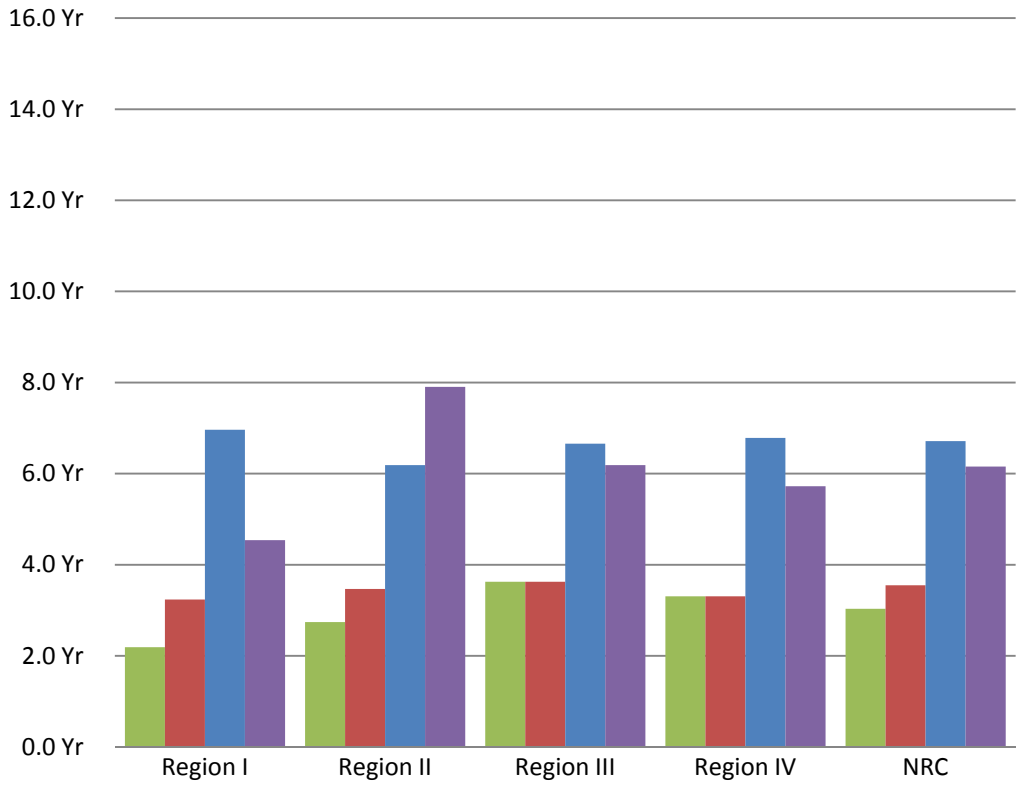
Figure 2a 2012 Median Resident Inspector Experience by Region (Metric O-13)



	R-I	R-II	R-III	R-IV	NRC
Current Site Time	2.2 Yr	2.7 Yr	3.6 Yr	3.3 Yr	3.0 Yr
Total Resident Time	2.6 Yr	2.5 Yr	4.1 Yr	3.4 Yr	3.2 Yr
NRC Time	5.4 Yr	5.4 Yr	6.3 Yr	6.3 Yr	6.1 Yr
Relevant Non-NRC Experience	0.0 Yr	6.0 Yr	2.3 Yr	3.0 Yr	4.0 Yr

Analysis of Figure 2b, below, explores the variation between 2012 *average* regional RI experience. The analysis reveals the least regional variation in total resident time from 3.2 to 3.6 years compared with the NRC average of 3.5 years, a variance of minus 5 percent to plus 6 percent. The greatest regional variation was in relevant non-NRC experience from 4.5 to 7.9 years compared with the NRC average of 6.2 years, a minus 29 percent to plus 24 percent variance.

Figure 2b 2012 Average Resident Inspector Experience by Region (Metric O-13)



	Region I	Region II	Region III	Region IV	NRC
Current Site Time	2.2 Yr	2.7 Yr	3.6 Yr	3.3 Yr	3.0 Yr
Total Resident Time	3.2 Yr	3.5 Yr	3.6 Yr	3.3 Yr	3.5 Yr
NRC Time	7.0 Yr	6.2 Yr	6.7 Yr	6.8 Yr	6.7 Yr
Relevant Non-NRC Experience	4.5 Yr	7.9 Yr	6.2 Yr	5.7 Yr	6.2 Yr

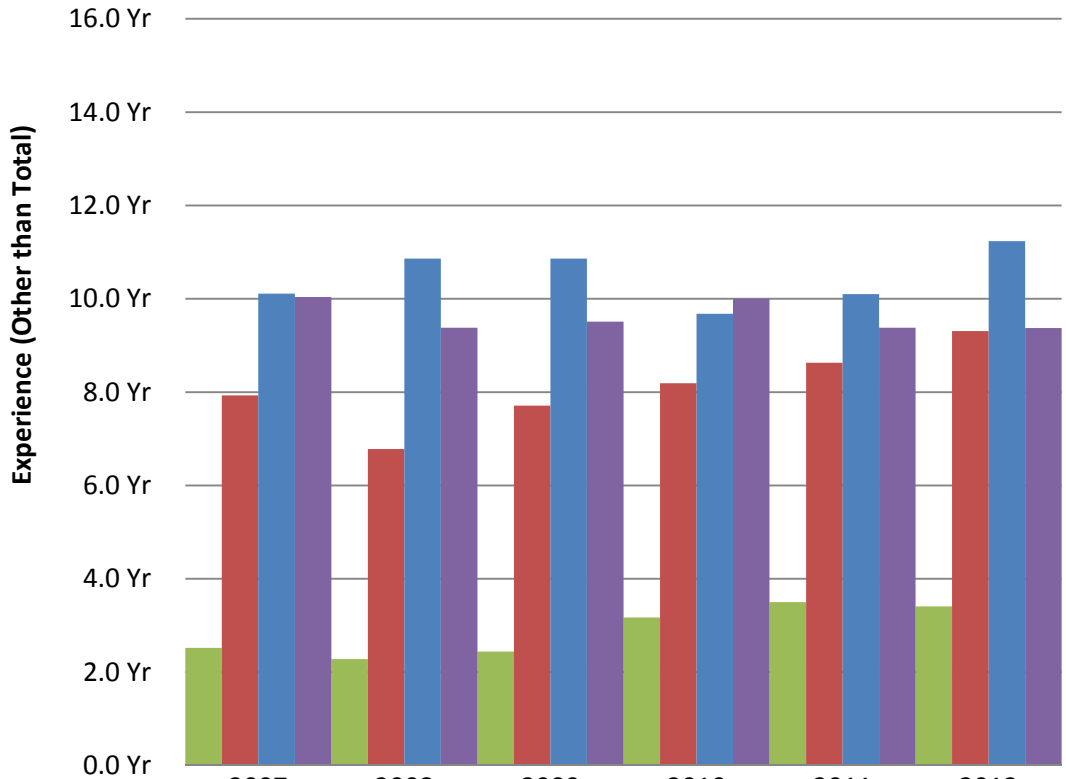
Overall, the RI experience analysis reveals an increasing 2007 to 2012 trend in NRC time, current site time, and total resident time but a declining trend in relevant non-NRC experience. Likewise, the 2012 regional comparison analysis revealed the highest regional variations in relevant non-NRC experience.

Senior Resident Experience Analysis

The following analysis supports IMC 0307 Metric O-13 "Analysis of Resident Inspector Demographics and Experience," a trend-only metric. The following analysis is intended primarily for tracking and trending SRI experience. The results of this analysis are used to make any necessary modifications to the SRI program in order to attract and retain highly qualified inspectors to the program. Conclusions are discussed in Section IV.

Analysis of Figure 3a, below, reveals no notable trends in ***median*** SRI experience. Unlike analysis of Figure 2a, the declining trend in median relevant non-NRC experience has not fully emerged but can be expected to do so in the future as RI's promote to SRI positions.

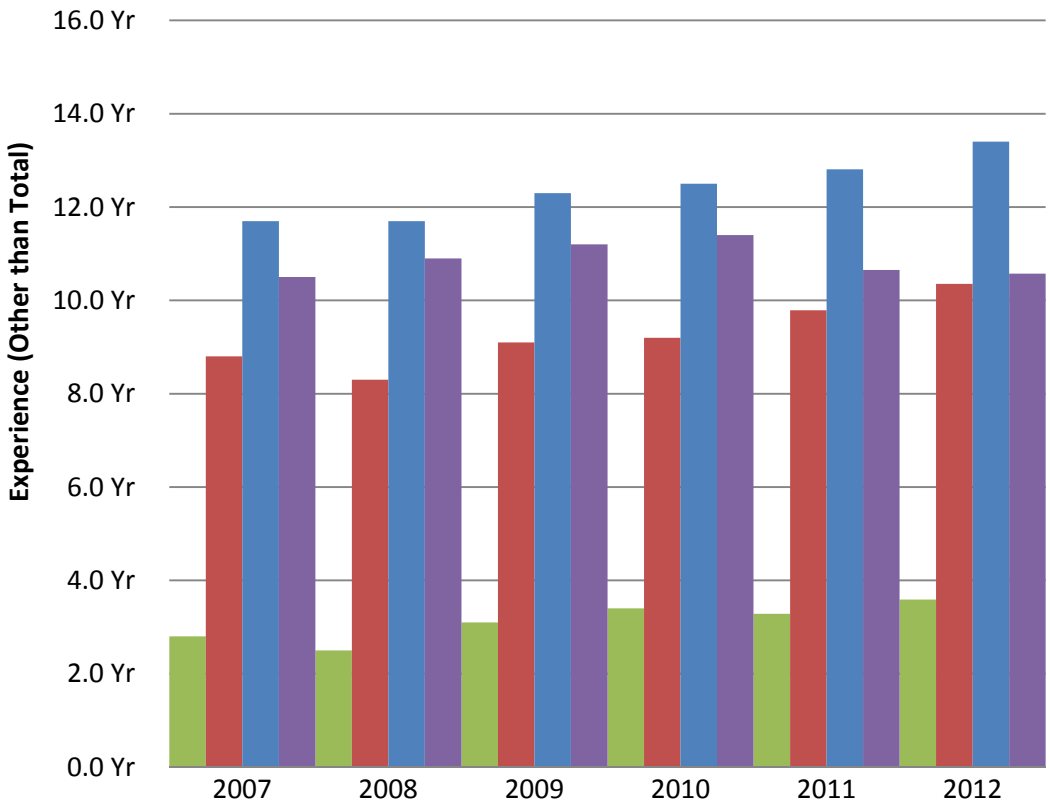
Figure 3a Median Senior Resident Experience Trend (Metric O-13)



	2007	2008	2009	2010	2011	2012
Current Site Time	2.5 Yr	2.3 Yr	2.4 Yr	3.2 Yr	3.5 Yr	3.4 Yr
Total Resident Time	7.9 Yr	6.8 Yr	7.7 Yr	8.2 Yr	8.6 Yr	9.3 Yr
NRC Time	10.1 Yr	10.9 Yr	10.9 Yr	9.7 Yr	10.1 Yr	11.2 Yr
Relevant Non-NRC Experience	10.0 Yr	9.4 Yr	9.5 Yr	10.0 Yr	9.4 Yr	9.4 Yr

Analysis of Figure 3b, below, reveals no notable trends in *average* SRI experience. Unlike analysis of Figure 2b, the declining trend in average relevant non-NRC experience has not emerged but can be expected to do so in the future as RI's promote to SRI positions.

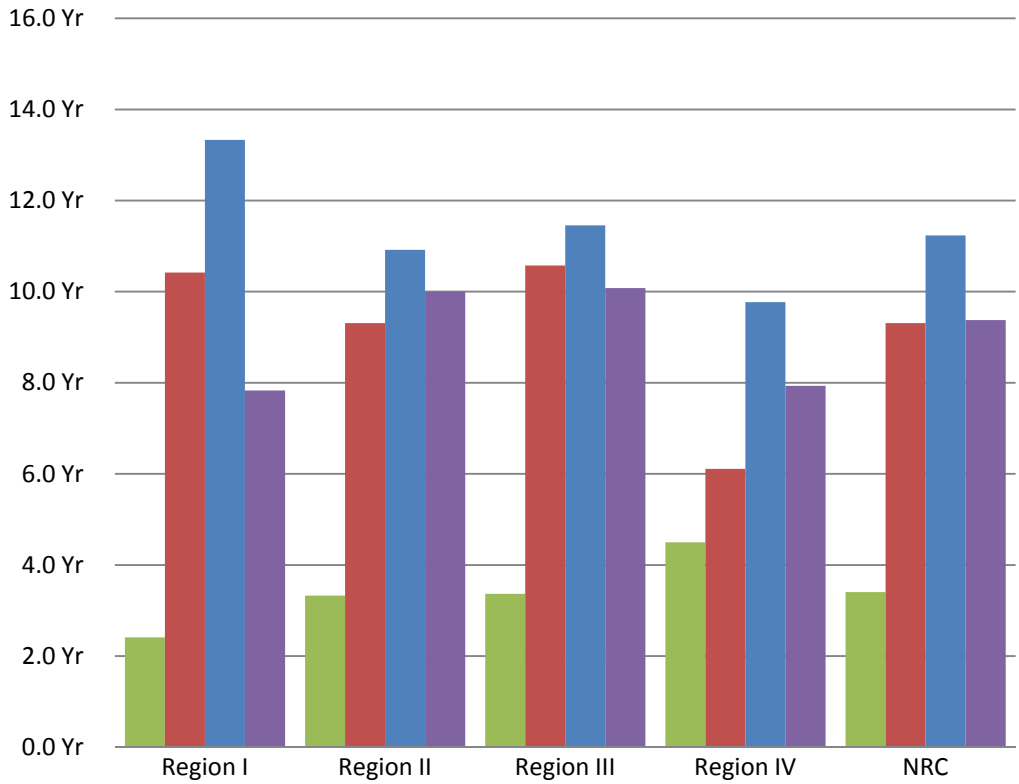
Figure 3b Average Senior Resident Experience Trend (Metric O-13)



	2007	2008	2009	2010	2011	2012
Current Site Time	2.8 Yr	2.5 Yr	3.1 Yr	3.4 Yr	3.3 Yr	3.6 Yr
Total Resident Time	8.8 Yr	8.3 Yr	9.1 Yr	9.2 Yr	9.8 Yr	10.4 Yr
NRC Time	11.7 Yr	11.7 Yr	12.3 Yr	12.5 Yr	12.8 Yr	13.4 Yr
Relevant Non-NRC Experience	10.5 Yr	10.9 Yr	11.2 Yr	11.4 Yr	10.7 Yr	10.6 Yr

Analysis of Figure 4a, below, explores the variation between 2012 *median* regional SRI experience. The analysis reveals the least regional variation in NRC relevant non-NRC experience from 7.8 to 10.1 years, a variance of minus 16 percent to plus 8 percent. The greatest regional variation was in current site time from 2.4 to 4.5 years, a minus 28 percent to plus 34 percent variance.

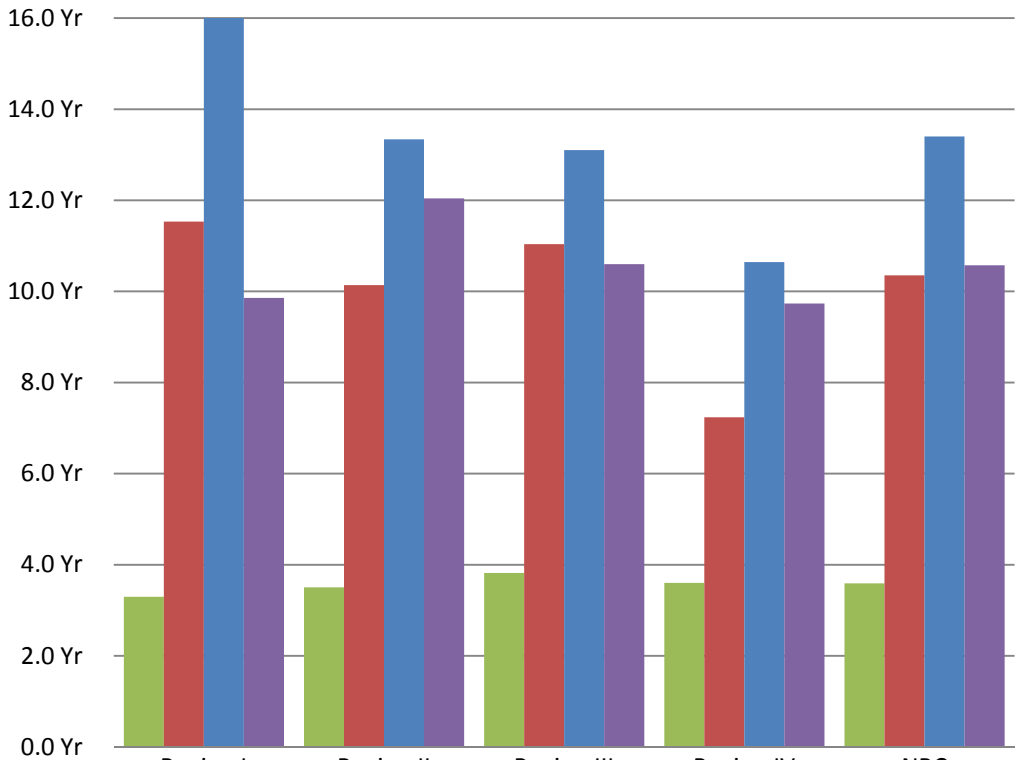
Figure 4a 2012 Median Senior Resident Experience by Region (Metric O-13)



	Region I	Region II	Region III	Region IV	NRC
Current Site Time	2.4 Yr	3.3 Yr	3.4 Yr	4.5 Yr	3.4 Yr
Total Resident Time	10.4 Yr	9.3 Yr	10.6 Yr	6.1 Yr	9.3 Yr
NRC Time	13.3 Yr	10.9 Yr	11.5 Yr	9.8 Yr	11.2 Yr
Relevant Non-NRC Experience	7.8 Yr	10.0 Yr	10.1 Yr	7.9 Yr	9.4 Yr

Analysis of Figure 4b, below, explores the variation between 2012 *average* regional SRI experience. The analysis reveals the least regional variation in relevant non-NRC experience from 9.7 to 12.0 years compared with the NRC average of 10.6 years, a variance of minus 8 percent to plus 14 percent. The greatest regional variation was in total resident time from 7.2 to 11.5 years compared with the NRC average of 10.4 years, a minus 28 percent to plus 14 percent variance.

Figure 4b 2012 Average Senior Resident Experience by Region (Metric O-12)



	Region I	Region II	Region III	Region IV	NRC
Current Site Time	3.3 Yr	3.5 Yr	3.8 Yr	3.6 Yr	3.6 Yr
Total Resident Time	11.5 Yr	10.1 Yr	11.0 Yr	7.2 Yr	10.4 Yr
NRC Time	16.1 Yr	13.3 Yr	13.1 Yr	10.6 Yr	13.4 Yr
Relevant Non-NRC Experience	9.9 Yr	12.0 Yr	10.6 Yr	9.7 Yr	10.6 Yr

Overall, the SRI experience analysis reveals a 2007 to 2012 trend of increasing average and median experience in all areas except relevant non-NRC experience which remained relatively constant.

II. Inspector Turnover

Inspector turnover analysis supports the identification and evaluation of agency actions to manage turnover rates. Seventy-seven RI and 72 SRI positions were examined in the 2012 turnover analysis.

The rate and destinations of RI and SRI turnovers in the resident program are evaluated and trended based on calendar year data. Figures 5 and 6 trend the number and nature of Resident and SRI turnovers, respectively, to each of four departing inspector destinations over the period from 2007 through 2012. Additionally, these plots show the total turnover rate each year as a percentage of the number of RIs or SRIs in the national pool each year.

Outgoing RI destinations include: (1) Resigned, (2) Retired, (3) Moved to non-RI, and (4) Promoted to SRI. Similarly, outgoing SRI destinations include (1) Resigned, (2) Retired, (3) Moved to non-SRI, and (4) Promoted to non-SRI. Inspector turnover analysis is reported at the national level. Departures to destinations not specifically listed in the tables, such as RI and SRI site-to-site transfers, are not reflected as turnovers.

RI-to-RI and SRI-to-SRI site-to-site transfers are not considered to be inspector turnovers because they do not result in a loss to the resident program – only a relocation of assets within the program.

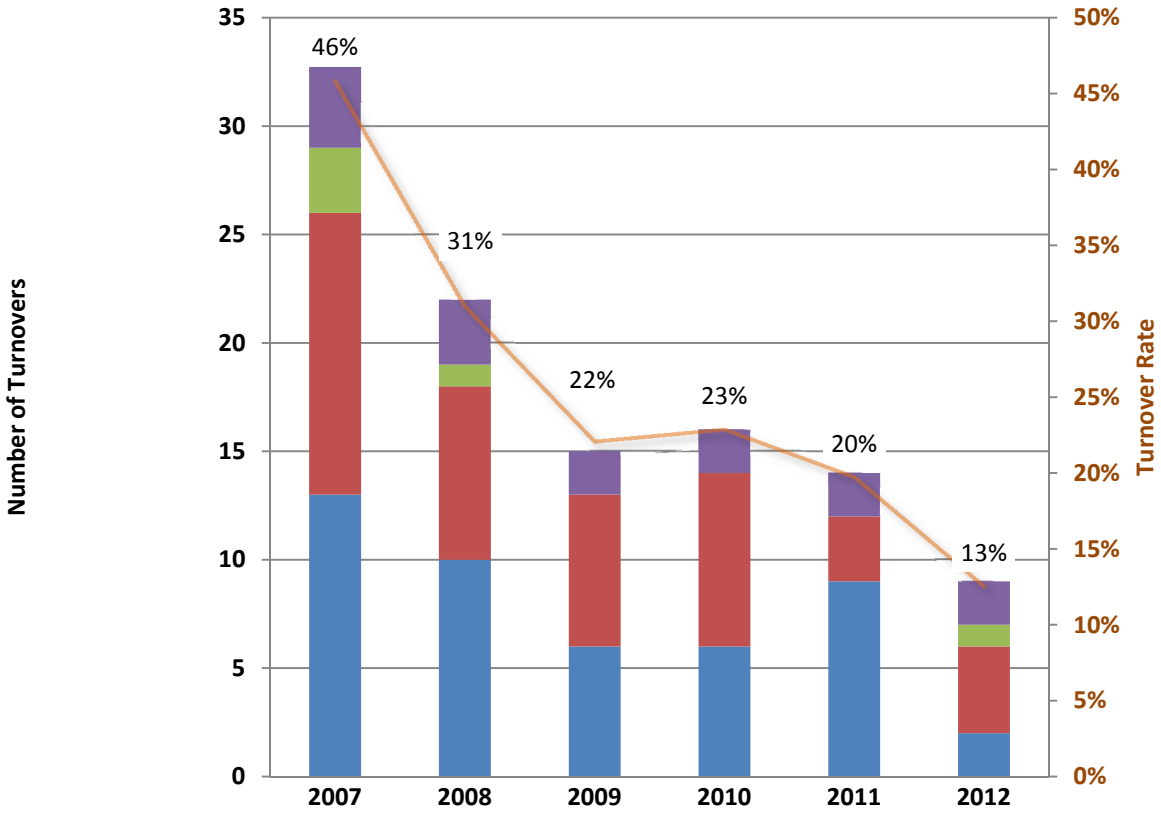
RI Group Turnover Trend

Analysis of Figure 5, below, reveals a declining trend in RI turnover rate from a high of 46 percent in 2007 to a low of 13 percent in 2012 (down from 20 percent in 2011). The turnover rate decline is attributed both to changes in external economic conditions and to NRC initiatives aimed at reducing and stabilizing the turnover rate.

Examination of the RI turnover destination data reveals resignations holding steady at 2, retirements at 1, and movement to non-SRI positions at 4.

The above in connection with a review of the trending and distribution of RI demographic data reflecting current site time, total resident time, and NRC time, shown in Figures 1a, 1b, 2a, and 2b, suggests that RI turnover will continue to stabilize at an acceptable level to support the resident inspector program.

Figure 5 - Resident Inspector Turnover Trend



	2007	2008	2009	2010	2011	2012
Resigned	4	3	2	2	2	2
Retired	3	1	0	0	0	1
Moved to non-RI	13	8	7	8	3	4
Promoted to SRI	13	10	6	6	9	2
Turnover Rate	46%	31%	22%	23%	20%	13%

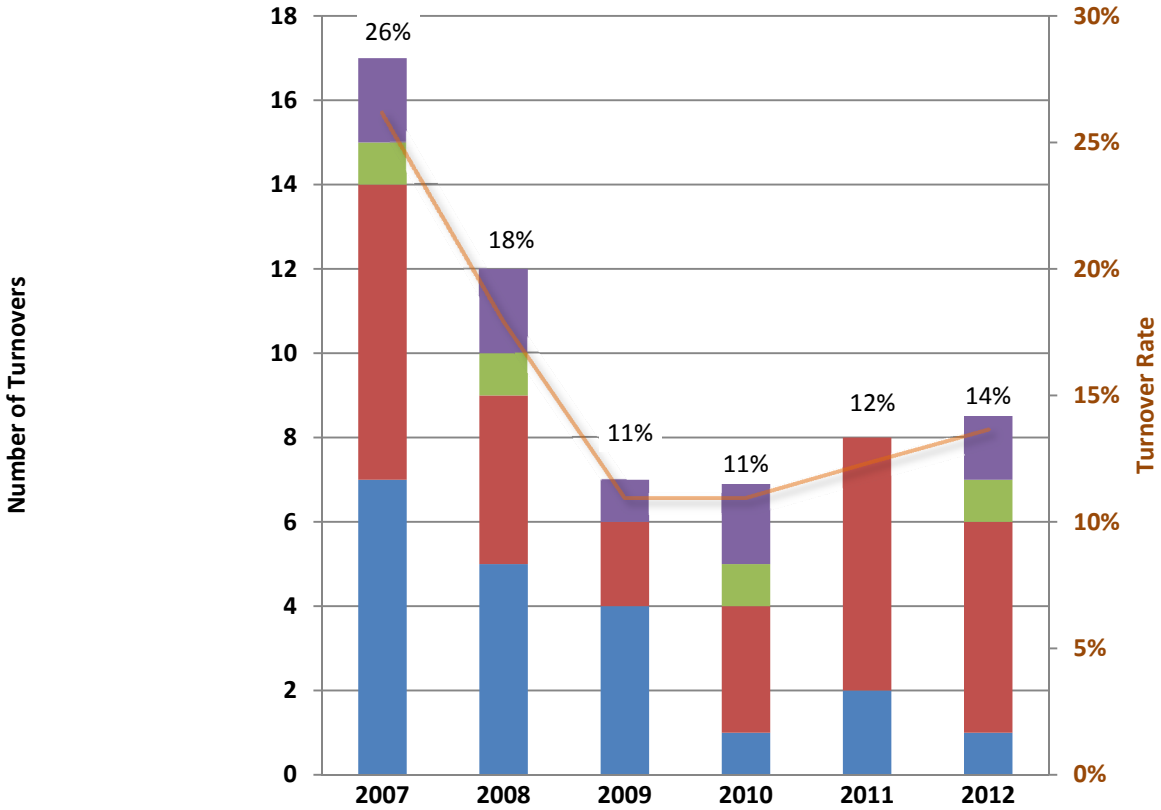
SRI Group Turnover Trend

Analysis of Figure 6, below, reveals both (a) a dominant decline in SRI turnover rate from 26 percent in 2007 to 11 percent in 2009 followed by (b) a relatively gradual 3-year trend of increasing SRI turnover rate, from 11 percent in 2010 to 14 percent in 2012.

Examination of the SRI turnover destination data reveals resignations at 2, retirements at 1, movement to non-SRI positions at 5, and promotion to non-SRI at 1.

The more gradual trend from 2010 through 2012 in connection with a review of the trending and distribution of SRI demographic data reflecting current site time, total resident time, and NRC time, shown in Figures 3a, 3b, 4a, and 4b, suggest that SRI turnover will continue to stabilize at an acceptable level to support the resident inspector program.

Figure 6 - Senior Resident Turnover Trend



	2007	2008	2009	2010	2011	2012
Resigned	2	2	1	2	0	2
Retired	1	1	0	1	0	1
Moved to non-SRI	7	4	2	3	6	5
Promoted to non-SRI	7	5	4	1	2	1
Turnover Rate	26%	18%	11%	11%	12%	14%

Over the period from 2007 to 2012, both the RI and SRI turnover rates have been significantly reduced and have begun to stabilize. These turnover rate reductions and improved stability are attributed both to changes in external economic conditions and to NRC initiatives aimed at

reducing and stabilizing resident inspector program turnover rates. This, combined with review of the trending and distribution of demographic experience data reflecting current RI and SRI site time, total resident time, and NRC time, suggests that turnover rates will continue to stabilize at an acceptable level to support the resident inspector program.

III. Permanent Site Staffing

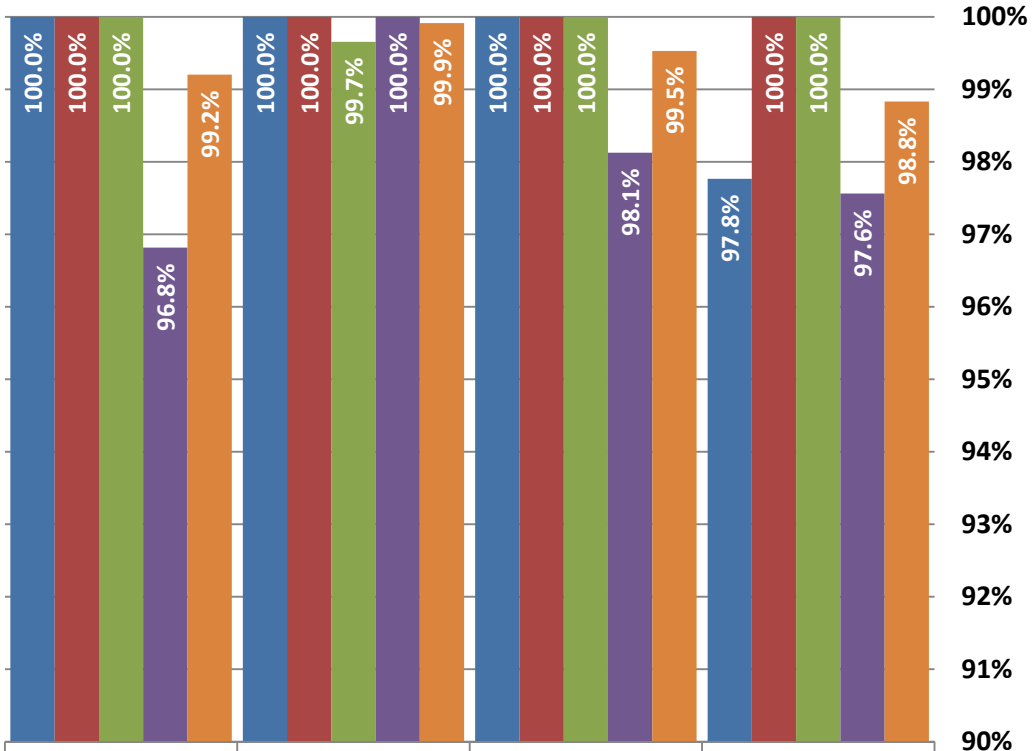
Permanent[1] site staffing analysis supports IMC 0307 Metric O-14 "Analysis of Site Staffing," to measure the permanent inspector staffing levels at each of the reactor sites for both RIs and SRIs in order to evaluate the agency's ability to provide continuity of regulatory oversight in response to DBLLTF recommendation 3.3.5.3 that staff establish a measurement for RI / SRI staffing, including program expectations to satisfy minimum staffing levels.

Permanent inspector staffing levels at each reactor site were analyzed for both RIs and SRIs. Only those inspectors who have attained at least a basic inspector certification status, as defined in Appendix A, "Basic-Level Training and Qualification Journal," to IMC 1245, "Qualification Program for Operating Reactor Programs," dated December 19, 2012, are counted. The data reflect the number of days a qualified RI and SRI were permanently assigned to the site divided by the number of days in the period. In accordance with the metric criterion in Appendix A to IMC 0307, any site that falls below 90 percent is individually evaluated. Reasons for any meaningful increase or decrease in the inspector staffing level are provided. IMC 0307 provides further details on the site staffing goal.

[1] Permanent in this context refers to inspectors assigned to the site permanently or through a rotation with a minimum duration of 6 weeks. Sites where permanently assigned RIs or SRIs are away from the site for a continuous period longer than 6 weeks will be considered gapped unless the positions are filled through a rotation with a minimum duration of 6 weeks. Away periods for training, meetings, team inspections, leave, or other temporary duties are not counted against the goal unless the absence exceeds 6 continuous weeks.

Analysis of the data summarized in Figure 7, below, confirms that all regions exceeded the 90 percent criteria with a national annual average of 99.4 percent for 2012. This reflects an improvement over 2011 in which the national annual average was 98.5 percent. In 2012, national quarterly averages ranged from 98.8 to 99.9 percent while regional quarterly averages ranged from 96.8 percent to 100 percent.

Figure 7 - 2012 Resident Program Permanent Site Staffing Levels



	First Quarter	Second Quarter	Third Quarter	Fourth Quarter
Region I	100.0%	100.0%	100.0%	97.8%
Region II	100.0%	100.0%	100.0%	100.0%
Region III	100.0%	99.7%	100.0%	100.0%
Region IV	96.8%	100.0%	98.1%	97.6%
National	99.2%	99.9%	99.5%	98.8%

Analysis of the data summarized in Table 1, below, reveals that, in 2012, for the first time in the trending period, all sites exceeded the 90 percent permanent annual site staffing metric criteria.

Table 1 Individual Permanent Site Staffing Performance Trend

Instances of Annual Site-Specific Staffing < 90 percent	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*
Number of Sites with < 90 percent site staffing	9	5	5	3	3	0

IV. Conclusions and Recommendations

Section I – Inspector Experience Conclusions

- During the period from 2007 through 2012, 3 of 4 inspector experience trends were stable or improving.
    - RI total resident time, current site time, and NRC time all trended moderately upward in both median and average whereas relevant non-NRC experience trended downward. It should be noted that the 2012 average NRC time of 6.7 years and total resident time of 3.5 years represent significant regulatory and inspection experience and provide assurance that the declining relevant non-NRC experience is not a significant concern.
    - SRI experience trending and regional variances were not noteworthy.
    - The dominant declining trend and high degree of regional variance observed in relevant non-NRC RI experience have not yet emerged in the SRI demographic data but can be expected to do so in the future as RI's promote to SRI positions.
- In 2012, regional variations in 3 of 4 inspector experience metrics were minimal.
    - Regional variations in both median and average RI total resident time, current site time, and NRC time were relatively low.
    - Regional variations in *average* RI relevant non-NRC experience, in contrast to the variations above, were relatively high.
    - Regional variations in *median* RI relevant non-NRC experience were strikingly high, ranging from 0.0 to 6.0 years. This reflects that at least half of one region's RI's possessed no relevant non-NRC experience.
    - Regional variations in SRI experience were relatively low in both median and average across all four experience parameters.
    - Regional variations in SRI relevant non-NRC experience had not yet begun to reflect higher variations observed in RI non-NRC experience but are expected to trend upward in the future as RI's promote to SRI positions.

The downward trend in RI relevant non-NRC experience is attributed to a focus on the hiring, training, and assignment of inspectors directly from college with no relevant non-NRC experience. As these inspectors enter and remain in the resident program, it is not unexpected that a declining trend in the non-NRC experience will occur.

Based on the evaluation of ROP performance, the declining trend and high regional variability in RI relevant non-NRC experience have not adversely impacted ROP effectiveness.

Section II – Inspector Turnover Conclusions

- Over the period from 2007 to 2012, both the RI and SRI turnover rates have been significantly reduced and have begun to stabilize.

- Turnover rate reductions and improved stability are attributed both to changes in external economic conditions and to NRC initiatives aimed at reducing and stabilizing resident inspector program turnover rates.

- The above, combined with review of the trending and distribution of demographic experience data reflecting current RI and SRI site time, total resident time, and NRC time, suggests that turnover rates will continue to stabilize at an acceptable level to support the resident inspector program.

Sections III – Permanent Site Staffing Conclusions

- During the period from 2007 through 2012, inspector permanent site staffing trends were stable or improving.

    - Permanent Site Staffing remains stable and well above the 90 percent staffing goal.

    - In 2012, no individual site documented annual permanent site staffing levels below 90 percent - the first time this has occurred during the 2007-2012 trending period.

Recommendations

Staff recommends not making any further changes to the RI program at this time. However, NRR and the regions will continue to monitor inspector experience, inspector turnover, and permanent site staffing demographics in 2013.