POLICY ISSUE
INFORMATION

April 21, 2003 SECY-03-0062

FOR: The Commissioners

FROM: William D. Travers
Executive Director for Operations

SUBJECT: REACTOR OVERSIGHT PROCESS SELF-ASSESSMENT FOR CALENDAR YEAR 2002

PURPOSE:

To present the results of the staff's annual self-assessment of the Reactor Oversight Process (ROP) for calendar year (CY) 2002.

SUMMARY:

The ROP self-assessment results indicate that the ROP has been successful in supporting the Nuclear Regulatory Commission's (NRC's) performance goals of maintaining safety, enhancing public confidence, making activities more effective, efficient, and realistic, and reducing unnecessary regulatory burden. The ROP was also effective in CY 2002 in meeting its program goals of being objective, risk-informed, understandable, and predictable. The staff continued to improve various aspects of the ROP as a result of feedback and lessons learned. Although the responses to the internal and external surveys were generally favorable, some stakeholders believe that the ROP was inadequate because it did not identify the vessel head degradation at Davis-Besse and that the significance determination process (SDP) has not been effective. In addition, the majority of the self-assessment metrics were met; however, nine metrics were not met, and the staff is aggressively pursuing improvements to address concerns in the noted areas.

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Although significant progress has been made in CY 2002, additional challenges remain. The staff intends to implement the recommendations of the Davis-Besse Lessons Learned Task Force (DBLLTF) and the SDP Task Group, as appropriate, and plans to continue to actively solicit inputs from the NRC's internal and external stakeholders in the interest of further improving the ROP. The staff will also continue to report to the Commission the results of its annual self-assessment as part of the Commission briefing following the Agency Action Review Meeting (AARM).

BACKGROUND:

On February 24, 2000, the staff issued SECY-00-0049, "Results of the Revised Reactor Oversight Process Pilot Program." The Staff Requirements Memorandum (SRM) for SECY-00-0049, issued on March 28, 2000, approved initial implementation of the ROP as recommended by the staff. The initial implementation of the ROP began on April 2, 2000. In a followup SRM issued on May 17, 2000, the Commission directed the staff to report on the implementation of the ROP results after the first year of implementation. Following completion of the first year of implementation, the staff assessed the efficacy of the process and documented the results in SECY-01-0114, "Results of the Initial Implementation of the New Reactor Oversight Process," issued on June 25, 2001. SECY-01-0114 also noted the staff's intention to continue to perform an annual self-assessment of the ROP. Accordingly, on April 3, 2002, the staff issued SECY-02-0062, "Calendar Year 2001 Reactor Oversight Process Self-Assessment," to present the results of the second annual ROP self-assessment. This paper provides the results of the third annual self-assessment of the ROP.

This self-assessment was performed in accordance with Inspection Manual Chapter (IMC) 0307, "Reactor Oversight Process Self-Assessment Program." The data for this self-assessment was obtained from many diverse sources to ensure that a comprehensive and robust assessment was performed. Data sources included the ROP self-assessment metrics described in IMC 0307, the ROP internal feedback process, concerns noted by the Advisory Committee on Reactor Safeguards (ACRS), comments from external stakeholders in response to a *Federal Register* notice (FRN), insights from internal stakeholders based on survey results, and feedback received from stakeholders at various meetings, workshops, and conferences. The staff also considered the direction and insight provided by the Commission through several SRMs.

DISCUSSION:

The staff conducted many activities during CY 2002 to assess the effectiveness and efficiency of the ROP. The staff actively solicited input from our internal and external stakeholders and assessed aspects of the ROP's effectiveness using the self-assessment metrics described in IMC 0307. The staff analyzed the input to gain insights regarding the effectiveness of the ROP in supporting the NRC's four performance goals as well as the regulatory principles of being predictable, understandable, objective, and risk-informed.

The staff continued to improve various aspects of the ROP in CY 2002 as a result of feedback from internal and external stakeholders and lessons learned. Based on the self-assessment

metrics, stakeholder feedback, and other pertinent information, the ROP was generally effective in monitoring operating nuclear power plant activities and focusing NRC resources on significant performance issues in CY 2002. Accordingly, plants appeared to be receiving the appropriate level of oversight commensurate with their performance. However, the staff will continue to make improvements to the ROP in CY 2003 based on lessons learned and stakeholder insights.

Although the staff considered the ROP to be effective this past year, the staff did not anticipate the aggressiveness of the corrosion process revealed by the Davis-Besse reactor vessel head condition and it therefore had not been emphasized in either the pre-ROP or the ROP inspection programs. As a result, a multi-disciplined task force was formed to review the NRC's regulatory process associated with the issues at Davis-Besse. The DBLLTF's report, issued on September 30, 2002, contained more than 50 recommendations, many associated with the ROP. These recommendations were then reviewed and prioritized by a team of senior NRC managers. Among the more significant ROP-related recommendations were:

- Enhance the barrier integrity performance indicators to more accurately monitor unidentified leakage

- Modify the inspection program to provide for better follow-up of longstanding issues

- Develop specific guidance to inspect boric acid control programs and vessel head penetration nozzles

- Enhance the guidance for managing plants that are outside the ROP Action Matrix and under the NRC's IMC 0350 process ("Oversight of Operating Reactor Facilities in an Extended Shutdown as a Result of Significant Performance Problems")

In response to these and other recommendations, four action plans were developed to address each of the high priority recommendations. These action plans were forwarded to the Commission by memorandum dated March 10, 2003. The status of the action items contained in the action plans will be communicated to the Commission semi-annually. Significant changes made to the ROP as a result of these reviews will also be highlighted in the next annual self-assessment.

Based on the self-assessment metric results, stakeholder feedback, and other lessons learned, the staff identified certain issues and actions in the key program areas of PIs, inspection, SDP, and assessment as discussed in the following paragraphs. In addition, the staff has included discussions and assessments of ROP communication activities, the ROP self-assessment program, industry performance trends, coordination of security and safeguards activities, ROP resource expenditures, and resident inspector demographics. The last section contains the overall conclusions of the ROP self-assessment. Several attachments are also included as noted in the pertinent sections of this paper to provide additional detail to support the staff's assessment and conclusions.

ROP Program Area Self-Assessments

Assessments were performed in each of the four key program areas of the ROP: PIs, inspection,

SDP, and assessment. The staff used self-assessment metrics and other pertinent information to provide insights regarding the effectiveness of the ROP in supporting the NRC performance goals of maintaining safety, enhancing public confidence, making regulatory activities more effective, efficient, and realistic, and reducing unnecessary regulatory burden. The self-assessment metrics also provide insights regarding the success of the ROP in fulfilling the regulatory principles of being predictable, understandable, objective, and risk-informed.

The staff continued to work closely with stakeholders to improve the PI Program in CY 2002. Most notably, the staff developed and began piloting replacements for the safety system unavailablity indicators that are more risk-informed and plant-specific to improve the effectiveness of the indicators. The internal and external survey responses provided many insights into potential shortcomings and needed improvements to the PI program, including the perception that the indicators are lagging and have become ineffective at identifying significant performance problems. This negative perception resulted in one of the ROP PI self-assessment metrics not being met. In addition, the DBLLTF recommended the need to enhance the barrier integrity PIs to better detect unidentified leakage. The staff concluded that although the PI program continues to provide the NRC with an objective source of information regarding some important aspects of licensee performance, there are some concerns that appear to have resulted in a decrease in stakeholder confidence in the effectiveness of the PI Program. The staff will continue to work with both internal and external stakeholders to address these concerns.

The inspection program continued to make improvements during the third year of ROP implementation. For example, many issues identified in the past year relating to inspection report documentation requirements have been addressed with the revision to IMC 0612, “Power Reactor Inspection Reports.” In addition, some revisions were made to the ROP inspection program in CY 2002, including adjustments to the resource estimates and level of effort to provide more inspection flexibility. The baseline inspection program was completed at all plants in CY 2002, though resource challenges were experienced and additional assistance from inspectors outside the regions was necessary in some cases. No major areas for change were identified from the annual review of the inspection procedures, the survey results, the metrics, or the feedback process, although the DBLLTF recommendations are expected to result in changes to the inspection program in CY 2003. The staff will continue to monitor the effectiveness of inspection program implementation and make revisions based on feedback from the regions and other stakeholders, including the Efficiency Focus Group as discussed in the ROP resources section of this paper. The staff will also address recommendations from the DBLLTF, including changes to the inspection program to provide for better follow-up for longstanding issues and the development of specific guidance to inspect boric acid control programs and vessel head penetration nozzles.

The staff also continued to make progress on improving the SDP. However, concerns were raised by internal and external stakeholders regarding the completeness and complexity of the Phase 2 SDP process for reactor safety findings. To address these concerns, the staff developed enhancements to the risk-informed SDP that were incorporated into the revision of IMC 0609, Appendix A, “Significance of Reactor Inspection Findings for At Power Situations.” Four SDP self-assessment metrics did not meet the established goals, including SDP timeliness, the accuracy of reported information, the perceived consistency in significance of findings across cornerstones, and the staff’s proficiency in using the SDP. Based on these and other concerns, the staff

continued to implement the SDP Improvement Initiative and Task

Action Plan and make necessary modifications to improve the overall effectiveness and efficiency of the SDP.

In addition, the SDP Task Group (SDPTG) was formed to complete an independent and objective review of the SDP and to address recommendations from an Office of the Inspector General audit and a Differing Professional Opinion regarding the SDP. The SDPTG concluded that the SDP was successful in meeting the ROP objectives of providing a more objective, scrutable, and risk-informed process, though a number of recommendations were identified to improve the overall effectiveness of the process. Recommendations made by the task group that are not already addressed by the SDP Improvement Initiative are being evaluated and incorporated, as warranted. The staff also continued to develop additional SDPs and revise existing SDPs based on lessons learned.

Several program improvements were made to the assessment program during CY 2002 and are reflected in the latest revision of IMC 0305, “Operating Reactor Assessment Program.” Major changes included adding criteria for exiting the multiple/repetitive degraded cornerstone column of the Action Matrix, clarifying guidance on the criteria and processing of old design issues, clarifying when inspection findings are counted in the assessment program, and incorporating lessons learned from the mid-cycle and end-of-cycle review meetings. All of the self-assessment metrics in the assessment area met their established criteria, and feedback from internal and external stakeholders was generally positive. However, some stakeholders indicated a level of concern with the ability of the NRC to detect declining performance in a timely manner, noting the staff’s failure to detect the reactor vessel head degradation at Davis-Besse. This concern is further addressed in the staff’s annual assessment of cross-cutting issues included as Attachment 6 to this paper. The staff will continue to evaluate the effectiveness of the assessment program based on feedback and lessons learned and make appropriate program adjustments.

Attachment 1 to this paper includes a more detailed discussion for each ROP program area regarding the actions taken in CY 2002 in response to previous commitments, the results of the self-assessment, and actions planned to address the issues that were identified. In addition, a consolidated listing and status of previous issues is provided in Attachment 2, and the annual ROP self-assessment metrics and analysis are included as Attachment 3.

ROP Communication Activities

The staff implemented the ROP Communication Plan in 2002 and has continued its focus on stakeholder involvement. The public outreach and stakeholder involvement in the decision-making process for the ROP during development and implementation were unprecedented. The staff continued to conduct public meetings and workshops with external stakeholders, to hold biweekly phone conferences and frequent meetings with internal stakeholders, and to work with the Advisory Committee on Reactor Safeguards (ACRS) on ROP-related issues. The staff also conducted both internal and external surveys this past year to solicit and analyze stakeholder feedback regarding the effectiveness of the ROP.

The ROP feedback process continued to provide a means for staff to identify concerns or issues and propose recommended improvements related to ROP policies, procedures, or guidance. Although feedback responsiveness and timeliness have improved, internal stakeholders have indicated that further enhancements to the ROP feedback process are warranted. The staff also formed and executed the Efficiency Focus Group and the SDPTG consisting of an array of internal stakeholders to address specific issues as discussed in other sections of this paper.

The responses from both the internal and external surveys were diverse and provided many useful insights. Although several of the survey responses were positive, the staff is concerned that a number of the responses were critical, particularly with respect to the Davis-Besse reactor vessel head degradation and the complexity of the SDP. The staff is currently evaluating the need and feasibility for a public workshop in CY 2003 to address several of the common concerns noted by both the internal and external stakeholders. Attachment 5 to this paper provides the results of our internal ROP survey. The detailed comments from the external survey are consolidated into a summary document (ADAMS accession number ML030620007) and a discussion of this survey is included in Attachment 4 to this paper. Staff analysis of the specific responses is also included in the applicable portions of the program area discussions in this paper as well as in the ROP performance metric report in Attachment 3.

The staff met with the ACRS on three separate occasions over the past year to address specific ACRS concerns regarding the ROP. The discussions focused on a Commission SRM that directed the staff to work with the ACRS to resolve apparent conflicts and discrepancies between aspects of the ROP that are risk-informed and those that are performance-based. The staff also provided the staff's position to the ACRS on these issues in a December 19, 2002 letter. Most recently, the staff met with the ACRS on March 6, 2003. As a result of this briefing, the ACRS forwarded a letter to the Commission on March 13, 2003, concluding that there are still disagreements between the staff and the ACRS. The specific issues presented in the March 13 letter will serve as the basis for further discussion and potential revisions to the ROP. A more detailed discussion of the staff's interface with the ACRS is included in Attachment 4 to this paper.

The staff continued to make improvements to the ROP Web pages to ensure that they were useful tools for communicating accurate and timely ROP information to all stakeholders. The staff also began developing an electronic support system for inspectors in an effort to increase inspector efficiency. In summary, the staff continues to seek and implement improvements to the ROP based on feedback and insights from all stakeholders. For more detailed discussions and analysis of several ROP communication activities, refer to Attachment 4 to this paper.

ROP Self-Assessment Program Evaluation

The objectives and details of the ROP Self-Assessment Program are contained in IMC 0307. IMC 0307 was significantly revised on December 12, 2002, to improve the efficiency and effectiveness of the ROP Self-Assessment Program. Program improvements included (1) more clearly defining the annual review of the baseline inspection program, (2) delineating the roles and responsibilities of the inspectable area leads and program area leads, (3) integrating an annual review of the metrics and the associated data collection methods into the process, (4) developing customized audits to delve more deeply into those aspects of the ROP that demonstrate potential weakness or areas for further development, and (5) clarifying the purposes and content of the annual ROP

self-assessment report and associated Commission paper. The specific ROP self-assessment metrics were also revised to minimize unnecessary burden on the staff for metric data collection. The revised metrics were added as Appendix A to the manual chapter. In addition, the new inspector profile metrics were added to Section VI of Appendix A to provide the basis for future annual demographic reports to the Commission.

The 2002 annual report of self-assessment metrics is included as Attachment 3 to this paper. The majority of metrics met their established criteria, but some metrics in the PI and SDP program areas did not meet their criteria as previously noted. In addition, four of the nineteen overall program metrics were determined not to meet the established criteria. The metric established to measure whether there are any programmatic voids in the ROP was not met due to the programmatic deficiencies noted by the DBLLTF. Three additional metrics were not met due to negative perceptions by some of the public regarding the ROP's ability to maintain safety, whether the ROP is effective, efficient, and realistic, and whether the ROP results in unintended consequences. As noted earlier, in order to continue the public outreach effort and fully understand stakeholder concerns, the staff is evaluating the feasibility of conducting a public workshop in CY 2003.

Industry Performance Trends

The staff implemented the Industry Trends Program (ITP) in CY 2002, and is continuing to develop the program as a means to confirm that the nuclear industry is maintaining the safety of operating power plants and to increase public confidence in the efficacy of the NRC's processes. The NRC uses industry-level indicators to identify adverse trends, evaluate their significance, and take appropriate actions. One important output of this program is to report to Congress each year on the measure of "no statistically significant adverse industry trends in safety performance" as part of the NRC's Performance and Accountability Report. Based on the information currently available from the industry-level indicators originally developed by the former Office for Analysis and Evaluation of Operational Data (AEOD) and the Accident Sequence Precursor (ASP) Program implemented by the Office of Nuclear Regulatory Research, no statistically significant adverse trends have been identified through fiscal year (FY) 2002. While industry-level indicators (i.e. trends summed across all plants) continued to improve, significant performance problems have been identified at some plants such as Davis-Besse.

The staff is continuing to use the AEOD and ASP indicators while it develops additional indicators that are more risk-informed and better aligned with the cornerstones of safety in the ROP. These additional indicators are being developed and qualified in phases for use in the ITP and the annual report to Congress. In addition, the staff is developing risk-informed thresholds for the appropriate indicators, which will be used to establish a predictable agency response based on safety significance. The results of this program, along with any actions taken or planned, are reviewed annually during the AARM and reported to the Commission in a separate annual paper.

Coordination of Security and Safeguards Activities

On April 7, 2002, the NRC established the Office of Nuclear Security and Incident Response (NSIR) to consolidate and streamline selected NRC security, safeguards, and incident response responsibilities and resources. NSIR was formed, in part, as a result of the Commission's ongoing

review of its safeguard physical security program in the aftermath of the terrorist attacks of September 11, 2001. The office's responsibilities include the safeguards and security policy and oversight for nuclear reactors and the development and oversight of safeguards and security inspection programs carried out by headquarters and regional offices. Prior to the establishment of NSIR, these and other security responsibilities were performed by the Office of Nuclear Reactor Regulation (NRR) for its assigned facilities.

Although the security-related procedures and processes established under the ROP were written prior to the establishment of NSIR, they were implemented as appropriate throughout CY 2002 and into CY 2003. The original inspection effort and focus, PIs, SDP, and licensee performance assessment principles were maintained to minimize the potential impact on the regions and licensees caused by the security reorganization. Accordingly, the security-related aspects of the ROP underwent the same programmatic and administrative controls as the other cornerstones along with ongoing regulatory efforts in response to the changing threat environment. A resulting benefit was that both offices, NRR and NSIR, provided oversight of the physical protection cornerstone during the CY 2002 transition period. Therefore, both offices assisted in the verification that security- and safeguards-related inspection activities were consistent with ROP objectives and requirements as well as other program obligations.

Regarding the baseline security inspection, the staff determined that the ROP security inspection objectives and requirements were satisfactorily completed in CY 2002, as supplemented by temporary instruction (TI) 2515/148. A similar approach is currently planned for the CY 2003 security baseline inspection at all commercial power reactor sites. Additionally, the force-on-force exercises planned for CY 2003 will provide additional opportunities to gain insights into licensee protection, response, and mitigative strategies; these lessons learned will be used to refine the security baseline inspection as necessary.

For CY 2003 and beyond, NSIR will continue to administer the security inspection program, and NRR will continue to maintain the overall lead for the ROP. Both staffs have identified challenges and are working together to enhance the physical protection cornerstone to ensure the security and safeguards of reactor facilities. These staff activities will include program changes that may be impacted by possible changes to the design basis threat, insights learned from force-on-force exercises, and consideration of future rulemaking. Additionally, the staff will continue its efforts to improve the security-related processes, including the inspection procedures, PIs, and the SDP associated with the physical protection cornerstone.

ROP Resources

The total staff effort expended for the ROP in FY 2002 continued the downward trend seen during the first two years of implementation. A comparison of FY 2002 with FY 2001 shows a reduction of nearly 10 percent in the staff hours expended for the ROP. The reduction is evident in all elements of the ROP except for plant-specific/supplemental inspections and safety issues inspections. Most of the reductions occurred in baseline inspection activities. Although some of these reductions may reflect efficiency gains, a number of events during the CY 2002 inspection cycle diverted inspection resources and challenged the staff to complete the required baseline inspections. As discussed in more detail in Attachment 7, these challenges required regional staff to implement short-term coping strategies (e.g., minimum procedure samples and effort, reduced

inspection preparation time, deferment of some biennial and triennial inspections, etc.) that resulted in a reduced baseline inspection effort down to the minimum acceptable levels. The potential long-term impact on plant safety of continuing some of these coping strategies could erode the staff's ability to obtain adequate indication of licensee performance and to identify risk-significant issues.

The increase in plant-specific/supplemental inspections is attributed primarily to a greater than anticipated inspection effort resulting from inspection findings and performance issues (e.g., at Indian Point 2 and Cooper Nuclear Station) and the effort required at Davis-Besse for the restart inspections in accordance with IMC 0350. The increase in safety issues inspections reflects the increased activity in this area in FY 2002 compared with FY 2001.

In an SRM dated February 12, 2003, the Commission requested that the staff inform the Commission when emergent or other issues significantly impede the staff's ability to carry out the NRC's mission, or when a region requires significant resources from another region or office. As noted above and discussed in more detail in Attachment 7, the staff was challenged in CY 2002 and it appears the staff will be challenged again in CY 2003 to complete the baseline inspection program due to a number of unanticipated and consequently unbudgeted issues. The staff is currently conducting a more detailed analysis of these resource challenges and is considering various options to provide appropriate short-term and long-term solutions and resources to the regions. In accordance with the SRM dated February 12, 2003, the staff will inform the Commission in the near future of our resolution of this issue.

A detailed discussion of ROP resource issues is provided in Attachment 7 to this paper. These issues include (1) proposed changes to the ROP resource model resulting from experience gained during the CY 2002 inspection cycle; (2) efforts by the ROP Efficiency Focus Group to identify ways in which to achieve efficiency gains in the ROP; (3) challenges confronted by the regions during the CY 2002 inspection cycle and the short-term coping strategies used to complete the CY 2002 baseline inspections; (4) the resulting impacts on the CY 2003 inspection cycle and options for possible long-term improvements to avoid future difficulties; (5) the impact of NSIR on resident and regional inspector resources; and (6) the impact on the ROP due to the "N+1 to N" change in the resident inspector staffing policy.

A number of program improvement activities are described in this paper. The resource requirements to develop and implement these program improvements are only a part of the overall ROP development and management effort. In FY 2003 through FY 2006, the staff expects to expend approximately 20 - 22 full-time equivalents (FTE) per year in NRR and approximately 6 FTE in the regional offices for all reactor performance assessment and reactor oversight process management activities. The resource requirements to develop and implement the program improvement activities as described in this paper have been included in the budget request for those years.

Resident Inspector Demographics

As the Commission requested in its SRM dated April 8, 1998, the staff developed metrics to monitor and trend resident inspector demographics. The staff last reported its analysis of resident inspector demographics in SECY-02-0062, "Calendar Year 2001 Reactor Oversight Process Self-

Assessment." The 2002 demographics for the resident inspector program show a stable or improving trend in nearly all resident inspector (RI) and senior resident inspector (SRI) statistics. Program metrics such as "qualified resident time," "NRC time," and "relevant non-NRC experience" for 2002 are near or above their 1997 values.

Although a comparison of this year's data with previous years indicates an improving trend in the metrics, some challenges to the RI program were identified by the regions. One challenge was how to minimize the length in the resident inspector site coverage gap caused by RI transfers. The impact on the inspection program caused by the gap in coverage cannot be reflected by the RI demographics data since the data only captures the experience of personnel in the program. The staff is reviewing various personnel staffing policy options to minimize the effect that unanticipated large inspector staff losses have on maintaining continuity of experience and expertise at each site. A detailed analysis of the 2002 resident inspector data is presented in Attachment 8.

OVERALL SELF-ASSESSMENT CONCLUSIONS

This self-assessment shows the ROP has been successful in supporting the NRC's performance goals of maintaining safety, enhancing public confidence, making activities more effective, efficient, and realistic, and reducing unnecessary regulatory burden. The ROP was also effective in CY 2002 in meeting its program goals of being objective, risk-informed, understandable, and predictable. In addition, there were no statistically significant adverse trends identified in any industry-level performance indicators; however, the Davis-Besse reactor head erosion event is appropriately causing a focused look at NRC oversight efforts.

During this self-assessment period, the staff continued to improve various aspects of the ROP as a result of feedback and lessons learned. Although the responses to the internal and external surveys were generally favorable, some stakeholders believe that the ROP was inadequate because it did not identify the vessel head degradation at Davis-Besse and that the SDP has not been effective. In addition, the majority of the self-assessment metrics were met; however, four SDP metrics, one PI metric, and four overall metrics were not met. Accordingly, the staff is aggressively pursuing improvements to address concerns in each of these areas.

Although significant progress has been made in CY 2002, additional challenges remain. The staff expects to make continued improvements to the ROP via the ongoing self-assessment process, and the staff intends to implement the recommendations of the DBLLTF and the SDP Task Group, as appropriate. The staff also plans to continue to actively solicit input from the NRC's internal and external stakeholders in the interest of further improving the ROP, and is evaluating the need and feasibility for a public workshop in CY 2003. The staff will also continue to report to the Commission the results of its annual self-assessment as part of the Commission briefing following the AARM.

COORDINATION:

The Office of the General Counsel has reviewed this Commission paper and has no legal objections to its content.

The Office of the Chief Financial Officer has reviewed this Commission paper for resource implications and has no objections.

/RA/

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Attachments:
1. ROP Program Area Assessments
2. Status of Previous Issues
3. Annual Report of Self-Assessment Metrics
4. ROP Communication Activities
5. Internal Stakeholder Survey Results
6. Cross Cutting Issue Assessment
7. ROP Resource Analysis
8. Resident Inspector Demographics

ROP Program Area Assessments

An assessment was performed in each of the four key program areas of the Reactor Oversight Process (ROP): performance indicators (PIs), inspection, the significance determination process (SDP), and assessment. These assessments were performed in accordance with Inspection Manual Chapter (IMC) 0307, "Reactor Oversight Process Self-Assessment Program." In each of the four program areas, the staff used self-assessment metrics and other pertinent information to provide insights regarding the effectiveness of the ROP in supporting the Nuclear Regulatory Commission (NRC) strategic goals of maintaining safety, enhancing public confidence, making regulatory activities more effective, efficient, and realistic, and reducing unnecessary regulatory burden. The self-assessment metrics also provide insights regarding the success of the ROP in fulfilling the regulatory principles of being predictable, understandable, objective, and risk-informed. The staff also obtained input from internal stakeholders by conducting an anonymous survey, and through counterpart meetings, focus groups, and the internal feedback process. External feedback was obtained by an *Federal Register* notice (FRN) solicitation for comments and through periodic meetings with the industry and other forums.

Based on the metric results, stakeholder feedback, and other lessons learned, the staff identified certain issues and actions in the key program areas of PIs, inspection, SDP, and assessment as discussed below.

Performance Indicator Program

In SECY-02-0062, "Calendar Year 2001 Reactor Oversight Process Self Assessment," the staff described the status and its assessment of the ROP Performance Indicator Program during the second year of full implementation. The staff discussed improvements in the calculation and display of the Safety System Unavailability (SSU) indicators that were incorporated into Nuclear Energy Institute (NEI) 99-02, Revision 2, "Regulatory Assessment Performance Indicator Guideline." The staff noted that anticipated improvements to the Unplanned Power Change (UPC) indicator had been put on hold to focus on more pressing issues. In addition, anticipated improvements to the physical protection cornerstone indicators had also been delayed pending a thorough review of the safeguards program in response to the events of September 11, 2001. During the calendar year (CY) 2001 assessment, all PI self-assessment metrics were met and the majority of comments received from the internal feedback and external surveys were positive.

During the third year of ROP implementation, the staff devoted significant resources to an intensive effort with industry to develop indicators that are more risk-informed as replacements for the SSU indicators. As a result of this effort, the staff developed and began piloting the Mitigating Systems Performance Index (MSPI). The MSPI comprises SSU indicators for five distinct systems: the four systems currently monitored by the PI Program (emergency ac power, high-pressure injection, high-pressure heat removal, and residual heat removal), plus an additional indicator of the cooling water support systems for the other four monitored systems (the component cooling water and service water systems or their equivalents). Each indicator is the sum of two numbers, one that represents an estimate of the core damage frequency (CDF) due to system unavailability and the other that represents an estimate of the CDF due to

system unreliability. While the thresholds are set generically, the indicators are plant-specific because individual plant models are used to calculate the CDFs. For the plants participating in the pilot program, the staff used the Simplified Plant Analysis Risk (SPAR) models developed by the Office of Nuclear Regulatory Research (RES) to confirm the licensees' calculations. The pilot program to test the MSPI began in September 2002, and the six-month data collection phase ended with the final submission in March 2003. Although the results are currently being evaluated by the staff, it is apparent that the pilot program is identifying a number of challenging issues that will need to be resolved before deciding on implementation of the MSPI.

During the past year the staff also began developing proposed changes to simplify and clarify a number of other indicators that have generated many questions from stakeholders. These indicators include Scrams with Loss of Normal Heat Removal, Unplanned Power Changes (UPCs), Safety System Functional Failures, and Reactor Coolant System (RCS) activity and RCS leakage. For example, some internal stakeholders are concerned that unplanned power changes can be affected by Notifications of Enforcement Discretion (NOEDs), yet NOEDs that are granted to avert a shutdown are not currently captured by the UPC PI. Upon completion of the MSPI pilot program, the staff will work with stakeholders through public meetings to further develop and potentially pilot additional PI changes.

As part of the effort to minimize differences in reporting, the Institute of Nuclear Power Operations (INPO) and the World Association of Nuclear Operators (WANO) have been represented at the MSPI public meetings. They have committed to attempt to be consistent with the NRC's program to the extent they are able, given their international membership. In addition, the NRC staff has worked closely with INPO on the Consolidated Data Entry program to develop a single database for the reporting of all data required by the NRC, INPO, and WANO.

The responses to the internal ROP survey revealed that most of those who participated in the survey believe that the ROP performance indicators (1) provide useful information, (2) are clearly defined, (3) are understandable, (4) provide appropriate overlap with the inspection program, and (5) help to maintain safety. However, most respondents disagreed or were unable to answer that the indicators enhance public confidence and that the indicators provide an adequate indication of declining safety. These results demonstrate that, while the ROP PI Program provides useful information, a majority of the respondents do not have confidence that the program is effective at identifying declining performance or that it enhances public confidence.

The responses to the external survey disclosed that the public and the nuclear industry have opposing views of the efficiency and effectiveness of the ROP performance indicators. The industry respondents generally stated that the indicators are efficient and effective, with a few problems that are being addressed through the MSPI and other initiatives. Respondents representing public interest groups believed that, because licensees work to ensure all indicators are green, the indicators are lagging and have become ineffective at identifying significant performance problems. This negative perception resulted in one of the ROP PI self-assessment metrics not being met; to minimize the potential for licensees' actions taken in response to the performance indicator program that adversely impact plant safety. As discussed above, industry respondents to the external survey generally had positive comments. However, public interest group perceptions were that the PIs were not identifying significant issues and were giving the industry and the NRC a false sense of security. To address these concerns, the staff plans to

enhance the barrier integrity PIs to better detect unidentified leakage as recommended by the Davis-Besse Lessons Learned Task Force (DBLLTF), and is currently evaluating the need and feasibility for a public workshop in CY 2003 to address several of the common concerns noted by both the internal and external stakeholders. All other PI self-assessment metrics met their established criteria or goals in CY 2002.

Although the PI Program continues to provide the NRC with an objective source of information regarding licensee performance, there are concerns about some of the indicators regarding their ability to enhance public confidence and to be efficient and effective. For example, the DBLLTF recommended the need to enhance the barrier integrity PIs to better detect unidentified leakage. The staff plans to continue to work with internal and external stakeholders to address these concerns in the fourth year of the ROP.

Inspection Program

In SECY-02-0062, the staff provided an assessment of the inspection program based on the second year of ROP implementation. The staff conducted an in-depth review of each principle procedure and its attachments to identify needed improvements based upon lessons learned. As a result, the staff changed the frequency of the team inspection of licensees' problem identification and resolution (PI&R) processes from annual to biennial, and added a number of focused PI&R evaluations between the biennial inspections to allow a more continuous sampling of the licensee's corrective action process. The staff also initiated changes to revise the focus of the maintenance rule inspection to emphasize overall effectiveness of maintenance, and added specific inspection requirements to the in-service inspection procedure to evaluate the effectiveness of licensees' programs for testing steam generator tubes. The staff also made less significant modifications to most of the other baseline inspection procedures and attachments. A more complete listing of previous issues and details concerning the staff's actions is contained in Attachment 2.

The staff performed an annual review of each baseline inspection procedure and its attachments to identify needed improvements based on insights gained during the past year of ROP implementation. This review consisted of looking at inspection results from implementing the procedure, feedback received from the regions, and the resources used to implement the procedure. This review was not done for the physical protection portion of the ROP because a temporary instruction (TI) to inspect the Safeguards Interim Compensatory Measures replaced the baseline program in CY 2002 as described below. Based on this review, no major changes were made to the inspection program, although some minor revisions were made (e.g., several ROP procedures were revised to adjust resource estimates and level of effort and to provide a sample size band for more inspection flexibility). The staff will continue to monitor the effectiveness of program implementation and make revisions based on feedback from the regions and other stakeholders. The staff will also continue to implement the recommendations of the Efficiency Focus Group as discussed in the ROP resources section of this paper. Revisions based on recommendations from the DBLLTF are currently being developed and will also be made as appropriate. The recommendations include changes to the inspection program to provide for better follow-up for longstanding issues and the development of specific guidance to inspect boric acid control programs and vessel head penetration nozzles.

The quantity of feedback forms received from internal stakeholders for the ROP has diminished from 188 feedback forms for FY 2001 to 103 feedback forms for FY 2002. No major areas for change in the ROP were identified from the feedback process. However, feedback from internal stakeholders has indicated that further enhancements to the ROP feedback process are warranted, and the staff intends to address this in CY 2003. The issues identified in the past year's implementation relating to inspection report documentation requirements have been addressed with the issuance of IMC 0612, "Power Reactor Inspection Reports." A sample inspection report was drafted and issued for regional comment, and will be incorporated into IMC 0612 early this year.

In the strategic performance area of safeguards, the staff concluded that the inspections conducted pursuant to TI 2515/148, "Inspection of Nuclear Reactor Safeguards Interim Compensatory Measures," were sufficiently scoped to replace the baseline inspection requirements of Inspection Procedure (IP) 71130, "Physical Protection." The staff informed the Commission of this determination in SECY-02-0195, "Staff Plans to Use Temporary Instruction for Verification of Licensee Implementation of Power Reactor Security Interim Compensatory Measures and as Temporary Replacement of the Physical Protection Baseline Inspection Program," dated November 1, 2002. Accordingly, the security baseline inspection program was completed at all sites in CY 2002, and is planned to be completed again in CY 2003. Additionally, the force-on-force pilot exercises planned for CY 2003 will provide additional insights into licensee protection, response, and mitigative strategies and possible baseline inspection program and SDP enhancements.

All inspection program metrics met their established criteria. However, the percentage of findings documented in accordance with program requirements was not analyzed in CY 2002 because the inspection report audits were temporarily suspended due to the significant changes to IMC 0612. The staff will re-commence auditing the inspection reports in CY 2003. Based on the results of the internal survey, NRC inspectors and other internal stakeholders generally believed that the inspection program adequately covers areas that are important to safety. The survey indicated that the vast majority of internal stakeholders felt that inspection results were communicated accurately and in a timely fashion. Based on the results of the external survey, stakeholders generally agreed that the information in the inspection reports was useful and timely.

The baseline inspection program was completed at all plants in CY 2002, though resource challenges were experienced and additional assistance outside the regions was necessary in some cases. Inspection resources were challenged during CY 2002 due to a greater than anticipated inspection effort resulting from inspection findings and performance issues (e.g., at Indian Point 2 and Cooper Nuclear Station), the effort required at Davis-Besse for the restart inspections to support IMC 0350, "Oversight of Operating Reactor Facilities in a Shutdown Condition With Performance Problems," and a shortage of qualified inspectors. The annual review of resident demographics showed that challenges still remain in some regions in staffing the sites with experienced and qualified resident inspectors, and the staff continues to review various personnel staffing policy options to ensure the continuity of staffing is maintained at each site. Further discussions and analyses of ROP resources and resident inspector demographics are contained in separate sections of and attachments to this paper.

In conclusion, the inspection program continues to meet the established goals. Planned changes to the program will be made to reflect lessons learned resulting from the Davis-Besse event as well as continuing feedback from the regions through their implementation of the ROP.

Significance Determination Process

In SECY-02-0062, the staff described significant initiatives to improve the SDP process. The Significance Determination Process Improvement Initiative, including a task action plan, identified a course of action to improve the effectiveness and the efficiency of the process. These included (1) improving timeliness in issuing final SDP results, (2) reducing the complexity of the Fire and Shutdown SDPs, (3) enhancing inspector training, (4) improving the reliability of the risk-informed inspection notebooks used to risk-inform findings identified in the area of reactor safety during operations (benchmarking), (5) standardizing the Phase 3 risk analysis methods, and (6) providing guidance for assessing the risk significance of concurrent performance deficiencies. As for the other SDPs, such as those for emergency preparedness, occupational radiation safety, and public radiation safety, the staff committed to improve those processes based on stakeholder feedback generated since implementation.

To address the above concerns, the staff completed the following actions during the past year:

- As part of the SDP Improvement Initiative, established the SDP Active Issues Tracking Matrix to monitor SDP performance in meeting timeliness goals and to improve management focus on early resolution of specific technical questions and internal staff disagreements.

- Continued cooperation with internal and external stakeholders to develop tools and clear guidance for evaluating inspection findings in the areas of fire, shutdown, containment, steam generator tube integrity, the maintenance rule, and spent fuel storage.

- Provided Web-based and classroom training to inspectors for implementing the SDP guidance for reactor safety findings using IMC 0609 Appendix A, “Significance Determination of Reactor Inspection Findings for At-Power Situations.”

- Continued benchmarking activities to improve the accuracy and reliability of the Phase 2 risk notebooks for at-power reactor safety inspection findings. Completed benchmarking of 48 Phase 2 risk notebooks with the remaining 23 risk notebook benchmarking visits scheduled for completion during FY 2003.

- Issued revisions to IMC 0609 Appendix C, “Occupational Radiation Safety Significance Determination Process,” and Appendix D, “Public Radiation Safety Significance Determination Process,” to address changes to the regulatory requirements related to shallow skin dose limits and weaknesses related to evaluating issues involving control of radioactive material within licensees’ protected and restricted areas, respectively. These changes were developed to further refine and clarify SDP guidance, to incorporate lessons learned, and to address perceived inconsistencies associated with the significance of findings.

- Drafted a revision to IMC 0609 Appendix B, “Emergency Preparedness Significance Determination Process,” to incorporate lessons learned and input from inspectors and industry stakeholders regarding significance levels to align with other cornerstones and provide a path for White significance for the planning standards of 10 CFR 50.47(b).

During CY 2002, the SDP continued to be effective in assigning risk-informed significance levels to findings in a manner that was understandable and repeatable by all stakeholders. The SDP succeeded in meeting the ROP objectives and contributed to the staff’s efforts to characterize the significance of inspection findings, facilitate stakeholder communication, and provide a basis for assessment and enforcement actions. However, concerns were raised by internal and external stakeholders regarding the completeness and complexity of the Phase 2 SDP process.

To address these concerns, the staff developed enhancements to the risk-informed SDP that were incorporated into the revision of IMC 0609, Appendix A. The document clarified the handling of concurrent multiple equipment functional degradations; enhanced the Phase 2 usage instructions (e.g., converted from an alphanumeric to a fully numeric sequence contribution counting format and a counting rule worksheet); and incorporated 13 special-case usage rules with bases and an example for each rule. Web-based and classroom training were provided for this revised guidance.

To address program weaknesses identified by internal review panels and an audit by the Office of the Inspector General (OIG), the Executive Director for Operations (EDO) directed the formation of an SDP Task Group (SDPTG) to conduct an independent and objective review of the SDP. The SDPTG completed its review of the process and issued a final report which provided observations, conclusions, and recommendations to address underlying concerns, including whether the current Reactor Safety Phase 2 approach should be continued, modified, or replaced. The SDPTG concluded that the SDP was successful in meeting the ROP objectives of providing a more objective, understandable, and risk-informed process. However, a number of recommendations were identified to improve the overall effectiveness of the process. The staff is currently evaluating this report. Recommendations made by the SDPTG that are not already addressed by the SDP Improvement Initiative will be evaluated and incorporated, as appropriate.

Despite the overall ability of the SDP to meet its objectives, SDP metrics and feedback from internal and external stakeholders indicated a continuing challenge to improve the overall efficiency of the SDP, the consistency of finding significance across cornerstones of safety, and the usefulness of the Phase 2 risk notebooks.

The results of the internal and external surveys indicate that respondents continue to have mixed feelings about the effectiveness of the SDP. Power reactor licensees and industry organizations noted that the SDP was effective in enabling the NRC and external stakeholders to objectively determine the significance of performance issues, which served to focus regulatory and licensee actions on issues of greatest safety significance. Public interest groups and some internal respondents expressed concerns regarding the independence of the SDP and a perceived heavy reliance on licensee information to reach a final SDP outcome. Internal NRC respondents continued to express concerns regarding the complexity of the SDP Phase 2 process and the desire to have an automated process for establishing a preliminary risk estimate. The staff also

continued to have reservations about the SDP Phase 2 risk notebook results since onsite benchmarking had not been completed at all sites.

The SDP metrics monitoring stakeholder perception of the consistency of SDP finding significance across cornerstones, the staff's proficiency in using the SDP, SDP timeliness, and accuracy of SDP results reported on the NRC Web pages did not meet established program goals. These concerns are discussed in further detail below.

Analysis of external stakeholder responses to a November 2002 FRN survey indicated that industry respondents perceived that color findings were not consistent across cornerstones and are dissatisfied with the outcomes of the Emergency Preparedness, Public Radiation Safety, and Physical Protection SDPs. The respondents noted that these SDPs were not risk-informed, but "a deterministic escalation for various types of regulatory noncompliance," and in general, stated that these SDPs were too subjective. Industry respondents also stated that non-green thresholds for these SDPs overstated the significance of findings. No other specific comments regarding the significance of findings across cornerstones were provided by other external stakeholders.

A review of the data for the past self-assessment period indicated that the metric for monitoring timely completion of significance determinations has not met the established target goal. The Commission directed the staff to improve SDP timeliness consistent with established performance goals (i.e., 100 percent within 90 days) as noted in the Staff Requirements Memorandum (SRM) dated August 2, 2001. As a result, the staff established the criteria for measuring SDP timeliness as the final issuance of all SDP results within 90 days of documenting the finding and notifying the licensee in docketed correspondence. However, the staff recognized that this goal was difficult to achieve and that a more realistic minimal acceptable performance criteria should be established.

While SDP timeliness is important, it is the NRC's responsibility to provide the most accurate assessment of the significance of findings based on available information, and there is often a great deal of complexity and uncertainty associated with the technical factors that determine the underlying assumptions and final SDP results. Accordingly, the staff currently believes that the appropriate minimum acceptable performance criteria for monitoring the SDP timeliness should initially be set at 75 percent for FY 2003 and adjusted upward by 5% during successive years to a final value of 90% in FY 2006 and beyond. These performance goals were included in NUREG-1100, Volume 19, "Budget Estimates and Performance Plan - - Fiscal Year 2004," dated February 2003. However, the uncertainties and complexity associated with the technical factors often inherently constrain the process, especially in cases contested by the licensees. Therefore, the staff will monitor these goals closely, and if found to be impracticable, the staff will consider adjusting the goals in future years as necessary to support consistently clear communication between our stakeholders to ensure that significance determinations are soundly based and that information made available to the public is accurate and complete.

During this assessment period, approximately 60 percent of the final SDP results for issues having more than very low safety significance were issued within 90 days. Completion times have ranged from 20 days to more than a year for SDP evaluations, with an average value of 106 days. Although there has been noted improvement over the last ROP cycle, SDP timeliness is a continuing challenge that is being monitored through the use of the SDP Active Issues Matrix

which was developed to focus regional and headquarters management attention on prompt resolution of more risk significant issues.

The staff has also monitored the frequency of changes in the preliminary to final SDP determinations to confirm that no unintended consequences are experienced as a result of the staff's efforts to improve SDP timeliness. Of the 29 issues evaluated by the Significance and Enforcement Review Panel (SERP), only 5 resulted in a reduction in the final significance determination as compared to the preliminary SDP results when additional relevant information was provided by the licensee, and meeting timeliness goals were not a factor.

During the current assessment cycle, two instances were identified in which the status of documented inspection findings reported on the NRC's external Web site was unclear (i.e., preliminary vs. final). In one instance, the final determination was not posted to the Web in a timely manner. In the other instance, the issue was double-counted and placed in the wrong quarter on the Web site. Quarterly audits identified both issues and the information on the Web was corrected immediately. Although performance in this area has improved, the staff is still not meeting the established goal. To address these issues, the staff has initiated and implemented a new internal process to further ensure the accuracy of the findings on the ROP Web page. This process has been included in the draft IMC 0306, "Information Technology Support for the Reactor Oversight Process," which is currently under review and should be issued in CY 2003.

In the upcoming year, the staff plans to continue implementation and enhancement of the SDP Improvement Initiative, including completing the Phase 2 risk notebook benchmarking efforts, beginning to standardize the methodology for completing Phase 3 risk evaluations, and improving the quality of the Standardized Plant Analysis Risk (SPAR) models that are critical to the process. The staff further plans to complete development of SDPs for inspection findings related to the Maintenance Rule, steam generator tube integrity, and spent fuel, and finalize revisions to the Fire, Shutdown, and Containment SDPs. The staff is also evaluating the adequacy of the guidance for the Interim Physical Protection SDP to refine and enhance the SDP in light of the current threat environment, potential changes in the design basis threat, and other considerations. The staff will also continue efforts to clarify the As Low As Reasonably Achievable (ALARA) SDP regarding the concept of "issues that could or do compromise the licensee's ability to assess dose" and how this concept is to be applied in determining the significance of inspection findings. Finally, the staff will continue to review and evaluate the adequacy of the guidance for the Emergency Preparedness SDP and (1) incorporate lessons learned and input from inspectors and industry stakeholders, (2) review significance levels and adjust, as appropriate, to align with significance of findings in other cornerstones, and (3) provide a path for White significance for the planning standards of 10 CFR 50.47(b).

Assessment Program

In SECY-02-0062, the staff described the status of the ROP assessment program and identified issues for staff action over CY 2002. Among the more significant issues identified in the Commission paper and the subsequent SRM were the needs to (1) add criteria for exiting the multiple/repetitive degraded cornerstone column of the Action Matrix, (2) provide clarifying guidance on the criteria and processing of old design issues, (3) evaluate changing the approval level for Action Matrix deviations, and (4) develop decision-making criteria for situations where a

supplemental inspection need not be performed. A more complete listing of previous issues and details concerning the staff's actions is contained in Attachment 2. The latest revisions of IMC 0305, "Operating Reactor Assessment Program," and IMC 2515, "Light Water Reactor Inspection Program - Operations Phase," address these issues as well as clarifying when inspection findings are counted in the assessment program and incorporating lessons learned from the mid-cycle and end-of-cycle review meetings.

For the period covered by this self-assessment, all of the self-assessment metrics in the assessment area met their established criteria or goals. Examples of the assessment program metrics include (1) the number of deviations from the Action Matrix, (2) the number of significant departures from the requirements of IMC 0305 and IMC 0350, (3) the appropriateness of actions taken for greater-than-green performance indicators and findings, (4) the number and scope of any additional actions recommended at the Agency Action Review Meeting (AARM), (5) the number of times the timeliness goals for the assessment program are not met, (6) the timeliness of completing supplemental inspections for risk-significant PIs and inspection findings, and (7) the number of times plants move more than one column to the right in the Action Matrix from one quarter to the next. Attachment 3 to this paper provides the results for each of the assessment program metrics. Two other metrics, discussed below, evaluate feedback received from internal and external stakeholders.

Participants in the internal and external ROP surveys were asked (1) if the ROP takes appropriate actions to address performance issues for those licensees that fall outside of the licensee response column of the Action Matrix, and (2) if the information contained in assessment reports relevant, useful, and written in plain language.

Greater than seventy percent of the internal survey respondents agreed that the ROP takes appropriate action for those plants outside of the licensee response column of the Action Matrix. However, some of the additional staff comments indicated a level of concern with the ability of the NRC to detect declining performance in a timely manner (as indicated by the reactor vessel head degradation discovered at Davis-Besse), and whether the ROP is capable of detecting these sort of events. On this same question in the external survey, the industry and two States responded positively and the public interest groups were generally negative. Two public interest groups stated that the NRC was not taking actions mandated by the Action Matrix but merely changing the colors of the inspection findings to justify the desired response in the Action Matrix.

Nearly seventy percent of the internal survey respondents agreed that the assessment reports are relevant, useful, and written in plain language. On this same question, public interest groups were mixed in their responses to the external survey. One public interest group responded positively but two others added that the assessment letters were of little value. The industry responded positively but added that the annual public meetings should be used as an opportunity for public outreach. One industry participant added that annual public meetings should be eliminated for plants that have all green performance indicators and inspection findings. Responses from State regulators were generally positive and recognized an improvement in assessment report quality over the last few years.

Future staff work on the assessment program over the next year will include consideration of adjusting the public meeting frequency for plants that have remained in the licensee response

column of the Action Matrix during the entire assessment year, evaluating the treatment of substantive cross-cutting issues, and enhancing IMC 0350 for oversight of shutdown reactors with performance problems. The staff will continue to monitor the ROP to determine if any changes should be made to the guidance on old design issues, Action Matrix deviations, or supplemental inspections. The latest revision of IMC 0305, dated February 19, 2003, added guidance for removing plants from the multiple/repetitive degraded cornerstone column of the Action Matrix. The staff will monitor the effectiveness of this recent change and make adjustments to the guidance, as necessary.

Overall, the assessment program is meeting the agency's goal of maintaining safety, using NRC resources efficiently and effectively, enhancing public confidence, and reducing unnecessary regulatory burden. The program is also meeting the objectives established for the ROP of being objective, risk-informed, understandable, and predictable. However, the reactor vessel head degradation discovered at Davis-Besse has raised some significant concerns with the staff and external stakeholders. As a result, the staff intends to make appropriate changes to the assessment program based on the evaluation of the DBLLTF recommendations.

Status of Previous Issues

SECY-02-0062, "Calendar Year 2001 Reactor Oversight Process Self Assessment," dated April 3, 2002, included a listing and status of numerous previous issues related to implementation of the Reactor Oversight Process (ROP) for which additional actions were planned by the staff. SECY-02-0062 further discussed additional planned actions and commitments as a result of the calendar year (CY) 2001 ROP self-assessment. Lastly, the Commission directed the staff to consider several additional issues as detailed in an Staff Requirements Memorandum (SRM) dated June 28, 2002, resulting from the staff's Commission briefing on May 1, 2002, and an SRM dated December 20, 2001, resulting from the Advisory Committee on Reactor Safeguards' (ACRS) Commission briefing on December 5, 2001. During this last self-assessment period, the staff resolved many of these issues and made progress towards resolution of several others. Compiled below are the issues in each program area that were addressed in the above-noted documents along with an update of the staff actions to address them. The more significant issues listed below are also discussed in the respective program area assessment discussions in this paper.

Performance Indicator Program

(1) *Improvements to address problems in the Safety System Unavailability (SSU) Performance Indicator (PI), including the lack a common definition and data set, the use of fault exposure hours (both known and estimated) and their relationship to operability and reportability, and the impact on thresholds of an effective preventive maintenance program*

The Mitigating Systems Performance Index (MSPI) has been developed as a replacement for the Safety System Unavailability PI. The data collection phase of the MSPI pilot program was completed in March and evaluation of the data is currently underway. The evaluation phase is scheduled to be completed in September 2003. Both the Nuclear Regulatory Commission (NRC) and industry have devoted significant resources to this effort from the time it began in May 2001 and this has impacted other PI work, as noted below.

(2) *Potential unintended consequences of the Unplanned Power Change PI*

The requirement that the power change exceed 20 percent and that licensees allow 72 hours for planning the power change could influence licensees to operate the plant in a manner inconsistent with safety. The staff is investigating several alternatives to the current PI and has presented these to stakeholders in the regularly scheduled public meetings. However, resolution of the issue has been delayed due to competing priorities.

(3) *Develop improved Barrier Integrity cornerstone PIs*

This activity subsumes last year's commitment entitled "Guidance and thresholds for reactor coolant system (RCS) activity and leakage PIs." The staff developed draft replacements for the RCS Activity, RCS Leakage, and Containment Leakage indicators and presented them to industry in the regularly scheduled public meetings; however, resolution of the issue has not

been completed due to competing priorities. The staff has also recently begun development of an RCS leakage PI improvement program as a result of the Davis-Besse Lessons Learned Task Force recommendations.

(4) *Physical Protection cornerstone issues*

The staff and industry have recognized the need to make improvements to the physical protection indicators. Among the issues being discussed are concerns about good performance of closed-circuit TVs masking poor performance of the intrusion detection system, and problems with the Personnel Screening Program Performance and the Fitness-for-Duty Program Performance PIs. These efforts were put on hold due to the events of September 11, 2001, and are now being evaluated as part of the staff's ongoing security review.

(5) *Emergency Preparedness cornerstone issues*

Through analysis of the Alert and Notification System (ANS) Reliability PI data, the staff realized that the PI may remain within the licensee response band, indicating greater than 94-percent reliability, even if the sirens are available less than 94 percent of the time. The staff is therefore reevaluating this PI to determine if it should be changed from a reliability indicator to an availability indicator. The staff has discussed this issue with both the industry and the Federal Emergency Management Agency (which uses the same unreliability measure and which would need to be involved in any change to the data required to be reported) but has not yet reached a conclusion.

(6) *Clarify the guidance for the Safety System Functional Failure PI*

The staff has developed a draft replacement for the Safety System Functional Failure PI and has presented it to stakeholders in the regularly scheduled monthly meetings. However, resolution of the issue has been delayed due to competing priorities.

(7) *Review ACRS recommendations concerning the white/yellow and yellow/red thresholds for performance indicators (PIs)*

In an SRM dated December 20, 2001, the Commission requested the staff to review ACRS recommendations concerning the white/yellow and yellow/red thresholds for PIs, particularly with regard to implementation of risk-based PIs. The staff acknowledges the ACRS's concern, and is considering modifying or eliminating the risk-informed thresholds. However, there is a basis for each of these thresholds, and any consideration of their elimination will require careful evaluation and implementation as noted in the staff's response to the ACRS (ADAMS accession number ML023610493).

<u>Inspection Program</u>

(1) *Continue to evaluate and revise as necessary the guidance for documenting inspection findings to ensure that significance thresholds are consistently applied*

The staff revised and issued Inspection Manual Chapter (IMC) 0612, "Power Reactor Inspection Reports," on April 29, 2002. After a brief training period, all regions implemented the new requirements of IMC 0612 in July 2002. The staff has also prepared a sample inspection report that will be finalized shortly and issued as an attachment to IMC 0612. The staff had suspended the auditing of inspection reports to allow inspectors and regional management to become more familiar with the new requirements of IMC 0612, but the staff plans to resume audits of inspection reports in CY 2003.

(2) *Revise the Physical Protection cornerstone inspection procedure and its attachment to account for significant changes and new polices in physical security*

As a result of the events of September 11, 2001, the staff issued Temporary Instruction (TI) 2515/148, "Inspection of Nuclear Reactor Safeguards Interim Compensatory Measures." The staff informed the Commission in SECY-02-0195, "Staff Plans to use Temporary Instruction for Verification of Licensee Implementation of Power Reactor Security Interim Compensatory Measures and as Temporary Replacement of the Physical Protection Baseline Inspection Program," dated November 1, 2002, that the inspections conducted pursuant to TI 2515/148 were sufficiently scoped that they could serve as the baseline inspection program for the physical protection cornerstone in CY 2002 and 2003. The staff continues to refine and enhance the security inspection program in light of the current threat environment, potential changes in the design basis threat, and other considerations.

(3) *Evaluate how licensee self-assessments might be used to satisfy some requirements of the baseline inspection program without compromising overall outcome goals, including public confidence*

The staff has been working with stakeholders to evaluate allowing licensees to conduct and receive credit for some self-assessment activities. Examples of inspections for which the staff might consider credit for licensee self-assessments are baseline specialist/team inspections, such as those in the engineering design, fire protection, and plant support areas. Licensees that would be eligible for credit for self-assessments would be those in the licensee response column and the regulatory response column of the Action Matrix. The staff is working with stakeholders to develop a pilot this summer using the biennial safety system design inspection (SSDI) as a first step.

Significance Determination Process (SDP)

(1) *Validate and issue plant-specific Reactor Safety SDP notebooks, including the Phase 2 worksheets*

The funding rate for benchmarking and issuing the notebooks was accelerated during the year to support completion of the effort during fiscal year (FY) 2003. To date, approximately 48 plant-specific risk notebooks have been benchmarked and issued for use with the remaining 23 notebooks scheduled for completion in FY 2003. With the support of the senior reactor analysts, the inspectors have been generally successful in using the risk notebooks to estimate risk significance of safety findings that are used as an input to the performance assessment process,

although there are concerns with its complexity. As a result of the SDP Task Group recommendation, the staff intends to develop pre-solved SDP tables for use by the inspectors.

(2) *Continue efforts to obtain improved and standardized risk analysis tools for the risk analysts*

As discussed above, the staff continues to make improvements to the Phase 2 notebooks through the previously described benchmarking effort to provide increased levels of reliability and predictability with results that are understood by all stakeholders. Additionally, the Office of Nuclear Regulatory Research (RES) has completed development of all Level 1 Revision 3i Standardized Plant Analysis Risk (SPAR) models and has coordinated with NRR to schedule onsite quality assurance (QA) reviews during benchmarking visits to develop a more reliable Phase 3 SDP analysis tool for at-power internal events. To date, 48 SPAR models have been have received onsite quality assurance reviews with completion of the remaining onsite reviews scheduled during FY 2003. Development of SPAR models for issues related to low power/shutdown, large early release, and external events is also planned.

(3) *Continue work to revise the As Low As Reasonably Achievable (ALARA) SDP*

The staff, through a series of public meetings, developed and issued a revision to the ALARA SDP, Appendix C to IMC 0609, "Occupational Radiation Safety Significance Determination Process," on March 6, 2002, incorporating lessons identified since initial implementation of the ROP. The staff will also continue efforts to clarify the ALARA SDP regarding the concept of "issues that could or do compromise the licensee's ability to assess dose" and how this concept is to be applied in determining the significance of inspection findings.

(4) *Replace the interim Physical Protection SDP with a revised SDP that will be developed with internal and external stakeholder input*

Enhancements to the Physical Protection SDP have been deferred while the NRC continues to focus on a number of near- and long-term security issues identified since September 11, 2001. The staff continues to refine and enhance the security inspection program and SDP in light of the current threat environment, potential changes in the design basis threat, and other considerations.

(5) *Continue to devise methodologies that will allow inspectors to develop realistic fire scenarios and improve the accuracy of site specific data, such as fire ignition frequency, used in the assessment of risk associated with fire protection findings.*

The staff is developing changes to the SDP for fire protection to allow the inspectors to develop realistic fire scenarios. Quarterly regional training of the inspectors in the use of the process has also been instituted and is ongoing. Fire ignition frequencies have been updated to reflect specific area/equipment content configurations. Additionally, the applicability of the SDP for fire protection is receiving internal and external stakeholder evaluation to identify changes that would improve and simplify the process.

(6) *Develop a process to evaluate the risk significance of plant shutdown issues*

The staff's ongoing effort to create a Phase 2 methodology tool will allow the assessment of inspection findings identified during plant shutdown to be done by regional Senior Reactor Analysts (SRAs). This will replace the existing process that must be completed by NRC headquarters-based risk analysts.

(7) *Improve the capability to assess the impact of external events on operating reactor safety-related issues*

Incorporation of risk due to external initiators remains a significant challenge since such risk is very plant- and site-specific. Only a small percentage of reactor sites have Probabilistic Risk Assessment (PRA) that address external initiators, and there is currently no industry standard for development of such PRAs. The staff developed changes to IMC 0609, Appendix A, "Significance Determination of Reactor Inspection Findings for At-Power Situations," to simplify the process for accounting for external initiators in characterizing and approximating the risk significance of inspection findings, but the incorporation of risk due to external initiators remains a significant challenge.

(8) *Enhance the guidance provided for treatment of concurrent deficiencies*

The staff revised IMC 0609, Appendix A to address this specific concern. Under the SDP, concurrent findings with a common underlying cause are analyzed as a single finding and are assigned a single color appropriate to the combined risk. Concurrent findings that are determined to be the result of independent causes are analyzed separately, and each receives a color based on the calculation of its risk significance as if the other finding did not overlap. Similarly, the Action Matrix considers the SDP outcome of findings with a common underlying cause as a single input, while the results of independent concurrent deficiencies are considered as individual inputs.

(9) *Use lessons learned during initial implementation to clarify the definition of a performance deficiency*

The staff developed and incorporated a formal definition of performance deficiency in IMC 0612. This definition is also referenced in the SDP and assessment guidance documents. Issues that are not a result of a licensee performance deficiency (either past or present) are not entered into the SDP process and are not assigned a color.

(10) *Inform the Commission of the steps the staff is taking to improve the scrutability of SDP input assumptions, including the increased use of realistic best estimates*

In response to an SRM dated June 28, 2002, the staff provided information regarding the actions taken to ensure that the staff's decision bases are clearly understood by external stakeholders and that input assumptions used to reach those decisions are documented in sufficient detail to justify the SDP results. Specifically, IMC 0609, Attachment 1, "Significance and Enforcement Review Panel," and IMC 0612 were revised to require, where appropriate, more explicit discussions of dominating affected accident sequences, pertinent assumptions, sensitivity of results to influential assumptions, contributions of greatest uncertainty factors, and known differences between licensee and NRC risk models.

Assessment Program

(1) *Develop additional guidance for closing inspection findings at plants that are in the multiple/repetitive degraded cornerstone column of the Action Matrix*

The staff's review of lessons learned from exercising the ROP at Indian Point 2 and Cooper Nuclear Station indicated that additional guidance and criteria were needed to address closing white or greater inspection findings at plants that reach the multiple/repetitive degraded cornerstone column of the Action Matrix. For plants in other columns of the Action Matrix, such inspection findings are no longer considered in the assessment program after four quarters, provided the supplemental inspection results indicate that the licensee's root cause analysis of the performance issue, review of the extent of condition, and planned corrective actions are acceptable. Due to the depth or breadth of performance issues reflected by a plant being in the multiple/repetitive degraded cornerstone column of the Action Matrix, it is prudent to ensure that actual performance improvements (which typically take longer than one year to achieve) have been made prior to closing out the inspection findings.

IMC 0305, "Operating Reactor Assessment Program," was revised to consider certain criteria before closing out the associated inspection findings, including that (1) new plant events or findings do not reveal similar significant performance weaknesses, (2) NRC and licensee performance indicators do not indicate similar significant performance weaknesses that have not been adequately addressed, (3) the licensee's performance improvement program has demonstrated sustained improvement, (4) NRC supplemental inspections show licensee progress in the principal areas of weaknesses, and (5) there were no issues that led the NRC to take additional regulatory actions beyond those listed in the multiple/repetitive degraded cornerstone column of the Action Matrix. Additionally, a further consideration is that the licensee has made significant progress on any regulatory actions which were imposed (i.e. confirmatory action letters, orders, 10 CFR 50.54(f) letters) because of the performance deficiencies which led to the multiple/repetitive degraded cornerstone designation.

(2) *Determine whether a graded approach for removing inspection findings from consideration in the Action Matrix is appropriate*

The industry has recommended a graded approach for removing inspection findings from consideration in the assessment program. This recommendation involves applying a graded approach based on safety significance such that white findings would remain in the assessment program for two quarters, yellow findings for three quarters, and red findings for four quarters. This approach would only apply to those findings where corrective actions were deemed appropriate.

One concern with this approach is that inspection findings will not be allowed to remain in the assessment program long enough to accumulate in the Action Matrix and allow increased NRC action with degrading performance. The staff will continue to review the Action Matrix annually as part of the self-assessment and the Agency Action Review Meeting (AARM) to assess the appropriateness of the criteria for determining the combination of inputs and length of time for consideration that dictate a licensee's placement in the Action Matrix. This will be reported in the annual self-assessment paper to the Commission.

(3) *The staff should reexamine the treatment within the ROP of findings that the staff currently characterizes as "old design issues." The staff should reconsider the criteria for determining when a design issue should be treated outside the Action Matrix framework. The staff should also develop decision-making criteria for situations where a supplemental inspection need not be performed*.

In an SRM dated June 28, 2002, the Commission directed the staff to reexamine the treatment of old design issues (ODIs) within the Action Matrix. The staff modified the guidance in IMC 0305 on ODIs based on feedback from internal and external stakeholders, as well as experience from issues that arose during CY 2002. The primary revisions included changing the supplemental inspection level from an Inspection Procedure (IP) 95003, "Supplemental Inspection for Repetitive Degraded Cornerstones, Multiple Degraded Cornerstones, Multiple Yellow Inputs, or One Red Input," to an IP 95002, "Inspection for One Degraded Cornerstone or Any Three White Inputs in a Strategic Performance Area," for an ODI with a red safety significance, clarifying the timeframe for identification with respect to licensee credit for timely corrective actions, and adding guidance on processing an ODI as information becomes available on whether the ODI criteria have been met.

A supplemental inspection is typically performed for every greater-than-green inspection finding or performance indicator to ensure that, at a minimum, the licensee's root cause analysis of the performance issue and planned corrective actions are acceptable. The supplemental inspection procedures provide, for the vast majority of circumstances, sufficient flexibility in the depth and breadth of the inspection. However, the region may choose not to perform a supplemental inspection for white issues identified as part of a licensee's self-assessment in accordance with IMC 2515, "Light-Water Reactor Inspection Program - Operations Phase," although such exceptions are expected to be infrequent.

However, the regional offices may choose to deviate from the Action Matrix when the level of supplemental inspection is not appropriate for the particular circumstances. Action Matrix deviations are expected to be rare and IMC 0305 and IMC 2515 provide examples of situations when deviations may be appropriate. For example, the first Action Matrix deviation was approved for Oconee Unit 1 in August 2002 to allow for a less resource intensive supplemental inspection (IP 95002 instead of IP 95003). The staff will continue to monitor the ROP to determine if any changes should be made to the guidance on old design issues, Action Matrix deviations, or supplemental inspections.

(4) *Evaluate changing the approval level for Action Matrix deviations*

In SECY-02-0062, the staff indicated an intent to change the authorization level for deviations from the Action Matrix from the Executive Director for Operations (EDO) to the Regional Administrator and the Office of Nuclear Reactor Regulation (except for plants in the multiple/repetitive degraded cornerstone column of the Action Matrix). In an SRM dated June 28, 2002, the Commission disapproved this change. Accordingly, the approval level for any Action Matrix deviations will continue to reside with the EDO.

Other Program Issues

(1) *Provide recommendations for resolving, in a transparent manner, apparent conflicts and discrepancies between aspects of the ROP that are risk-informed and those that are performance-based*

In an SRM dated December 20, 2001, the Commission requested the staff, with ACRS input, provide recommendations for resolving, in a transparent manner, apparent conflicts and discrepancies between aspects of the revised reactor oversight process that are risk-informed (e.g., significance determination process) and those that are performance based (e.g., performance indicators). The staff met with the ACRS on three separate occasions over the past year to address the specific ACRS concerns regarding the ROP. As discussed in the staff's written response to the ACRS (ADAMS accession number ML023610493), the staff believes that the ROP should continue to be implemented as currently designed, though incremental improvements are warranted and should be incorporated under the existing self-assessment program. The staff recognized that there are acknowledged differences between the risk-informed and strictly performance-based aspects of the ROP; however, the staff believes that the ROP appropriately addresses both risk-informed and performance-based issues. The staff further recognized the need for a central document to consolidate the basis for PIs, SDPs, and other ROP aspects in a more transparent manner, and has issued the ROP Basis Document.

Most recently, the staff met with the ACRS on March 6, 2003. As a result of this briefing, the ACRS forwarded a letter to the Commission on March 13, 2003, concluding that there are still disagreements between the staff and the ACRS. The specific issues presented in the March 13 letter will serve as the basis for further discussion and potential revisions to the ROP.

(2) *Conduct an independent survey by a qualified contractor of the impact of the NRC's activities on reactor licensees' operations*

In an SRM dated January 30, 2002, the Commission approved the conduct of an independent survey by a qualified contractor of the impact of the NRC's activities on reactor licensees' operations. Although the survey was initially scheduled for completion this year to provide input to this Commission paper, it was postponed to redirect applicable staff to support the Office of Nuclear Security and Incident Response. The staff plans to complete this survey later this year and incorporate the results into the next ROP self-assessment Commission paper.

ROP Performance Metrics

The Reactor Oversight Process (ROP) performance metrics utilize objective measures and pre-determined criteria to monitor the performance of the ROP as described in Inspection Manual Chapter (IMC) 0307, "Reactor Oversight Process Self-Assessment Program." These metrics rely on information from various sources, including the reactor program system (RPS), the inspection program, periodic independent audits, stakeholder surveys, and public comment. Metrics have been developed to monitor each major component of the ROP, as well as metrics of a more general nature intended to gage overall ROP performance.

Data is collected on a quarterly basis, as applicable, and is compared to pre-established criteria for analysis. In most cases, success is defined as a steady or improving trend. Quantitative success criteria for many of the performance metrics has not been developed due to the infancy of the ROP and the lack of data needed to establish objective criteria. For these metrics, baseline data was collected and continues to be used to monitor trends and develop criteria for the future, as appropriate.

The Nuclear Regulatory Commission (NRC) solicited comments on the third year of ROP implementation from external stakeholders in a *Federal Register* notice published on November 22, 2002. Participants included a member of the general public, four public interest groups, nine utilities and utility interest groups, four State regulatory agencies, and one law firm. Additionally, the NRC conducted an internal survey to obtain feedback on the ROP via a web-based questionnaire in November 2002. The detailed analysis of the internal survey is included in Attachment 5 to this paper. The detailed comments from the external survey are consolidated into a summary document (ADAMS accession number ML030620007) and a discussion of this survey is included in Attachment 4 to this paper. Staff analysis of the specific responses is also included in the applicable portions of the program area discussions in this paper as well as in the ROP performance metric report in Attachment 3.

The majority of metrics met their established criteria. All metrics in the inspection and assessment areas met their criteria, but some metrics in the Performance Indicator (PI), Significance Determination Process (SDP), and the overall ROP areas did not meet their success criteria. The staff's corrective actions to address these issues are discussed below and in the applicable program area discussions in Attachment 1.

One of the seven PI metrics was determined to not meet its established criteria based on the negative perception by the public that the PI program may adversely impact plant safety (PI-4). Several survey respondents mentioned concerns that the Davis-Besse reactor head issue was not identified by the ROP and that there was too much focus on risk significance as support for their negative statements. To address these concerns, the staff plans to enhance the barrier integrity PIs to better detect unidentified leakage as recommended by the Davis-Besse Lessons Learned Task Force (DBLLTF), and is currently evaluating the need and feasibility for a public workshop in calendar year (CY) 2003 to address several of the common concerns noted by both the internal and external stakeholders.

Of the nine metrics counted for the SDP, four did not meet their established criteria. Two of these unsuccessful metrics resulted from the negative perception regarding the inspection staff's proficiency in using the SDP (SDP-3) and that the SDP results translate to the same level of significance for all cornerstones (SDP-5). The other two were based on SDP timeliness (SDP-8) and the accuracy of results communicated to the public (SDP-9). The timeliness issue continues to be pursued by the staff and improvements are expected as the process is refined.

The accuracy issues resulted from either untimely posting of information to the Web or inaccurate labeling of a finding allowing it to be double-counted. These issues, along with others, continue to be addressed via the SDP Improvement Initiative as discussed in further detail in the SDP program area discussion in Attachment 1.

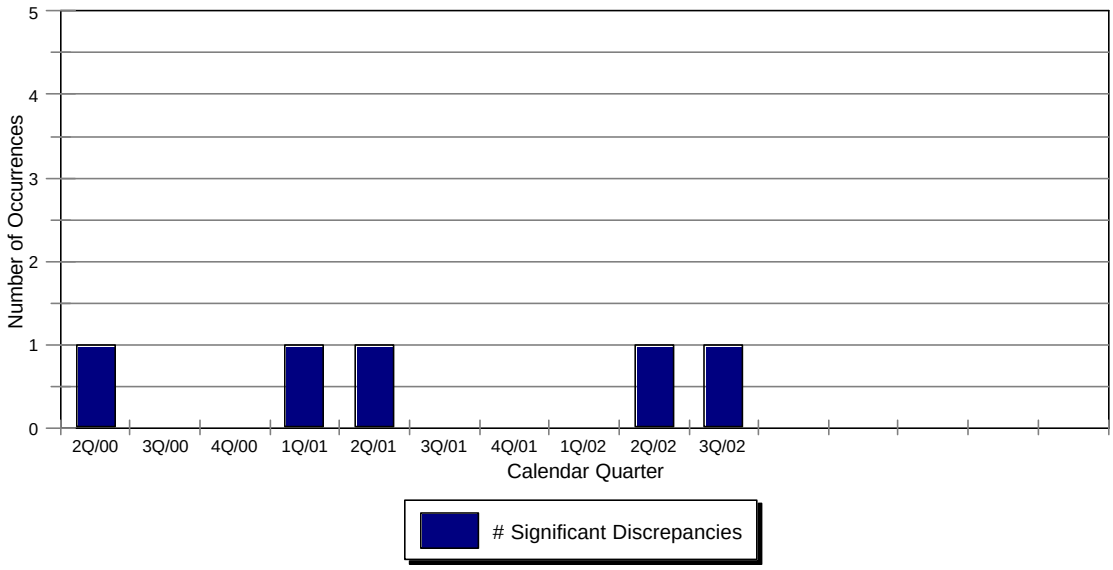
Of the nineteen overall metrics established for the ROP, four were determined to not meet the established criteria. Based on the recommendations and programmatic deficiencies noted by the DBLLTF, the staff concluded that the metric established to measure whether there are any programmatic voids in the ROP (O-9) was not met. In addition, three metrics gauging the public's perception of the ROP were determined to not meet the established criteria. These metrics include whether the ROP maintains safety (O-7), whether the ROP is effective, efficient, and realistic (O-11), and whether the ROP results in unintended consequences (O-19). The ROP's ability to maintain safety was questioned by some stakeholders because the ROP did not successfully identify the vessel head degradation at Davis-Besse. In addition, a common concern among most respondents regarding the effectiveness of the ROP was the efficiency and realism of the SDP. The staff plans to implement the recommendations of the DBLLTF and the SDP Task Group, and is also evaluating the need and feasibility for a public workshop in CY 2003, to address several of the common concerns noted by both the internal and external stakeholders.

The analysis of the metrics provided insights into other program areas in need of improvement. The detailed metrics and their analysis are provided on the following pages.

PI-1 Consistent Results Given Same Guidance

Definition: Independently verify PIs using Inspection Procedure (IP) 71151, "PI Verification." Count all PIs that cross a threshold because of discrepancies as noted in the resultant inspection report. Licensees are requested per Nuclear Energy Institute (NEI) 99-02 to report changes to PI colors as soon as practical upon discovery via a "mid-quarter" report and to annotate in the comments field an explanation for the change.

Criteria: Use the first year of data as a benchmark for future comparison and to establish



acceptable range of variability.

Comments: The graph represents the number of significant discrepancies reported for each quarter. Significant discrepancies are issues identified by the NRC during a PI verification inspection that caused the PI to cross a threshold.

Analysis: Two significant discrepancies (2nd and 3rd quarter of 2002) were identified through PI verification (IP 71151, "Identification and Resolution of Problems") inspections conducted during the assessment period. The discrepancies occurred at two different plants.

At one plant, the inspectors identified that the licensee incorrectly assessed the accuracy of some emergency preparedness initial notification forms. Once the licensee reassessed these forms and resubmitted their PI data, the Drill and Exercise Performance PI changed from green to white. At another facility, inspectors questioned the licensee's practice of not counting Emergency AC Power (EAC) unavailable hours during the performance of monthly Emergency Diesel Generator (EDG) surveillance tests. The issue was discussed by the ROP Working Group in a public meeting and it was decided that the EAC was unavailable during the monthly tests. The licensee

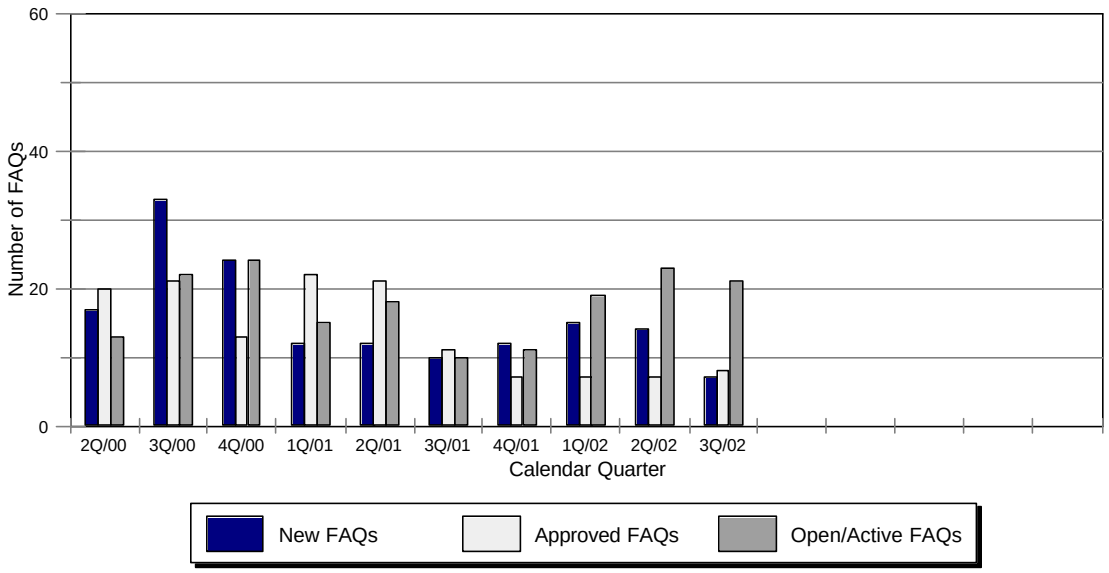
thereupon entered the appropriate hours into the EAC Safety System Unavailability (SSU) performance indicator calculation and resubmitted their PI data. Although the discrepant unavailability time that was added back was not a significant contributor to the overall EAC unavailability, it resulted in the performance indicator crossing the white threshold starting in the fourth quarter of 2001.

The number of these discrepancies remains very low. When all data, starting with the full implementation of the ROP, is taken into account, this reflects a stable trend.

PI-2 **Questions Regarding Interpretation of PI Guidance**

Definition: Quarterly, count the number of frequently asked questions (FAQs).

Criteria: Expect low numbers (but not as low as metric PI-1), with a stable or decreasing trend.



Comments: Each quarter represents the total number of new FAQs introduced and approved during the ROP NRC/Industry Working Group meetings held during the respective quarter. This metric was revamped after insights were gained from the first year of full implementation of the ROP. The improvements made to this metric provide for a more timely and accurate account of FAQs. Since this metric was reconstructed from historical data, the second and third quarter of 2000 contain estimates (some FAQ logs were unavailable).

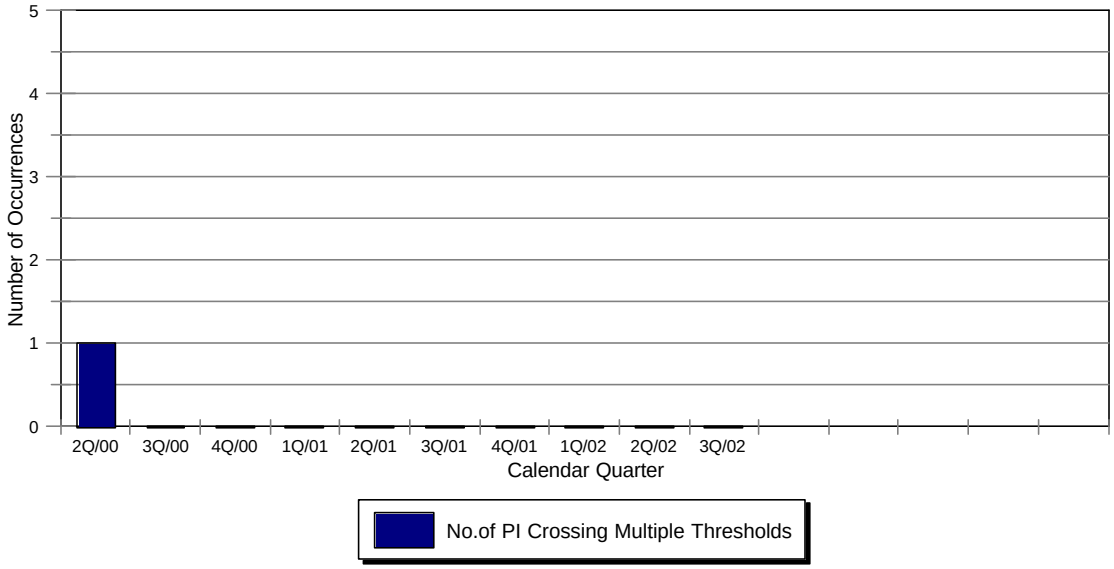
Analysis: Interpretation questions regarding the PI guidance in NEI 99-02 took an upward trend during the initial stages of the ROP. This upward trend was anticipated; however, as NRC inspectors and licensees became more familiar with the guidance, and as additional guidance was provided to clarify NEI 99-02, a lower and generally stable number of questions required evaluation. Recently (1st and 2nd quarter 2002), the total number of open/active FAQs has trended slightly up. This trend is due in part to the resources diverted to the pilot testing of the mitigating system performance index (MSPI) and to the ongoing challenges with the Safety System Unavailability, Scrams with Loss of Normal Heat Removal, and Unplanned Power Changes PIs, which are described below. Preliminary data for 4th quarter 2002 indicates that the total number of open/active FAQs appears to be decreasing.

The largest number of FAQs continue to reflect the challenges with the mitigating systems cornerstone (unavailability). Pilot testing of the proposed MSPI developed to replace the current Safety System Unavailability PIs is currently in progress. A significant number of FAQs were related to the initiating event PIs of Scrams with Loss of Normal Heat Removal and Unplanned Power Changes. These FAQs have resulted in extended discussions during the ROP Working Group public meetings. The staff is analyzing options to clarify these PIs and has asked stakeholders for input.

PI-3 Timely Indication of Declining Safety Performance

Definition: Quarterly, track PIs that cross multiple thresholds (e.g., green to yellow or red). Evaluate and characterize these results to allow timely indication of declining performance.

Criteria: Expect low numbers (near zero).



Analysis: There were no occurrences of PIs crossing multiple thresholds during this assessment period. For the given parameters that have been included in the PIs, the PIs appear to provide timely indication of declining performance.

PI-4 Minimize Potential for Licensee Actions Taken in Response to the Performance Indicator Program That Adversely Impact Plant Safety

Definition: Survey stakeholders regarding PIs driving undesirable decisions. This question will be included in the overall *Federal Register* notice.

Criteria: Expect low numbers of unintended consequences reported, with a stable or decreasing trend.

Analysis: All of the utility/utility group respondents stated, or endorsed NEI's comment, that the PI program together with the inspection program provides incentives to minimize the potential for licensees to take actions that adversely impact plant safety.

However, all of the public interest group respondents stated that the PIs do not minimize the potential for licensees to take actions that adversely impact plant safety. Their concerns included:

- that the PI program did not identify, in the case of Davis-Besse, significant programmatic breakdowns in the safety evaluation and corrective action processes
- the industry campaigns to change PI thresholds, definitions, etc., to ensure PIs remain green
- green PIs seem to be giving plant owners and the NRC a false sense of safety
- conditions or events are dealt with in an atomistic fashion rather than in a holistic way (e.g., every indication of the Davis-Besse reactor pressure vessel head issue was of itself of very low safety significance, none of which triggered enhanced NRC oversight until the situation became extreme)
- when coupled with other "risk-informed" initiatives, has allowed licensees to delude themselves into ignoring safety problems

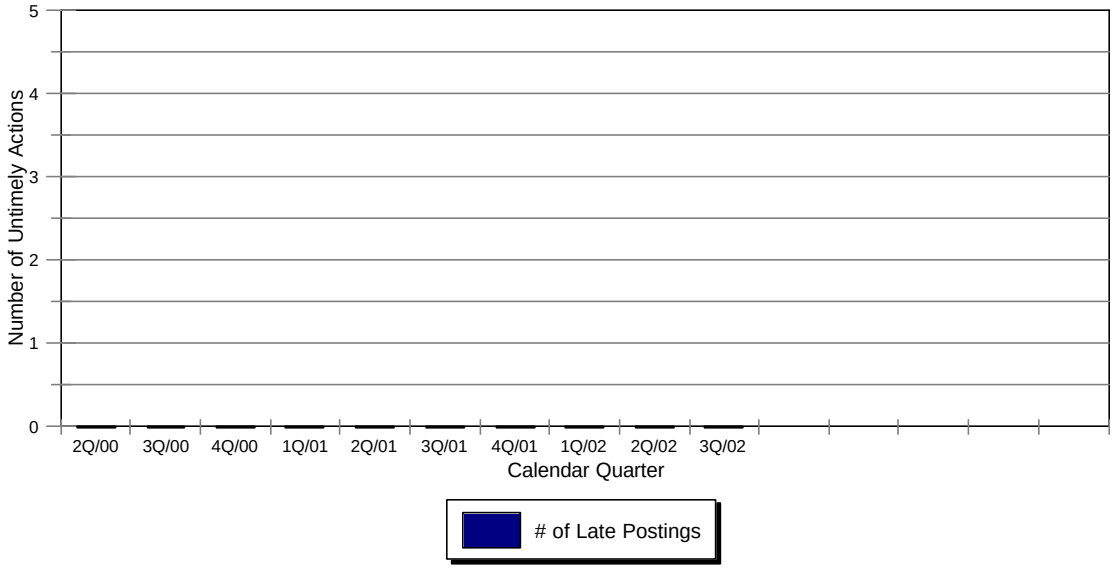
Two of the State regulatory agencies stated that there was still a small potential for licensees to inadvertently take actions that might adversely impact plant safety. The other participants did not directly respond to this item.

The criteria for this metric has not been met, primarily due to the responses received from the public interest groups.

PI-5 **Timely PI Data Reporting**

Definition: Within 5 weeks of the end of each calendar quarter, track (count) late PI postings on the NRC's external Web site.

Criteria: Expect a low number (near zero) of late PI postings on the NRC's external Web site.



Analysis: There have been no late PI data submittals from licensees, or subsequent postings to the web page, since the inception of the ROP.

PI-6 Stakeholders Perceive Appropriate Overlap of Inspection Program and PIs

Definition: Survey stakeholders' perceptions of overlap between PIs and the Inspection Program. This question will be included in the survey for internal stakeholders and the *Federal Register* notice for external stakeholders.

Criteria: Expect a low number of negative comments, with a declining or stable trend in the number of negative comments received.

Analysis:

Internal Survey

Listed below are the staff's responses to the following statement: "The Performance Indicators provide an appropriate level of overlap with inspection program."

Strongly agree: . . . . . 3.4 %
Agree: . . . . . 60.3 %
Disagree: . . . . . 17.7 %
Strongly disagree: . . . 5.2 %
Unable to answer: . . 13.4 %

Not including the "unable to answer" responses, 73.7% of the respondents agreed that the PIs provide an appropriate level of overlap with the inspection program. This result is similar to that received from the previous internal survey conducted in March of 2001, in which 74% of the respondents agreed.

External Survey

All of the utility/utility group responses to the external survey stated, or endorsed NEI's comment, that in general appropriate overlap exists between the PI program and the inspection program and further commented that if anything, there was excessive overlap (i.e., in the radiation protection and emergency preparedness areas already covered by PIs).

Responses to the external survey received from public interest groups all stated that there was not appropriate overlap between the PIs and the Inspection Program. Several of these respondents stated that there was too much of a focus on risk significance and one stated that there were not enough inspections. Several of the respondents mentioned the Davis-Besse reactor head issue as support for their statements. Two of the State regulatory agencies stated that there was an appropriate level of overlap, and one indicated that this item is not easily measured but it didn't identify issues related to the Davis-Besse reactor head. The other participants did not directly respond to this item.

The criteria for this metric has been met based on low number of negative comments and a stable perception regarding appropriate overlap.

PI-7 Reporting Conflict Reduction

Definition: Survey licensees and other external stakeholders regarding the perceived overlap between reporting requirements, such as those promulgated by the Institute of Nuclear Power Operations (INPO), the World Association of Nuclear Operators (WANO), and the Maintenance Rule. This question will be included in the Federal Register notice.

Criteria: Expect a low number of negative comments, with a declining or stable trend in the number of negative comments received.

Analysis: In last year's ROP annual assessment (for calendar year 2001), every respondent that specifically commented on this item indicated that in some manner conflicts exist, especially in the area of safety system unavailability within the Mitigating System Cornerstone.

In response to this year's external survey, every utility/utility group respondent commented, or endorsed NEI's comment, that there are differences in reporting and definitions among the ROP, WANO/INPO, and the maintenance rule. Many of the respondents noted that these differences are being addressed by the proposed Mitigating System Performance Index which is currently being pilot tested. These respondents further noted that industry is also working to reduce the unnecessary duplicative reporting with the introduction of the Consolidated Data Entry system being developed by INPO.

Several non-utility stakeholders responded that they could not comment on any items related to INPO and WANO since the INPO and WANO documents are not publicly available, but with respect to the maintenance rule, there was no undue conflict or unnecessary overlap. One non-utility stakeholder commented that the NRC should not care if WANO and INPO requirements are duplicative or not.

Although the utility respondents commented that differences exist between ROP, WANO/INPO, and the maintenance rule, the NRC and industry currently have improvements in progress to address these differences. This metric has been met based on the declining number of negative comments.

PI-8 Clarity of PI Guidance - NEI-99-02

Definition: Survey external stakeholders' perceptions regarding the clarity of the guidance contained in NEI 99-02. This question will be included in the Federal Register notice.

Criteria: Expect a low number of negative comments or examples of interpretation issues, with a stable or declining trend in the number of negative comments received.

Analysis: The vast majority of utility/utility group respondents commented, or endorsed the NEI comment, that the guidance contained in NEI 99-02 was generally clear and adequate. However, several respondents commented on issues relating to problems with definitions associated with the Scrams with Loss of Normal Heat Removal indicator and on timeliness of the Frequently Asked Questions process used to resolve interpretation issues.

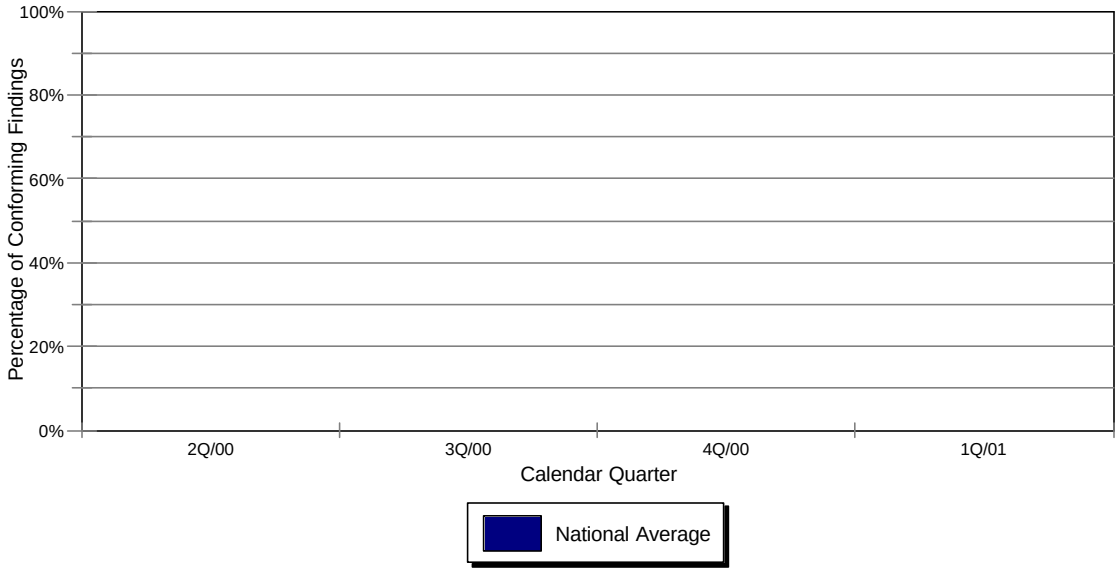
A few non-utility stakeholders commented directly on the clarity of the NEI 99-02 guidance. Two respondents considered in general that the guidance was helpful or clear (with one noting that the current PIs might not be appropriate or telling). One negative comment was received that indicated that there was too much room for interpretation in the guidance.

The criteria for this metric was met since a low number of negative comments or examples of interpretation issues were received.

IP-1 Percentage of Inspection Findings In Accordance With Requirements

Definition: Audit inspection reports in relation to program requirements (IMC 0612, "Power Reactor Inspection Reports") for documenting green findings, greater-than-green findings, and violations. Report the percentage of findings that meet the program requirements. Each year, audit one resident/integrated report from each plant, 25 percent of all other baseline reports, and all reports resulting from inspections beyond the baseline program.

Criteria: Expect an improving trend in the percentage of findings documented in accordance with program requirements.



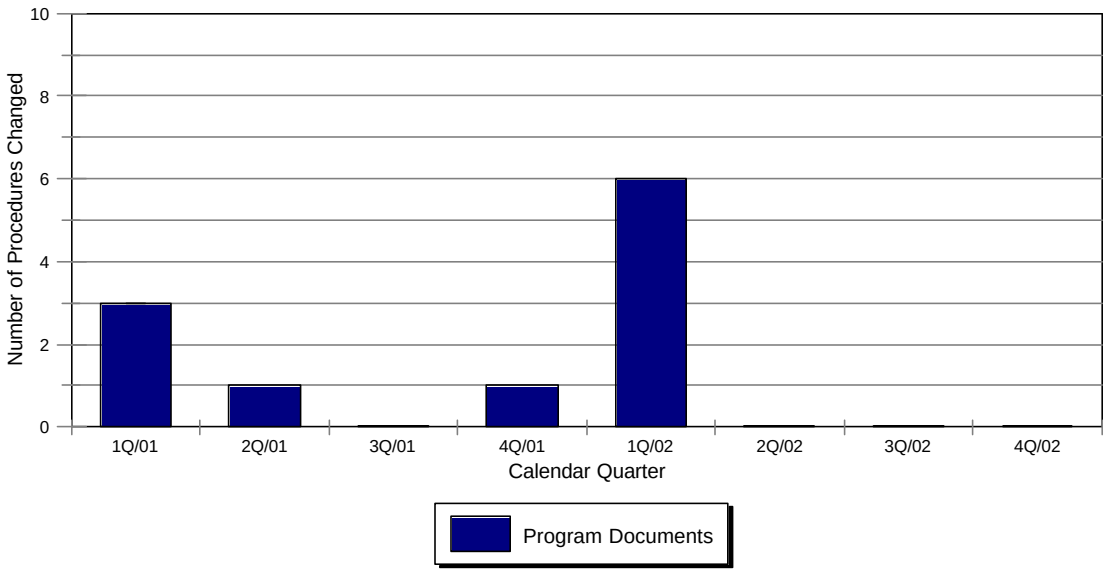
Comments: The Office of Nuclear Reactor Regulation (NRR) staff issued IMC 0612 on April 29, 2002, to improve the program guidance on documentation of inspection findings. After a brief training period, all regions implemented the new requirements of IMC 0612 in July of 2002. To allow inspectors and regional management to become more familiar with and implement the new requirements of IMC 0612 and time to issue a sample inspection report for regional use, the staff agreed to allow the first set of inspection report audits under IMC 0612 be conducted by regional personnel. The NRR staff will commence auditing the inspection reports in CY 2003.

Analysis: No data was available in CY 2002 due to program transition.

IP-2 Number of Baseline Inspection Procedures Significantly Changed

Definition: Review all issued changes to baseline inspection procedures and count those procedures whose scope or frequency of inspection changed, and count new inspectable areas that relate to risk-informing the inspection.

Criteria: Expect relatively few significant changes, with a stable or declining trend.

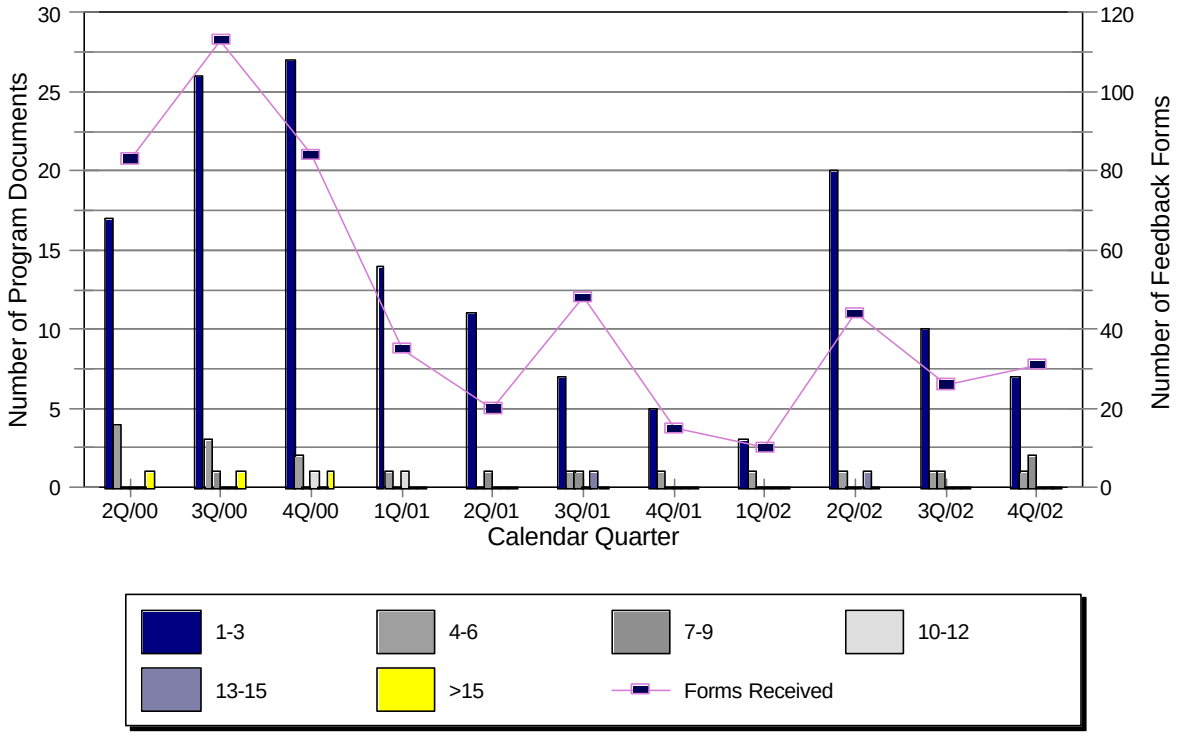


Analysis: There was a total of six changes in the first quarter of 2002 that affected either the scope or frequency of baseline inspection procedures. Inspection frequency of IP 71111.02, "Evaluation of Changes, Test, or Experiments," and IP 71152, "Identification and Resolution of Problems," was changed to biennial frequency and a security section was added to supplemental procedure IP 95003,"Supplemental Inspection For Repetitive Cornerstone, Multiple Degraded Cornerstone, Multiple Yellow Inputs, or One Red Input." Additionally, a new inspection requirement was added to the radiation procedures IP 71121.03, "Radiation Monitoring Instrumentation," IP 71122.02, "Radioactive Material Processing and Transportation," and IP 71122.03, "Radiological Environmental Monitoring Program (REMP)." Although there was a sharp increase in the number of changes to the baseline inspection procedures in the first quarter of 2002, the aggregate number of significant changes during the years 2001 and 2002 remain nearly constant at around five. This metric was met based on the relatively stable trend.

IP-3 **Number of Feedback Forms per Document**

Definition: Count the number of feedback forms received for each program document each quarter. Use a histogram to chart the number of documents for which feedback forms were received. Highlight those documents against which the most forms are written.

Criteria: Expect a decreasing trend in the number of feedback forms received for program documents.



Analysis: The staff received 112 feedback forms during the 2002 calendar year. Approximately 60% of all feedback forms received during 2002 were related to issues in the following areas: (1) Operating Reactor Assessment Program (IMC 0305, "Operating Reactor Assessment Program"); (2) Performance Indicator Program (IMC 0608, "Performance Indicator Program"); (3) Significant Determination Process (IMC 0609, "Significance Determination Process"); and (4) Inspection Reports (IMC 0612). One out of every four feedback forms received was for IMC 0609. The next three documents with the most forms, with each chapter receiving about 10% of all feedback forms, were IMC 0305, IMC 0608, and IMC 0612.

The concentration of feedback forms in certain topical areas is consistent with the staff's current improvement efforts in the reactor oversight process. IMC 0612 was issued in April 2002 to provide improved clarification to documentation of inspection findings; the SDP improvement program is on-going and the staff is currently working with the industry in developing the MSPI to replace the safety system unavailability performance indicator.

The number of feedback forms received in CY 2002 (112 forms) was nearly identical to the number of feedback forms received during CY 2001 (118 forms). Although this metric was met based on the slightly declining trend, the concentration of feedback forms in selected program areas indicated that there needs to be further improvement in these areas for CY 2003.

IP-4 Completion of Baseline Inspection Program

Definition: Annual completion of baseline inspection program.

Criteria: Defined as per IMC 2515, "Light-Water Reactor Inspection Program - Operations Phase." Regions report any non-completions at the end of each annual inspection cycle.

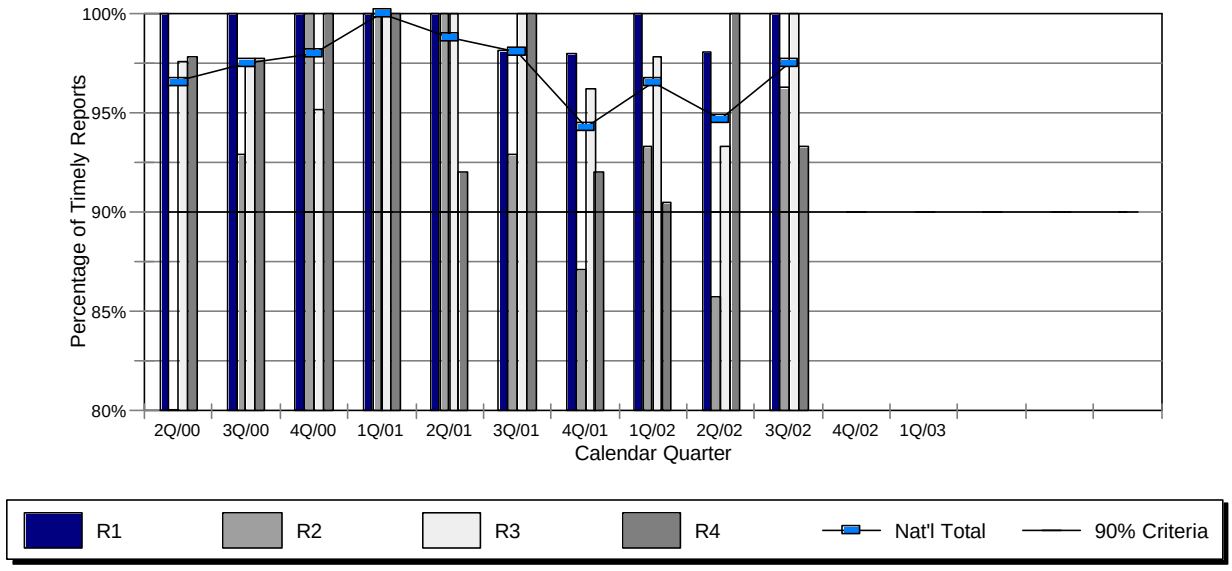
Analysis: The baseline inspection program was completed during ROP cycle 3 (CY 2002) in all regions. Davis-Besse was not included in this analysis since the baseline inspection program was replaced by inspections governed by the IMC 0350, "Oversight of Operating Reactor Facilities in an Extended Shutdown as a Result of Significant Performance Problems," process. All baseline inspections of annual periodicity were completed in CY 2002. In addition, all biennial inspections were completed at least once by the end of CY 2002. All triennial inspections were completed by March 31, 2003 (3 years from start of ROP), with one inspection in progress.

The inspection staff faced challenges during CY 2002. These challenges stemmed largely from a shortage of qualified inspectors and use of inspection resources to respond to unforseen emerging events and external information demands. In response to these challenges, regional staff developed and implemented short-term coping strategies to complete the baseline inspections at all plants. Additionally, the staff has assessed inspection resource impact during CY 2003 and is working with the regions on potential short-term and long-term resolutions to this issue. A more detailed analysis of the challenges experienced with completing the baseline inspection program in CY 2002 and plans to address these concerns in CY 2003 is included in Attachment 7 to this paper.

IP-5 Inspection Reports are Timely

Definition: Obtain RPS data on the total number of reports issued and the number issued within timeliness goals (45 days for team and consolidated reports, 30 days for others).

Criteria: Expect 90 percent of inspection reports to be issued within program's timeliness goals.

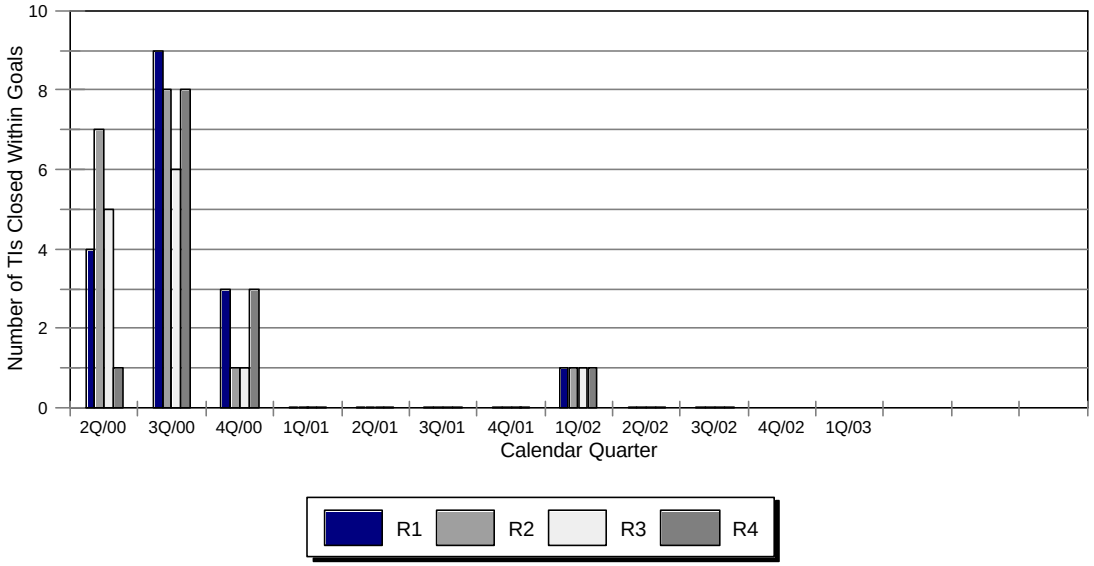


Analysis: A total of 412 inspection reports were issued through the third quarter of 2002. Overall as a program, 96 percent of all issued inspection reports were timely. Additionally, all regions met the inspection report timeliness goals during the calendar year 2002.

IP-6 Temporary Instructions (TIs) are Completed Timely

Definition: Audit the time to complete TIs by region. Compare the completion status in RPS to TI requirements. Report by region the number of TIs closed within goals.

Criteria: Expect all TIs to be completed within TI requirements.



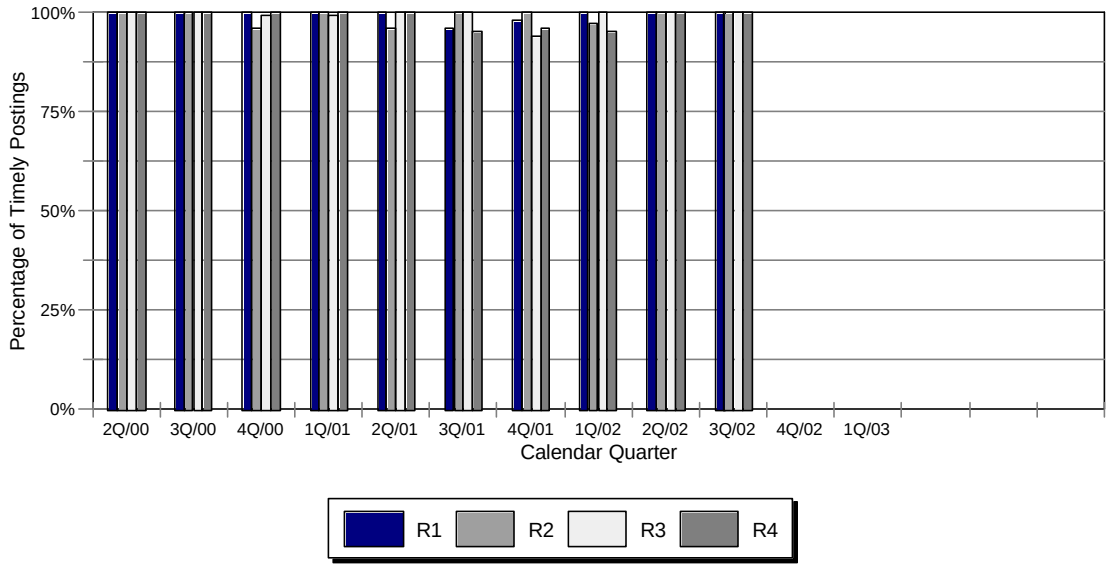
Analysis: TI 2515/144, "Performance Indicator Data Collecting and Reporting Process Review," was completed during the first quarter of 2002. All regions met the timeliness goals for completing TIs during calendar year 2002. In addition, there are currently seven TIs open.

IP-7 Public Communication Is Timely

Definition: The Inspection Program Branch (IIPB) within NRR posts inspection reports to the NRC's external (public) Web site within ROP timeliness goals using an electronic version of inspection reports entered into Agency Document Access and Management System (ADAMS) by the regions. IIPB also posts entries from the Plant Issues Matrix (PIM) to the NRC's public Web site using data entered into RPS by the regions. In addition, IIPB records the number of inspection reports not available in ADAMS and the number of PIM entries not updated in RPS, as well as the number of inspection reports and PIMs that are not posted to the NRC's public Web site within goals.

Within 5 weeks of the end of each quarter, IIPB posts issued inspection reports from the previous quarter, using the electronic version in ADAMS, and the associated PIM entries from RPS to the NRC's public Web site. Within 9 weeks of the end of each quarter, IIPB posts additional inspection reports and PIM entries for those not yet issued by the 5-week posting to include all findings from the previous quarter.

Criteria: Expect few untimely postings of PIMs or inspection reports, with a declining or



stable trend in untimely postings.

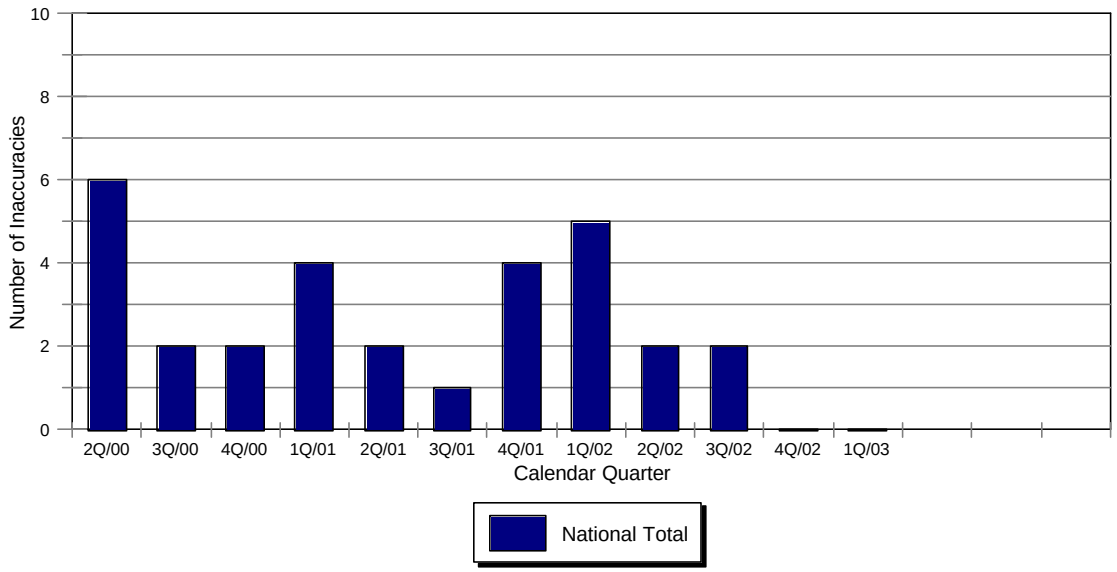
Analysis: There have been a few scattered untimely postings of inspection reports and/or inspection findings to the external Web site since the inception of the ROP. However, the

percentage of timely postings has consistently been at or very near 100% for each quarter, with a stable trend in untimely postings.

IP-8 Public Communication Is Accurate

Definition: Each calendar quarter, sample information on the NRC's external (public) Web site and count the number of times and reasons for regions changing PIMs or inspection reports (i.e., inaccuracy, new information).

Criteria: Track and trend.



Analysis: Inaccurate postings of PIM entries and inspection reports on the web were reasonably low during the past year, with an improving trend. The regions have issued more than 400 inspection reports and made more than 600 PIM entries during the year, indicating that the web accuracy percentage for inspection information is very high.

IP-9 Analysis of Inspection Hours

Definition: Collect and analyze RPS data (number of samples, regular hours, overtime hours) for each inspection procedure (including Plant Status). Collect preparation and documentation time.

Criteria:

(1) Expect no significant deviations (less than 10% per procedure across all plants in region), and explore reasons for such deviations.

(2) Track and trend overtime for the baseline inspection program and the underlying reasons, and use first year data to establish a baseline.

(3) Track and trend preparation, documentation, travel, and communication times to establish a baseline, and assess the effects on budgeted resources.

Analysis: Total staff efforts to complete baseline activities decreased by about 10% as compared to the first two years of ROP implementation. Resources expended in direct inspection effort and inspection preparation and documentation appear to remain constant. Overall, there was a decrease of 10% in resources expended to complete the ROP in fiscal year 2002 as compared to the previous two ROP periods. For a more detailed analysis of ROP resources, see Attachment 7 to this paper.

IP-10 Survey of ROP Users

Definition: Survey inspectors and other NRC personnel implementing the ROP, asking whether the inspection program covers areas that are important to safety.

Criteria: Trend average level of agreement.

Analysis: About 70 percent of those surveyed in November 2002 agreed that the baseline inspection program appropriately inspected for and identified risk-significant issues. More than 80 percent of the survey respondents indicated that inspection reports were communicated accurately and in a timely fashion.

Also, more than 70 percent of those surveyed indicated that the inspection procedures were (1) adequate to address intended cornerstone attributes, (2) clearly written, (3) written to place sufficient emphasis on planning, and (4) conducted at an appropriate frequency. About 75 percent of those surveyed agreed that the inspection procedure adequately sampled risk important aspects of each inspectable area.

More than 60 percent of those surveyed agreed that the baseline inspection program report format adequately communicated relevant information to the licensee and to the NRC internal stakeholders. About 63 percent of those surveyed agreed that the report format adequately communicated relevant information to the public.

The November 2002 survey results regarding the inspection program were generally favorable and were comparable to those from the March 2001 survey; therefore, this metric was met.

IP-11 Survey of Inspection Report Usefulness

Definition: Survey external stakeholders, asking about the usefulness of inspection reports. This question will be included in the Federal Register notice.

Criteria: Trend average level of agreement.

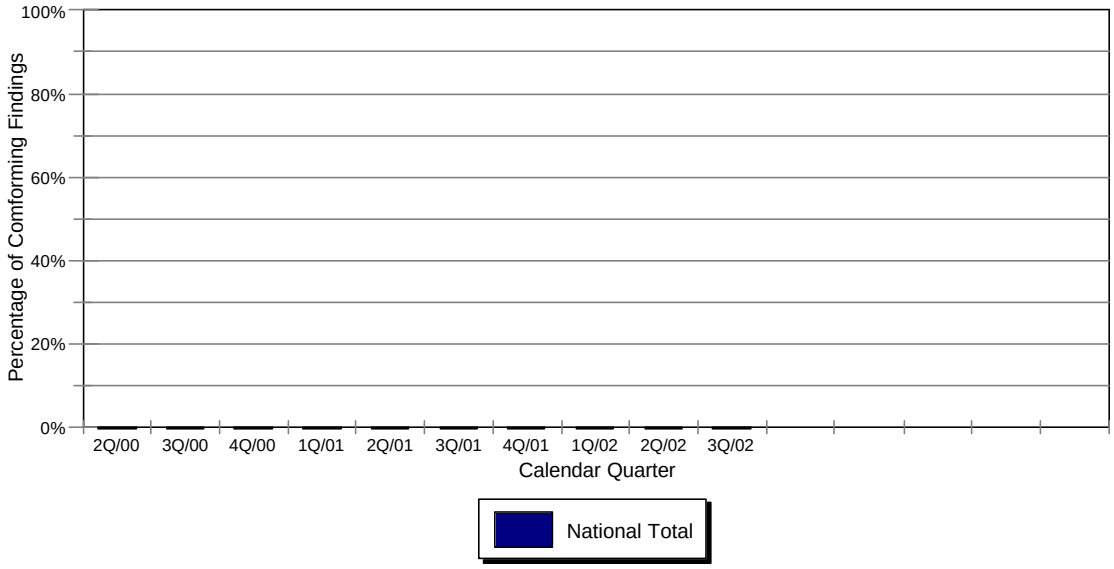
Analysis: The majority of those who provided feedback to the question (10 out of the 11 responses) on whether the information in the inspection reports were useful to them responded favorably. Two responders indicated that the inspection report would be more useful if it contained more information to allow trending or evaluation of less significant events. Six responders did not provide feedback on the quality of information in the inspection reports.

This metric was met based on a similar level of positive response when compared to the previous survey.

SDP-1 **The SDP Results Are Predictable and Repeatable and Focus Stakeholder Attention on Significant Safety Issues**

Definition: Quarterly audit of a representative sample of reported inspection findings against the standard criteria set forth in IMC 0609. Findings should contain adequate detail to enable an independent auditor to trace through the available documentation and reach the same significance color characterization.

Criteria: The target goal is at least 90% are determined to be predictable and repeatable. Any SDP outcomes determined to be non-conservative will be evaluated and



appropriate programmatic changes will be implemented.

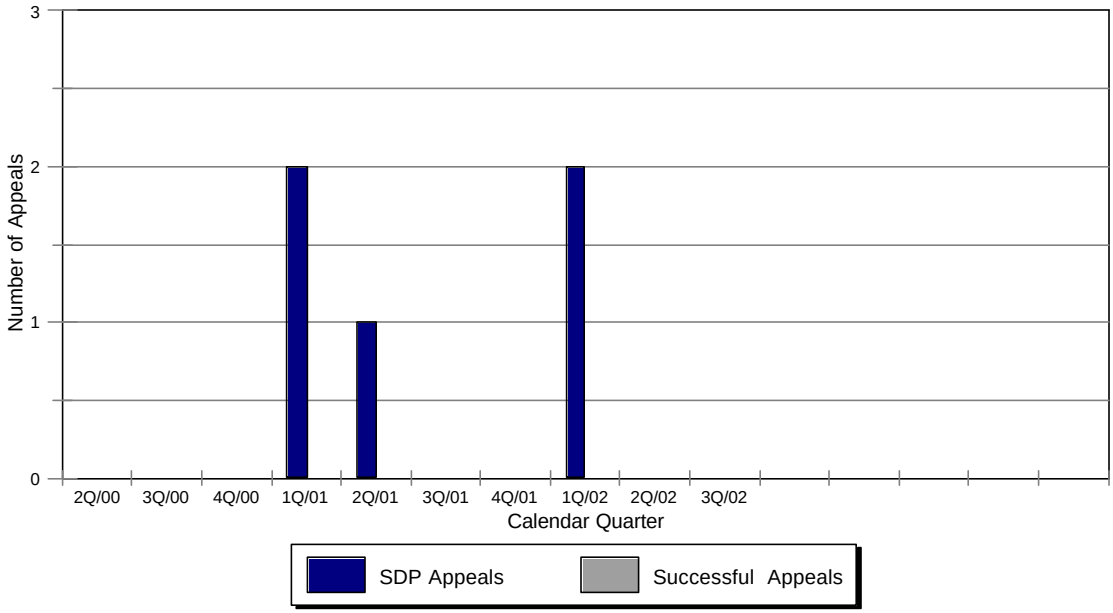
Comments: The staff issued IMC 0612 on April 29, 2002, to improve the program guidance on documentation of inspection findings. After a brief training period, all regions implemented the new requirements of IMC 0612 in July of 2002. To allow inspectors and regional management to become more familiar with and implement the new requirements of IMC 0612 and time to issue a sample inspection report for regional use, the staff agreed to allow the first set of inspection report audits under IMC 0612 be conducted by regional personnel. The staff will commence auditing the inspection reports in CY 2003.

Analysis: No data was available in CY 2002 due to program transition.

SDP-2 SDP Outcome Is Risk-Informed and Accepted by Stakeholders

Definition: Track the total number of appeals of final SDP results reported quarterly by the regions.

Criteria: Expect zero appeals of SDP significance that result in a final determination being overturned across all regions.



Analysis: During FY 2002, there were two appeals of final SDP outcomes. The appeals were submitted during Q1/2002 and involved a White Public Radiation Safety SDP finding at Comanche Peak and a Yellow Emergency Preparedness SDP finding at Columbia Generating Station. Both SDP outcomes were upheld following the appeal process.

Performance during this assessment period met program expectations.

SDP-3 Inspection Staff Is Proficient and Finds Value in Using the SDP

Definition: Survey internal stakeholders using specific quantitative survey questions that focus on training, effectiveness, and efficiency.

Criteria: Expect either a stable or an increasingly positive perception of the SDP process over time.

Analysis: Of the internal stakeholders participating in the survey that addressed these specific questions, 71% of the respondents agreed that the SDP focuses NRC attention on safety-significant issues, 73% felt the SDP provides an effective basis for communicating findings to the licensee, and 60% said the SDP provides an effective basis for communicating findings to the public. Finally, 61% felt the SDP provides for consistent results. On the negative side, 33% felt that SDP training was effective, 20% said the reactor safety SDP was easy to use, and 26% said the non-reactor safety SDPs were easy to use. Approximately 33% of those surveyed felt the program guidance documents were clear, while 26% agreed that the resource expenditures were appropriate. Overall, the survey results indicate that the staff believes the SDP is effective in meeting program objectives, but continue to express skepticism regarding their proficiency in completing phase 2 SDP evaluations. These results are similar to those noted after the March 2001 internal survey.

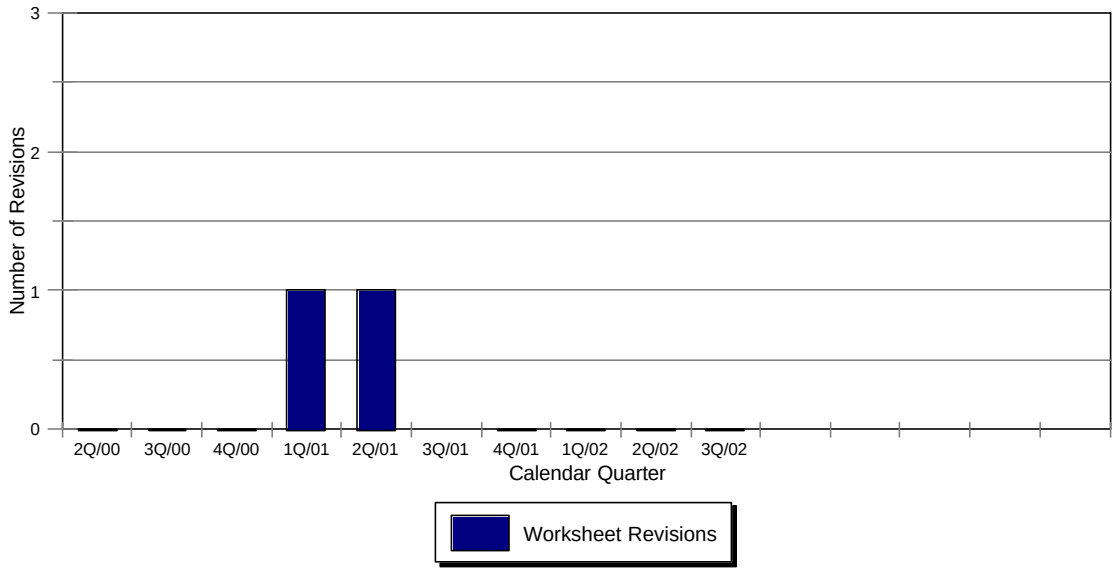
Improvement strategies noted in the SDP Improvement Initiative that address development of improved SDP training and SDP tools are focused on improving inspector proficiency and confidence in completing SDP phase 2 evaluations. In addition, in response to internal stakeholder comments, the staff initiated an SDP Task Group. The staff will be evaluating and implementing the SDP Task Group recommendations to help develop improvements in this area.

The inspection staff generally agreed that the SDP was useful, but still noted concerns with staff proficiency in using the SDP. Although the staff could conclude that the specified criteria was met based on similar results found from the March 2001 survey, the low percentages of individuals who felt that the SDP training was effective and that the SDPs were easy to use does not meet the staff's expectations. Therefore, this metric has not been met.

SDP-4 **SDP Tools for Evaluating Inspection Findings Reflect Current Plant Design and Licensee Operating Practices**

Definition: Monitor substantive revisions made to the risk-informed inspection notebooks due to non-conservative technical flaws by tracking the number of phase 2 inspection notebooks that are issued for use and subsequently withdrawn following onsite benchmarking activities.

Criteria: The target goal is zero notebook retractions due to non-conservative technical flaws.



Analysis: The staff recognized the need to benchmark the inspection notebooks, and has stepped up an aggressive schedule to complete the benchmarking of all Phase 2 notebooks by the end of FY2003. The risk-informed inspection notebooks for 48 reactor facilities have been validated by benchmarking, which included comparing the notebooks against licensee-developed risk models using similar assumptions. No (revision 1) notebooks have been retracted or returned to Brookhaven National Laboratories for immediate revision to limit potentially non-conservative outcomes during the assessment period. Risk notebooks retracted during the previous assessment period (FY 2001) for Calvert Cliffs and South Texas Project have since been benchmarked and reissued as revision 1.

Performance during this assessment period met program expectations.

SDP-5 Results of the Same Color Are Perceived by the Public to Translate to the Same Level of Significance for All Cornerstones

Definition: Publish a *Federal Register* notice to survey external stakeholders using specific questions asking for examples of where the SDP-determined significance of findings does not appear to be consistent across ROP cornerstones.

Criteria: Expect stable or increasingly positive perception of the SDP over time.

Analysis: External stakeholder survey results indicated that industry respondents did not believe that same color findings are consistent across all ROP cornerstones. Industry respondents felt that the reactor safety cornerstones were consistent, but were dissatisfied with SDP results for Emergency Preparedness, Radiation Safety, and Physical Protection. The impression was that these SDPs were not risk-informed, but "a deterministic escalation for various types of regulatory noncompliance," and in general, that these SDPs were subjective in nature. The results also indicated that non-green thresholds for these SDPs may overstate the significance of findings.

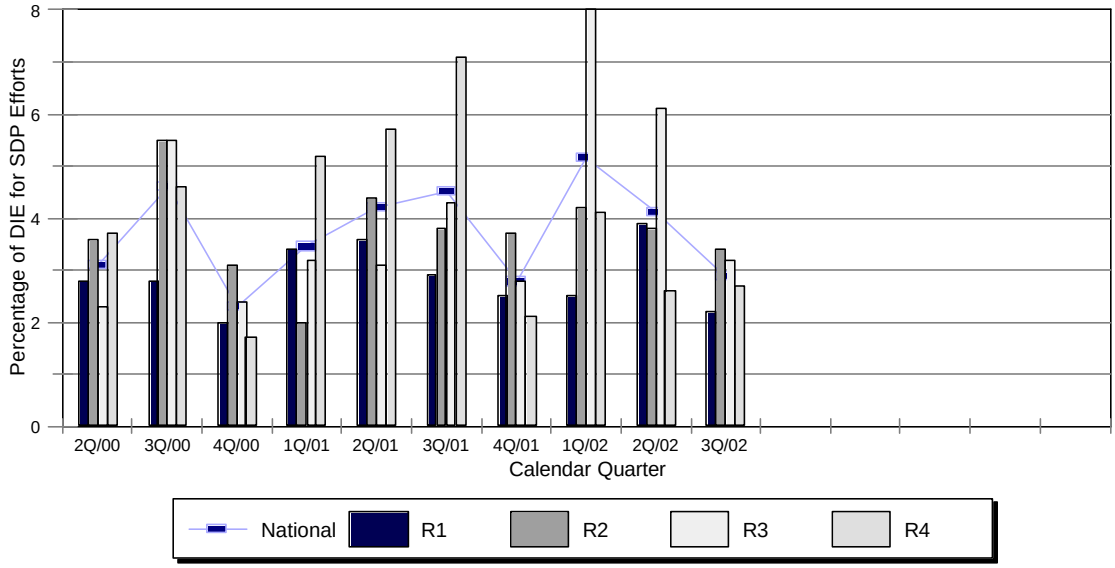
Although no specific comments were made regarding the significance of findings across cornerstones, citizens groups insisted that downgrades of preliminary SDP findings are a result of industry lobbying efforts which attempt to water down findings and undermine the legitimacy of the ROP.

Performance during this assessment period did not meet program expectations.

SDP-6 **The Resources (Direct Charges and Support Activities) Expended Are Appropriate to the Benefit (Significance of Issues Identified)**

Definition: Track the percentage of total inspection resource expenditures attributed to SDP activities. Calculate the effort expended by the regions in completing SDP evaluations as a percentage of the total regional direct inspection effort. Use RPS codes for SDP processing activities.

Criteria: Total SDP expenditures should not exceed 10 percent of the total regional direct inspection effort (DIE) with a stable or decreasing trend over time.



Analysis: Although the reported regional expenditures associated with SDP evaluations remain below the target goal, the average SDP evaluation time increased substantially during the Q1/2002. The staff evaluated potential causal factors and determined that the increase in SDP resource expenditures was due, in part, to the reviews of complex engineering issues identified at D.C. Cook, Point Beach, and Davis-Besse. The resource expenditures trended downward during subsequent quarters. Lower resource expenditures in Q3/2002 can be attributed to fewer inspection findings reported during that quarter.

Performance during this assessment period met program expectations.

SDP-7 Appropriateness of Regulatory Impact From the SDP

Definition: Monitor the trend of regulatory impact forms that are critical of the SDP and assessment processes.

Criteria: Stable or decreasing trend over time.

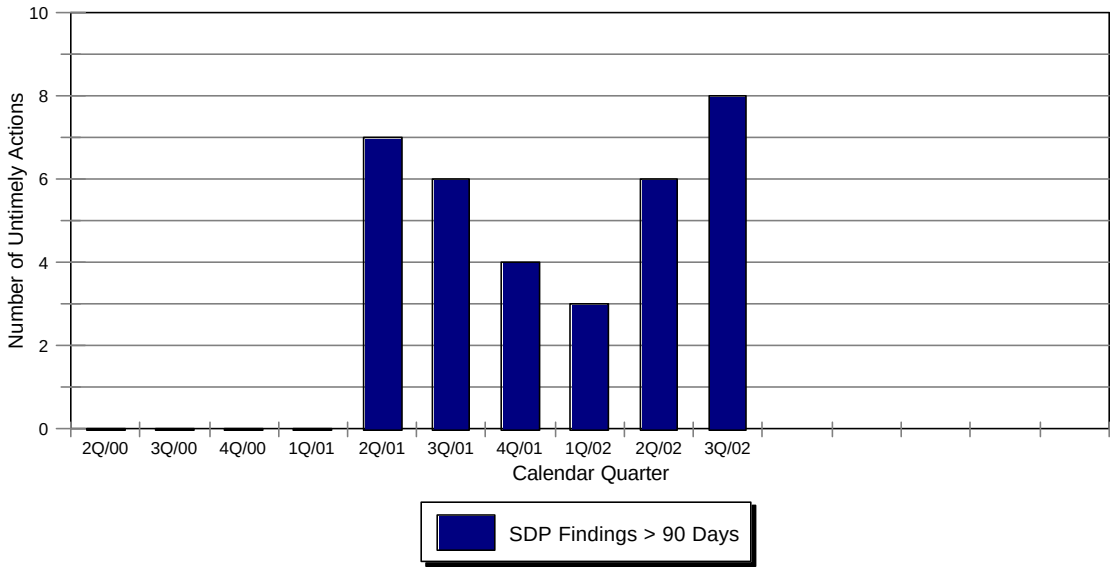
Comment: This metric is not available as the applicable staff was redirected to support activities in the Office of Nuclear Security and Incident Response. While the process of using regional managers to solicit feedback from power-reactor licensees is functioning normally, the annual evaluation of this feedback was postponed a year. The next evaluation of licensee feedback will span two years and will be conducted in late CY 2003.

SDP-8 Final Significance Determinations Are Timely

Definition: Conduct a quarterly audit of RPS data to identify the total number of inspection items that have been under review for more than 90 days since:

(1) the date of initial licensee notification of the preliminary significance in an inspection report, or
(2) the date the item was formally transmitted to an NRR technical branch for SDP assistance, or
(3) the item was otherwise documented in an inspection report as an unresolved item pending completion of a significance determination and not counted in either of the above categories.

Criteria: All SDP results that are counted per the criteria above should be finalized within 90 days.



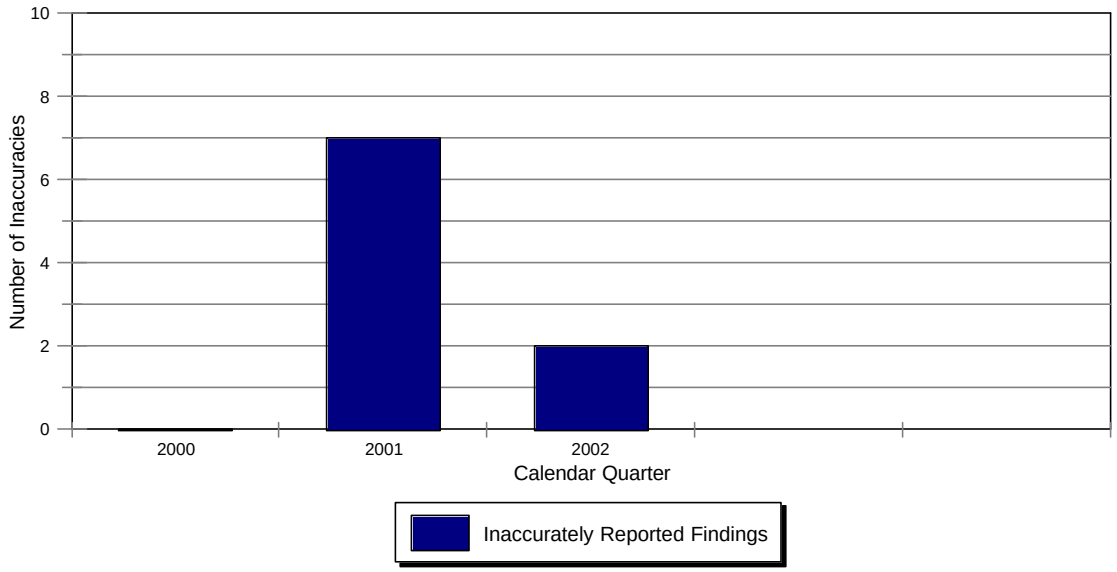
Analysis: In response to Commission direction, the staff has adjusted the criteria for measuring SDP timeliness to monitor for final issuance of SDP findings within 120 days of the initial exit meeting and 90 days of official licensee notification in an inspection report. This adjustment to the criteria has been included in the SDP timeliness strategies that are currently under review by senior NRC management. During this assessment period several instances of late significance determinations were identified. Performance in this area is a continuing challenge due to the complexity of some of the issues, and is being addressed by the SDP Improvement Initiative and the SDP Active Issues Matrix which was developed to focus regional and headquarters management attention on prompt resolution of more risk significant issues.

Performance during this assessment period did not meet program expectations.

SDP-9 SDP Results Are Communicated Accurately to the Public

Definition: Each calendar quarter, track the number of inspection findings that are inaccurately communicated to the public (color of findings is inaccurately reported), by auditing the inspection findings summary information available on the NRC Web. The detailed review will include item type, significance characterization, enforcement action status, and text descriptions of greater-than-green inspection findings prior to release to external stakeholders.

Criteria: The target goal is zero inaccuracies. All inaccuracies must be addressed.



Analysis: During the current assessment cycle, two instances were identified in which the status of documented inspection findings reported on the NRC's external web site was unclear (i.e., preliminary vs. final) when looking at assessment information developed from the reported inspection finding data. In one instance the final determination was not posted to the web in a timely manner, and the plant was not reflected in the appropriate Action Matrix column for several days. In the other instance, the issue was double counted and placed in the wrong quarter on the web site. Quarterly audits identified both issues and the information on the web was corrected immediately.

Performance in this area has improved but is still not meeting the established criteria of zero inaccuracies.

AS-1 Subjective Judgment Is Minimized and Is Not a Central Feature of the Process. Actions Are Determined by Quantifiable Assessment Inputs (Examine PIs and SDP Results)

Definition: Audit all assessment-related letters and count the number of deviations from the Action Matrix.

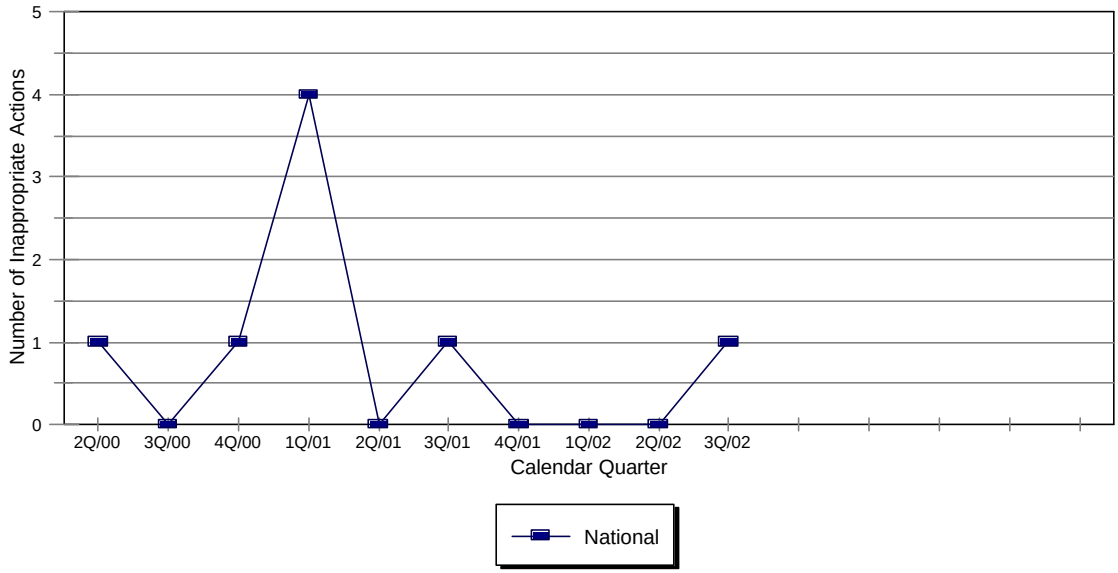
Criteria: Expect few deviations, with a declining trend.

Analysis: There was one deviation from the Action Matrix for Oconee Unit 1. By letter dated August 26, 2002, the NRC approved a deviation from actions required by IMC 0305 for a plant in the multiple/repetitive degraded cornerstone of the Action Matrix. This was the first Action Matrix deviation that has been approved since the beginning of the ROP; accordingly, this metric is considered to have been met.

AS-2 The Program Is Well-Defined Enough to Be Consistently Implemented

Definition: Audit all assessment letters and count the number of significant departures from requirements in IMCs 0305 and 0350. Timeliness goals are counted in metric AS-5.

Criteria: Few departures, steady or declining trend.

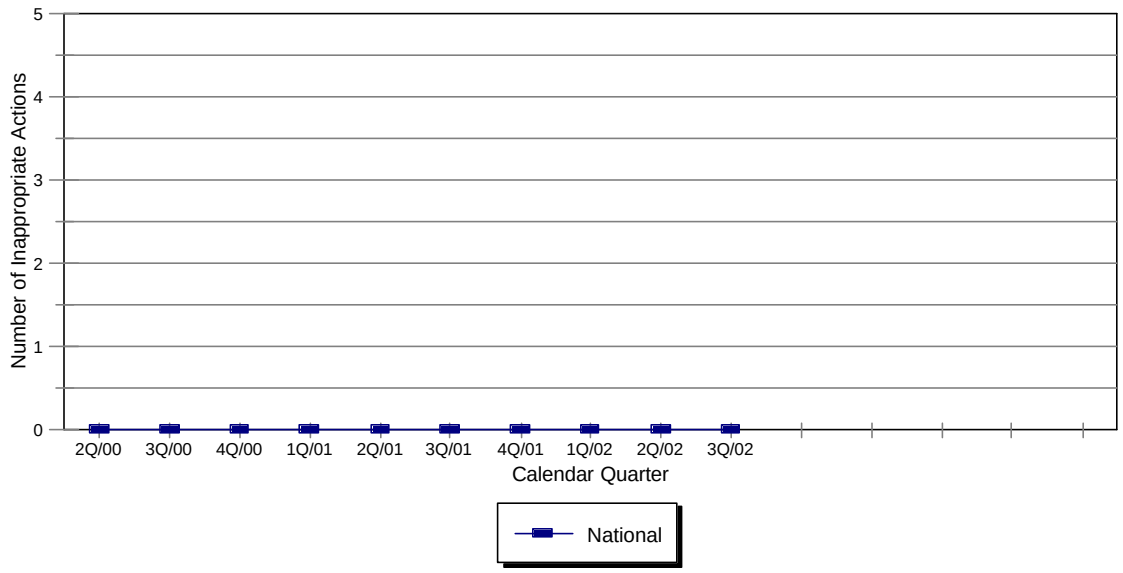


Analysis: One mid-cycle letter for a plant in the degraded cornerstone column of the Action Matrix in 3Q/2002 was signed by the regional division director instead of the regional administrator. This appears to be an isolated occurrence and meets the criteria of few departures with a steady or declining trend.

AS-3 Actions Taken Are Commensurate With the Risk of the Issue and Overall Plant Risk

Definition: Review actions taken for greater-than-green inspection findings and PIs. Track the number of actions (or lack of actions) taken by the regions that are not appropriate for the significance of the issues and are not consistent with the Action Matrix.

Criteria: Expect few departures, with a steady or declining trend.



Analysis: All actions taken by the regional offices were consistent with the Action Matrix during the period of October 2001- September 2002.

AS-4 The Number And Scope of Additional Actions Recommended as a Result of The Agency Action Review Meeting (AARM) Beyond Those Actions Already Taken Are Limited

Definition: Review the results of the AARM.

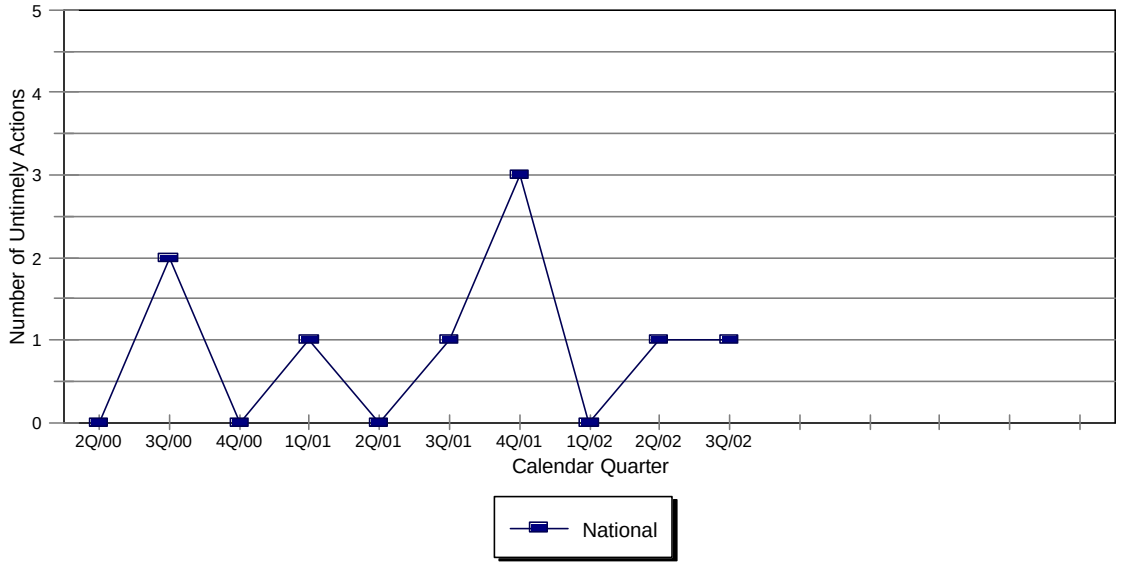
Criteria: The AARM should recommend few additional actions, with a steady or declining trend from the first-year benchmark.

Analysis: The AARM was held on April 9 - 11, 2002, in Annapolis, Maryland. The participants confirmed the appropriateness of agency actions for Cooper and Indian Point 2. The participants did not recommend any additional actions beyond those already taken or planned. The next Agency Action Review Meeting is scheduled for April 22 - 23, 2003.

AS-5 Assessment Program Results (Assessment Reviews, Assessment Letters and Public Meetings) Are Completed in a Timely Manner

Definition: Track the number of instances in which timeliness goals established in IMC 0305 were not met. Collect timeliness data for the conduct of quarterly reviews (within 5 weeks of the end of quarter); mid-cycle and end-of-cycle reviews (within 6 weeks of the end of quarter); issuance of assessment letters (within 2 weeks of the quarterly review and 3 weeks of the mid-cycle and end-of-cycle reviews); assessment followup letters (on or before the next quarterly review); and public meetings (within 16 weeks of the end of the assessment period).

Criteria: Expect few instances in which timeliness goals were not met, with a steady or declining trend from the first-year benchmark.



Analysis:

3Q/2002: All sixty-six mid-cycle review meetings and associated mid-cycle letters were completed within timeliness goals. One assessment follow-up letter was not issued within timeliness goals.

2Q/2002: Two out of three assessment follow-up letters were issued within timeliness goals.

1Q/2002: All sixty-six end-of-cycle meetings, annual assessment letters, and annual public meetings were completed within timeliness goals.

4Q/2001:Ten of the thirteen assessment follow-up letters were issued within timeliness goals.

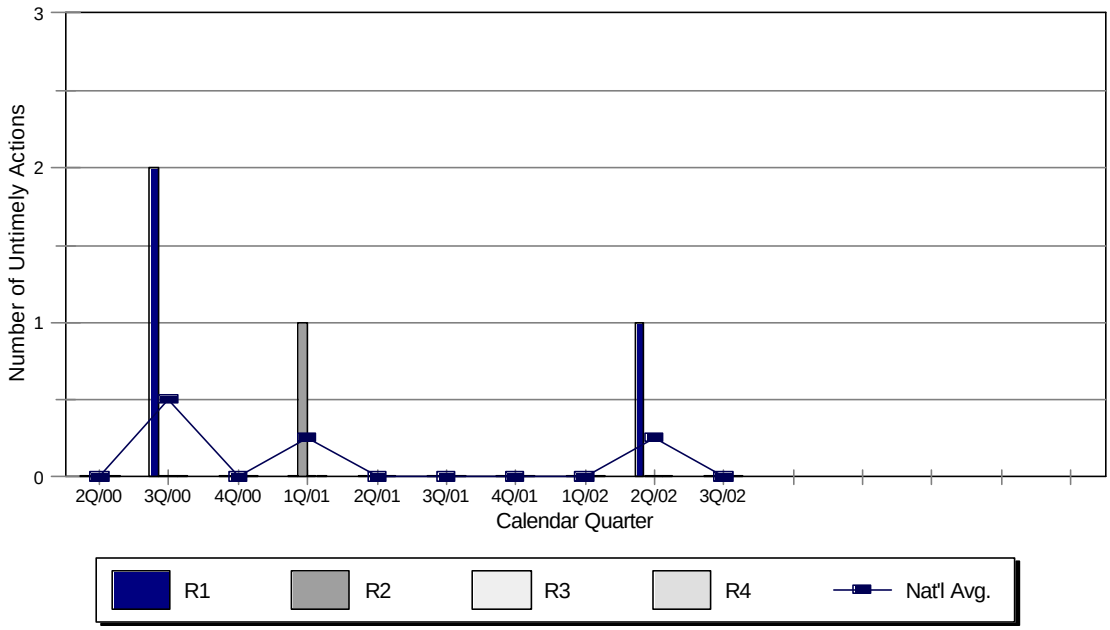
Timeliness goals for completion of assessment program activities were achieved at a rate of approximately 99%. Therefore, this performance metric was met.

AS-6 The Web Posting and Availability Via ADAMS of Assessment Letters Is Timely

Definition: Review the posting of letters to the NRC's external Web site and availability in ADAMS and compare to the timeliness goals. Record the number of letters not available in ADAMS and number of letters not posted to the Web site within goals.

Criteria: IIPB posts assessment letters to the NRC's external Web site using the electronic version in ADAMS within 10 weeks of the end of mid-cycle and end-of-cycle assessment periods and within 8 weeks of the end of intervening quarters.

Analysis:



Q3/2002: All 66 mid-cycle letters were posted to the web within timeliness guidelines.

Q2/2002: One assessment follow-up letter was not posted to the web within timeliness goals.

Q1/2002: All 66 annual assessment letters were posted to the web within timeliness guidelines.

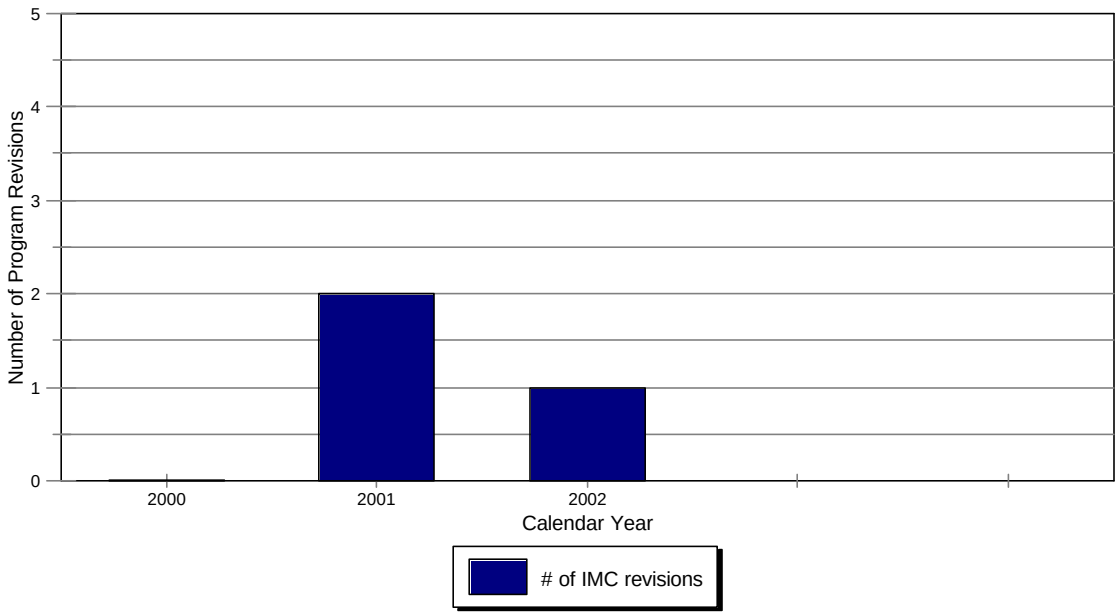
Q4/2001: Most assessment letters were not posted to the web due to the terrorist attacks on September 11, 2001. One noted exception was two assessment follow-up letters that were posted on September 2, 2001.

With the exception of the decision to hold off posting ROP and other information due to the terrorist attacks on September 11, 2001, the timeliness goals for posting assessment letters to the NRC’s external Web site were met.

AS-7 **Assessment Program Procedures Are Stable Enough To Be Perceived as Predictable**

Definition: Count the number of revisions to IMCs 0305 and 0350.

Criteria: Expect few revisions, with a steady or declining trend from the first-year benchmark.

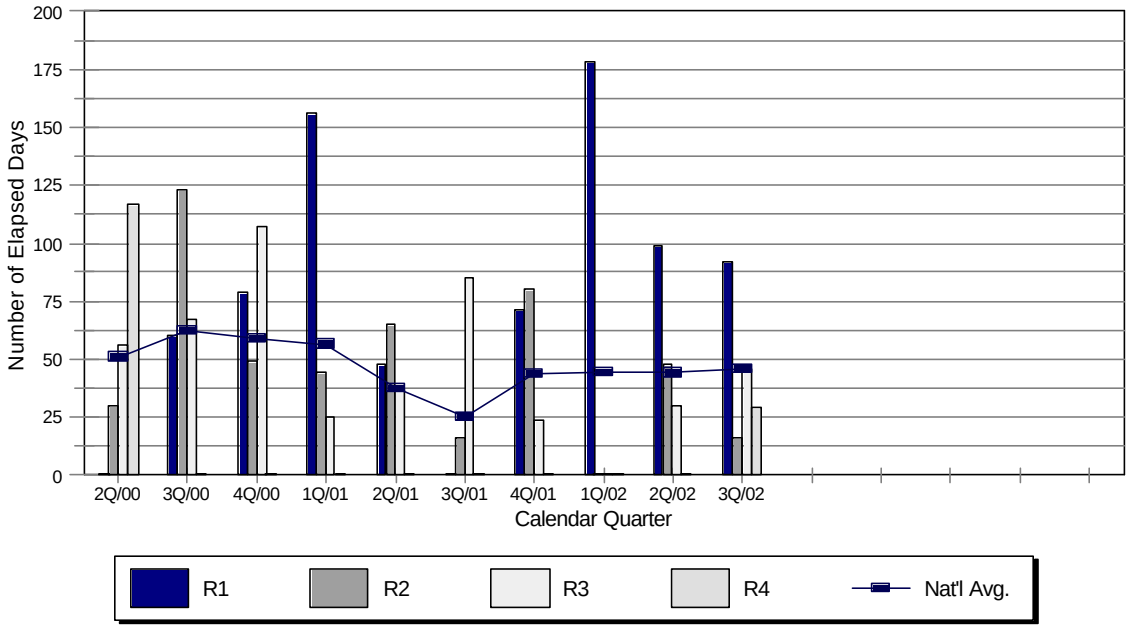


Analysis: During CY 2002, there was one revision to IMC 0305 which was issued on February 11, 2002. Another revision to IMC 0305 was issued in February 2003. A revision to IMC 0350 is also planned for CY 2003 to incorporate insights and lessons learned from the Davis-Besse event. Therefore, this performance metric is considered to have been met.

AS-8 The NRC's Response to Performance Issues Is Timely

Definition: Count the number of days between issuance of an assessment letter discussing an issue of more than very low safety significance and completion of the supplemental inspection (by exit meeting date, not issuance of the inspection report).

Criteria: Expect a steady or declining trend when compared to the benchmarking data (first few years of the ROP).



Analysis: Baseline data for this metric are still being collected. However, data collected to date does not indicate a negative short-term trend regarding the elapsed time between the issuance of an assessment letter and the completion of the corresponding supplemental inspection.

AS-9 The Agency Takes Appropriate Actions To Address Performance Issues for Licensees Outside of the Licensee Response Column of the Action Matrix

Definition: Solicit feedback on the appropriateness of regulatory attention given to licensees with performance problems via a survey question to both internal and external stakeholders.

Criteria: Expect steady or improved perception of appropriateness of actions as compared to the first-year benchmark.

Analysis:

Internal survey

Listed below are the staff's responses to the following statement: "The agency takes appropriate actions to address performance issues for those licensee outside of the Licensee Response Column of the Action Matrix".

Strongly agree: 7.8%
Agree: 64.7%
Disagree: 12.1%
Strongly disagree: 6.0%
Unable to answer: 9.5%

Some of the staff's additional comments on this question indicated a level of concern with the ability of the NRC to detect declining performance in a timely manner. The vessel head degradation at Davis-Besse was discussed as an example where declining performance was not detected early. Some of the staff also expressed concern with the lack of prominence that cross-cutting issues receive in the assessment program.

This question was not specifically asked during the March 2001 internal survey, so we have no basis to compare to previous survey results. However, the respondents generally agreed that the agency takes appropriate actions to address performance issues for those licensees outside of the licensee response column of the action matrix.

External survey

The public interest groups were generally negative regarding the NRC's actions to address performance issues for plants outside of the Licensee Response Column of the Action Matrix. Two of these participants stated that the agency is not taking actions mandated by the Action Matrix but merely changing the color of inspection findings to justify the desired response in the Action Matrix. The industry and two States (Illinois and Pennsylvania) were positive regarding the NRC's actions to address performance issues for plants outside of the Licensee Response Column of the Action Matrix.

This metric meets its criteria with a stable perception when compared to previous survey results.

AS-10 Information Contained in Assessment Reports Is Relevant, Useful, and Written in Plain Language

Definition: Perform surveys to determine internal and external stakeholder views on assessment reports.

Criteria: Steady or improved perception of the relevance, usefulness, and understandability of assessment reports as compared to the first year benchmark.

Analysis:

Internal survey

Listed below is the staff's average response to the statements concerning whether the information contained in the assessment letters is relevant, useful, and written in plain language.

Strongly agree: 8.1%
Agree: 60.5%
Disagree: 19.4%
Strongly disagree: 7.2%
Unable to answer: 4.8%

This question was not specifically asked during the March 2001 internal survey, so we have no direct basis to compare to previous survey results. However, the respondents generally agreed that the information contained in the assessment letters is relevant, useful, and written in plain language.

External survey

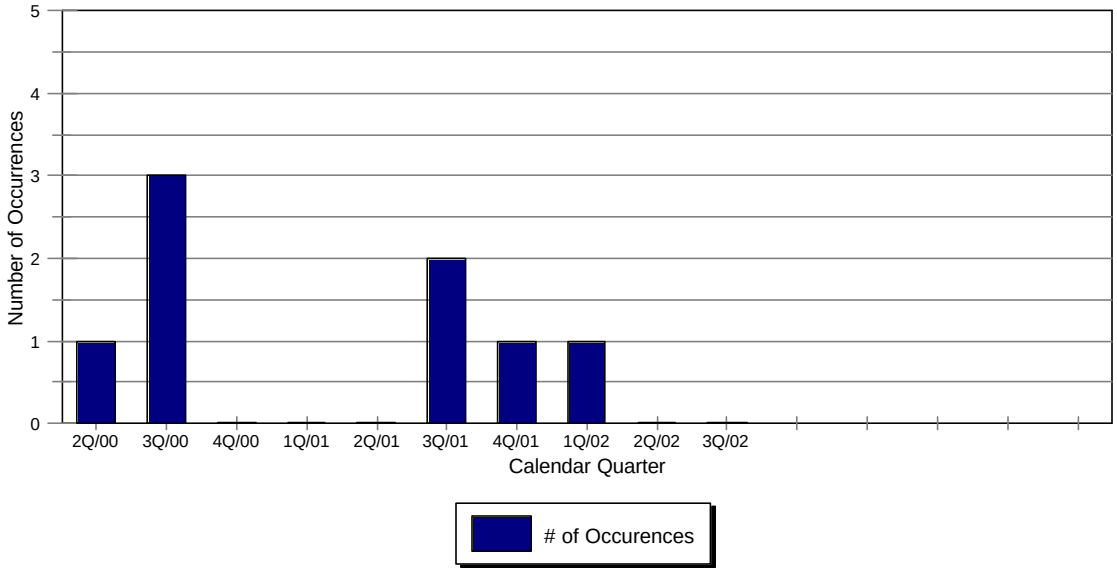
Feedback from public interest groups was mixed. One public interest group responded positively but two others added that the assessment letters were of little value. The industry responded positively but added that the annual public meetings should be used as an opportunity for more public outreach. One industry participant added that the annual public meetings should be eliminated for plants that have all green performance indicators and inspection findings. Responses from the State regulators were generally positive and recognized an improvement in the assessment report quality over the last few years. One State responded that there were insufficient details in the assessment letters to allow trending.

This metric meets its criteria with a stable perception when compared to previous survey results.

AS-11 **Degradations in Plant Performance, as Measured in the Action Matrix, Are Gradual and Allow Adequate Agency Engagement of the Licensees**

Definition: Track the number of instances each quarter in which plants move more than one column to the right in the Action Matrix (as indicated on the Action Matrix Summary).

Criteria: Expect few instances in which plant performance causes a plant to move more than one column to the right in the Action Matrix. Provide a qualitative explanation of each instance in which this occurs. Expect a steady or declining trend from the



first year benchmark.

Analysis: During the period of October 2001 - September 2002, there were two plants that moved more than one column to the right in the Action Matrix in one quarter. In 4Q/2001, Columbia Generating Station moved from the licensee response column to the degraded cornerstone column of the Action Matrix due to a yellow finding in the emergency preparedness cornerstone. In 1Q/2002, Vermont Yankee moved from the licensee response column to the degraded cornerstone column of the Action Matrix due to a yellow finding in the physical protection cornerstone. The number of plants moving two or more columns to the right in the Action Matrix have been few and within the expected frequency.

O-1 Public Perceives the ROP to Be Predictable and Objective

Definition: Annually survey external stakeholders through a *Federal Register* notice asking if decisions are overly reliant on judgement, or not controlled by the process.

Criteria: Expect a stable or increasing positive perception over time.

Analysis: A majority of licensee respondents state the ROP is predictable and objective while non-licensee groups as a whole believe it is far too subjective and based on individual judgement or negotiation. The responses from licensees are similar to those from previous years and indicate a belief in the continuing effort to improve in this area. A few respondents cite different SDP outcomes as an example of the ROP being unpredictable and inconsistent. While there is not complete agreement on the objectivity of the process there is some agreement that it is moving in the right direction.

This metric meets its criteria with a stable and slightly increasing positive perception.

O-2 NRC Perceives the ROP to Be Predictable and Objective

Definition: Annually survey internal stakeholders, asking if decisions are overly reliant on judgement, or not controlled by the process.

Criteria: Expect stable or increasingly positive perception over time.

Analysis: Three internal survey questions addressed this metric. The percentage of NRC internal stakeholders agreeing that the ROP increases predictability remained positive and similar to the previous survey (75% in 2002 vs. 75% in 2001). Respondents agreeing that the ROP generally provides appropriate objectivity to the oversight process was reduced slightly (82% in 2002 vs. 85% in 2001) as was the belief that the ROP increases objectivity (76% in 2002 vs. 79% in 2001), but remained generally positive.

The data supporting this metric indicates a slightly decreasing positive perception when compared to the previous survey. Although this metric did not explicitly satisfy the established criteria, internal stakeholders generally agreed that the ROP is predictable and objective and the perception was relatively stable.

O-3 Public Perceives the ROP to Be Risk-informed

Definition: Annually survey external stakeholders through a *Federal Register* notice asking if ROP actions and outcomes are appropriately graded according to the significance of the issues at the plants.

Criteria: Expect stable or increasingly positive perception over time.

Analysis: Similar to previous surveys, overall a majority of respondents believe the ROP is risk informed. Respondents believe the ROP is a step increase in risk-informed regulation over the previous systems. The initiating events, mitigating systems, and barrier criteria cornerstones are specifically mentioned as being quite risk-informed. Numerous respondents do express concern for other cornerstones of the ROP that are less risk informed. Most negative comments to this question centered on the SDP and its perceived short comings.

This metric meets its criteria with a stable perception.

O-4 NRC Perceives the ROP to Be Risk-Informed

Definition: Annually survey internal stakeholders asking if ROP actions and outcomes are appropriately graded according to the significance of the issues at the plants.

Criteria: Expect stable or increasingly positive perception over time.

Analysis: Two internal survey questions addressed this metric. The percentage of NRC internal stakeholders agreeing that the ROP generally provides an effective risk-informed approach to oversight was reduced when compared to the previous survey (73% in 2002 vs. 82% in 2001), but remained generally positive. Compared to the previous process, respondents agreeing that the new ROP is more risk-informed was also reduced (91% in 2002 vs. 96% in 2001), but remained very positive.

The data supporting this metric indicates a slightly decreasing positive perception when compared to the previous survey. Although this metric did not explicitly satisfy the established criteria, internal stakeholders generally agreed that the ROP is appropriately risk-informed.

O-5 Public Perceives the ROP to Be Understandable

Definition: Annually survey external stakeholders through a *Federal Register* notice asking if they understand the process, procedures, and outputs, and if products are clear and written in plain English.

Criteria: Expect stable or increasingly positive perception over time.

Analysis: A significant majority of the stakeholders state that the ROP is understandable and that products are written in clear and plain English. Numerous stakeholders express reservations about the public's ability to understand the SDP and the color assignments for findings. As in the previous survey, the SDP is recognized to be the most complex portion of the ROP requiring some technical background for understanding.

This metric meets its criteria with a stable and increasing positive perception.

O-6 NRC Perceives the ROP to Be Understandable

Definition: Annually survey internal stakeholders asking if they understand the process, procedures, and outputs, and if products are clear and written in plain English.

Criteria: Expect stable or increasingly positive perception over time.

Analysis: Two internal survey questions addressed this metric. The percentage of NRC internal stakeholders agreeing that the ROP is understandable and written in plain English was stable when compared to the previous survey (87% in 2002 vs. 89% in 2001) and remained very positive. Note that no comparison could be made for the second internal survey question addressing this metric since a similar question was not contained in the March 2001 internal survey. This additional question was added to the December 2002 internal survey whereby 74% of the respondents agreed that the ROP is understandable and the procedures and output products are clear and written in plain English.

This metric met the criteria with a stable positive perception over time.

O-7 Public Perceives the ROP Maintains Safety

Definition: Annually survey external stakeholders through a *Federal Register* notice asking if the ROP adequately assures that plants are being safely operated and maintained.

Criteria: Expect stable or increasingly positive perception over time.

Analysis: Utility stakeholders believe the ROP maintains safety while a majority of non-utility stakeholders state it does not. The recent findings at Davis-Besse dominate the negative comments on this topic. While past surveys have had some negative comments on the ROP maintaining safety, this survey marks an increase in the proportion of negative comments.

This metric is not meeting its criteria due to a decreasing positive perception.

O-8 NRC Perceives the ROP Maintains Safety.

Definition: Annually survey internal stakeholders.

Criteria: Expect stable or increasingly positive perception over time.

Analysis: One internal survey question addressed this metric. However, no comparison could be made for this internal survey question addressing this metric since a similar question was not contained in the March 2001 internal survey. Among the December 2002 internal survey respondents, 76% agreed that compared to the previous process, the new ROP generally maintains safety.

This metric is indeterminate since the information could not be compared to previous internal survey results. However, internal stakeholders generally agreed that the ROP maintains safety.

O-9 Analysis of NRC's Responses to Significant Events

Definition: Review reports from incident investigation teams (IITs) and augmented inspection teams (AITs) to collect lessons learned regarding ROP programmatic deficiencies (e.g., did the baseline inspection program inspect this area, did the SDP accurately characterize resultant findings). IITs already have the provision to determine NRC program deficiencies. AITs will be reviewed by IIPB to identify any weaknesses.

Criteria: Expect no major programmatic voids.

Analysis: No IITs were conducted during the 2002 ROP cycle. Two AITs (Callaway and Davis-Besse) were conducted. IIPB reviewed the AIT reports and received a feedback form based on lessons learned from the Callaway AIT. Accordingly, IIPB revised IP 93800, "Augmented Inspection Team," and 71153, "Event Followup," regarding (1) AIT documentation requirements, (2) evaluating and documenting inspection findings provided they do not interfere with the AIT charter, and (3) risk metrics for events and degraded conditions.

In addition to the Davis-Besse AIT, the Davis-Besse Lessons Learned Task Force (DBLLTF) was formed to review the NRC's regulatory process associated with the issues at Davis-Besse. The DBLLTF's report, issued on September 30, 2002, contained more than fifty recommendations, many of which were associated with the ROP. Among the more significant ROP-related recommendations were: (1) enhance the barrier integrity performance indicators to more accurately measure unidentified leakage, (2) modify the inspection program to provide for better follow-up of longstanding issues, (3) develop specific guidance to inspect boric acid control programs and vessel head penetration nozzles, and (4) enhance the guidance for managing plants that are outside the ROP and under the NRC's IMC 0350 process.

Based on the programmatic deficiencies identified by the DBLLTF, the performance criteria for this metric was not met.

O-10 Analysis of Significant Events

Definition: Annually review all accident sequence precursor (ASP) events that have a risk significance of more than 10^{-6} to identify any ROP programmatic voids (i.e., did the baseline inspection program inspect this area, did the SDP accurately characterize resultant findings, etc).

Criteria: Expect no major programmatic voids.

Analysis: The Office of Research compared ASP results and SDP evaluations for several plant issues identified during the assessment period. No significant differences between the SDP findings and the ASP results were identified. During the period, several ASP reviews were initiated and the preliminary ASP for Oconee Units 1, 2, and 3 (high pressure injection and station auxiliary service water pump capability following postulated tornado) was completed.

The ASP program also evaluated selected operating events from the pool of licensee event reports, NRC inspection reports, and 10 CFR Part 21 notification letters. No potential accident sequence precursors (equivalent to or greater-than-green SDP findings) from this pool of operating experience information were identified during the assessment period.

The performance criteria for this metric was met.

O-11 Public Perceives the ROP to Be Effective, Efficient, Realistic

Definition: Annually survey external stakeholders through a *Federal Register* notice asking specific questions (based on NRC Strategic Plan) regarding whether the ROP is effective, efficient, and realistic.

Criteria: Expect stable or increasingly positive perception over time.

Analysis: In previous surveys, most if not all of the stakeholders stated that the ROP was effective, efficient, and realistic, or at the very least was a significant improvement over previous programs. From this survey, a distinct difference in perception is obvious between those utility stakeholders under the ROP and non-utility stakeholders evaluating the ROP. The majority of utility stakeholders have a positive response to this topic while the non-utilities believe the ROP has problems in this area. A common concern among most respondents is the efficiency and realism of the SDP.

This metric is not meeting its criteria due to an increasing negative perception.

O-12 NRC Perceives the ROP to Be Effective, Efficient, Realistic

Definition: Annually survey internal stakeholders asking specific questions (based on NRC Strategic Plan) regarding whether the ROP is effective, efficient, and realistic.

Criteria: Expect a stable or increasingly positive perception over time.

Analysis: Three internal survey questions addressed this metric. The percentage of NRC internal stakeholders agreeing that the ROP is effective (56% in 2002 vs. 57% in 2001) and efficient (70% in 2002 vs. 75% in 2001) has reduced slightly in both cases when compared to the previous survey, but remain relatively positive. However, no comparison could be made for this internal survey question addressing whether stakeholders perceived the ROP to be realistic since a similar question was not contained in the March 2001 internal survey. Among the December 2002 internal survey respondents, 65% agreed that compared to the previous process, the new ROP generally increases realism, and 74% agreed that the ROP provided a realistic approach to oversight.

The data supporting this metric indicates a slightly decreasing positive perception when compared to the previous survey. Although this metric did not explicitly satisfy the established criteria, internal stakeholders generally agreed that the ROP is efficient and realistic, and a majority agreed that the ROP was effective.

O-13 Resources are Commensurate with Performance

Definition: Correlate resources expended to Action Matrix column. Use RPS data to compare expended inspection resources to Action Matrix column by plant. Report high, low, and average.

Criteria: Expended resources should increase as licensee performance degrades (as noted by Action Matrix column). Establish baseline during first year of ROP.

Comments: This metric is no longer tracked and is being discontinued because it does not provide additional useful insights. Under the ROP, all plants receive the same level of baseline inspection. Inspections beyond the baseline are performed at plants with performance below established thresholds, as assessed through information gained from performance indicators and the results of baseline inspections. The ROP applies increasing inspection resources commensurate with declining plant performance. A correlation between increasing expended inspection resources for plants in successive reduced level of performance in the Action Matrix exists in the ROP by design and has been confirmed during the first two cycles of ROP implementation.

Analysis: Not applicable. This metric is no longer tracked and will be removed from the self-assessment program in the next revision to IMC 0307.

O-14 Public Perceives the ROP Enhances Public Confidence

Definition: Annually survey external stakeholders through a *Federal Register* notice asking if the ROP enhances public confidence.

Criteria: Expect stable or increasingly positive perception over time.

Analysis: Similar to previous surveys, the perception of public confidence in the ROP is a divided issue. Many respondents cite public participation in development and the consistent application of the ROP as major enhancements to public confidence. On the other hand, many stakeholders believe there is ambivalence within the general public towards the current system. Additionally, some stakeholders believe implementation and communication problems with the ROP are eroding public confidence.

This metric meets its criteria with a stable perception.

O-15 Opportunities for Public Participation in the Process

Definition: Annually survey external stakeholders through a *Federal Register* notice asking if there are sufficient opportunities for the public to participate in the process.

Criteria: Expect positive responses or an improving trend over time.

Analysis: As with the past surveys, a majority of respondents believe there is adequate opportunity for the public to participate in the ROP. Many stakeholders express concern that the public as a whole is not seizing those opportunities to provide input to the program. Additionally, some stakeholders believe barring the public from security based issues within the post 9/11 ROP is damaging its credibility and effectiveness on those issues.

This metric meets its criteria with mostly positive comments.

O-16 The Public Perceives the NRC to Be Responsive to its Inputs and Comments

Definition: Annually survey external stakeholders through a *Federal Register* notice asking if the NRC is responsive to the public's inputs and comments.

Criteria: Expect positive responses or an improving trend over time.

Analysis: The majority of respondents feel the NRC is responsive to inputs and comments, but others feel the NRC has no interest in outside input. This division is similar to previous surveys with most of the negative comments being either based on speed of resolution or a feeling that inputs are ignored or not expressly addressed.

This metric meets its criteria with a stable proportion of positive comments.

O-17 Public Perceives the ROP Was Implemented as Defined

Definition: Annually survey external stakeholders through a *Federal Register* notice asking if the ROP has been implemented as designed.

Criteria: Expect stable or increasingly positive perception over time.

Analysis: Respondents believe the ROP is being implemented as defined. A few stakeholders expressed concern that the actual documents are difficult to compile as a coherent reference. Specifically, numerous stakeholders agree that the practice of issuing preliminary non-green findings may not be in accordance with the program documents. Previous surveys indicated a similar agreement with only a couple of concerns with progress in revisions and aspects of the SDP implementation.

This metric meets its criteria with a stable positive perception.

O-18 Public Perceives the ROP Reduces Unnecessary Regulatory Burden

Definition: Annually survey external stakeholders through a *Federal Register* notice asking if the ROP reduces unnecessary regulatory burden.

Criteria: Expect stable or increasingly positive perception over time.

Analysis: As with the previous surveys, stakeholders believe the ROP does reduce unnecessary regulatory burden. In addition to that feeling, a few believe the program may be going too far and reducing what is actually necessary regulatory burden. Some utility respondents feel the SDP process can be further refined to reduce the time and resource expenditures in its screening process.

This metric meets its criteria with a stable public perception.

O-19 Public Perceives the ROP Does Not Result in Unintended Consequences

Definition: Annually survey external stakeholders through a *Federal Register* notice asking if the ROP results in unintended consequences.

Criteria: Expect stable or increasingly positive perception over time.

Analysis: The majority of stakeholders responding indicate that they believe the ROP resulted in some unintended consequences. Examples include the recent vessel head issue at Davis-Besse and the assigning and subsequent changing of the preliminary color of SDP results creating an undue concern. Currently, the overall perception of unintended consequences is similar to previous years. While the actual consequences have changed, the number and gravity of their impact has remained constant.

Although the results are similar to previous years, these results do not meet the staff's expectations. Therefore, this metric has not been met.

ROP Communication Activities

As part of the Reactor Oversight Process (ROP) pilot program in 1999, the staff developed a communication plan to describe the key messages and the methods for communicating the ROP with internal and external stakeholders. The staff has updated the plan annually since initial implementation of the ROP in April 2000. The primary objective of the ROP Communication Plan is to deliver consistent and accurate information about the ROP to all stakeholders in a timely fashion, and to solicit stakeholder input and feedback on potential process improvements.

The staff issued the "Reactor Oversight Process Communication Plan for Calendar Year 2002" on November 21, 2001, to describe the approaches for facilitating communication regarding execution and continual refinement of the ROP. The plan describes ongoing activities to meet the following objectives:

- provide accurate, pertinent and timely information to all stakeholders
- gather and appropriately respond to stakeholder feedback
- maintain ongoing, positive interactions with all stakeholders
- collect and analyze pertinent information to make appropriate process adjustments
- enhance public confidence in the ROP

The staff effectively implemented the ROP Communication Plan in 2002 and has continued its focus on stakeholder involvement. Several highlights from this past year are discussed below.

Internal Stakeholder Interface

The program office staff continued to conduct biweekly conference calls with regional division level and branch level management to discuss current issues associated with the oversight process. In addition, the program office staff met periodically with regional managers to discuss more complex ROP topics and issues. The program office staff also conducted visits to the regions to provide regional staff and management the opportunity to discuss the status of the ROP and current issues. In addition, the Efficiency Focus Group and the Significance Determination Process (SDP) Task Group, consisting of an array of internal stakeholders, were formed to address specific issues as discussed in other sections of this paper.

The ROP feedback process continued to provide a means for staff to identify concerns or issues and propose recommended improvements related to ROP policies, procedures, or guidance. Informal feedback from staff and regional management indicates that feedback responsiveness and timeliness has improved; improvements in timeliness are due in part to weekly management meetings that emphasize reducing the backlog of feedback forms and providing clear and timely responses. Regional staff had requested access to the feedback database to view open and closed feedback forms. An interactive database was scheduled for development in late fiscal year (FY) 2002 to accommodate this request, but was not completed and has been deferred as a priority for FY 2003. During this period, the staff received 103 feedback forms and closed 146 feedback forms. Although feedback responsiveness and timeliness have improved, feedback from internal stakeholders indicates that further

enhancements are warranted. The staff intends to evaluate a re-engineering of this process to improve its efficiency and effectiveness in addressing internal stakeholder feedback.

External Stakeholder Interface

The staff continued to conduct routine, public working-level meetings with the Nuclear Energy Institute (NEI), the industry, and other stakeholders to discuss the status and ongoing refinements to the ROP on an approximate monthly basis. The staff also sponsored the annual Regulatory Information Conference in April 2002 to provide opportunities for Nuclear Regulatory Commission (NRC) management, its regulated utilities, and other interested stakeholders to meet and communicate directly regarding safety initiatives and regulatory trends. In addition, the NRC sponsored a public workshop to discuss and promulgate information regarding the Mitigating Systems Performance Index (MSPI) pilot program in July 2002. The staff also instituted a direct feedback mechanism through the ROP Web page as discussed below, and administered an external ROP survey as discussed below.

Internal and External Surveys

The staff conducted both internal and external surveys this past year to actively solicit and analyze stakeholder feedback regarding the effectiveness of the ROP. The staff administered an internal survey in late calendar year (CY) 2002 and received a total of 236 anonymous responses. NRC stakeholder participation included resident/senior resident inspectors, region-based inspectors and staff, senior reactor analysts, regional and headquarters line management, and headquarters technical and program staff employees. Using the computer-based survey, the respondents selected from five possible answers (strongly agree, agree, disagree, strongly disagree and unable to answer) to several specific questions and were provided space to amplify the responses or make additional comments. The detailed analysis of the internal survey is included in Attachment 5 to this paper, and specific issues are addressed in the applicable portions of the program area discussions (i.e., performance indicators, inspection, SDP, and assessment) as well as in the ROP performance metric report in Attachment 3. In addition, the staff has initiated an analysis of the individual written survey comments submitted by internal stakeholders. This analysis will identify the underlying programmatic themes, and may result in future improvements to ROP procedures and processes as well as changes to inspector training. This analysis is expected to be completed in June 2003.

In addition, a *Federal Register* notice (FRN) was issued on November 22, 2002, to obtain external stakeholder input regarding the efficacy of the ROP. The FRN requested responses to 20 specific questions corresponding to specific ROP performance metrics as defined in Inspection Manual Chapter (IMC) 0307, “Reactor Oversight Process Self-Assessment Program.” The NRC received comments from the 19 external individuals and/or organizations as delineated in the following list (in chronological order as received). Accession numbers from the Agencywide Documents Access and Management System (ADAMS) are also included after each respondent for access to the official record copy of the specific FRN response.

- S. Kasturi, Private Citizen (ADAMS accession number ML023370531)
- Union of Concerned Scientists (ML023540345)
- Tennessee Valley Authority (ML023540343)
- Nuclear Information and Resource Service (ML023600020)
- Florida Power and Light Company (ML030020484)
- The State of New Jersey, Department of Environmental Protection (ML030020491)
- Winston & Strawn (ML030070012)
- Constellation Energy Group (ML030020498)
- Nuclear Energy Institute (ML030020503)
- The State of Illinois, Department of Nuclear Safety (ML030020508)
- Southern California Edison (ML030070014)
- The State of Pennsylvania, Department of Environmental Protection (ML030070024)
- New England Coalition on Nuclear Pollution (ML030070030)
- Strategic Teaming and Resource Sharing (ML030070032)
- The State of Arizona, Division of Energy Management (ML030070039)
- Entergy (ML030090389)
- Dominion Generation (ML030090398)
- Greenpeace (ML030090392)
- Exelon Nuclear (ML030150318)

In addition, the detailed comments are consolidated into a summary document (ADAMS accession number ML030620007) with the comments received in their entirety following each of the 20 questions. Staff analysis of the specific responses is also included in the applicable portions of the program area discussions in this paper as well as in the ROP performance metric report in Attachment 3.

Although several of the survey responses were positive, the staff is concerned that a number of the responses were critical, and some indicated a negative perception when compared to previous surveys. As previously noted, these perceptions were primarily due to concerns over the Davis-Besse reactor vessel head degradation and the complexity of the SDP process. As a result, the staff is currently analyzing the primary themes and evaluating the need and feasibility for a public workshop in CY 2003 to address several of the common concerns noted by both the internal and external stakeholders.

Interface with the Advisory Committee on Reactor Safeguards (ACRS)

Over the past year, the staff has frequently interacted with the ACRS on matters related to the ROP, such as the status of the Industry Trends Program, the MSPI pilot program, and other ROP initiatives. The staff also briefed the ACRS Plant Operations Subcommittee on September 9, 2002, to discuss the staff's plans to address issues raised in a Staff Requirements Memorandum (SRM) after the ACRS briefing of the Commission on
December 5, 2001. The SRM, dated December 20, 2001, stated that "the staff, with ACRS input, should provide recommendations for resolving, in a transparent manner, apparent conflicts and discrepancies between aspects of the revised reactor oversight process that are risk-informed (e.g., the significance determination process) and those that are performance-based (e.g., the performance indicators)." As a result of the September 9 briefing, the staff decided to prepare a written response to address the specific issues raised at the September 9 ACRS briefing and in an

ACRS letter dated February 13, 2002. The staff's response to the ACRS (ADAMS accession number ML023610493), dated December 19, 2002, is summarized below.

The staff met again with the ACRS Plant Operations Subcommittee on January 21, 2003, to further discuss the written response and the subject SRM, and to present the staff's position and plans regarding the specific concerns from the September 2002 briefing. Accordingly, the staff and the subcommittee discussed the ACRS concerns regarding the subject SRM, the usefulness of the risk-informed performance indicator thresholds, and the assessment of concurrent findings. The staff also provided detailed presentations by the subject matter experts to demonstrate several greater-than-green examples and their basis. Most recently, the staff briefed the ACRS Full Committee on March 6, 2003, and summarized its position as noted in the December 2002 response and discussed during the January 2003 subcommittee briefing.

As detailed in the staff's written response, the staff's position is that the ROP should continue to be implemented in its current form, though incremental improvements are warranted and under consideration. The staff believes that the ROP is working effectively and that plants are receiving the appropriate level of oversight. The staff does not acknowledge any fundamental flaws in the process that would prevent the staff from continuing to successfully implement the ROP. The staff recognizes that there are differences between the risk-informed and strictly performance-based inputs to the ROP; however, the staff believes that the ROP appropriately addresses both risk-informed and performance-based issues and that the ROP inputs provide the necessary information to determine and initiate the appropriate regulatory response. However, the staff acknowledged the need for a central document to consolidate the basis for the PIs, SDPs, and other ROP aspects in a more transparent manner, and has issued the ROP Basis Document to address this need. In addition, the staff expects to make continued incremental improvements to the ROP via the ongoing self-assessment process, and anticipates several process improvements in the upcoming months based on recommendations from the Davis-Besse Lessons Learned Task Force and the SDP Task Group. In the longer term, the staff also plans to explore the potential use of structured decision analysis in the ROP.

As a result of the March 6 briefing, the ACRS forwarded a letter to the Commission on March 13, 2003, concluding that there are still disagreements between the staff and the ACRS. The specific issues presented in the March 13 letter will serve as the basis for further discussion and potential revisions to the ROP.

ROP Web Page Enhancements

The staff continued to make improvements to the ROP Web pages to ensure that they were useful tools for communicating accurate and timely ROP information to all stakeholders. For example, the staff corrected a PI reporting discrepancy in which licensee PI submittals would inadvertently overwrite historical information on the ROP Web page when removing fault exposure hours from safety system unavailability PIs. This effort involved revising the algorithms and the reporting protocol, testing the amended process, and documenting the change in a Regulatory Issue Summary.

The staff also added direct feedback access from the ROP Web page to the implementing office and has responded to several questions and concerns regarding the ROP. Another key

improvement to the ROP Web page was to add access to historical ROP information from previous quarters. These historical snapshots of plant performance include the individual plant performance summaries, inspection findings, and performance indicators, as well as the comprehensive summaries of the action matrix designation, inspection findings, and performance indicators for all plants.

In addition, the staff provided background information and online registration for the MSPI workshop in July 2002 and added a new page for the MSPI Pilot Program. The staff also provided a temporary link from the ROP Web page to the FRN that requested feedback from the public and other external stakeholders.

Several months prior to initial implementation of the ROP, the staff recognized the need to establish an internal NRC Web site to consolidate and provide pertinent information to inspectors in a timely manner. This site had been routinely updated and included the latest guidance, draft information, feedback forms, and program office points of contact. Unfortunately, this internal site was not adequately maintained in early CY 2002 due to competing priorities and our internal stakeholders lost confidence in the site as a reliable source of ROP information. The staff has recognized the usefulness and importance of this internal communication tool and has committed dedicated resources to the reconstitution and maintenance of this site. Accordingly, the information on the internal ROP Web site was recently updated, and the staff continues to maintain the accuracy of the information and make refinements to improve the site's effectiveness. The staff plans to continue to utilize the ROP Web pages as an effective and efficient communication tool.

Electronic Support System for Inspectors

In an effort to increase inspector efficiency and provide real-time and historical data, the staff is planning to develop an electronic support system for inspectors. This system would provide inspectors immediate access to a full range of information, information technology (IT) tools, and computer-based training. The framework for this system may include, but is not limited to, links to historical lessons learned, exemplary inspection findings, significant human performance issues, operating experience, technical information, good inspection techniques, and just-in-time computer-based training. The staff's goal is to help inspectors perform their jobs more successfully by providing a knowledge transfer tool in an inspector-centric, usable format. In addition, the staff launched an electronic newsletter in January 2003 that showcases regional best practices and provides information of current interest to inspectors.

The staff recently completed two pilot programs in FY 2002 utilizing IT technology. The objective of the first pilot was to determine the suitability of the personal digital assistant (PDA) as an electronic reference and personal productivity tool. This pilot consisted of two inspectors from each region. Based on survey data and conference calls with participants, the PDA pilot objective was met and the program was successful. The results of this pilot indicated the PDA increased efficiency in note taking, scheduling, and organizing work. The other pilot utilized pen scanner technology. This pilot consisted of ten participants, eight of whom indicated they believed efficiencies were gained by using the scanner. Both of these pilots were partnered with Region II and the Office of the Chief Information Officer (OCIO). Data gathered for these pilots clearly

demonstrates that efficiencies were realized by the use of IT tools. Cost and budget evaluations are now being conducted.

The staff is also planning to develop a pilot for on-demand training for inspectors. This training will be organized by inspection procedure and will serve as supplemental on-the-job training or as refresher training.

Internal Stakeholder Survey Results

An internal survey was completed in December 2002 to solicit and analyze stakeholder feedback regarding the effectiveness of the Reactor Oversight Process (ROP). A total of 236 responses were received from internal Nuclear Regulatory Commission (NRC) stakeholders, including resident and senior resident inspectors, regional-based inspectors and staff, senior reactor analysts, regional and headquarters line management, and headquarters technical and program staff employees.

The respondents selected answers from a computer-based program in eight major topic areas: (1) demographics, (2) overall ROP process, (3) assessment process, (4) inspection program, (5) performance indicators, (6) significance determination process, (7) feedback forms, and (8) other issues. The final section of the survey provided space to amplify responses or make additional comments. All respondent replies were anonymous and each questions had five possible answers (strongly agree, agree, disagree, strongly disagree, and unable to answer). Respondents selected "unable to answer" if they didn't know enough about the topic to make an informed judgment.

Background of ROP Internal Stakeholder Surveys

In March 2001, the staff conducted a survey of those individuals within NRC who were involved with the ROP initial implementation. Most of respondents agreed that the ROP provided a realistic approach to oversight and assured that plants were being operated safely. They considered that the process provided appropriate regulatory attention to licensees with performance problems, was objective, and was an effective risk-informed approach to oversight. Compared to the previous process, most respondents considered the new ROP to have increased predictability, consistency, clarity, objectivity, timeliness, and efficiency. Respondents generally agreed that the ROP resulted in a reduction of unnecessary administrative burden on the NRC and unnecessary regulatory burden on stakeholders.

In November 1999, at the end of the 6-month pilot program, the staff conducted a survey to obtain feedback from staff who were familiar with the ROP at that time. When comparing the November 1999 survey with the March 2001 survey, respondents generally indicated more positive ratings after the initial implementation year compared to the pilot program period. The majority of respondents showed a marked increase in their understanding and acceptance of various components of the ROP, including the Significance Determination Process (SDP), the baseline inspection program, the assessment program, performance indicators (PIs), and internal and external communication activities. Although some NRC inspectors may have initially indicated skepticism of the significant changes being brought about by the new program, the 2001 survey indicated a much higher level of acceptance, and a better understanding and familiarity with the ROP.

December 2002 Survey

The results of the eight survey sections are provided below. Note that the numbers in parentheses in the summary below represent the combined percentage of respondents who endorsed the stated view.

Section: Demographic Summary

Survey respondents made selections for each of four demographic issues: position, work location, grade, and years of service with the NRC. The responses were analyzed for each of the demographic issues.

Most of the respondents were inspectors directly implementing the ROP. Almost a third (30%) were resident/senior resident inspectors with a 39% contribution coming from the regional-based inspectors or staff that included the senior reactor analysts. The remaining responses (31%) were from regional and headquarters line management and headquarters technical or program staff. An almost equal distribution of respondents came from headquarters (18%), Region I (20%), Region II (20%), Region III (21%), and Region IV (21%).

A majority of respondents were grade 14 or 15 (65%) with a 32% coming from grade 13 or below. Only 3% of the respondents were SES or SLS-level civil servants. Almost three-quarters (71%) of those surveyed had more than 10 years of service with the NRC and 13% had between 5 to 10 years service, while the remaining 16% had less than 5 years. The demographic results were not compared for the regions nor headquarters.

Section: Overall ROP

The majority of respondents indicated that the ROP generally provides appropriate assurance that plants are being operated safely (80%) and provides appropriate regulatory attention to licensees with performance problems (76%) and a realistic approach to oversight (74%). Respondents further agreed that the ROP provides appropriate objectivity to the oversight process (82%). On the other hand, internal stakeholders indicated that they disagreed that the ROP provides appropriate identification of declining safety performance before there is a significant reduction in safety margins (51%). This was the only question where more respondents disagreed than agreed.

In a relatively consistent manner, respondents believed that the ROP provided an effective risk-informed approach to oversight (73%), provided sufficient attention to licensees whose performance is in the licensee response band (i.e., appropriateness of the baseline inspection and performance indicators for these licensees) (76%), and provided appropriate communication through use of plain language in official correspondence (e.g., inspection reports, letters to licensees) (74%).

Additionally, the stakeholders agreed that the ROP provides appropriate inspector and licensee communication (82%) and that the ROP is understandable and the procedures and output products are clear and written in plain English (74%).

Compared to the previous process, a vast majority of the respondents agreed that the new ROP generally increases consistency (85%) and is more risk-informed (91%). With relatively consistent agreement, they believed that the new ROP increases predictability (69%), objectivity (76%), and clarity (73%). Additionally, the stakeholders believed that the new ROP increases efficiency (70%) and maintains safety (76%). To a lesser extent, respondents felt that the new ROP increases timeliness (64%) and realism (65%). Slightly over half of the respondents agreed that

the new ROP increases effectiveness (56%) and reduces unnecessary administrative burden on the NRC (61%).

With respect to information on plant performance (e.g., inspection reports, PI data, Plant Issues Matrix (PIM) data, etc.) provided on the ROP Web site, a majority of the respondents agreed that the information is timely (89%), understandable (written in plain English) (87%), and organized for easy retrievability (90%). Additionally, the respondents believed the information is accurate (87%) and adequate to keep NRC internal stakeholders informed (74%).

Section: Assessment Process

Respondents agreed that the assessment process provides an appropriate range of actions for safety issues (78%). Just over half (56%) of the respondents agreed that the assessment process provides for timely resolution of issues commensurate with safety significance. About two-thirds (67%) of the respondents felt that the assessment process applies appropriate enforcement actions.

In excess of three-quarters (80%) of respondents agreed that the assessment process focuses resources on areas of greatest safety significance. Over three-quarters of the respondents (76%) agreed that the assessment process minimizes duplication/rework in preparation for assessment meetings (i.e., mid-cycle, end-of-cycle, agency action review, public meetings).

A majority of the respondents felt that the assessment process provides objective levels of assessment (78%), provides understandable thresholds (76%) and agreed that the agency takes appropriate actions to address performance issues for those licensees outside of the Licensee Response Column of the Action Matrix (80%).

Section: Inspection Program

A very high percentage of respondents agreed that the baseline inspection program inspection reports are communicated in a timely fashion (93%) and that the reports are communicated accurately (93%). Many internal stakeholders believed that the baseline inspection program appropriately inspects for and identifies risk significant issues (73%) and leads to objective findings whose significance can be clearly documented (69%). Approximately two-thirds of the respondents believed the baseline inspection program provides appropriate coverage of plant activities and operations important to safety (67%). Approximately half of the respondents felt that the level of effort for conducting each inspection is consistent with that estimated in the inspection procedure (58%).

Over three-quarters of the internal stakeholders agreed that the baseline inspection program procedures are adequate to address intended cornerstone attributes (80%) and that the procedures are clearly written (78%). They considered that baseline inspection program procedures place sufficient emphasis on planning (80%) and are conducted at an appropriate frequency (79%). The respondents felt that the baseline inspection program procedures adequately sample risk-important aspects of each inspectable area (72%).

Although most respondents agreed that the baseline inspection program report format adequately communicates relevant information to the licensee (71%), fewer believed that the format communicates relevant information to NRC internal stakeholders (65%). Even lower is the respondents' agreement that the baseline inspection program report format adequately communicates relevant information to the public (56%). Note in the latter case, just more than one-third of the respondents disagreed (37%), with only a small percentage who could not answer the question (7%).

Section: Performance Indicators

Closely grouped together in agreement, respondents felt that performance indicators provide useful information on risk-significant areas (70%), are clearly defined (71%), and provide an appropriate level of overlap with inspection findings (74%). A majority of the respondents (71%) agreed that the performance indicators are understandable (76%). Many internal stakeholders agreed that the performance indicators enhance public confidence (47%), while 31% were in disagreement and the remaining 22% indicated that they were unable to answer since they didn't know enough about the topic to make an informed judgement.

Only 62% of the respondents believed that the performance indicators helped to maintain safety, while 29% disagreed and 9% were unable to answer the question. With respect to providing an adequate indication of declining safety performance, only 38% of the respondents agreed, half (50%) disagreed, and 12% were not able to answer the question.

Section: Significance Determination Process

Most of the respondents disagreed that the reactor safety SDPs are easy to use (80%). Likewise, while 40% of the respondents disagreed that non-reactor safety SDPs are easy to use, only 14% believed that they were easy to use and the remaining 46% of respondents were unable to answer the question due to minimal experience with the topic.

Respondents answered similarly in that they disagreed that SDP training is effective (67%) and that program guidance documents are clear (68%). The majority of the respondents disagreed that resource expenditures are appropriate (68%). However, respondents generally agreed that the SDP focuses NRC attention on safety significant issues (71%).

Respondents believed that the SDP provides a basis for effective communication of inspection findings to licensees (73%) and to a lesser degree provides a basis for effective communication of inspection findings to the public (60%). Over half (61%) of the stakeholders agreed that the SDP provides consistent results.

Over three-quarters of respondents considered the SDP results to be verifiable (76%). To a lesser degree, respondents considered that the SDP results correctly characterize the risk significance of inspection findings (61%) and are realistic (62%). Over half (59%) of the internal stakeholders agreed that the SDP results are accurate. Also, over half of those polled disagreed that SDP results are timely (61%) and 54% disagreed that the SDP results are based upon clear standards.

Section: Feedback Forms

Respondents felt that the feedback forms were understandable and written in plain English (69%), were accurate (64%), and were responsive/address the issue(s) raised (54%). However, survey respondents disagreed that feedback forms sent to headquarters are timely (70%).

Section: Other Issues

Survey respondents agreed that the information provided by the NRC appropriately keeps the public informed of the agency oversight activities related to the plants (78%), and that the timeliness goals specified in Inspection Manual Chapter (IMC) 0305, "Operating Reactor Assessment Program," for documentation and data collection can reasonably be met (87%). The respondents felt that the supplemental inspection procedures provide sufficient information to confirm the adequacy of a licensee's root cause and corrective action effort (78%) and that the ROP has resulted in a reduction of unnecessary regulatory burden on stakeholders (76%).

A large majority of the internal stakeholders felt that issuing non-cited violations (NCV's) and relying on licensee's corrective action programs provides for an adequate approach to resolve issues of very low safety significance (i.e., green findings) (78%). Slightly over half of the survey respondents agreed that the resources needed to oversee licensees using the ROP are appropriate (55%). An almost equal percentage of respondents agreed and disagreed that the ROP fosters long-term self improvement by licensees (44% versus 43%, with 4% unable to answer the question). Most of the internal stakeholders disagreed that the ROP appropriately integrates and provides insights into cross-cutting areas (55%), while 33% agreed (12% were unable to answer the question).

Comparison of March 2001 and December 2002 Surveys

The staff last conducted an internal survey in March 2001. The survey was designed to obtain feedback on the perceptions of those internal stakeholders familiar with the ROP at that time. The March 2001 survey garnered responses from 234 respondents from headquarters and the regional offices, whereas the December 2002 survey received a comparable 236 responses. The data from the two surveys was compared. The questions asked in both surveys were not completely identical although the surveys were similar enough to permit a comparison. For instance, the recent December 2002 survey made minor changes to the wording of some of the questions, modified the order of the questions to align with organizational metrics, and added a few additional questions to some sections. The survey data presented below provides the combined agree/disagree response for those questions from both surveys. The "unable to answer" responses are not included in the percentage calculations of agreement and disagreement when comparing between the two surveys.

There was little change between the surveys regarding whether the ROP generally provides appropriate regulatory attention to licensees with performance problems (76% in 2002 vs. 74% in 2001). However, there has been some decline in agreement that the ROP provides an effective risk-informed approach to oversight (73% in 2002 vs. 82% in 2001), sufficient attention to licensees whose performance is in the licensee response band (i.e., appropriateness of baseline inspection and performance indicators for these licensees) (76% in 2002 vs. 80% in 2001), and

appropriate identification of declining safety performance before there is a reduction in safety margins (49% in 2002 vs. 53% in 2001).

There was some decline in agreement that the ROP generally increases timeliness (64% in 2002 vs. 78% in 2001), reduces unnecessary administrative burden on the NRC (61% in 2002 vs. 69% in 2001), is more risk-informed (91% in 2002 vs. 96% in 2001), and increases efficiency (70% in 2002 vs. 75% in 2001). Respondents indicated a slight reduction in agreement that the information on plant performance (e.g., inspection reports, PI data, PIM data, etc.) provided on the ROP Web page is adequate to keep NRC internal stakeholders informed (74% in 2002 vs. 77% in 2001).

There was a reduction in agreement among respondents that the assessment process minimizes duplication/rework in preparation for assessment meetings (i.e., mid-cycle, end-of-cycle, agency action review, public meetings) (76% in 2002 vs. 88% in 2001), and provides for timely resolution of issues commensurate with safety significance (56% in 2002 vs. 76% in 2001). Respondents believed that the assessment process has remained virtually unchanged in its belief that the process focuses resources on areas of greatest safety significance (was 79% in both 2002 and 2001). Respondents further indicated a slight increase in agreement that the process provides understandable thresholds (76% in 2002 vs. 74% in 2001).

A greater percentage of respondents agreed that the baseline inspection program had a level of effort for conducting each inspection that is consistent with that estimated in the inspection procedure (58% in 2002 vs. 47% in 2001). They indicated a slightly reduced agreement that the baseline inspection program appropriately inspects for and identifies risk-significant issues (73% in 2002 vs. 78% in 2001) and that the inspection reports are communicated in a timely fashion (was 92% in 2002 vs. 95% in 2001). Although respondents indicated that the baseline inspection program procedures adequately sample risk important aspects of each inspectable area (72% in 2002 vs. 76% in 2001), a higher agreement was noted with procedures being clearly written (78% in 2002 vs. 75% in 2001) and conducted at an appropriate frequency (79% in 2002 vs. 73% in 2001). Internal stakeholders indicated expanded agreement that the baseline inspection program report format adequately communicates relevant information to the licensee (71% in 2002 vs. 63% in 2001). Furthermore, agreement that the report format adequately communicated relevant information to the public remained constant (60% in both 2002 and in 2001).

As compared to those in 2001, respondents to the 2002 survey indicated a lower agreement that the performance indicators enhance public confidence (60% in 2002 vs. 65% in 2001), provide useful information on risk-significant areas (70% in 2002 vs. 79% in 2001), and provide an adequate indication of declining safety performance (43% in 2002 vs. 53% in 2001). Moreover, the same percentage of internal stakeholders agreed that the performance indicators provide an appropriate level of overlap with the inspection program (74% in both 2002 and in 2001).

Internal stakeholders indicated decreased satisfaction with the SDP with respect to resource expenditures being appropriate (32% in 2002 vs. 60% in 2001), the reactor safety SDPs are easy to use (20% in 2002 vs. 39% in 2001), the non-reactor safety SDPs are easy to use (26% in 2002 vs. 37% in 2001), and that the SDP provides for consistent results (61% in 2002 vs. 72% in 2001). Fewer respondents agreed that the SDP results correctly characterize the risk-significance of

inspection findings (61% in 2002 vs. 71% in 2001) and that SDP results are accurate (59% in 2002 vs. 65% in 2001).

Respondents indicated a minimal increase in agreement in the most recent survey that responses to feedback forms are understandable and written in plain English (69% in 2002 vs. 67% in 2001). Also, more internal stakeholders agreed that the feedback responses are responsive/address the issue(s) raised (54% in 2002 vs. 45% in 2001). These stakeholders acknowledged, with virtually no change in agreement between surveys, that the feedback form responses are accurate (64% in 2002 vs. 65% in 2001).

More internal stakeholders from the December 2002 survey agreed that the ROP appropriately integrates and provides insights into cross-cutting areas (38% in 2002 vs. 30% in 2001). Compared to the earlier ROP internal survey, the December 2002 survey indicated a reduced agreement that timeliness goals specified in IMC 0305 for documentation and data collection can reasonably be met (87% in 2002 vs. 91% in 2001) and that the ROP has resulted in a reduction of unnecessary regulatory burden on external stakeholders (76% in 2002 vs. 79% in 2001). Moreover, fewer respondents thought that the ROP fosters long-term self improvement by licensees (51% in 2002 vs. 56% in 2001).

Specific feedback gained from these surveys either has been or will be considered in modifications to the appropriate area of the ROP. Further discussion and analysis of the internal survey results are included in the applicable portions of the program area discussions in this paper as well as in the ROP performance metric report in Attachment 3.

Cross-Cutting Issue Assessment

Introduction

One of the fundamental premises of the Reactor Oversight Process (ROP) is that significant weaknesses in the cross-cutting areas of human performance, safety conscious work environment[1], and problem identification and resolution will be detected by performance indicators crossing thresholds or via inspection activities in sufficient time to allow for an appropriate Nuclear Regulatory Commission (NRC) response to ensure adequate public health and safety. In order to confirm the validity of this premise, the staff committed to perform a yearly assessment for all Accident Sequence Precursor (ASP)[2] events and those facilities that reached the degraded cornerstone column of the Action Matrix. The purpose of the assessment is to ensure that the ROP provides for an appropriate level of NRC engagement to detect and prevent an unacceptable safety risk. If the ROP can detect issues and provide for an appropriate level of NRC engagement prior to the creation of an unacceptable risk, the ROP premise regarding cross-cutting issues would tend to be supported.

Assessment

This assessment covers plants that reached the applicable columns of the action matrix during 2002, as well as plants that reached the applicable columns of the action matrix during 2001 that were not included as part of the last assessment. Three plants, Vermont Yankee, Harris 1, and Braidwood 1, reached the degraded cornerstone column of the Action Matrix. There were also three plants, Cooper, Oconee, and Point Beach, that reached the multiple/repetitive degraded cornerstone column of the Action Matrix. At Davis-Besse, facility management established an organizational culture that emphasized production facilitating acceptance of degraded conditions and reductions in safety margins causing reactor coolant system pressure boundary leakage going undetected for an prolonged period of time resulting in reactor pressure vessel head degradation and control rod drive nozzle circumferential cracking. This performance deficiency has preliminarily been characterized as a Red finding, but has not yet been finalized. Due to the time involved in completing ASP analyses, there were no ASP[3] analyses completed for events or conditions that occurred during calendar year (CY) 2001 or 2002.

Vermont Yankee reached the degraded cornerstone column of the Action Matrix due to a yellow inspection finding in the physical protection cornerstone identified in the third quarter of 2001. During the conduct of force-on-force exercises, response strategy weaknesses were identified. No additional risk significant issues were identified during the supplemental inspection conducted by the NRC.

ATTACHMENT 6

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[1] In SECY-99-007, “Recommendations for Reactor Oversight Process Improvements,” the terms “safety conscious work environment” and “safety culture” are used synonymously, and are defined as a willingness on the part of a licensee staff to raise and document safety issues to resolve risk-significant equipment and process deficiencies promptly, adhere to written procedures, conduct effective training, make conservative decisions, and conduct probing self-assessments.

[2] ASP events are events with a conditional core damage probability of equal to or greater than 1.0 X 10E-6.

[3] ASP analyses are currently being performed for a number of events in the CY 2001 and 2002 timeframe, including the Davis-Besse and Point Beach issues.

Harris 1 reached the degraded cornerstone column of the Action Matrix in the second quarter of 2002 due to two white findings in the mitigating systems cornerstone. The first white finding involved a violation of the fire protection program for a fire barrier assembly with an indeterminate fire resistance rating. The second white finding involved a violation of technical specifications resulting from inadequate foreign material controls which allowed foreign material to enter the containment sump suction piping. During a corresponding supplemental inspection, the inspectors determined that the licensee's problem identification, root cause evaluation, and extent of condition evaluation for both findings were adequate. Also for both issues, the licensee's root cause evaluation determined that there were prior opportunities to identify the findings. In addition, the corrective action program had not been utilized effectively in resolution of the Thermo-Lag fire barrier finding. As such, several corrective action deficiencies were subsequently identified and are under review. The inspectors conducted an independent assessment of the licensee's extent of condition evaluation for both issues. This assessment did not identify any additional areas affected by either finding which the licensee had not already identified. No additional risk significant issues were identified.

Braidwood 1 reached the degraded cornerstone column of the Action Matrix in the first quarter of 2002 due to one performance indicator (PI) and one inspection finding in the mitigating system cornerstone. The PI was the safety system unavailability for the heat removal system (auxiliary feedwater) and the inspection finding was associated with the pressurizer power operated relief air accumulator check valves. The inspectors concluded that the level of detail of the root cause evaluation for exceeding the performance indicator threshold was adequate. The licensee appropriately identified that the potential for a common cause failure mode based on the inappropriate application of the diesel fuel shutoff solenoid valve was applicable to the Braidwood and Byron diesel driven auxiliary feedwater pumps and the Byron essential service water makeup pumps. The valves for the auxiliary feedwater diesels were either replaced or are scheduled to be replaced. A supplemental inspection for the performance issue associated with the check valves has yet to be performed. No additional risk significant issues were identified during the supplemental inspection for the heat removal system PI.

Cooper entered the multiple/repetitive degraded cornerstone column of the Action Matrix at the start of the second quarter of 2002 based on two or more white findings in the emergency preparedness cornerstone existing for greater than 4 quarters. There were three separate white findings in the emergency preparedness cornerstone that contributed to entry into this column. There was also an additional white finding in the mitigating systems cornerstone. During a supplemental inspection performed for the emergency preparedness issues, the licensee’s root cause evaluation was found to be inadequate, in that it was not sufficiently broad to address all the causes for the programmatic breakdown in the emergency preparedness program. After entering the multiple/repetitive degraded cornerstone column, an extensive supplemental inspection was conducted to review the adequacy of the licensee’s improvement plan and to assess the extent of other risk significant issues. No additional risk significant issues were identified during this inspection; however, the inspection did find that a number of long-standing performance problems existed at Cooper Nuclear Station. Of greatest concern was the failure of Cooper Nuclear Station to correct recurring performance issues. For example, the improvement plan did not include actions to correct recurring equipment problems and was not comprehensive in addressing problems with the corrective action program.

Oconee reached the multiple/repetitive degraded cornerstone column of the Action Matrix in the second quarter of 2002 due to five consecutive quarters in the degraded cornerstone column of the

Action Matrix. The mitigating systems cornerstone remained degraded due to a white PI for heat removal system unavailability. The PI was the result of the unavailability of the 1B motor driven emergency feedwater pump due to a misaligned bearing sleeve. A supplemental inspection in accordance with Inspection Procedure (IP) 95002[4], "Inspection For One Degraded Cornerstone Or Any Three White Inputs In a Strategic Performance Area," was conducted to assess the licensee's root cause evaluation and to perform an independent evaluation of the extent of the issues. The licensee's root cause evaluation and extent of condition review were found to be adequate. No additional risk significant issues were identified.

A red performance deficiency associated with the auxiliary feedwater system was self identified by the licensee at Point Beach during the fourth quarter of 2001. In September 2002, a special inspection was performed to assess the licensee's corrective actions and whether the licensee should be given credit for self-identifying the issue under the "old design issue" provisions of Inspection Manual Chapter (IMC) 0305, "Operating Reactor Assessment Program." During that inspection, it was determined that the licensee's extent of condition evaluation was not sufficiently broad, as evidenced by additional issues identified by the inspection team with the auxiliary feedwater system, and credit under the "old design issue" provisions was not granted. The risk significance of these additional issues has been preliminarily evaluated as red. A supplemental inspection is being planned to assess the breadth and depth of risk significant issues at Point Beach.

At Davis-Besse, facility management established an organizational culture that emphasized production resulting in acceptance of degraded conditions and reductions in safety margins. That deficient safety culture impacted the effectiveness of a number of safety significant programs including the corrective action program and boric acid corrosion management program. Also, the emphasis on production resulted in multiple examples where adequate technical rigor was not applied to decisions and evaluations of degraded equipment and operating experience. The outcome of this deficient safety culture was that Davis-Besse allowed reactor coolant system pressure boundary leakage to occur undetected for an prolonged period of time resulting in reactor pressure vessel head degradation and control rod drive nozzle circumferential cracking. The preliminary significance determination associated with this performance issue was determined to be Red, an issue of high safety significance. In addition, the issue has resulted in an extended plant shutdown and the plant being placed in the NRC's IMC 0350, "Oversight of Operating Reactor Facilities in an Extended Shutdown as a Result of Significant Performance Problems," process.

Conclusion

The results of this analysis are summarized in the attached table. Weaknesses in the cross-cutting area of problem identification and resolution were a contributor at six facilities. Weaknesses in the cross-cutting area of human performance were a contributing factor at five facilities.

[4]On October 9, 2002, the EDO approved a deviation from the Action Matrix for Oconee to allow an inspection in accordance with IP 95002 in lieu of an inspection in accordance with IP 95003, "Supplemental Inspection For Repetitive Degraded Cornerstone, "Multiple Degraded Cornerstone, Multiple Yellow Inputs, or One Red Input," which is required for plants that enter the multiple/repetitive degraded cornerstone column of the Action Matrix.

Weaknesses in the cross-cutting area of safety conscious work environment were a contributing factor at Davis-Besse. Although individuals were not initially hesitant to raise concerns regarding many of the specific issues, the concerns were not adequately resolved due to a deficient safety culture. In addition, following the shutdown of the facility, the licensee identified a lack of employee confidence in their Employee Concerns Program, a key element of a safety conscious work environment.

At Harris, Braidwood, Oconee, and Vermont Yankee, the performance issues were found to be limited in scope and had not progressed to a degree that posed an unacceptable[5] safety risk. At Cooper, the performance issues were found to be more broad in nature. At Point Beach, the breadth and depth of risk significant issues have not yet been determined.

In conclusion, none of the individual performance issues involving cross-cutting concerns discussed above have been shown to represent an unacceptable safety risk to public health and safety; however, in the case of Davis-Besse, the integrated risk associated with multiple concurrent performance deficiencies has not been quantified. In addition, the Davis-Besse Lessons Learned Task Force identified a number of program and implementation issues that may have contributed to the ROP's inability to detect the issues at Davis-Besse in a more timely manner. The task force's recommendations are currently being evaluated and changes to the ROP will be made as appropriate. An evaluation will be performed to determine whether a more direct way is needed to assess and react to performance weaknesses in the cross-cutting areas of problem identification and resolution and safety conscious work environment (safety culture). The results of this evaluation will be communicated to the Commission in the next annual ROP assessment report.

[5] For the purposes of this assessment, the level of unacceptable risk is assumed to be equivalent to the NRC's definition of a significant precursor, which is defined as a change in core damage frequency or conditional core damage probability of greater than 10E-3.

Summary Table - Cross-Cutting Issue Assessment

	Quarter Reached and Reason	Cornerstones Affected	Cross-cutting Issues That Contributed	Supplemental Inspection Results Adequate	Unacceptable Safety Level Identified
Braidwood 1	1st quarter 2002 due to one white PI and one white inspection finding	mitigating systems	problem identification and resolution, human performance	ongoing	no
Vermont Yankee	3rd quarter 2001 due to yellow inspection finding	physical protection		yes	no
Harris 1	2nd quarter 2002 due to two white inspection findings	mitigating systems	problem identification and resolution, human performance	yes	no
Cooper	1st quarter 2002 due to three white findings	emergency preparedness	problem identification and resolution, human performance	no	no
Oconee	2nd quarter 2002 due to white PI for heat removal system combined with previous inspection findings	mitigating systems	problem identification and resolution, human performance	yes	no
Point Beach	4th quarter 2001	mitigating systems	problem identification and resolution	ongoing	indeterminate
Davis Besse	1st quarter 2002	initiating events	problem identification and resolution, human performance, safety conscious work environment	ongoing	indeterminate

ROP Resource Analysis

In fiscal year (FY) 2002, the total staff effort expended for the Reactor Oversight Process (ROP) continued the downward trend that was seen during the first two years of implementation.[1]

Table 1 provides a comparison of staff resources expended during three separate annual time periods: the first year of implementation, FY 2001, and the more recent numbers for FY 2002.

A comparison of FY 2002 with FY 2001 shows a reduction of nearly 10% in the staff hours expended for the ROP. The reduction is evident in all elements of the ROP except for plant specific/supplemental inspections and safety issues inspections. The bulk of the reductions occurred in baseline inspection activities. Although some of these reductions may reflect efficiency gains, a number of events during the calendar year (CY) 2002 inspection cycle challenged the ability of the Nuclear Regulatory Commission (NRC) to complete the required baseline inspections. These challenges required regional staff to implement short-term coping strategies that resulted in reduced baseline inspection effort.

The reduction in the number of resident inspectors that resulted from implementation of the “N+1" to “N” resident inspector staffing policy was one of several contributors to the challenges that the Regions struggled with to complete the baseline inspection program in CY 2002. With full implementation of the “N” resident inspector staffing policy in CY 2002, some unexpected resource problems have emerged. Regional offices are having difficulty in maintaining site coverage requirements and satisfying the baseline inspection program requirements assigned to the resident inspectors. This problem becomes magnified whenever there are unexpected losses of qualified inspectors, or if there are emergent resource demands, such as with Davis-Besse and the security orders.

The staff underestimated the impact that resulted from the change in the resident staffing policy. The full impact of the change was only recently recognized since “N” resident staffing was achieved gradually and concurrently with implementation of the Reactor Oversight Process in combination with higher than expected attrition of inspectors. The operational margin that the N+1 staffing policy provided with its additional resident inspector has eroded and several regions did not have sufficient qualified inspectors to complete the baseline program as intended. There are other interrelated factors that contributed to the resource challenges that the Regions struggled with in CY 2002; some of the more significant are discussed in the sections that follow.

The reverse trend in plant specific/supplemental inspections is attributed primarily to a greater than anticipated inspection effort resulting from inspection findings and performance issues and the effort required for restart inspections at Davis-Besse in accordance with Inspection Manual Chapter (IMC) 0350, “Oversight of Operating Reactor Facilities in an Extended Shutdown as a

[1]The ROP is implemented on a calendar year basis; however, resource data were obtained and reported on a fiscal year basis in order to meet the schedule requirements of this paper. There is no basis to believe the results would be significantly different if resource data were collected on a CY basis.

Result of Significant Performance Problems." The increase in safety issues inspections reflects the increased activity in this area in FY 2002 compared with FY 2001.

Resource Model

The resource model developed from data and experience gained during ROP initial implementation was used to estimate regional inspection resource requirements and was used as the basis to initially develop budget requirements in the FY 2004 budget. The total FY 2002 actual expenditures compare favorably with the resource requirements estimated by the current resource model (approximately 300 full time equivalents (FTE)); however, this favorable comparison must be tempered with the fact that a number of events in the CY 2002 inspection cycle, as described later in this attachment, challenged the ability of the NRC to complete the required baseline inspections. Because of these events, CY 2002 cannot be considered a representative year for the purpose of resource analysis. However, experience in CY 2002 demonstrates that additional refinements to the ROP resource model are needed to reflect actual and expected program needs. The primary changes that were evaluated are the inclusion of IMC 0350 inspections and increased supplemental inspections. The refinements to the resource model will be made using the additional experience gained in CY 2002 and as more data become available.

The lower baseline expenditures during this past inspection cycle will not necessarily result in equivalent reductions in baseline resources since the same factors that challenged the agency's ability to complete the baseline inspections also account for the reduced baseline inspection hours. Further discussions of circumstances related to the execution of the baseline inspection program during the CY 2002 inspection cycle are provided in subsequent paragraphs.

Efficiency Focus Group

The ROP Efficiency Focus Group, a focus group consisting of experienced staff from the regions and the Office of Nuclear Reactor Regulation (NRR), was formed in November 2001 to explore ways in which to achieve efficiency gains in the ROP. After evaluating a number of ideas, the focus group selected two suggestions for near-term implementation: (1) explore less resource-intensive alternatives to the annual performance assessment meeting for plants in the licensee response column of the Action Matrix, and (2) review the baseline inspection procedures to identify areas where consolidation is possible.

The staff is actively pursuing both of these suggestions. The staff is considering reducing the frequency of the performance assessment meeting with licensees from annual to biennial, with an option for an annual meeting if appropriate for selected sites—at the request of the licensee or at the discretion of regional management—for plants in the licensee response column of the Action Matrix during the entire assessment period.

The suggestion to consolidate the baseline procedures has been undertaken initially for four groups of procedures and will be implemented in a six-month pilot starting in April 2003. If the anticipated resource savings are realized, assuming effectiveness is maintained, the baseline procedure consolidation effort will be extended to other baseline procedures.

Challenges Confronted in CY 2002 Inspection Cycle

The major component of the ROP is the baseline inspection program, which is performed at all reactor sites by NRC resident inspectors and inspectors from the regional offices. During the CY 2002 inspection cycle, regional offices indicated that they were seriously challenged in their ability to complete the baseline inspection program. The projected inability to complete the baseline inspection program at all reactor sites was attributed to two primary factors:

- a shortage of qualified inspectors
- the diversion of inspection resources intended for baseline inspections in order to respond to unanticipated emerging events and external demands.

Although Regions II and IV indicated that they were challenged in managing inspection resources, they expected to complete the baseline program at all sites. The inability to complete baseline inspections was a concern primarily in Regions I and III because of circumstances and unusual demands related to events at Indian Point 2 and Davis-Besse, respectively, and in some cases, the high turnover of qualified staff due to promotions, reassignments, and retirements.

Shortage of Qualified Inspectors

Even though the inspection resources for the baseline inspection program are adequately budgeted to complete baseline inspections at all reactor sites, regional offices experienced a significant shortage of qualified inspectors in CY 2002. Regional assessments indicate that, although the nature and degree of the events that led to the shortfall of qualified inspectors differ among the regions, there are a number of common elements to which the shortage can be attributed:

(1) Staff turnover due to promotions to Headquarters and internal region reassignments
Region 1 reported that, over the course of little more than one year, more than 40 individuals in reactor programs have been promoted or reassigned, have retired, or have had significant rotations.

(2) Inspection staff vacancies due to difficulty in hiring experienced inspectors and the seven-year resident rotation policy
The unavailability of fully qualified inspectors increases the training burden associated with staff turnover. In addition, security considerations have increased the time required to process security clearances to the point where a security clearance becomes a major factor in fielding an inspector for unescorted access.

(3) The agency policy requiring at least 25% of new hires to be recent graduates with resulting high training burden and delay in inspector certification
Although new hires may be highly talented, they need time to qualify as and develop into effective inspectors. It takes on the average two years to achieve full qualification for new graduates. At the end of FY 2002, 82 of 381 inspectors (21.5%) were in the qualification process. By replacing fully qualified inspectors with new hires, the overall regional inspection efficiency is reduced in the short term.

(4) The impact of the N+1 to N policy has resulted in decreased inspection efficiency and staff shortages

The transition from the “N+1" to “N” resident inspector policy resulted in 35 inspector positions moving from resident sites to the regional offices; however, very few inspectors actually moved to the regional offices, leaving those positions to be filled. Also, the inspection efficiency is greater for resident inspectors compared with regional inspectors. For the 35 positions, the loss of efficiency is equivalent to 8 inspectors. A more detailed discussion of the impact on ROP of the “N+1" to “N” policy is provided later in this attachment.

Diversion of Inspection Resources

The other factor that contributed to the challenges in CY 2002 is the diversion of inspection resources to respond to unforseen emerging events and external demands. Several events during the past year resulted in diversion of inspection resources at the expense of baseline inspections:

(1) The agency response to the events of September 11, 2001, resulted in reduced inspection effort in order to provide incident response. A number of baseline inspections were rescheduled resulting in increased burden during the CY 2002 inspection cycle. The events of September 11, 2001, also resulted in security and emergency preparedness issues (with subsequent increased inspection) and increased public communication and response to public inquiries.

(2) More supplemental inspections than anticipated were required as a result of inspection findings and performance issues at Cooper, Oconee and other sites.

(3) There were significant resource expenditures for public outreach efforts at Davis-Besse and Indian Point to address the events and concerns at those sites.

(4) There was an unanticipated inspection effort to support the IMC 0350 restart activities at Davis-Besse.

(5) Significance Determination Process (SDP) evaluations were more resource intensive than anticipated.

(6) Continuing emergent issues in the safeguards area impacted resident and regional inspectors’ time.

The effort required to support these activities resulted in fewer inspectors available to perform baseline inspections.

Short-Term Coping Strategies

Regional staff implemented a number of strategies to address and avert the possibility of not completing the baseline inspection program in CY 2002:

(1) Manage regional resources more aggressively (rehire annuitants and delay personnel moves, mandate/encourage moderate use of overtime, defer retirements, use project engineers and basic qualified inspectors to the extent possible, make maximum use of regional staff to supplement inspectors, reduce/defer non-required training, cross train inspectors to increase inspector areas of expertise so that the same inspectors can perform inspections in several areas)
(2) Defer and cancel inspector counterparts meetings
(3) Delay biennial/triennial inspections to the next inspection cycle
(4) Increase use of contractors to the extent permitted by funds and inspection requirements
(5) Reduce inspection effort to the minimum required for satisfactory completion of inspection procedure (inspect the smallest sample size allowed by the procedure)
(6) Defer regional improvement and development initiatives, including Efficiency Focus Group efforts, into CY 2003
(7) Share inspection resources among regions to provide stop-gap assistance

Even with aggressive use of these short-term coping initiatives, Regions I and III estimated that they would experience a shortage of inspection resources of 9 inspector-weeks and 46 inspector-weeks, respectively. The shortfall was supplemented with assistance from inspectors from other regions and headquarters.

With these additional resources, the regions were able to complete the CY 2002 baseline program. The potential long term impact on plant safety of continuing some of these coping strategies (i.e. minimum procedure samples and effort, reduced inspection preparation time, deferment of some inspections, etc.) if done year-after-year, could erode the staff's ability to obtain adequate indication of licensee performance and to identify risk-significant issues.

Impact on CY 2003

Although the short-term coping strategies allowed completion of the baseline inspections in CY 2002, the deferrals and postponements of a number of activities will have adverse impact on the conduct of the CY 2003 inspection program. The currently known impacts are:

(1) *Inspections rescheduled from CY 2002 to CY 2003*
A number of biennial and triennial inspections were deferred until CY 2003 to make inspection resources available in CY 2002, resulting in more inspection resources needed in CY 2003 to accommodate the deferred inspections. This is particularly acute in Region III due to the delay of 11 inspections into CY 2003.

(2) *Delayed inspector training and qualification*
Deferral of inspector qualification training in CY 2002 to permit use of "basic" qualified inspectors in completing CY 2002 baseline inspections will delay inspectors from reaching full qualification, which in turn impacts the number of fully qualified inspectors in CY 2003.

(3) Deferred improvement/development efforts
The regions provide support for several program improvement initiatives (e.g., the Mitigating Systems Performance Index (MSPI), Problem Identification & Resolution Focus Group, Efficiency Focus Group (EFG), and Fire Protection SDP Initiative). Participation in program improvement

activities for CY 2002 was reduced and may be reduced in CY 2003 in order to complete required inspections. Resource constraints have resulted in delays in some program improvements, such as further performance indicator development and EFG activities.

(4) Deferred inspector counterpart meetings
A high value is placed on regional inspector counterparts meetings. Postponement of these meetings from CY 2002 to CY 2003 may result in fewer inspection resources available in CY 2003.

(5) Impacts from Davis-Besse
Fallout from Davis-Besse lessons learned is resulting in additional inspections. The impact of Davis-Besse on the ROP is being evaluated. Also, as Davis-Besse restart continues to be delayed, restart inspections in CY 2003 add significantly to the CY 2003 inspection burden.

(6) *Inspection oversight at specific sites*
Additional resources are needed for accelerated restart activities for Browns Ferry Unit 1, increased oversight of plants with performance issues, and reactor vessel head inspections and replacements.

(7) *The impact of safeguards activities on resident and regional inspectors*
Emergent safeguards inspection requirements place additional demands on limited inspection resources. Current resources allocated for safeguards/homeland security issues do not provide for the efforts of resident inspectors and region-based inspectors (such as emergency preparedness specialists, operations specialists, and, to a lesser extent, engineering inspectors) who support homeland security issues and spend time gathering data, validating information, and providing communication support. The safeguards inspections have a significant impact on the ability of the inspection staff to complete required inspections.

While no major changes to the ROP are anticipated in CY 2003, some adjustments will be required to address these issues and to accommodate the additional inspection effort and attention that must be given by the regional offices to external stakeholders for plants in the IMC 0350 process, plants with high profile public issues, such as those at Indian Point, plants with multiple degraded cornerstones, and situations where contentious security issues are present. The staff is considering implementing the following actions to provide relief during the CY 2003 inspection cycle:

(1) Provide additional resources as determined by an add/shed process.
(2) Continue aggressive human resource management to avoid staffing shortfalls. Ensure timely detection and trending of changes to qualified inspectors, prompt filling of vacancies, and active recruiting and training of new hires.
(3) Develop a surge capacity of qualified inspectors in NRR and the regions to be called upon to supplement regional inspectors when needed.
(4) Request funding above original regional estimates to increase use of contractors and allow specific regional inspection expertise to be applied where it is needed.

(5) Evaluate changes to the agency policy which would allow resident inspector positions to be “double-encumbered” for up to a year ahead of expected RI transfers to minimize the impact from such transfers.

Possible Long-Term Improvements

Although the coping strategies described above provided temporary relief, in many instances the solutions have leveraged future use of resources. The FY 2004 and later budget requests have been revised to include inspection resources to support an IMC 0350 site and the need for supplemental inspection resources to assist in post-inspection oversight activities. Additional long-term options to prevent future difficulties include:

(1) Continue efforts to identify areas for possible efficiency gains in the ROP, including evaluation of the effectiveness of the ROP procedures and the effort to streamline the SDP process/Phase 2.

(2) Reevaluate the allocation of baseline inspection procedures between the resident and regional inspector staff.

(3) Reconsider personnel staffing policies to permit “overhiring” above minimum estimated requirements (i.e., increase inspection staff by 5-10 additional inspectors above requirement to compensate for expected turnover) in order to maintain a ready pool of qualified inspectors. “Double encumber” resident inspector positions.

(4) Continue aggressive hiring strategies by all four regions to avoid staffing shortfalls.

(5) Pursue and evaluate credit for licensee self-assessment. However, care will have to be given to the need to assure public confidence in the process, as well as to NRC's ability to independently and adequately assess licensee performance.

These options will be reviewed and evaluated as part of the ongoing, continuing ROP improvement process.

Impact on ROP from “N+1" Policy Change

Background:

The agency proposed to transition to the “N” resident inspector staffing policy in SECY-99-227, “N+1 Resident Inspector Staffing Policy,” in September 1999. The proposal was approved by the Commission in January 2000.

The purpose of the transition to “N” was to allow the regions more flexibility in conducting core and reactive inspections by increasing the inspector staffing level in the regional office. This would allow regional management the ability to allocate inspection resources (aka “reactive inspections”) to sites that needed them. The concept was that those 35 inspectors who were filling the “N+1" site would return to the regional office and assist the regions in conducting

inspections. It was thought that number of qualified inspectors in the regions would increase by 35.

At the same time the staff was proposing a change to the resident inspector staffing policy, the staff also developed the ROP:

- SECY-99-007 “Recommendation for Reactor Oversight Process Improvements” (January 8, 1999)
- SECY-99-007A “Recommendations for Reactor Oversight Process Improvements” (March 22, 1999)
- Pilot Program: May 1999 to Nov 1999 at 8 plants
- SECY-00-0049 “Results of the Revised Oversight Process Pilot Program”

Data:

- Thirty-five FTEs were transferred to the regional office from the resident inspector program. The breakdown by region was as follows:

Region I:	8
Region II:	13
Region III:	8
Region IV:	6
Total:	35

- Region Direct FTEs funded by NRR have declined since 1998:

1998 -	425
1999 -	401
2000 -	392
2001 -	386
2002 -	381
2003 -	374

- Available productive hours for conducting inspections are greater for resident inspectors than region-based inspectors:
  - Regional inspectors: 996 hours/region-based inspector
  - Resident inspectors: 1283 hours/resident inspector
- The Inspection Program did not lose any inspection resources in the transition from “N+1" to “N”. However, there was a loss in efficiency with the movement of resources from the resident sites to the regional offices as discussed in the analysis section.

- The current resource model used by the program office to budget inspection resources does account for individuals who are in the training pipeline. The staff does this by including all regional inspection staff in calculating inspector efficiency.

- The staff currently uses the average of the 5-year period from FY 1996 - FY 2000 to determine the overall inspection efficiency (i.e., 1140 hours/inspector). This number, however, does not reflect recent changes in regional personnel.

- June 2002 inspector demographics (all inspectors) indicate that we have 82 of 381 inspectors in the qualification pipeline. This represents 21.5% of the budgeted inspection force not fully qualified to conduct inspections. It should be noted, however, that some of the 82 inspectors may have achieved some basic level of qualification; however, the primary focus of new inspectors is full qualification rendering them largely unavailable for inspection activities until they achieve full qualification. This is particularly true for new graduates.

- The inspection program has been operating closer to “N” than “N+1" for some time. Most multi-unit sites had “N” resident inspectors during the first two cycles of the ROP.

	April 2000 - April 2001 (1st yr ROP)	April 2001 - Dec 2001 (2nd year ROP)	
	August 2000	June 2001	July 2002
Sites at N	22 (63%)	27 (77%)	33 (94%)
Sites at N+1	13 (37%)	6 (23%)	2 (6%)
net change	14%	17%	

- Baseline inspections were completed satisfactorily during the first two cycles of the ROP at all plants.

- The policy to require 25% of new hires to be at an entry level position will lower the overall program inspector efficiency.

- Resources required to complete baseline inspections have decreased since the initial implementation of ROP:

1st year of ROP	FY 2001	FY 2002
4/2/00 - 4/1/01	9/24/00 - 9/22/01	9/23/01 - 9/21/02
288,133	285,748	255,497*

  * This may be an under-representation of the hours required to complete the baseline inspection program in the third year of ROP since some inspections were deferred as a result of the events of September 11, 2001, and other events in 2002.

- Using the inspection hours estimate, it appears that the hours required to complete the ROP do not justify placing an extra resident inspector at multi-unit sites; however, some

sites are unique -- an exemption was granted to Nine Mile Point, and multi-unit sites with significant differences between the units may need special consideration.

Analysis:

- Implementation of the "N" resident inspector policy resulted in some loss of inspector efficiency.

- The available productive hours for resident inspectors (1283) is greater than for region-based inspectors (996). When the staffing went from "N+1" to "N" resident inspectors, the inspection program did not recognize the change in efficiency between resident and region-based inspector resources. As a result, the 35 FTE transfer to region-based effort translated to only 27 FTE (a loss of 8 effective FTE).

  (996/1283)*(35) = 27 inspectors

- Challenges faced by the regions in completing the baseline during the third year of the ROP appear to be influenced more by the loss of qualified inspectors (high number of personnel transfers during CY 2002) than by other factors. The other factors which are exacerbating the current situation include:

  - "N" resident policy
  - requirement to hire personnel at entry level
  - response to 9/11
  - more resources devoted to unexpected events (Davis-Besse)

- The resources budgeted to complete the baseline inspections appear to be adequate. This, however, needs additional review due to an increase in supplemental inspections during ROP-3.

- Detection and trending of changes to the number of qualified inspectors in the regions are required.

- Inspector productive hours reflected in the budget model are based on average productive hours for all inspectors during the five-year period of FY 1996 - FY 2000. However, possible losses in efficiency due to recent changes in the inspector workforce are not reflected in these numbers.

- The minimum level of inspectors needed to complete the ROP may have been reached. Any further reduction in the number of inspectors may impose significant challenges to the regions' ability to complete the ROP along with other tasks assigned to them (continued ROP development, Temporary Instructions (TIs), etc.) unless efficiencies are implemented.

In addition to the above, one issue specific to Region I will also be addressed: In the current resource model, Millstone, Unit 2 and Unit 3, are treated as two single-unit sites instead of one dual-unit site. This treatment allocates additional inspection resources to Millstone in order to address unique site features as well as historical circumstances that are currently being resolved.

Region I has indicated that it will reevaluate the need for these additional resources concurrently with its review of Millstone resident inspector assignments. In consultation with Region I, a decision on the site status and inspection resource needs for Millstone will be made during the CY 2004 inspection cycle.

A similar situation exists for Indian Point, Units 2 and 3—currently treated as two, single-unit sites. The site status of the Indian Point units will also be reevaluated as consolidation of the two units under a single licensee continues; however, this is a long term reevaluation. The current public outreach demands for Indian Point do not justify a near term reduction of inspection resources for these units.

Table 1

Resources Expended
(Total Staff Effort Expended at Operating Power Reactors)

	52 weeks initial implementation 4/2/00 - 4/1/01	52 weeks FY 2001 9/24/00 - 9/22/01	52 weeks FY 2002 9/23/01 - 9/21/02
Baseline/Core			
Direct Inspection Effort	128,447	130,330	119,884
Inspection Prep/Doc	115,935	109,227	91,385
Plant Status	43,751	46,191	44,228
Subtotal	288,133	285,748	255,497
Plant Specific Inspections			
Direct Inspection Effort	11,295	8,436	9,354
Inspection Prep/Doc	6,683	6,161	7,715
Subtotal	17,978	14,597	17,069
GSI/SI	2,416	918	1,718
Performance Assessment	21,017	19,845	17,293
Other Activities	47,190	49,471	43,627
Inspection Related Travel			
Routine Communication			
Regional Support			
Enforcement Support			
Significance Determination Process			
Review of Technical Documents			
Total Staff Effort (regular + nonreg hrs)	376,734 hrs	370,579 hrs	335,204 hrs
Total Staff Effort/Operating Site	5,623 hrs/site	5531 hrs/site	5003 hrs/site

Resident Inspector Demographics

INTRODUCTION

This attachment provides the annual update on resident inspector (RI) demographic data as requested by the Commission in a staff requirements memorandum (SRM) dated April 8, 1998. The purpose of this analysis is to determine whether the agency's actions associated with the RI program have resulted in a stable or increasing resident experience base and to identify any necessary actions.

DISCUSSION

Resident Inspector Demographic Data

The review of the RI demographics includes an analysis of the overall program data for the resident and senior resident inspector (SRI) groups (see Tables 1 and 2 and Figures 1 and 2). Additionally, an analysis of the regions in each of the data categories is provided (Figures 3 through 14). The months used for making the statistical comparison are April 1994, November 1997, September 1999, December 2000, November 2001, and November 2002. Median values were used to make the comparisons.

"NRC time" is total number of years the individual spent as an Nuclear Regulatory Commission (NRC) employee; "total resident time" is total number of years the individual spent in the RI program, and "qualified total resident time" is the time spent by the individual after completing the resident/operations inspector qualification requirements of NRC Inspection Manual Chapter (IMC) 1245, "Inspector Qualification Program for the Office of Nuclear Reactor Regulation Inspection Program." "Current site time" is total number of years spent as a resident at the current site. "Relevant non-NRC experience" is nuclear power experience acquired before joining the NRC. Examples of relevant non-NRC experience are operation, engineering, maintenance, or construction experience with commercial nuclear power plants, Naval shipyards, Department of Energy facilities, and/or the Navy nuclear power program.

Analysis of 2002 RI and SRI Groups

RI demographic data for 2002 (Table 1 and Figure 1) indicated that, with the exceptions of total resident and the current site time metrics, there was an increase in most demographic indicators. An increase in "relevant non-NRC experience" value for the RI group indicated that the regions were able to recruit individuals with extensive non-NRC experience into the RI program. Additionally, an increase in "NRC time" and an increase in "qualified total resident time" metrics indicated that a sufficient number of experienced RIs remained in the program to provide a stable RI inspection force. The "qualified total resident time" metric is the highest experience level attained by the RI group since the agency started tracking RI demographics data in 1994.

The experience level for the SRI group decreased slightly as indicated by the decrease in the "total resident time" and "qualified resident time" metrics (Table 2 and Figure 2). The median experience level of the SRI group was about six years with three of the six years being at their currently assigned site. The "relevant non-NRC experience" for the SRI group continued to increase. The decrease in the SRI experience level during the 2002 year was a change from previous years (1997 through 2001), which had shown a continued improvement in this area.

Table 1 - Summary of RI Group Experience Levels (in years)							
		Apr. 94	Nov. 97	Sept. 99	Dec. 00	Nov. 01	Nov. 02
NRC time	average	5.55	5.08	5.70	6.26	6.21	6.39
	median	4.79	6.01	5.11	4.83	5.13	5.61
Total resident time	average	3.29	2.66	3.28	3.84	3.84	3.90
	median	2.64	1.51	2.43	3.41	3.87	3.77
Qualified total resident time	average	2.38	1.76	2.53	3.15	3.11	3.14
	median	1.68	0.61	1.61	2.54	2.92	3.14
Current site time	average	1.86	1.35	2.23	2.54	2.74	2.86
	median	1.57	1.01	2.16	2.68	3.18	2.30
Relevant non-NRC experience	average	5.83	6.60	7.74	8.07	8.8	9.68
	median	5.33	6.17	7.50	7.83	8.0	9.29

Resident Inspectors (Program Total)
Figure 1

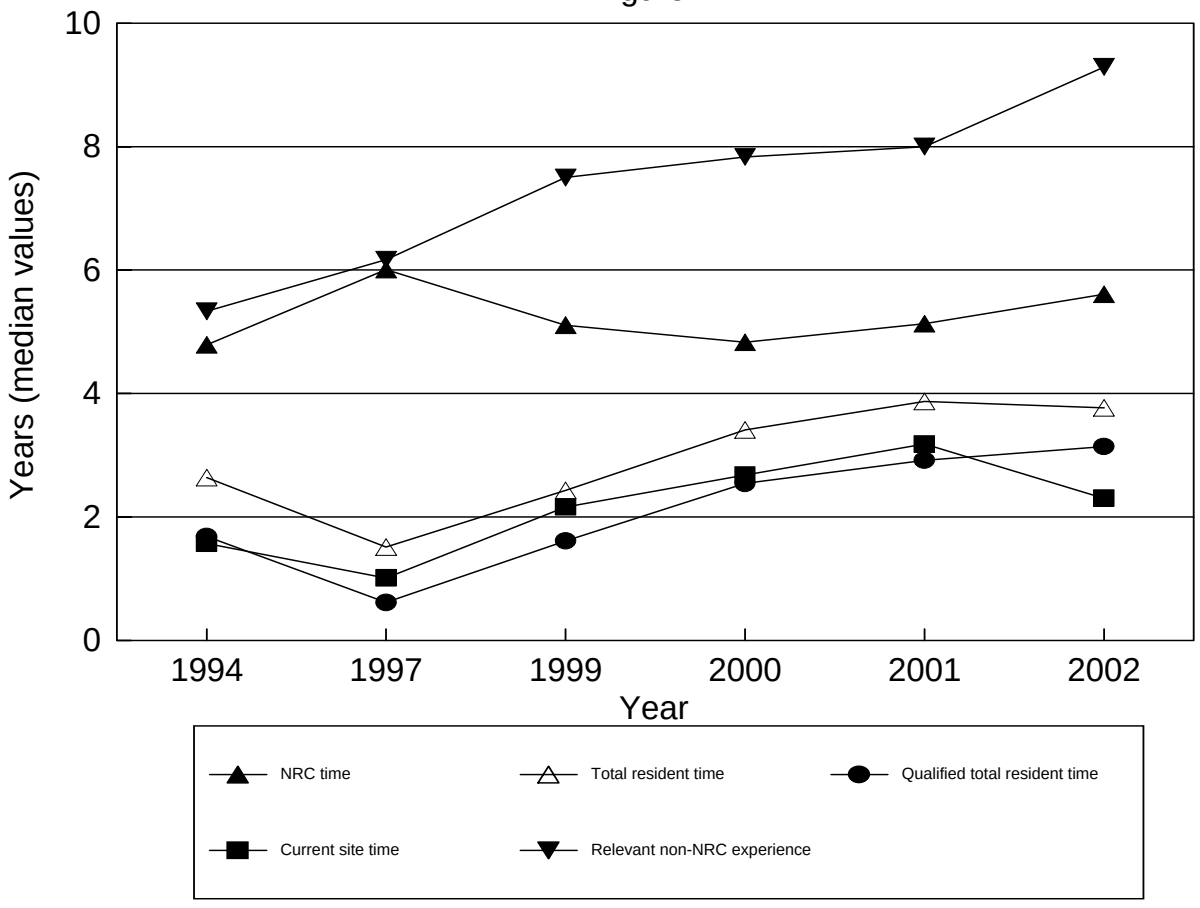
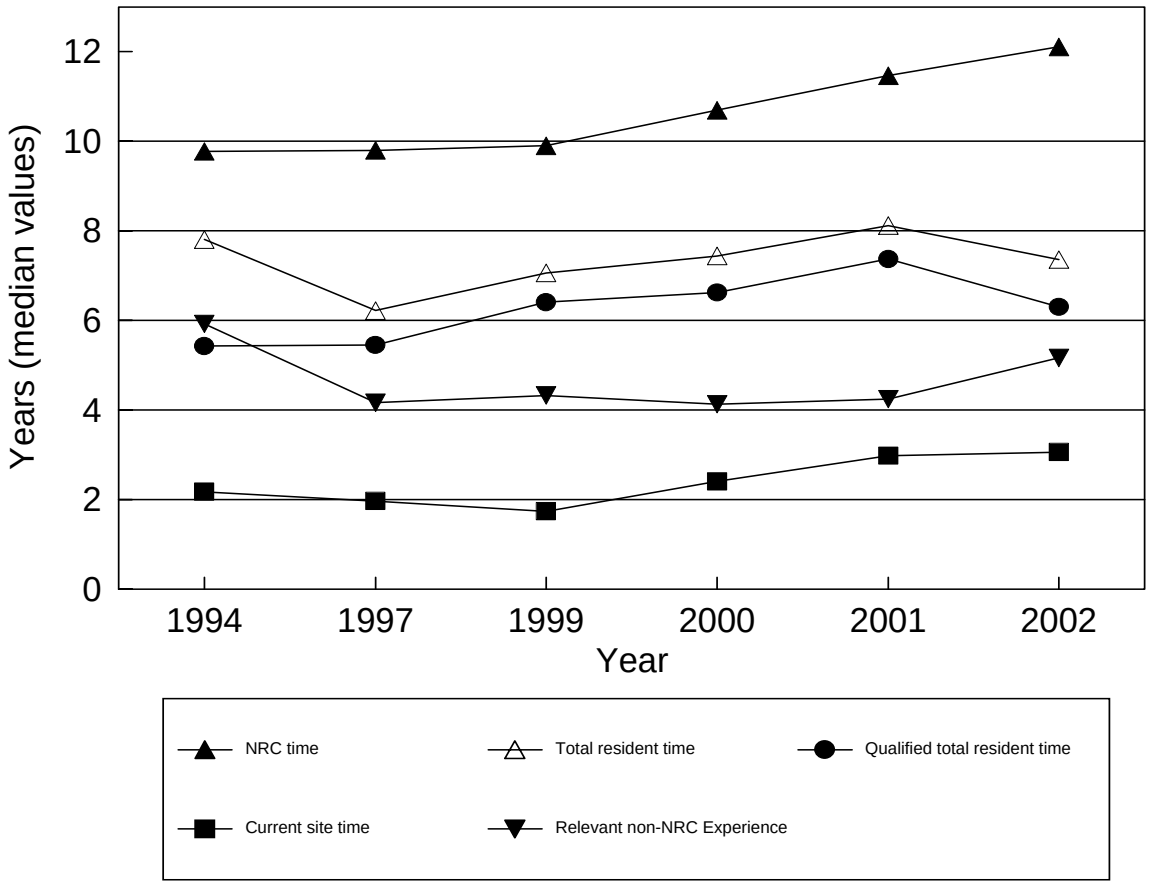


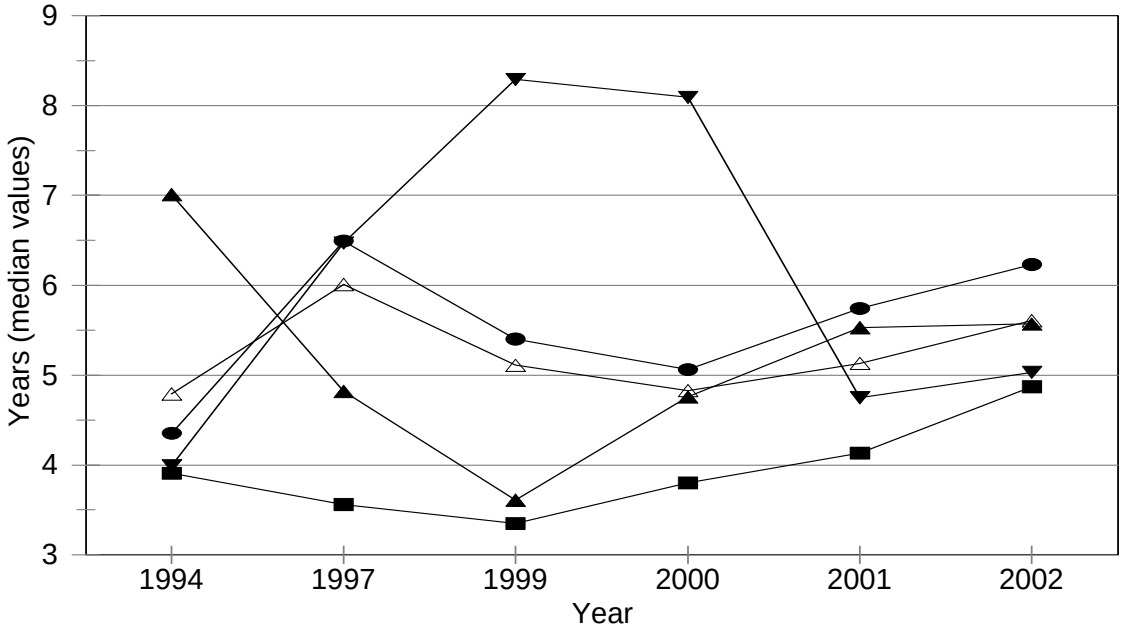
Table 2 - Summary of SRI Group Experience Levels (in years)							
		Apr. 94	Nov. 97	Sept. 99	Dec. 00	Nov. 01	Nov. 02
NRC time	average	10.46	9.93	10.44	11.18	12.03	11.85
	median	9.78	9.80	9.90	10.70	11.47	12.11
Total resident time	average	7.59	6.93	7.60	8.07	8.66	8.17
	median	7.81	6.22	7.06	7.44	8.12	7.36
Qualified total resident time	average	5.62	6.03	6.62	7.27	7.94	7.36
	median	5.43	5.45	6.41	6.63	7.38	6.31
Current site time	average	2.38	2.11	2.03	2.84	2.96	2.90
	median	2.18	1.97	1.74	2.41	2.98	3.06
Relevant non-NRC experience	average	6.87	5.30	5.61	5.62	6.07	7.26
	median	5.92	4.17	4.33	4.13	4.25	5.17

Senior Resident Inspectors
(Program Total) - Figure 2

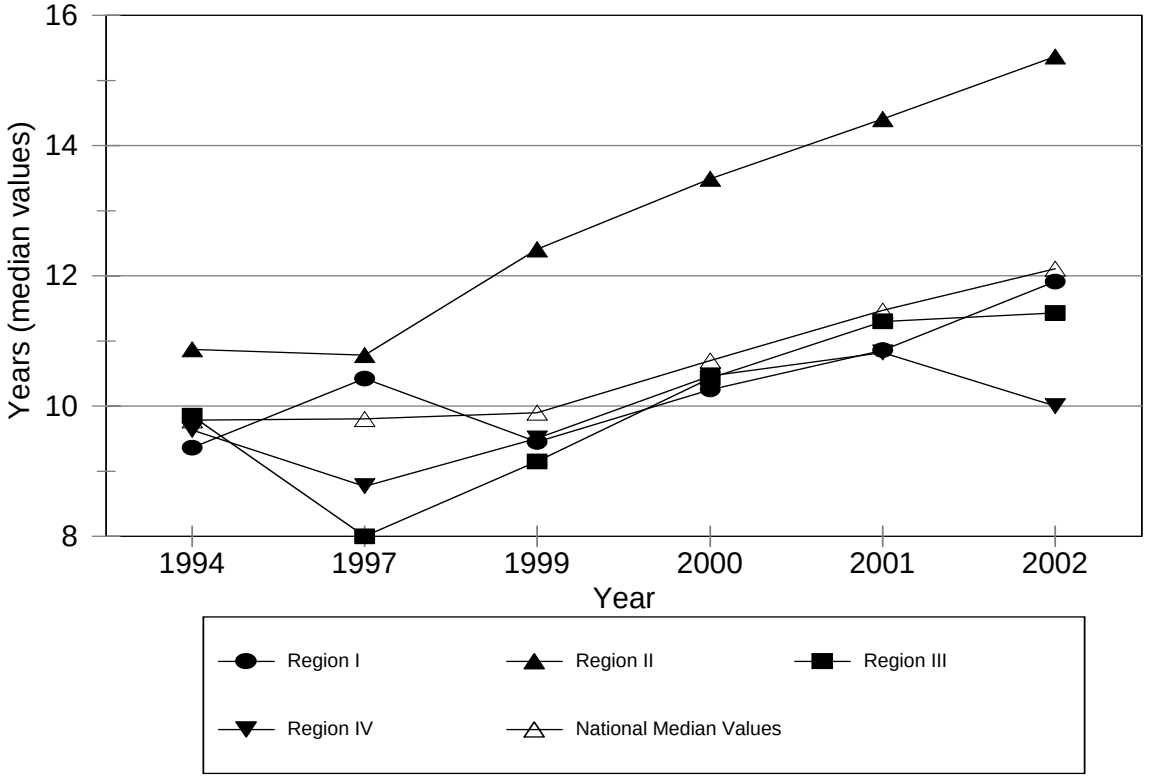


NRC Time: NRC time for the RI and SRI groups increased nearly in all regions. There was a slight decrease in NRC time for Region IV SRIs. Region II SRIs continued to have the most experience with the agency.

NRC TIme (RIs) - Figure 3

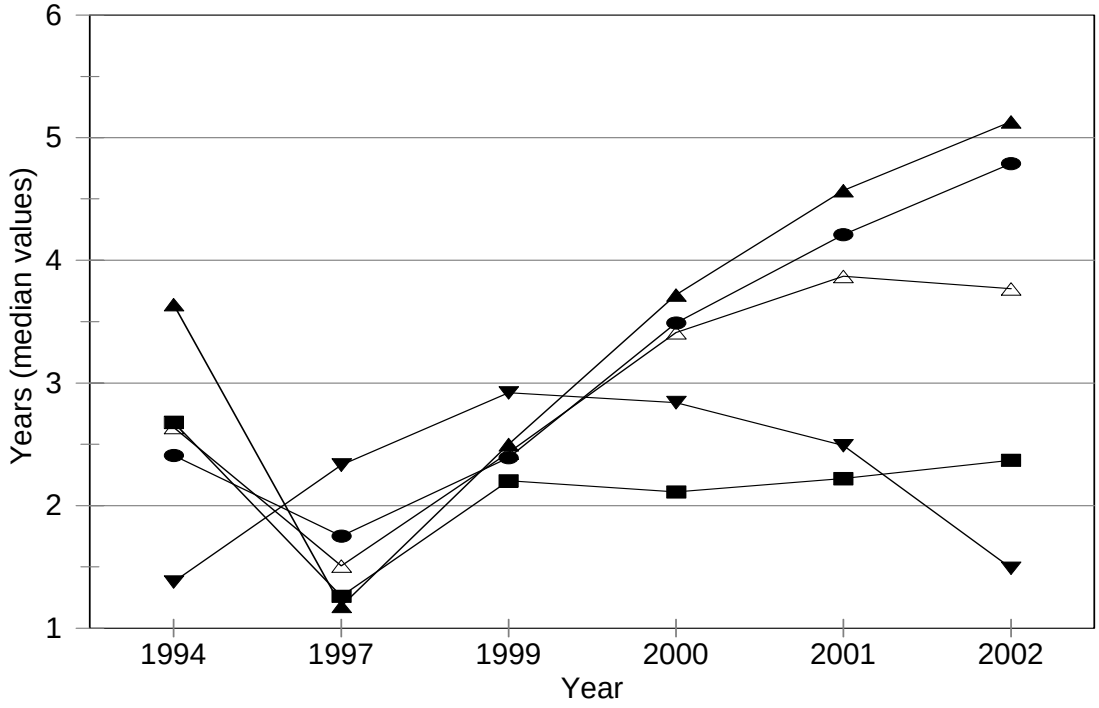


NRC TIme (SRIs) - Figure 4

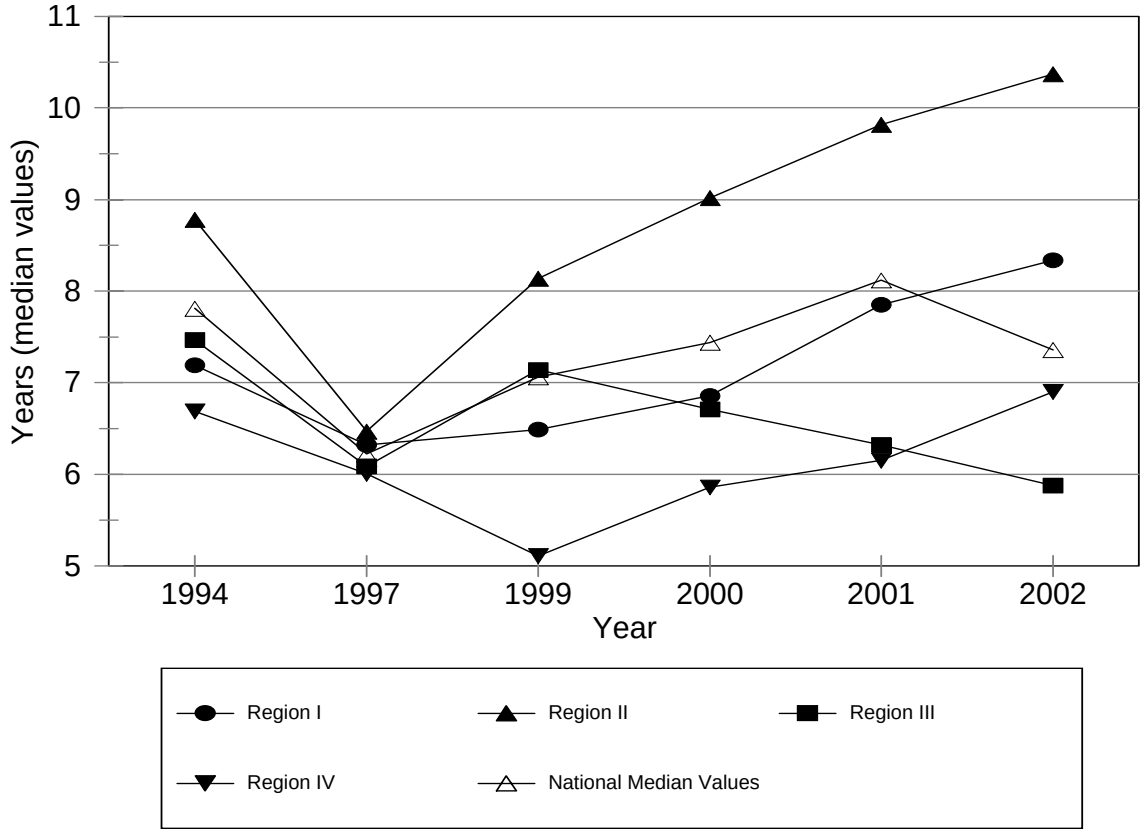


Total Resident Time: Total resident time metric for RIs in Region IV decreased because four new RIs entered the program in 2002. Likewise, this metric for SRIs in Region III decreased because five new SRIs entered the program in 2002.

Total Resident Time (RIs) - Figure 5

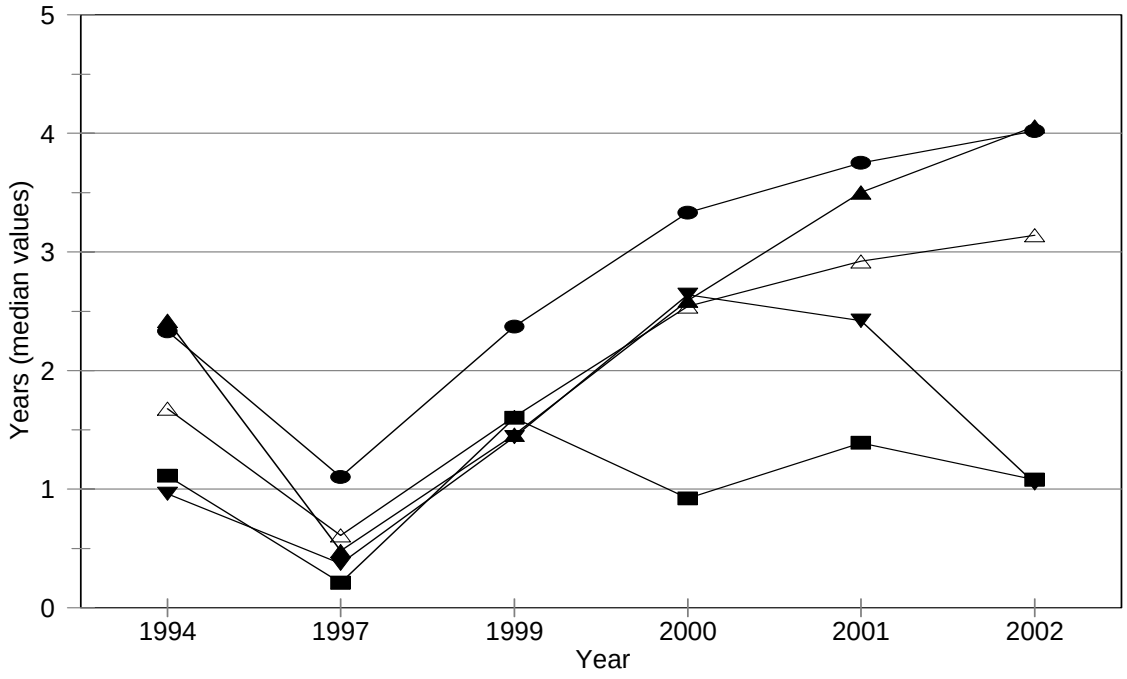


Total Resident Time (SRIs) - Figure 6

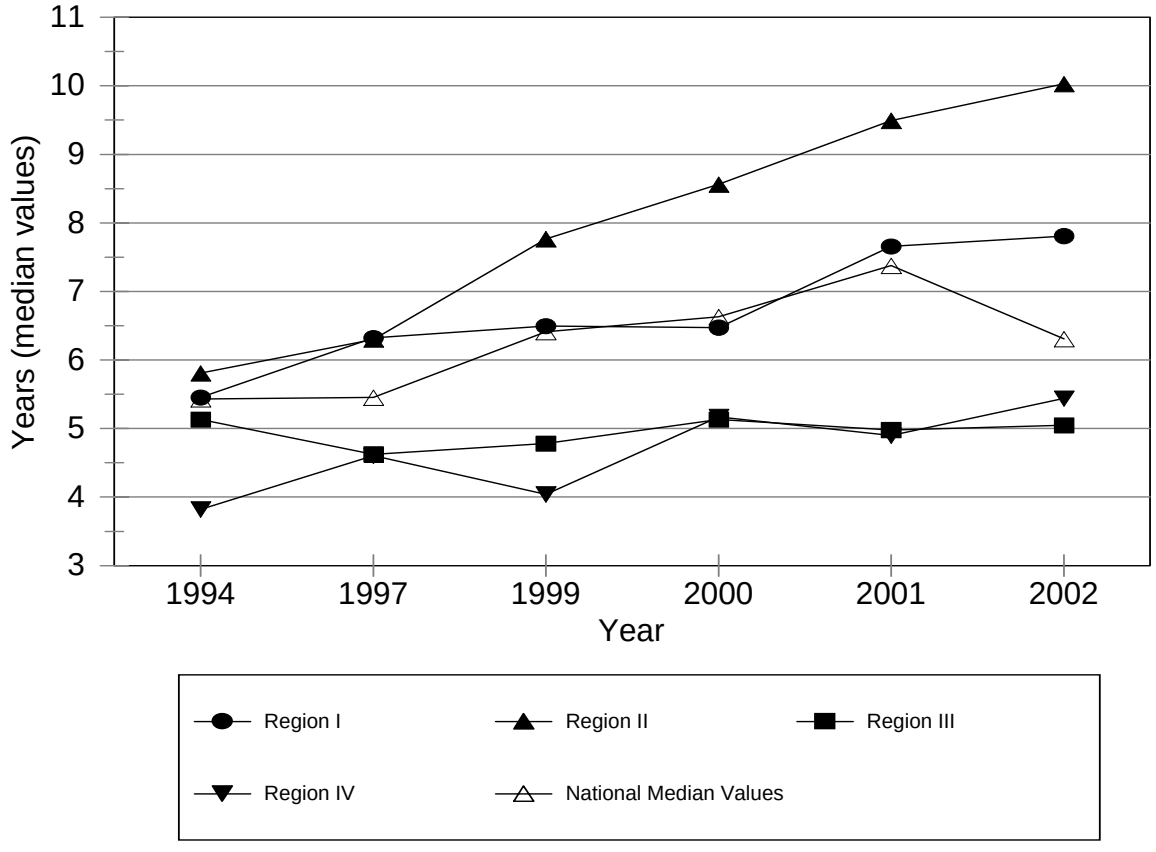


Qualified Total Resident Time: There was a decrease in the experience level of qualified RIs in Regions III and IV because of new hires in 2002. Consequently, their RI metrics were below the national median values.

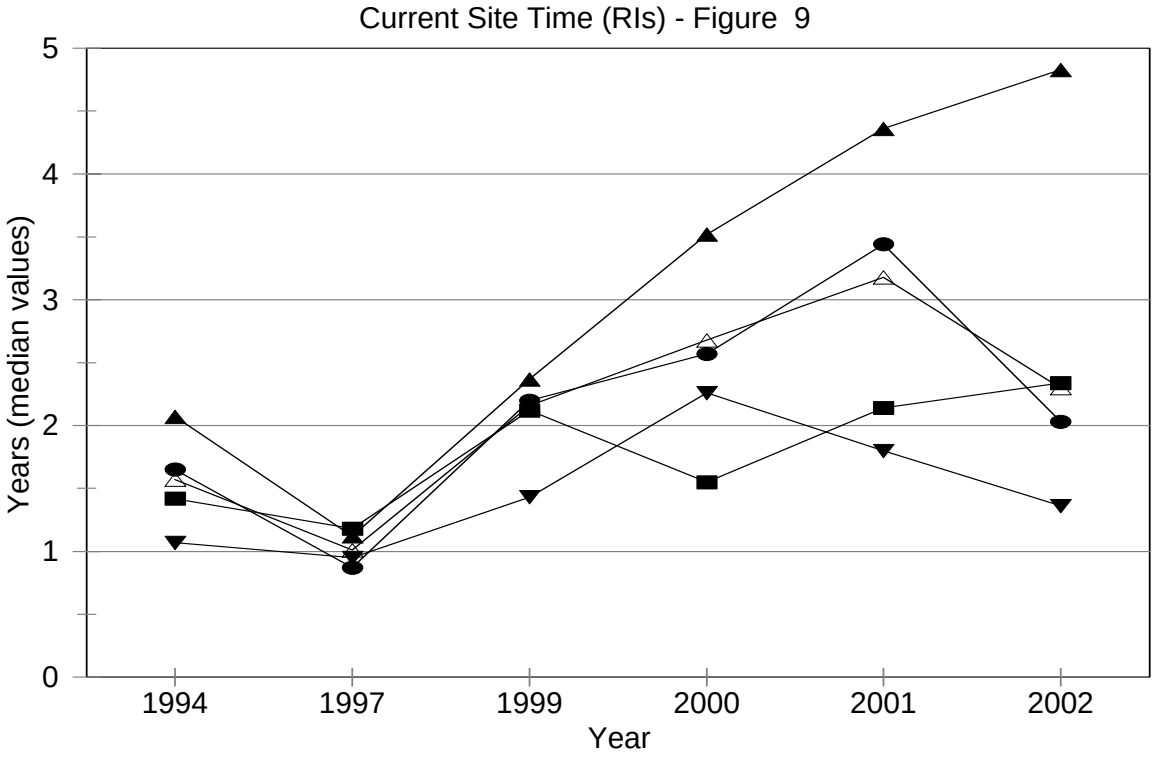
Qualified Total Resident Time (RIs)
Figure 7

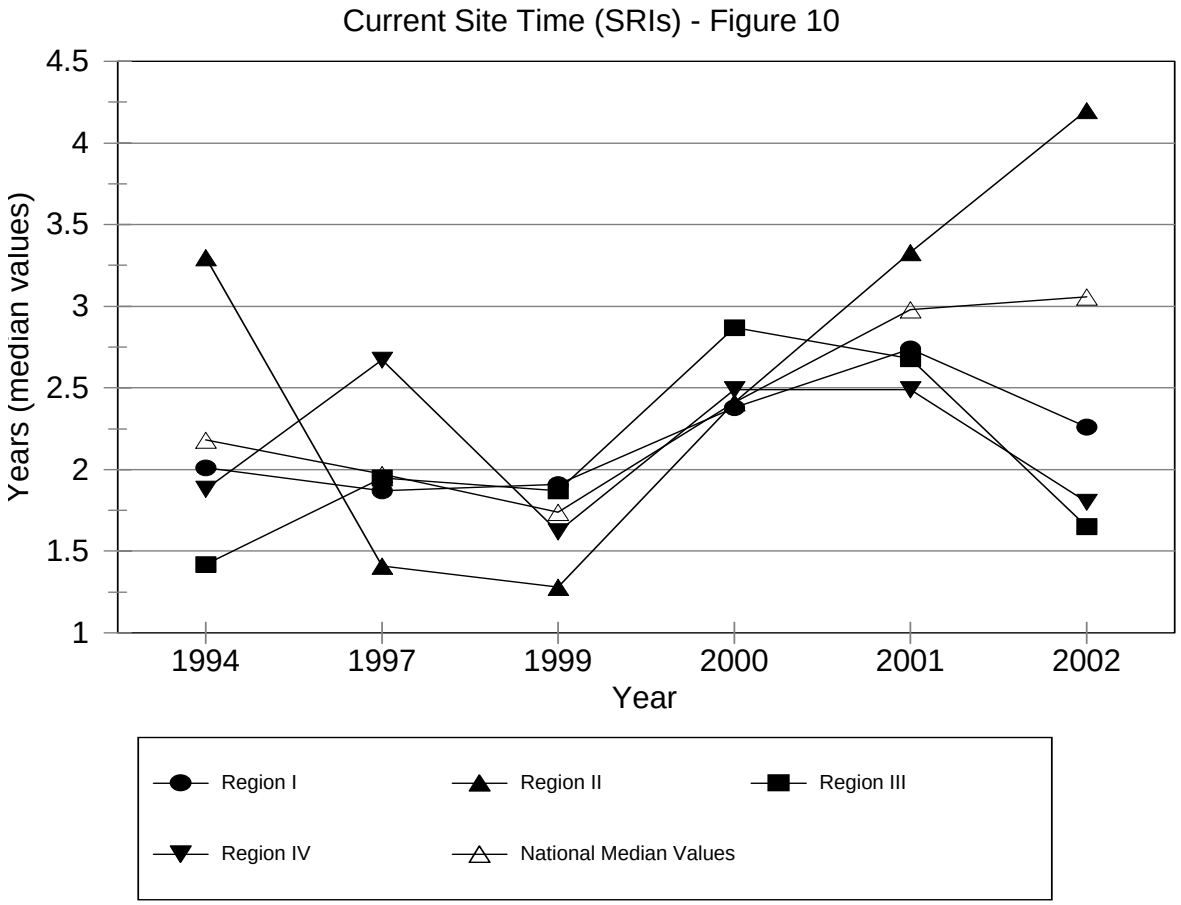


Qualified Total Resident Time (SRIs)
Figure 8



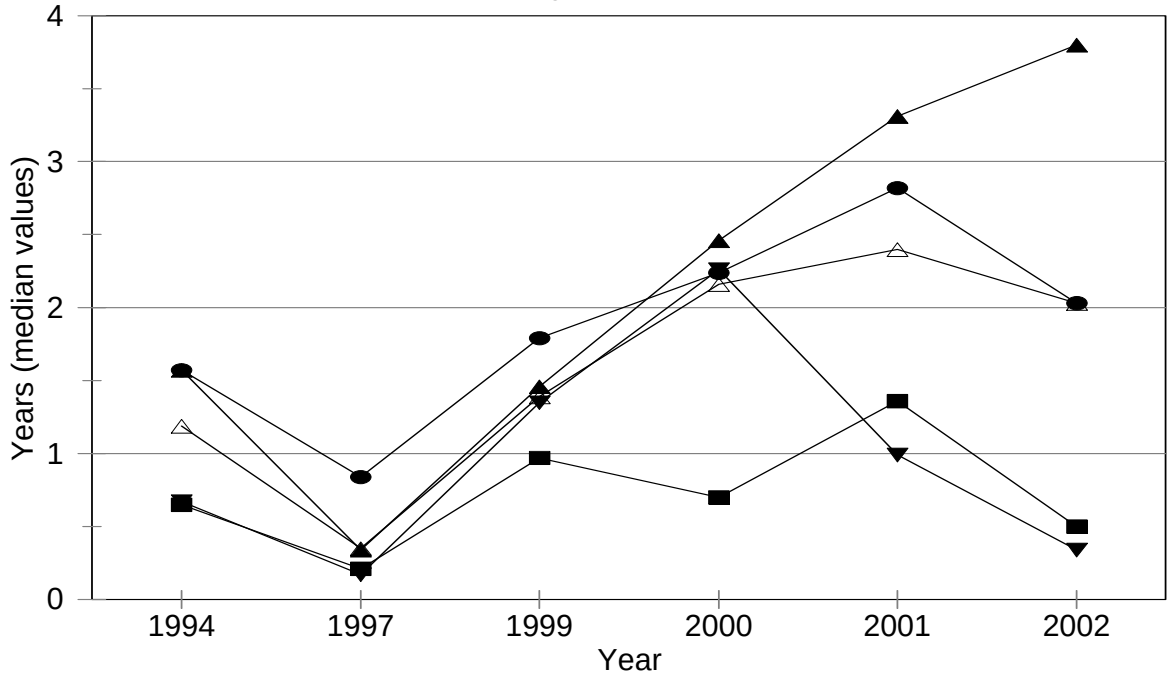
Current Site Time: Regions I, III, and IV metrics were lower than Region II because of RI turnover. Region II experienced very little turnover in the RI and SRI positions during 2002.



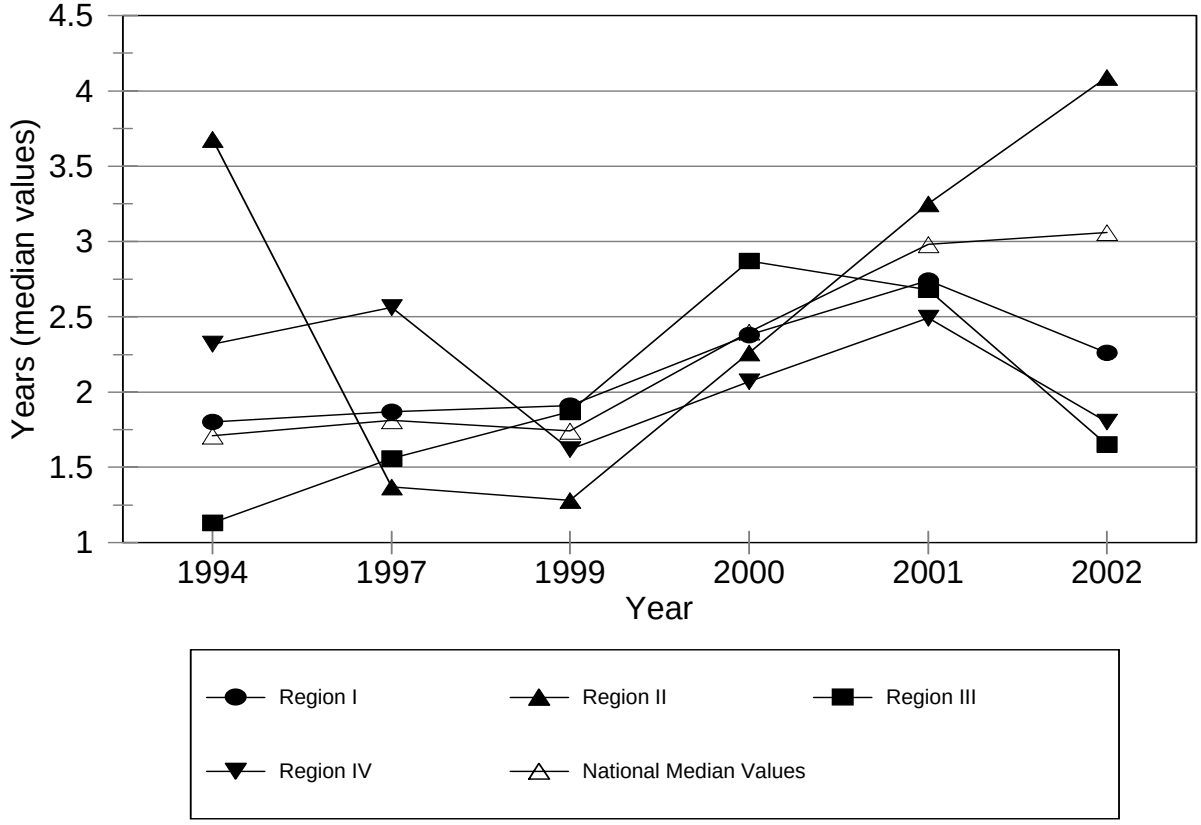


Qualified Current Site Time: Regions III and IV metrics were lower than other regions indicating that RI and SRI positions were recently filled in some of the sites in Regions III and IV.

Qualified Current Site Time (RIs)
Figure 11

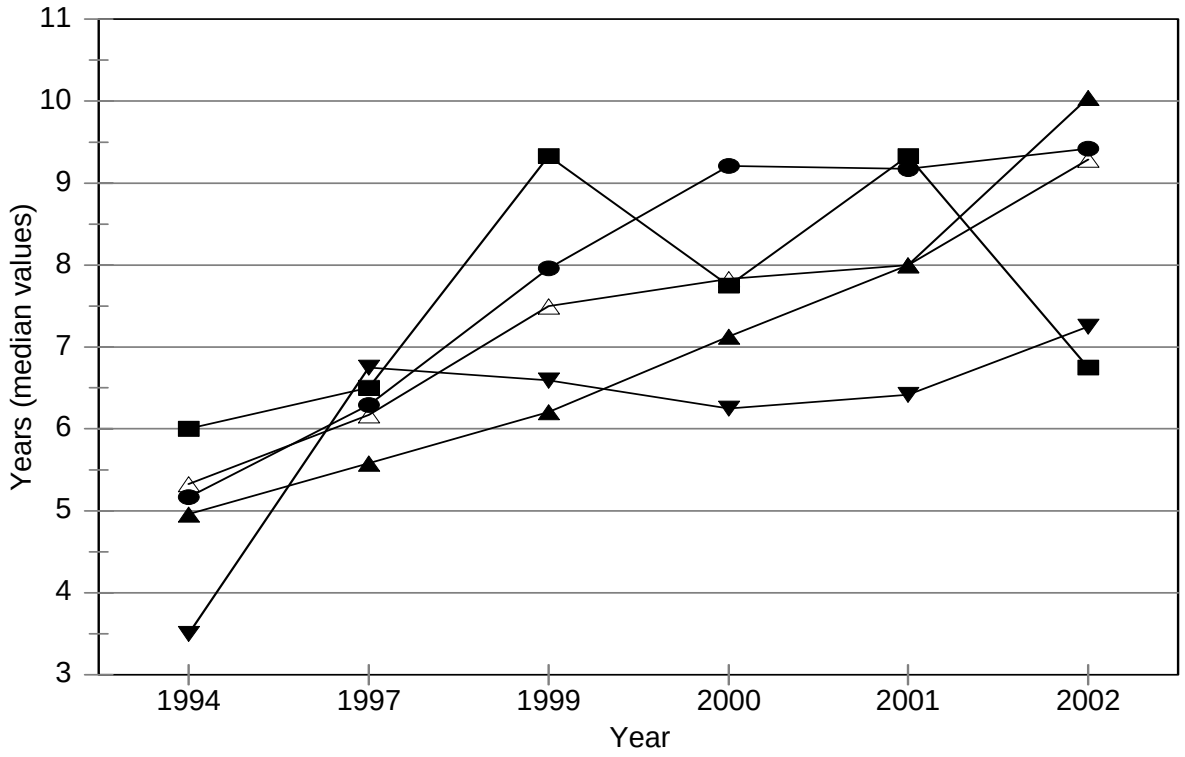


Qualified Current Site Time (SRIs)
Figure 12

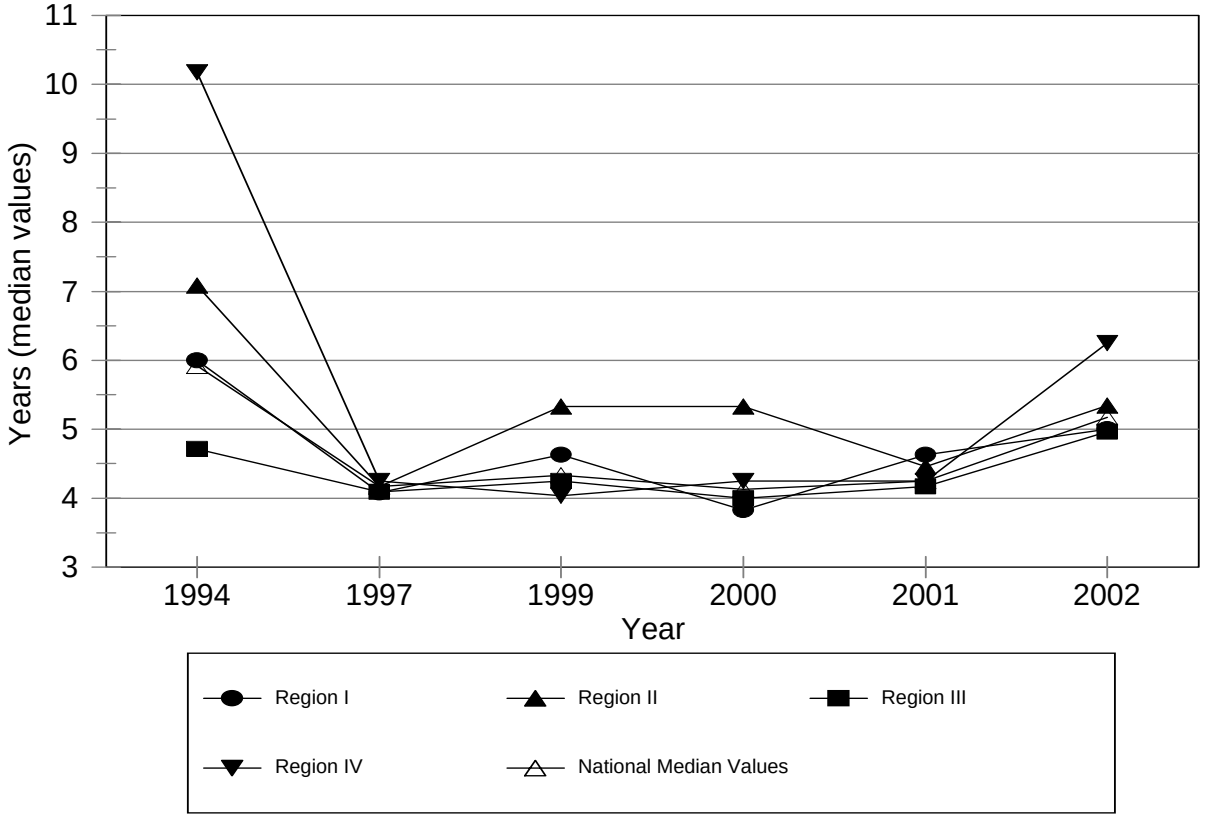


Relevant Non-NRC Experience (RIs): Region III's median non-NRC experience decreased because two new RIs with less non-NRC experience than their peers entered the program.

Relevant Non-NRC Time (RIs)
Figure 13



Relevant Non-NRC Time (SRIs)
Figure 14



Trend Analysis of Relevant New-Hire Experience

The new hire data for the year 2002 indicated that the RI program remained attractive to many experienced engineers. On average, a new hire into the resident inspector program had about 12 years of relevant non-NRC experience.

The 2002 data also indicated that hiring of engineers with limited (defined to be less than three years) relevant non-NRC experience increased. Table 3 shows the percentage of new RIs with less than three years of relevant non-NRC experience from 1994 through 2001. The turnover rate in the RI position was about 20 percent in 2002. This was based on 15 inspectors entering the RI program during 2002 year and 74 available RI positions.

Table 3 - Percentage of New Hires With Less Than 3 Years
Relevant Non-NRC Experience Levels

1994*	1995	1996	1997	1998	1999	2000	2001	2002
43% (3/7)	0% (0/2)	0% (0/14)	6% (1/18)	12% (2/17)	0% (0/5)	31% (4/13)	6% (1/16)	20% (3/15)

* indicates that data was only available from 5/1/1994 through 09/30/1994

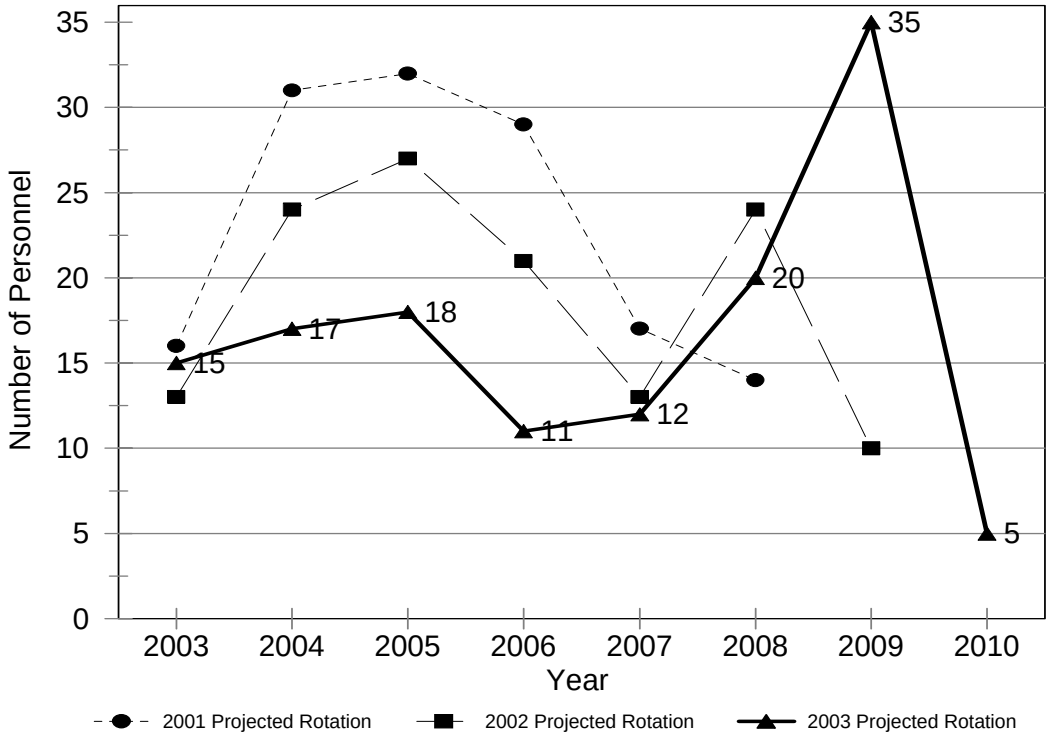
The percentages in the table represent the ratio of those RIs hired in that particular year who had fewer than three years of relevant non-NRC experience to the total RIs hired.

Projected Transfers

Figure 15 shows the number of RIs and SRIs who are projected to transfer at the end of the 7 year assignment, according to information that was available to the staff in November of 2002. The spike in the projected number of transfers in the year 2009 indicated that 35 inspectors chose to relocate in 2002. In the last demographics study, the staff had anticipated only three transfers during calendar year (CY) 2002 based on the projected transfer dates for RIs and SRIs.

The staff calculated that SRI attrition during the 2002 year was about 21 percent. This was based on the loss of 14 SRIs from the program with 67 available SRI positions. The large number of unexpected transfers observed amongst the RIs and SRIs during the 2002 year, primarily rotations and promotions of regional inspectors to more senior headquarter positions, demonstrated the difficulty in planning for RI transfers. The staff is reviewing various personnel staffing policy options to minimize the effect that unanticipated large inspector staff losses have on maintaining continuity of experience and expertise at each site.

Projected SRIs & RIs Rotations
Figure 15



CONCLUSIONS

The 2002 demographics for the RI program (figures 1 and 2) show a stable or improving trend in nearly all RI and SRI statistics. Program metrics such as “qualified resident time,” “NRC time,” and “relevant non-NRC experience” for 2002 are near or above their 1997 values. Although a comparison of this year’s data with previous years indicates an improving trend in the metrics, some challenges to the RI program were identified by the regions. One challenge was how to minimize the length in the resident inspector site coverage gap caused by RI transfers. The impact on the inspection program caused by the gap in coverage cannot be reflected by the RI demographics data since the data only captures the experience of personnel in the program. The staff is currently evaluating changes to the agency policy which would allow resident inspector positions to be double-encumbered for up to a year ahead of expected RI transfers to minimize the impact from such transfers. The staff has no recommendations for changing the RI program at this time.

NOVEMBER 2002
EXPERIENCE LEVELS

RESIDENT INSPECTOR PROGRAM

REGION		NRC TIME	TOTAL RESIDENT TIME	QUALIFIED TOTAL RESIDENT TIME	CURRENT SITE TIME	QUALIFIED CURRENT SITE TIME	RELEVANT NON-NRC TIME
Region I	**Average**	9.84	6.29	5.99	2.77	2.67	7.98
	Median	9.08	5.56	5.40	2.09	2.09	7.96
Region II	**Average**	10.48	7.62	6.73	3.98	3.64	8.60
	Median	11.35	6.03	4.76	4.52	3.97	7.96
Region III	**Average**	8.25	5.26	4.18	2.33	1.91	7.86
	Median	6.69	4.83	3.39	1.80	1.38	5.50
Region IV	**Average**	7.40	4.53	3.57	2.21	1.95	9.72
	Median	6.98	4.50	3.49	1.51	1.43	6.34
National	**Average**	9.14	6.05	5.27	2.88	2.61	8.46
	Median	8.49	5.33	4.52	2.45	2.41	7.25

RESIDENT INSPECTORS ONLY

Region I	**Average**	7.08	4.36	4.13	2.84	2.65	9.58
	Median	6.23	4.79	4.02	2.03	2.03	9.42
Region II	**Average**	6.62	5.08	4.00	4.02	3.35	10.27
	Median	5.57	5.13	4.06	4.83	3.80	10.04
Region III	**Average**	5.75	3.12	1.93	2.38	1.46	9.93
	Median	4.87	2.37	1.08	2.34	0.50	6.75
Region IV	**Average**	5.74	2.48	1.84	1.84	1.38	8.74
	Median	5.03	1.49	1.05	1.36	0.34	7.25
National	**Average**	6.39	3.90	3.14	2.86	2.32	9.68
	Median	5.61	3.77	3.14	2.30	2.03	9.29

SENIOR RESIDENT INSPECTORS ONLY

Region I	**Average**	12.89	8.44	8.06	2.70	2.70	6.21
	Median	11.91	8.34	7.81	2.26	2.26	5.00
Region II	**Average**	14.33	10.15	9.47	3.94	3.93	6.93
	Median	15.37	10.37	10.03	4.20	4.09	5.34
Region III	**Average**	10.34	7.04	6.05	2.29	2.29	6.14
	Median	11.43	5.88	5.05	1.65	1.65	4.96
Region IV	**Average**	9.06	6.59	5.31	2.58	2.53	10.70
	Median	10.00	6.90	5.44	1.80	1.80	6.25
National	**Average**	11.85	8.17	7.36	2.90	2.89	7.26
	Median	12.11	7.36	6.31	3.06	3.06	5.17

NOVEMBER 2001
EXPERIENCE LEVELS

RESIDENT INSPECTOR PROGRAM

REGION		NRC TIME	TOTAL RESIDENT TIME	QUALIFIED TOTAL RESIDENT TIME	CURRENT SITE TIME	QUALIFIED CURRENT SITE TIME	RELEVANT NON-NRC TIME
Region I	**Average**	9.65	6.98	6.72	2.82	2.75	7.42
	Median	9.88	6.32	5.61	3.06	2.82	7.58
Region II	**Average**	10.10	7.57	6.65	3.61	3.26	7.37
	Median	10.35	5.49	4.92	3.89	3.31	6.21
Region III	**Average**	7.62	4.71	3.86	2.44	1.99	7.18
	Median	6.53	4.08	2.97	2.28	1.77	5.25
Region IV	**Average**	7.76	4.44	3.54	2.31	2.16	7.86
	Median	7.39	4.21	3.67	2.45	2.45	5.75
National	**Average**	8.88	6.05	5.32	2.84	2.58	7.55
	Median	8.91	5.02	4.35	3.02	2.68	6.25

RESIDENT INSPECTORS ONLY

Region I	**Average**	7.40	4.48	4.29	2.76	2.62	9.26
	Median	5.74	4.21	3.75	3.44	2.82	9.17
Region II	**Average**	6.79	5.15	4.11	3.68	3.05	8.50
	Median	5.53	4.57	3.50	4.36	3.31	8.00
Region III	**Average**	4.82	2.66	1.83	2.25	1.49	9.26
	Median	4.13	2.22	1.39	2.14	1.36	9.33
Region IV	**Average**	5.80	2.77	1.95	2.02	1.72	7.99
	Median	4.75	2.49	2.42	1.80	0.99	6.42
National	**Average**	6.21	3.84	3.11	2.74	2.26	8.80
	Median	5.13	3.87	2.92	3.18	2.40	8.00

SENIOR RESIDENT INSPECTORS ONLY

Region I	**Average**	12.03	9.61	9.28	2.88	2.88	5.47
	Median	10.86	7.85	7.66	2.74	2.74	4.63
Region II	**Average**	14.14	10.51	9.75	3.52	3.51	5.99
	Median	14.41	9.82	9.49	3.33	3.25	4.46
Region III	**Average**	11.54	7.59	6.69	2.70	2.70	4.27
	Median	11.30	6.32	4.98	2.68	2.68	4.17
Region IV	**Average**	9.86	6.23	5.25	2.62	2.62	8.86
	Median	10.82	6.15	4.90	2.49	2.49	4.25
National	**Average**	12.03	8.66	7.94	2.96	2.96	6.07
	Median	11.47	8.12	7.38	2.98	2.98	4.25

NOVEMBER 2000
EXPERIENCE LEVELS

RESIDENT INSPECTOR PROGRAM

REGION		NRC TIME	TOTAL RESIDENT TIME	QUALIFIED TOTAL RESIDENT TIME	CURRENT SITE TIME	QUALIFIED CURRENT SITE TIME	RELEVANT NON-NRC TIME
Region I	**Average**	8.50	6.09	5.81	2.47	2.38	7.27
	Median	8.97	4.56	4.56	2.57	2.31	7.50
Region II	**Average**	9.65	6.99	6.05	3.12	2.69	6.82
	Median	9.75	4.83	4.33	3.33	2.41	6.17
Region III	**Average**	7.33	4.75	3.94	2.50	2.13	5.84
	Median	6.29	3.64	3.03	2.22	1.76	4.33
Region IV	**Average**	8.51	4.93	3.92	2.50	2.30	7.90
	Median	9.70	4.96	3.60	2.38	2.17	5.04
National	**Average**	8.57	5.83	5.09	2.68	2.40	6.92
	Median	9.32	4.33	3.79	2.61	2.26	5.75

RESIDENT INSPECTORS ONLY

Region I	**Average**	6.47	4.21	4.02	2.38	2.23	9.26
	Median	5.06	3.49	3.33	2.57	2.24	9.21
Region II	**Average**	6.77	4.72	3.69	3.52	2.77	7.59
	Median	4.76	3.72	2.59	3.52	2.46	7.13
Region III	**Average**	4.47	2.47	1.68	1.87	1.18	7.47
	Median	3.80	2.11	0.92	1.55	0.70	7.75
Region IV	**Average**	7.30	3.55	2.81	1.99	1.78	7.82
	Median	8.09	2.84	2.64	2.26	2.26	6.25
National	**Average**	6.26	3.84	3.15	2.54	2.07	8.07
	Median	4.83	3.41	2.54	2.68	2.16	7.83

SENIOR RESIDENT INSPECTORS ONLY

Region I	**Average**	10.85	8.27	7.88	2.58	2.55	4.96
	Median	10.25	6.86	6.47	2.38	2.38	3.83
Region II	**Average**	12.93	9.59	8.75	2.65	2.60	5.94
	Median	13.49	9.02	8.56	2.41	2.26	5.33
Region III	**Average**	10.36	7.16	6.32	3.17	3.14	4.11
	Median	10.43	6.71	5.13	2.87	2.87	4.00
Region IV	**Average**	9.90	6.51	5.20	3.08	2.90	8.01
	Median	10.46	5.86	5.17	2.49	2.07	4.25
National	**Average**	11.18	8.07	7.27	2.84	2.77	5.62
	Median	10.70	7.44	6.63	2.41	2.40	4.13

SEPTEMBER 1999
EXPERIENCE LEVELS

RESIDENT INSPECTOR PROGRAM

REGION		NRC TIME	TOTAL RESIDENT TIME	QUALIFIED TOTAL RESIDENT TIME	CURRENT SITE TIME	QUALIFIED CURRENT SITE TIME	RELEVANT NON-NRC TIME
Region I	**Average**	7.82	5.39	5.09	2.00	1.89	6.87
	Median	8.00	4.17	4.15	2.06	1.91	6.25
Region II	**Average**	8.51	5.96	4.84	2.31	1.81	6.83
	Median	8.39	3.58	3.08	2.25	1.41	5.75
Region III	**Average**	6.80	4.73	3.74	2.16	1.78	6.29
	Median	7.73	3.23	2.58	2.08	1.39	4.92
Region IV	**Average**	8.04	4.42	3.37	2.07	1.76	7.18
	Median	9.01	4.23	2.48	1.43	1.35	5.42
National	**Average**	7.83	5.22	4.37	2.14	1.82	6.73
	Median	8.36	4.07	3.04	2.08	1.49	5.71

RESIDENT INSPECTORS ONLY

Region I	**Average**	5.85	3.40	3.18	2.00	1.81	7.89
	Median	5.40	2.39	2.37	2.20	1.79	7.96
Region II	**Average**	5.57	3.56	2.51	2.65	1.78	7.45
	Median	3.61	2.50	1.46	2.37	1.46	6.21
Region III	**Average**	4.66	2.84	1.95	2.12	1.46	7.50
	Median	3.35	2.20	1.60	2.12	0.97	9.33
Region IV	**Average**	6.89	3.15	2.20	2.05	1.55	8.25
	Median	8.29	2.92	1.44	1.43	1.35	6.59
National	**Average**	5.70	3.28	2.53	2.23	1.67	7.74
	Median	5.11	2.43	1.61	2.16	1.39	7.50

SENIOR RESIDENT INSPECTORS ONLY

Region I	**Average**	10.67	8.27	7.86	2.00	2.00	5.39
	Median	9.45	6.49	6.49	1.91	1.91	4.63
Region II	**Average**	12.15	8.93	7.73	1.89	1.84	6.06
	Median	12.41	8.14	7.77	1.28	1.28	5.33
Region III	**Average**	9.06	6.72	5.62	2.19	2.16	5.02
	Median	9.15	7.14	4.78	1.87	1.87	4.25
Region IV	**Average**	9.36	5.88	4.67	2.08	2.01	5.96
	Median	9.50	5.11	4.04	1.62	1.62	4.04
National	**Average**	10.44	7.60	6.62	2.03	2.00	5.61
	Median	9.90	7.06	6.41	1.74	1.74	4.33

SEPTEMBER 1997
EXPERIENCE LEVELS

RESIDENT INSPECTOR PROGRAM

REGION		NRC TIME	TOTAL RESIDENT TIME	QUALIFIED TOTAL RESIDENT TIME	CURRENT SITE TIME	QUALIFIED CURRENT SITE TIME	RELEVANT NON-NRC TIME
Region I	**Average**	7.94	4.93	4.67	1.60	1.48	5.65
	Median	7.31	4.15	4.01	1.14	1.12	5.17
Region II	**Average**	7.70	4.81	3.96	1.65	1.29	5.59
	Median	7.43	4.05	3.40	1.22	0.84	5.17
Region III	**Average**	6.01	4.10	3.02	1.68	1.29	6.01
	Median	6.75	2.83	2.02	1.18	0.84	5.00
Region IV	**Average**	7.70	4.70	3.11	2.02	1.65	7.12
	Median	7.41	4.30	2.35	2.16	0.77	5.42
National	**Average**	7.34	4.65	3.77	1.71	1.41	5.99
	Median	7.17	3.84	2.68	1.26	0.91	5.13

RESIDENT INSPECTORS ONLY

Region I	**Average**	5.60	2.99	2.43	1.28	1.01	6.47
	Median	6.49	1.75	1.10	0.87	0.84	6.29
Region II	**Average**	5.11	2.71	1.82	1.31	0.77	6.00
	Median	4.82	1.18	0.48	1.12	0.34	5.58
Region III	**Average**	4.17	2.17	1.36	1.46	0.98	6.43
	Median	3.56	1.26	0.21	1.18	0.21	6.50
Region IV	**Average**	5.65	2.79	1.15	1.39	0.72	8.33
	Median	6.47	2.33	0.37	0.95	0.17	6.75
National	**Average**	5.08	2.66	1.76	1.35	0.89	6.60
	Median	6.01	1.51	0.61	1.01	0.35	6.17

SENIOR RESIDENT INSPECTORS ONLY

Region I	**Average**	10.78	7.31	7.11	1.99	1.99	4.73
	Median	10.42	6.32	6.32	1.87	1.87	4.08
Region II	**Average**	10.89	7.41	6.63	2.06	1.94	5.10
	Median	10.78	6.47	6.30	1.41	1.37	4.17
Region III	**Average**	8.42	6.65	5.33	1.97	1.73	5.42
	Median	8.00	6.09	4.62	1.95	1.56	4.09
Region IV	**Average**	9.27	6.15	4.60	2.51	2.36	6.09
	Median	8.77	6.01	4.60	2.67	2.56	4.25
National	**Average**	9.93	6.93	6.03	2.11	2.00	5.30
	Median	9.80	6.22	5.45	1.97	1.81	4.17

SEPTEMBER 1994
EXPERIENCE LEVELS

RESIDENT INSPECTOR PROGRAM

REGION		NRC TIME	TOTAL RESIDENT TIME	QUALIFIED TOTAL RESIDENT TIME	CURRENT SITE TIME	QUALIFIED CURRENT SITE TIME	RELEVANT NON-NRC TIME
Region I	**Average**	6.98	4.76	4.26	2.01	1.93	6.12
	Median	5.85	3.83	3.83	1.82	1.68	5.63
Region II	**Average**	9.07	5.96	3.68	2.55	2.12	5.63
	Median	8.70	5.21	3.72	2.57	1.59	5.33
Region III	**Average**	6.97	5.12	3.43	1.81	1.17	6.52
	Median	6.02	3.79	2.25	1.42	1.00	5.58
Region IV	**Average**	6.60	3.80	2.77	1.68	1.38	6.75
	Median	5.56	2.84	2.51	1.38	1.17	5.75
National	**Average**	7.56	5.05	3.61	2.08	1.66	6.22
	Median	6.90	3.91	2.81	1.72	1.40	5.58

RESIDENT INSPECTORS ONLY

Region I	**Average**	4.89	3.25	3.16	1.89	1.90	5.78
	Median	4.35	2.41	2.33	1.65	1.57	5.17
Region II	**Average**	7.12	4.24	2.99	2.26	1.86	4.83
	Median	7.01	3.64	2.42	2.07	1.57	4.96
Region III	**Average**	5.04	3.11	1.61	1.63	0.85	7.31
	Median	3.91	2.68	1.11	1.42	0.65	6.00
Region IV	**Average**	4.54	1.90	1.30	1.39	0.86	5.66
	Median	3.99	1.38	0.96	1.07	0.67	3.50
National	**Average**	5.55	3.29	2.38	1.86	1.43	5.83
	Median	4.79	2.64	1.68	1.57	1.19	5.33

SENIOR RESIDENT INSPECTORS ONLY

Region I	**Average**	10.47	7.28	5.87	2.21	1.97	6.65
	Median	9.36	7.19	5.45	2.01	1.80	6.00
Region II	**Average**	11.81	8.39	5.63	2.97	2.86	7.77
	Median	10.87	8.78	5.81	3.30	3.68	7.08
Region III	**Average**	9.44	7.68	5.91	2.04	1.61	5.45
	Median	9.85	7.47	5.13	1.42	1.13	4.71
Region IV	**Average**	9.52	6.48	4.82	2.09	2.12	8.40
	Median	9.63	6.69	3.82	1.88	2.32	10.17
National	**Average**	10.46	7.59	5.62	2.38	2.03	6.87
	Median	9.78	7.81	5.43	2.18	1.71	5.92