OFFICE OF THE INSPECTOR GENERAL

U.S. NUCLEAR REGULATORY COMMISSION

Audit of NRC's Reactor Program System

OIG-05-A-11 April 13, 2005

AUDIT REPORT

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April 13, 2005

MEMORANDUM TO: Luis A. Reyes
Executive Director for Operations

FROM: Stephen D. Dingbaum**/RA/**
Assistant Inspector General for Audits

SUBJECT: AUDIT OF NRC'S REACTOR PROGRAM SYSTEM
(OIG-05-A-11)

Attached is the Office of the Inspector General's (OIG) audit report titled, *Audit of NRC's Reactor Program System*.

This audit found that while the implementation of the Reactor Program System (RPS) has allowed for a single system for entering inspection information, the information is not well protected, is not complete, and is not fully accurate. To ensure that the system meets operational requirements, NRC needs to:

- Comply with RPS access control requirements.
- Ensure accurate and timely inspection data.
- Improve management of the system help service.
- Improve the system configuration control process.
- Provide training to system users.

During an exit conference on March 2, 2005, NRC officials provided informal comments concerning the draft audit report. Subsequent to that meeting, OIG met with agency senior managers to address issues and comments needing further clarification and/or explanation. Comments your office provided at the exit meeting and during subsequent discussions have been incorporated, as appropriate, in our final report.

If you have any questions, please call Beth Serepca at 415-5911 or me at 415-5915.

Attachment: As stated

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EXECUTIVE SUMMARY

BACKGROUND

The Nuclear Regulatory Commission's (NRC) mission is to regulate the Nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment. Fundamental to the regulatory process is NRC's commercial nuclear power plant inspection program, which assesses whether plant operations are properly conducted and equipment is properly maintained. Inspectors examine licensee activity, provide inspection findings to licensee managers, and conduct followup inspections to ensure that corrective actions are taken.

The Reactor Program System (RPS) is an information technology tool that provides planning, scheduling, and reporting capabilities to support the NRC reactor inspection and licensing programs. It is used by NRC managers to assess the effectiveness and uniformity of the implementation of those programs and related policies. The Office of Nuclear Reactor Regulation (NRR) and the regions use RPS to schedule their work assignments and to plan and schedule licensing activities in NRR and inspection activities at nuclear power plants.

PURPOSE

The objectives of this audit were to determine if RPS (1) provides for the availability, confidentiality, and integrity of the data stored in the system and (2) meets its required operational capabilities.

RESULTS IN BRIEF

While the implementation of RPS has allowed for a single system for entering inspection information, the information is not well protected, is not complete, and is not fully accurate. To ensure that the system meets operational requirements, NRC needs to:

- Comply with RPS access control requirements.
- Ensure accurate and timely inspection data.
- Improve management of the system help service.
- Improve the system configuration control process.
- Provide training to system users.

RECOMMENDATIONS

This report makes 10 recommendations to strengthen protection over RPS data and better ensure the system meets its operational requirements. A consolidated list of recommendations appears on page 19 of this report.

AGENCY COMMENTS

At an exit conference with agency senior executives held on March 2, 2005, NRC officials generally agreed with the report's findings and recommendations. Subsequent to that meeting, Office of the Inspector General (OIG) staff met with NRR staff to address specific issues and concerns needing further clarification and/or explanation. On March 31, 2005, the Executive Director of Operations provided a formal response to this report in which he agreed with the final version of the report. Appendix B contains a copy of the agency's written comments.

ABBREVIATIONS AND ACRONYMS

OIG	Office of the Inspector General
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
RPS	Reactor Program System
SDLCM	System Development and Life-Cycle Management

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I. BACKGROUND

NRC's mission is to regulate the Nation's civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, promote the common defense and security, and protect the environment. Fundamental to the regulatory process is NRC's commercial nuclear power plant inspection program, which assesses whether plant operations are properly conducted and equipment is properly maintained. Inspectors examine licensee activity, provide inspection findings to licensee managers, and conduct followup inspections to ensure that corrective actions are taken.

RPS is an information technology tool that provides planning, scheduling, and reporting capabilities to support the NRC reactor inspection and licensing programs. It is used by NRC managers to assess the effectiveness and uniformity of the implementation of those programs and related policies. NRR and the regions use RPS to schedule their work assignments and to plan and schedule licensing activities in NRR and inspection activities at nuclear power plants.

The RPS database includes inspection and licensing information, plant performance indicators, inspection followup items, and other administrative and reactor regulatory data. This information is contained in 13 currently active modules,[1] 3 of which are specifically used to track inspection schedules and results of the inspection program.

Inspection schedules, inspection reports, performance assessment letters, plant item matrices, performance indicator data, and operator licensing exam schedules are posted on the NRC external Web site. This information provided a single location for the public to obtain information from RPS and supports the agency's goal to ensure openness in the regulatory process.

System development was initiated in 1995 when NRR recognized a need for regulatory and administrative improvements in the inspection program. The system became operational in 1998, bringing together functions that were previously performed by 10 separate mainframe systems that served the reactor inspection program in headquarters and the regions. In designing the system, NRR intended for NRC employees in headquarters and the regions

[1] After audit fieldwork was completed, a 14th module was added to RPS to support the anticipated receipt of a construction inspection application related to the building of a new nuclear reactor.

to use an integrated method for planning, scheduling, and reporting activities related to reactor inspections. The system was also intended to allow data to be entered one time in an effort to reduce the data duplication that occurred when the inspection data was stored in separate mainframe systems.

In the years since its implementation, RPS has evolved to meet changing agency needs and fulfill inspection program requirements. For example, the agency's implementation of a revised reactor oversight process[2] in 2000 necessitated changes in RPS, including how and what type of information would be stored in the system.

Overall, more than 1,400 people use RPS agencywide, although not all users have access to all modules. Data is entered into RPS primarily by regional staff[3] but is analyzed by both regional and headquarters employees.

NRR developed and funded RPS and continues to support and maintain the system. To coordinate the needs of NRC regional and headquarters users, NRR conducts a meeting every 6 months or on an as-needed basis. Participants, referred to as RPS counterparts, bring ideas and suggestions for improving the system. Meetings are chaired by system managers who are responsible for maintaining and updating the system based on user needs. NRR modifies RPS in response to changes in agency policies, feedback received from users, and information shared during the counterpart meetings. NRR issues updated versions of the system when appropriate.

RPS cost $2.7 million to develop and costs $650,000 to maintain yearly. According to NRC's Web site, the agency has saved $800,000 each year due to the discontinued use of the 10 mainframe systems.

[2] OIG has issued two reports assessing components of the revised reactor oversight process: OIG-02-A-15, *Review of NRC's Significance Determination Process*, and OIG-05-A-06, *Audit of NRC's Baseline Inspection Program*. OIG plans to conduct a third audit in this area during fiscal year 2005 on the performance indicator program.

[3] NRC regional staff includes senior resident inspectors, resident inspectors, and office assistants at licensee sites, and employees working from NRC's four regional offices.

II. PURPOSE

The objectives of this audit were to determine if RPS (1) provides for the availability, confidentiality, and integrity of the data stored in the system and (2) meets its required operational capabilities.

III. FINDINGS

While the implementation of RPS has allowed for a single system for entering inspection information, improvements are needed in RPS to strengthen protection over data stored in the system and better ensure the system meets its operational requirements. Specifically, NRC needs to:

- Comply with RPS access control requirements.
- Ensure accurate and timely inspection data.
- Improve management of the system help service.
- Improve the system configuration control process.
- Provide training to system users.

A. NON-COMPLIANCE WITH RPS ACCESS CONTROL REQUIREMENTS

RPS user access to inspection data is not restricted to the minimum amount necessary because the system offers regional employees only one level of access to inspection data (read-and-write). In addition, many employees have access to RPS modules they do not use. This occurs because (1) there is no written guidance on which users should receive what level of access and (2) there is no process for removing users from the system after they no longer require access. Failure to restrict RPS access increases the risk to system data accuracy and security.

Security Plan Requirements

The RPS security plan acknowledges that individuals authorized to have access to information systems potentially impose the greatest harm to those systems, both accidentally and intentionally. The RPS security plan lists various security controls to prevent and detect harm to the system. Such controls include employee background checks, the ability to associate users with their system

activity, and the practice of restricting a user's access to data files and the levels of access (e.g., read, write, execute, delete) to the minimum amount necessary to perform his or her job. This latter practice is known as least privilege.

Least Privilege Principle Not Followed

The RPS security plan states that the least privilege principle should be followed in granting access rights to system users. However, this principle is not applied effectively in two ways: (1) many users have access to modules they do not use and (2) the amount of access that many users have (write access[4]) to inspection data exceeds the actual access needed to perform their job functions.

As noted in the background, RPS contains 13 modules and users are granted read-only or read-and-write access to varying numbers of these modules based on the nature of their duties. Of the 13 modules, 3 are used to track inspection schedules and results of the inspection program:

- The Inspection Planning module contains information on inspection schedules for NRC licensee sites, including reactor outages and visits by reactor inspectors.
- The Item Reporting module contains the results of all inspections performed at the sites, including information on safety issues and inspection followup items.
- The Reports module provides users with more than 100 standard reports on RPS data including information in the Inspection Planning and Item Reporting modules.

As of August 2004, 738 headquarters and regional employees were authorized read access to data in the Inspection Planning module, 684 were authorized read access to data in the Item Reporting module, and 1,382 were authorized read access to data in the Reports module. Write access to the Item Reporting and Inspection Planning modules was more restricted; on average 178 employees in each of NRC's 4 regional offices were authorized write access to the inspection data pertaining to their region in these modules.[5]

[4] Write access is the ability to enter and change system data.
[5] The Reports module does not offer a write-access option because this module uses existing data in the Item Reporting and Inspection Planning modules to create different reports.

OIG further determined that most of the employees in each region with write access to inspection data contained in the Inspection Planning and Item Reporting modules do not require this access. Relatively few of these individuals actually enter RPS inspection data in the regions. In one region, 6 employees are responsible for entering all of the region's data into RPS, although 200 employees have the capability. All of these employees are based in the regional office. In another region, approximately 58 employees working at both reactor sites and in the region enter such data, while 144 employees have the capability to do so. Similarly, in the other two regions, more individuals have access rights to enter information in RPS than actually use this capability.

OIG compared the number of employees authorized any type of access to 11 RPS modules[6] with the number of employees who actually visited those modules during a 7½-month period during 2004. Many users with access to RPS modules used those modules rarely, if at all. Table 1 presents a comparison of users assigned access to each of the 11 RPS modules with the usage levels for that 7½-month period.

[6] NRR could provide data concerning only 11 of the 13 modules that were functional during the fieldwork stage of this audit.

Table 1.

Comparison of RPS Users With Access to Each Module to Actual Number of Users, as of August 18, 2004			
Module	*Number of Employees Authorized Access*	*Actual Number of Users, 1/1/04-8/18/04*	*Percentage of Users Who Accessed Module*
Inspection Planning	738	510	69.1
Item Reporting	684	451	65.9
Reports	1,382	413	29.9
Inspection Procedure Authority System	726	115	15.8
Inspection Planning Cycle	480	14	2.9
Inspection Report Tracking System	89	42	47.2
Time Resource Inventory Management	607	453	74.6
NRC Utilities	33	18	54.6
Security Access Method	39	27	69.2
Safety Information Management System	15	5	33.3
Tables	40	31	77.5

As seen above, for five of the modules, less than half of the authorized users visited the modules at any time during the 7½ months. One module in particular had especially low use with only 2.9 percent of authorized users accessing the module during this timeframe.

Access Not Sufficiently Restricted

Many regional employees who do not need write access to the Inspection Planning and Item Reporting modules have it because RPS offers them only one level of access (read-and-write). Regional employees are granted read access to all inspection data in RPS and write access to inspection data pertaining to their specific region.

In addition, many employees have access to RPS modules they do not use because they were not removed from the system after they no longer required access. In headquarters, there is no established process for offices to inform the RPS system administrator of the need to terminate user access when an employee's job duties no longer require access. In the regional offices, discretion for removing access is left to the time and labor coordinator. As a result, headquarters does not provide oversight to ensure that this process occurs overall.

Failure to restrict access to RPS modules based on the least privilege principle leads to an increased risk to the accuracy and integrity of the system data. In addition, by not removing inactive users, the system is not in compliance with the principle of least privilege.

Recommendations

OIG recommends that the Executive Director for Operations:

1. Implement a tiered access level structure that allows users access to RPS modules based on the least privilege principle. This should include guidance on which users may receive what level of access.

2. Implement a process for removing access rights from inactive Reactor Program System users.

B. INSPECTION DATA INACCURATE AND UNTIMELY

Some RPS inspection data is inaccurate and untimely because the regions employ inconsistent quality control processes over RPS data and because RPS data is never locked down to prevent alterations to the data after it is entered in the system. Inaccurate and untimely inspection results can negatively affect NRC decisionmaking and public confidence. Although there are multiple safety nets in place, including management expertise, to ensure public health and safety, inaccurate inspection results could affect the agency's ability to fulfill its mission of ensuring public health and safety.

Data Entry Policy

NRC Inspection Manual, Chapter 0306, "Information Technology Support for the Reactor Oversight Process," provides policy and guidance on using NRC information management systems that support the reactor inspection program. It requires the timely and accurate entry of RPS data for all regional reactor inspection activities. Furthermore, upon completing an inspection and no later than 10 days after the exit meeting with the licensee, the branch chief (or designee) responsible for the inspection must update RPS with the inspection results.

Inconsistent and Untimely Sample Data

Despite the above cited requirements, data is not consistently accurate or entered into RPS within the 10-day deadline. OIG compared data from 32 inspection reports[7] with data contained in the RPS Item Reporting module. The intent of this comparison was to determine (1) if the sample sizes reported in the inspection reports were consistent with the data reported in RPS and (2) whether the sample size data had been entered within the required timeframe.[8] In total, OIG assessed the accuracy of 646 data items and found inconsistencies in 13.5 percent of the sample data.[9] Based on a statistical analysis of this information, as much as 23 percent of the inspection data could be inconsistent between RPS and the inspection reports. In one case, the number of instances a procedure was conducted was overstated by more than 100 percent in RPS. This analysis also identified that 32 percent of the data concerning sample size was entered into RPS outside the required time period. In one instance, data was entered into RPS 378 days after the exit meeting with the licensee.

Inconsistent Quality Control Process

These data inaccuracies and timeliness issues occurred because the regions employ inconsistent quality control processes over RPS data and because RPS data is never locked down after it is entered, allowing it to be modified at any time by anyone with write access to the data.

[7] Auditors reviewed a total of 646 data items contained in 32 inspection reports. These reports reflected results drawn from four commercial nuclear power plants in each of NRC's four regions

[8] Auditors did not attempt to compare data items in cases where sample size, as described in the inspection report, was unclear.

[9] RPS data was only compared to inspection report data for consistency. When discrepancies were found, no conclusions were drawn as to whether RPS or the inspection report contained the correct information.

Although *NRC Inspection Manual,* Chapter 0306 states that the branch chief is responsible for quality control of RPS data, there is no consistent approach to quality control among the regions and approaches vary considerably in rigor and effectiveness. For example, one regional branch chief will not transmit an inspection report to the licensee until this individual has personally checked it against the data in RPS. In a different region, a branch chief relies on regional quarterly reviews, which compare the inspection reports from that quarter against the data in RPS, to catch RPS data errors.

Furthermore, the regions employ inconsistent approaches to entering information in RPS. At one extreme, a regional branch chief stated that to reduce the chances of error, a single staff position — the senior project engineer — enters information into the system. This process is enforced throughout the region, which results in only six people entering all inspection information into the system. In a different region, however, the particular inspector who led the inspection is responsible for entering information into RPS. This example results in approximately 58 people entering information into the system.

Another factor that jeopardizes data accuracy is that RPS data is never locked down and subsequently always remains editable. This allows information previously verified as correct to be changed at any time. One branch chief stated there are occurrences where data that had been verified as correct was later changed without the branch chief's knowledge. This branch chief expressed a desire to have the capability to lock down data to prevent such occurrences. The RPS administrator stated that RPS could be designed to allow data to be locked down.

Impact on NRC Decisionmaking Process

Inaccurate and untimely inspection results can negatively affect NRC decisionmaking and public confidence. Although there are multiple safety nets in place, including management expertise, to ensure public health and safety, inaccurate inspection results could affect the agency's ability to fulfill its mission of ensuring public health and safety. NRC uses inspection information to ensure that licensees are operating at acceptable safety levels. When this information contains errors or is untimely, it does not provide managers with an accurate picture of the NRC inspection program as to the safety levels at nuclear power plants. In addition, inspection information is provided to the public via the agency Web site and inaccurate and untimely inspection results can erode confidence in NRC information.

Recommendations

OIG recommends that the Executive Director for Operations:

3. Implement a uniform quality control and Reactor Program System data entry review process that will ensure data accuracy and timeliness.

4. Develop a process to lock down Reactor Program System inspection data fields after the inspection report has been issued.

C. RPS HELP (RPSHELP) IS INEFFICIENT

NRC requires all information technology system administrators to provide their users with support using the system. RPS achieves this through an e-mail account, referred to as RPSHELP. RPSHELP is inefficient and not widely used because the service is not well managed. Specifically, there is no formal process for handling help requests and there are no performance metrics to assess timeliness and user satisfaction. An inefficient help process does not assure that users are receiving timely and adequate responses to their questions.

Help Function

RPSHELP is an NRC e-mail account designed to allow RPS users to convey concerns and questions regarding the system directly to experts who can respond to matters quickly and accurately. RPSHELP was created in 1997 to promote quick and efficient use of the system by helping users better understand how to use the system to meet their specific needs. *NRC Inspection Manual* Chapter 0306 informs users that RPSHELP is available and should be used to answer questions regarding use of the system.

No Assignment and Tracking Process

While users are directed to RPSHELP to better understand the system, the response process is inefficient. There is no systematic approach for assigning incoming queries to individuals for providing the responses and there is no formal process for tracking RPSHELP requests to completion and for user satisfaction.

When users submit questions via RPSHELP, three headquarters-based employees who are knowledgeable about RPS are tasked with responding to these queries. Subsequently, upon receipt of an RPSHELP request, one or more of the three responders may opt to respond. According to one responder, there are occasions when multiple responders will send an answer to one user who requested help. In other cases, help requests are overlooked until one of the responders realizes that an answer has not been sent.

In addition, there is no formal tracking of RPSHELP requests to completion and for user satisfaction. The system administrator estimated that questions received via RPSHELP are typically answered within a day or two, but said there is no formal process to track responses. In addition, there are no performance goals concerning timeliness or effectiveness of RPSHELP responses.

Formal Process Needed

The RPSHELP process is inefficient because it is not well managed. Managers have not instituted a process for determining who is responsible for answering questions submitted to RPSHELP. Instead, they rely on an informal process that does not ensure responses are disseminated. In addition, there is no formal process to determine if answers to help requests are returned in an adequate amount of time or if responses are useful.

Having an inefficient RPSHELP process does not assure that users are receiving timely and adequate responses. Without performance goals and a tracking process to determine whether these goals are met, management cannot assess the effectiveness or timeliness of the answers provided to RPS users.

Recommendations

OIG recommends that the Executive Director for Operations:

5. Formalize a process for handling Reactor Program System Help requests.

6. Create performance metrics to assess timeliness and user satisfaction of Reactor Program System Help.

D. CONFIGURATION CONTROL PROCESS HAS NOT IDENTIFIED SOME CONCERNS

NRC requires that management of information technology systems include configuration control, a process for determining and implementing changes to a system. RPS configuration control is conducted during counterpart meetings. These meetings have been ineffective in identifying some RPS limitations because regional representatives:

- Have not received formal guidance on gathering user concerns.
- Have not conducted surveys of users on their needs.

By failing to raise these issues at counterpart meetings, regional representatives prevent RPS from being further developed to meet user needs and system objectives.

Configuration Control Requirements

Managers of all NRC systems are required to follow the System Development and Life-Cycle Management (SDLCM) Methodology. This methodology defines the life cycle of an information technology system and describes the processes for developing, enhancing, and maintaining these systems. SDLCM requires the implementation of configuration control over information technology systems. Configuration control is a process of evaluating, approving or disapproving, and monitoring the implementation of changes to a system. RPS configuration control is conducted during counterpart meetings, where changes to the system are discussed, and after the meetings, when NRC makes changes to the system based on these discussions. In 1998, RPS managers provided regional counterparts with guidance describing their responsibilities. This guidance requires counterparts to:

- Obtain input from users concerning problems and potential enhancements to RPS.
- Raise regional concerns at counterpart meetings.
- Work with other counterparts to reach consensus on needed enhancements to the system.

During the counterpart meetings, a representative from each region meets with the system managers,[10] who are also RPSHELP responders, and other users based in headquarters to discuss regional concerns with the system.

[10] RPS system managers are three NRR employees who are responsible for maintaining and updating the system.

Counterpart Meetings Ineffective

RPS counterpart meetings have been ineffective in bringing some RPS limitations to management attention. Two specific issues that users in all four regions raised with OIG have never been mentioned at the counterpart meetings. These issues are:

- The scheduling feature in RPS is limited and does not contain the level of detail desired by region-based reactor inspectors.
- RPS does not provide a tool for planning and tracking resident inspector annual inspection schedules.

Region-based reactor inspectors travel to commercial nuclear power plants to conduct inspections in the areas of engineering, maintenance, radiological controls, emergency preparedness, security, and operator license requalification. They find the scheduling feature in RPS limiting, as it does not contain the desired level of detail. The desired level includes the ability to schedule and view the inspection schedule for 18 months, determine if inspections are fully staffed, and assess whether inspections will overlap at the plants. Thus, instead of relying on RPS to meet all of their scheduling needs, users have created separate scheduling tools that incorporate their needs.

Resident inspectors, who conduct inspections that account for a major part of the inspection program, have created tools to track their inspections because RPS does not have this capability. Resident inspectors rely on these separate tracking tools to ensure inspection requirements are completed. For example, these tools track planned inspections throughout the year, inspectors' plans for implementing inspection programs, and inspections that have been completed. Of the 47 RPS users interviewed, 34 used separate tools to track inspection information.

RPS managers told OIG that they rely on counterpart representatives to bring regional issues to management's attention. One RPS manager stated that they were unaware of the issues mentioned above, but agreed that these concerns were important and could be addressed by RPS. In addition, many issues were brought to an RPS manager's attention, during a recent regional office visit, which had never been mentioned at prior counterpart meetings. The manager said that many of these issues could and would now be addressed in RPS.

System Limitations Not Recognized

Various concerns have not been raised at counterpart meetings for several reasons:

- Counterparts and users have failed to recognize certain issues as problems.
- Counterparts have varying subjective perspectives on what constitutes an issue that is appropriate for discussion at counterpart meetings.
- Counterparts have ineffective methods of reaching out to users to learn of their concerns.

Regional counterparts and system users have not recognized the scheduling issues that have led to the creation of additional systems as problems. Instead, they have accepted the system as is and viewed it as having limited scheduling capabilities. Counterparts and users have stated that the scheduling tool issues reflect an inherent system weakness. Subsequently, instead of bringing these issues to the counterpart meetings to see if the underlying issues can be addressed, counterparts accept that users rely on workarounds, such as separate tracking tools.

RPS regional counterparts rely on subjective criteria to determine what issues rise to the level of appropriateness for discussion at the counterpart meetings. One regional counterpart uses the volume of user requests to identify issues for discussion in counterpart meetings, while another raises any issue if there is no quick workaround to resolve it.

In addition, none of the regional counterparts proactively search for user concerns or issues. Counterparts bring regional concerns to the counterpart meetings based solely on their recollection of issues users have asked them about during the months preceding the counterpart meeting.

By failing to raise certain concerns at meetings, counterparts prevent RPS from being further enhanced to meet user needs. As stated in the background section of this report, RPS was intended to reduce the number of locations in which inspection data is stored; however, the creation of separate tools does not allow RPS to meet this fundamental goal. In addition, separate tracking tools do not allow NRR managers to have a complete view of the inspection program.

Recommendations

OIG recommends that the Executive Director for Operations:

7. Develop a formal process for Reactor Program System regional counterparts to proactively gather user concerns prior to counterpart meetings.

8. Conduct an annual Reactor Program System user survey to determine the needs of the users.

E. Training and Guidance Not Provided to System Users

Inadequate training and outdated guidance have led to ineffective use of RPS. This has occurred because managers did not deem training and user guidance a priority. As a result, users are unaware of system functionality and there is an increased possibility of data error.

Training Requirements

SDLCM requires that training be provided to information system users to allow them to learn a system and how it operates. In addition, Office of Management and Budget Circular No. A-130 Appendix III, "Security of Federal Automated Information Resources", which establishes policy for the management of Federal information resources, requires that users receive training to ensure they understand their roles and responsibilities with a system.

Formal Training and Updated Manuals Needed

RPS training has been inadequate to ensure that users have a thorough understanding of the system. Moreover, written instructions concerning how to use the system are outdated.

RPS users have not received formal training on the system since initial training was provided to RPS users in 1998. Of 47 users interviewed, 24 had never received training. More than 40 percent of those interviewed stated that training would be helpful. Many users stated that they learned how to use RPS solely from on-the-job training. When users have questions on how the system works, they said they ask a more experienced user.

Furthermore, the RPS user manuals containing information on how to enter information in the system and generate reports are outdated. The system has been updated multiple times, but the system manuals were not kept current with the changes. Approximately 45 percent of the 47 users interviewed said a quick reference guide to the system would be useful.

Users have not received training and the manuals have not been updated because the system administrator has not deemed it a priority. RPS managers said they rely on regional counterparts to provide training to users, but there has been no oversight to ensure that such training has been provided. In addition, regional counterparts have not expressed a need for training to the RPS administrator.

Due to a lack of formal training and updated manuals, users are not fully aware of RPS capabilities. This lack of understanding has led some users to create separate tracking tools for functions that RPS already performs. In addition, lack of training and outdated manuals can lead to the dissemination of incorrect procedures and incorrect information being entered into the system.

During the course of this audit, RPS managers began developing an online user tutorial on how to use main portions of the system. However, users will also need training and current guidance in the interim before this tutorial is completed.

Recommendations

OIG recommends that the Executive Director for Operations:

9. Implement a formal Reactor Program System training program that includes periodic refresher training and classes tailored to different user responsibilities.

10. Complete the efforts to provide users with current system information in the form of online tutorials.

Summary

Without improvements to RPS, NRC decisionmakers cannot have a complete picture of the nuclear power plant inspection program. To support adequate protection of public health and safety, agency decisonmakers need accurate information from RPS. At the time of this audit, RPS contained information that was inaccurate and incomplete. Reliance on faulty data or data that has not been

locked down could result in poor decisionmaking. Improvements in RPS will strengthen protection over data stored in the system and better ensure that the system meets its operational requirements. Specifically, this will allow:

- RPS to be in compliance with system access control requirements.
- Accurate and timely information to be used in decisionmaking and when informing the public.
- The system help service to be more responsive to user needs.
- The system to meet the needs of the users.
- Users to better understand the system through training and guidance.

IV. CONSOLIDATED LIST OF RECOMMENDATIONS

OIG recommends that the Executive Director for Operations:

1. Implement a tiered access level structure that allows users access to RPS modules based on the least privilege principle. This should include guidance on which users may receive what level of access.

2. Implement a process for removing access rights from inactive Reactor Program System users.

3. Implement a uniform quality control and Reactor Program System data entry review process that will ensure data accuracy and timeliness.

4. Develop a process to lock down Reactor Program System inspection data fields after the inspection report has been issued.

5. Formalize a process for handling Reactor Program System Help requests.

6. Create performance metrics to assess timeliness and user satisfaction of Reactor Program System Help.

7. Develop a formal process for Reactor Program System regional counterparts to proactively gather user concerns prior to counterpart meetings.

8. Conduct an annual Reactor Program System user survey to determine the needs of the users.

9. Implement a formal Reactor Program System training program that includes periodic refresher training and classes tailored to different user responsibilities.

10. Complete the efforts to provide users with current system information in the form of online tutorials.

V. AGENCY COMMENTS

At an exit conference with agency senior executives held on March 2, 2005, NRC officials generally agreed with the report's findings and recommendations. Subsequent to that meeting, OIG staff met with NRR staff to address specific issues and concerns needing further clarification and/or explanation. On March 31, 2005, the Executive Director of Operations provided a formal response to this report in which he agreed with the final version of the report. Appendix B contains a copy of the agency's written comments.

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Appendix A

SCOPE AND METHODOLOGY

Auditors reviewed RPS to determine if (1) the system provides for the availability, confidentiality, and integrity of the data stored in the system and (2) RPS meets its required operational capabilities. This audit focused on RPS as an information technology system with regard to the system modules that handle inspection planning and results.

The OIG audit team reviewed relevant criteria, including Management Directive 8.13, Reactor Oversight Process; NRC Inspection Manual, Chapter 0306, "Information Technology Support for the Reactor Oversight Process"; and Office of Management and Budget Circular No. A-130 Appendix III, "Security of Federal Automated Information Resources". The audit team also reviewed the RPS Benefit-Cost Analysis and *Security Plan*.

Auditors interviewed NRR staff responsible for the RPS system to understand the development and management of the system. Auditors also interviewed RPS users in all four NRC regions, including branch chiefs, senior project engineers, project engineers, reactor inspectors, resident inspectors, and resident office assistants to determine users interaction and satisfaction with the system.

Auditors compared information from paper inspection reports to the corresponding information in the Item Reporting module of RPS in order to determine accuracy and timeliness of the data in RPS. Auditors reviewed a total of 646 data items contained in 32 inspection reports. These reports reflected results drawn from four commercial nuclear power plants in each of NRC's four regions.

This work was conducted from June 2004 through January 2005, in accordance with generally accepted Government auditing standards and included a review of management controls related to audit objectives. The work was conducted by Beth Serepca, Team Leader; David Ditto, Senior Management Analyst; and Rebecca Underhill, Management Analyst.

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Appendix B

FORMAL AGENCY COMMENTS

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

March 31, 2005

MEMORANDUM TO: Stephen D. Dingbaum
Assistant Inspector General for Audits

FROM: Ellis W. Merschoff
Deputy Executive Director for Reactor Programs
Office of the Executive Director for Operations

SUBJECT: DRAFT REPORT: AUDIT OF THE REACTOR PROGRAM SYSTEM

We have reviewed the Office of Inspector General's draft audit report, Audit of the Reactor Program System. The report reflects the changes made in response to agency comments provided during the exit conference that was held on March 2, 2005, and in subsequent meetings with Nuclear Regulatory Commission senior managers. We have no additional comments which should be included as an appendix to the report.

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