

December 10, 1997

FOR: The Commissioners
 FROM: L. Joseph Callan /s/
 Executive Director for Operations
 SUBJECT: DISCUSSION OF RESIDENT INSPECTOR DEMOGRAPHICS AND THE BALANCE BETWEEN EXPERTISE AND OBJECTIVITY

PURPOSE:

This paper discusses the past and present demographics of the resident inspection staff and the need to balance objectivity and expertise as requested by the Commission in a staff requirements memorandum (SRM) dated March 25, 1997. Specifically, the memorandum stated that --

The staff should continue the existing process for providing flexibility of staffing in the resident inspector program to enable, when necessary, distribution of NRC inspection resources on the basis of licensee performance. The staff should develop data regarding the past and present demographics of the NRC's resident inspector population with respect to experience and qualifications to ensure that the Commission's policies have resulted in a stable or improving resident program. The staff should also develop a paper for Commission consideration that discusses the balance between maintaining objectivity and continuity of expertise and experience in determining the appropriate length of assignments for NRC staff members who have frequent interactions with the licensees.

SUMMARY:

Recent demographic data indicate that the current average experience level for resident inspection staff is less than it has been in the past. In addition, the attrition rates from the Resident Inspector (RI) Program have increased in each of the past 4 years. Demand to fill RI vacancies has exceeded the ability of the RI Development Program to supply qualified candidates to fill these vacancies. The regions will need to continue to work with the Office of Human Resources (HR) to carry out recruiting efforts to fill vacant resident positions.

The staff recognizes the importance of balancing the goals of maintaining objectivity and maintaining continuity of expertise and experience within the resident inspection staff and other staff members who have frequent interactions with the licensees. The current 5-year resident relocation policy appears to have contributed to maintaining objectivity of the resident inspection staff. The staff is evaluating how to implement the transition to a pilot program for a 7-year relocation policy and how to assess the effects of the extended time on site on the resident inspector program.

The staff will continue to develop and implement policies to ensure that the RI Program remains effective and that an appropriate balance between objectivity and experience is maintained. This matter will continue to be discussed as appropriate with the Agency Labor-Management Partnership Committee. The staff will present significant issues, actions, and/or recommendations resulting from these efforts to the Commission, as appropriate.

BACKGROUND:

The RI Program was initiated in 1978. It was established to improve the NRC's inspection program by providing increased knowledge of conditions at licensed facilities, improved ability to independently verify licensee performance, and improved incident response capability. One of the primary concerns since the inception of this program has been that the resident inspection staff maintain its objectivity when interacting with licensees. The program has evolved over the years, making adjustments as necessary to ensure that the sites are adequately staffed with qualified and experienced resident inspection staff in order to meet the program goals. Each licensed facility typically has a senior resident inspector (SRI) and one or more RIs, depending on the number of units and performance of the licensee. Attachment 1 to this paper provides a summary of the origin and evolution of the RI Program.

In 1994, the Executive Director for Operations (EDO) appointed a Resident Inspector Review Group to conduct a review of the RI Program. The results of this study were presented to the Commission in SECY-94-181, "Implementation of Changes to the Resident Inspector Program Resulting From a Staff Study of the Program," dated July 8, 1994. Several program enhancements were implemented as a result of this study as discussed further in Attachment 1 to this paper.

DISCUSSION:

Comparison of Past and Present Experience Levels

The March 25, 1997, SRM directed the staff to develop data regarding the past and present demographics of the NRC RI population with respect to experience and qualifications. HR performed an RI site-time study in spring 1994 to determine average experience levels for RIs and SRIs as part of a review of the RI Program. The results of this study were presented to the Commission in SECY-94-181. HR performed a similar study in November 1997, 3.5 years later, to compare and contrast the results and to look for possible trends. The combined NRC time, total resident time, and current site time averages of the RIs and SRIs are summarized in Table 1 below. The NRC time refers to total years as an NRC employee, the total resident time refers to total years in the RI Program, and current site time refers to total years at the current site.

Table 1 - Resident Experience Levels (in Years)			
	April 1994	November 1997	Percent change

Residents -	NRC time	5.37	5.13	- 4.5%
	Total resident time	3.01	2.66	- 11.6%
	Current site time	1.79	1.36	- 24.0%
Senior Residents -	NRC time	10.31	9.84	- 4.6%
	Total resident time	7.46	6.88	- 7.8%
	Current site time	2.33	2.13	- 8.6%

The November 1997 data indicate that the average experience level for RIs and SRIs has declined since April 1994. These data do not reflect vacancies in the resident program that existed at the time of the studies. It is likely that the vacant positions would be filled by less experienced inspectors, thereby reducing the overall average experience. The drop in RI current site time reflects a higher than normal attrition rate and the selection of RIs for vacant SRI positions (see the following section on "Attrition Levels").

One source of qualified candidates to fill resident vacancies since 1995 has been the SRI and RI Development Programs. The regions have also used individual job vacancy announcements as necessary to fill vacant RI and SRI positions. The SRI Development Program has included two classes, for a total of 20 candidates. This program took high-quality RIs from their current positions to participate in developmental activities, thereby placing a greater work-related burden on the rest of the resident staff. The staff determined that the SRI Development Program was negatively affecting the inspection program while marginally assisting the regions in filling vacant SRI positions. For these reasons, the program was phased out in 1997.

The RI Development Program has included two classes, for a total of 22 candidates, and a third class of 8 additional candidates is due to begin around January 1998. The demand to fill existing resident vacancies has exceeded the ability of the RI Development Program to provide a supply of qualified candidates. As a result, candidates have been selected for resident positions before they complete the program and the certification process. Participants in the RI Development Program are often assigned to sites within 6 months of being hired and must then complete their inspector qualification while serving as an RI.

Consistent with the Commission's August 20, 1997, decisions on the fiscal year (FY) 1999 budget, the RI Development Program was reduced by 50 percent from 10 full-time equivalent (FTE) staff years to 5 FTE staff years beginning in FY 1998. In addition, no FTE are specifically budgeted for a Reactor Intern Training Program after FY 1998. The staff is reviewing both the Intern and RI Development Programs to determine which program or combination of programs should be retained. Past experience indicates that the current RI Development Program resource level is insufficient to meet the current or future demand to fill RI vacancies. The regions, working with HR, have needed to rely on additional recruiting efforts to fill vacant resident positions. As recent vacancy announcements have produced essentially no applicants from within the agency, these vacancies are often filled with new hires with no NRC experience. However, many of the new hires have some nuclear power plant experience.

Attrition Levels

Resident inspection staff attrition rates over the past 4 years were assessed to determine the rate of change. Attachment 2 outlines the internal and external losses from the RI Program. External losses refer to staff departing from the NRC (i.e., those resigning or retiring from the NRC), and internal losses refer to resident inspection staff departing from the NRC RI Program (i.e., reassignments or promotions within the NRC). Resident attrition rates are based on the average total number of resident inspection staff on board in a given fiscal year, typically around 170-175 inspectors. The number of losses (in parentheses) and associated percentages are summarized in Table 2 below:

	Agency external losses	Resident external losses	Resident internal losses	Total resident losses
FY 1994	5.5% (175)	2.3%(4)	8.7%(15)	11.0% (19)
FY 1995	5.7% (175)	4.5%(8)	9.0%(16)	13.5% (24)
FY 1996	4.6% (137)	4.6%(8)	11.0% (19)	15.5% (27)

FY 1997	5.2% (154)	9.7% (17)	12.6% (22)	22.3% (39)
---------	------------	-----------	------------	------------

The average agency-wide external attrition rate has remained relatively stable over the 4-year period. The average attrition rate for resident inspection staff moving to other NRC positions was found to be steadily increasing. The average attrition rate for resident inspection staff leaving the NRC has significantly increased over the 4-year period of the study, more than doubling in the past year. The resident attrition rate for external losses was previously at or below the agency average attrition rate until FY 1997. An assessment of this increased attrition rate will be a subject of a forthcoming management review.

The majority of nuclear sites in the country have lost one or more NRC resident inspection staff members during the past fiscal year. A total of 39 inspectors left the NRC RI Program in FY 1997. Seventeen of these 39 resident inspection program losses were departures from the NRC, including 10 SRIs. Only 1 of these 17 external losses was due to retirement. From FY 1994 through FY 1996, a total of 20 resident inspection staff, including 7 SRIs, resigned or retired from the NRC. More SRIs (10) left the NRC in FY 1997 than in the previous 3 years combined (7).

Objectivity - Maintenance and Measurement

The SRM also directed the staff to discuss the balance between maintaining objectivity and maintaining continuity of expertise and experience in determining the appropriate length of assignments for NRC staff members who have frequent interactions with the licensees. Objectivity could be defined as the state or quality of being uninfluenced by emotion, surmise, or personal prejudice, or more simply, basing conclusions on observable, factual phenomena. A common method for ensuring that objectivity is maintained is to limit the tours of duty of individuals who have frequent interactions with licensees. This practice, however, does not relieve management from its responsibility of monitoring staff activities to ensure that they are meeting performance and objectivity expectations. NRC's policy governing inspector objectivity is delineated in Inspection Manual Chapter 0102, "Oversight and Objectivity of Inspectors and Examiners at Reactor Facilities." The policy is intended to ensure the effective direction of activities, communication, and inspector objectivity at reactor facilities. In general, the policy consists of three important components: (1) management expectations must be clearly communicated to the inspection staff, (2) only trained and appropriately qualified individuals should be assigned to perform independent inspections, and (3) management must oversee onsite activities to ensure that their expectations and the agency's goals are satisfied.

EDO Field Policy Manual Number 8, "Resident Inspector Relocation Policy," defines the relocation policy for the resident inspection staff. The policy statement declares that the desired maximum tour length of a resident inspection assignment at a site is 5 years. The manual guidance provides for a possible extension into the summer months if a resident's tour expires during the winter or early spring months, as approved by the regional administrator. Other extensions of the 5-year tour length must be approved by the Deputy Executive Director for Regulatory Programs. In addition, resident inspection staff should not be assigned to a different location within the first 3 years of relocating, unless the restriction is waived by the resident or directed by the EDO on the basis of agency needs, so that adequate continuity of expertise and experience can be maintained.

Project managers (PMs) in the Office of Nuclear Reactor Regulation (NRR) also interact frequently with licensees. The Project Manager's Handbook establishes the policy and guidance for PM. Section 2.2, "Overall Expectations of the Operating Reactor PM," includes discussions of "Objectivity" and "Length of Time on a Plant." Section 2.2 states, in part, that management needs to directly observe ongoing staff activities to ensure that the staff maintains its objectivity when dealing with licensees. Guidance is also provided to the PM on how to avoid actual or perceived loss of objectivity. The desired maximum tenure for a PM assigned to a given plant is established as 5 years, although plant or personnel issues may lead to deviations from this guidance. In order to realize the benefits of a fresh perspective while maximizing productivity and consistency, the desired minimum tour of duty for a PM is 3 years. Regional Division of Reactor Projects (DRP) branch chiefs and project engineers are typically reassigned periodically to ensure that objectivity is maintained along with expertise and experience, although there is no formal guidance that establishes a reassignment policy. NRR project managers and regional DRP staff can be reassigned without the added personal impact of relocation experienced by resident staff.

The staff recognizes the importance of maintaining objectivity, but that goal needs to be balanced with the goal of maintaining continuity of experience and expertise. Past experience indicates that the 5-year resident relocation policy has contributed to maintaining objectivity of the resident inspection staff. Additionally, the rotation policy allows for a new perspective to be introduced periodically. This allows the agency to view a licensee's performance through a fresh "set of eyes," providing both the agency and the licensee with different insights.

Future Program Considerations

The Commission approved the FY 1999 - 2001 Budget Proposal for NRC Salaries and Expenses Appropriation in a memorandum dated August 20, 1997. One of the proposed budget reductions was to suspend the 5-year relocation policy for the resident inspection staff for 2 years in FY 1999. The projected savings to the NRC budget was \$1.75 million. The associated footnote states that "the two-year suspension of the five-year relocation policy could serve as a pilot program to determine whether a longer residence period would be appropriate." Consistent with the November 7, 1997, memo to the Chairman from the CFO, to minimize the need for additional permanent change-of-station funds, the staff plans to phase-in the 7-year relocation policy for resident inspectors on a case-by-case basis beginning in FY 1998. The staff is evaluating how to implement the transition to a pilot program for a 7-year relocation policy.

In addition, the staff is evaluating the results of the job task analysis (JTA) of regional DRP positions to gain additional insights into potential changes to the RI Program. The purpose of the JTA was to (1) identify and address problems related to task assignments and variations in regional task and functional distribution, (2) identify if specific tasks are best performed on site or in the regions, (3) optimize the use of available resources, and (4) identify and develop needed training.

We plan to undertake a comprehensive management review of the Resident Inspection Program resource and career planning goals and objectives in the

near future. This includes a review of Resident Inspection Program career paths, tours of duty, effects of the shift to a 7-year pilot rotation practice, and resources required for training and development within the context of NRC-wide resource and career planning objectives. In addition, the Agency Labor-Management Partnership Committee has established a working group to consider issues associated with the Resident Inspection Program. These review efforts are expected to be completed in the third quarter of FY-98. At that time, a Commission paper will be developed which will address issues associated with the Resident Inspection Program and include recommendations, as appropriate.

COORDINATION:

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

L. Joseph Callan
Executive Director
for Operations

Contact: Ronald K. Frahm, Jr., NRR
301- 415 -2986

Attachments: As stated

ATTACHMENT 1

The Origin and Evolution of the NRC Resident Inspector Program

From June 1974 through October 1976, the NRC staff conducted a trial program to evaluate the potential benefits of a "resident inspector" (RI) Program. The results of this evaluation were presented to the Commission in SECY-77-138, "Locating NRC Inspectors Near Reactor Sites - Trial Program," dated March 16, 1977. The staff concluded that the RI concept was viable, specifically because it made more efficient and effective use of an inspector's time.

NUREG-0425, "NRC Inspection Alternatives: A Study Report," dated April 1977, was forwarded to the Commissioners for their consideration. Five alternative approaches were presented: (1) the current program (region-based inspectors); (2) site vicinity inspectors; (3) full-time, onsite inspectors; (4) continuous onsite inspectors (24 hours a day); and (5) continuous control room inspectors (24 hours a day). The full-time, onsite inspection approach was presented as the recommended alternative, based on a favorable comparison of competency, utility, flexibility, objectivity, and licensee motivation.

In June 1977, the Commission approved a revised inspection program that included stationing NRC inspectors at all operating nuclear power reactors and selected reactors under construction. This program was described in NUREG-0397, "Revised Inspection Program for Nuclear Power Plants," published in March 1978. The RI Program was intended to improve the NRC's inspection program by providing increased knowledge of conditions at licensed facilities, an improved ability to independently verify licensee performance, and an improved incident response capability. Initial implementation began in fiscal year (FY) 1978 with the assignment of 20 onsite inspectors. Full implementation of the resident program, with at least one inspector stationed at each site, was to be achieved in FY 1981.

In March 1980, the NRC submitted a report to Congress on the status of the RI Program. In its request for this report, Congress stressed two concerns: (1) that the individual RIs might not have the breadth of technical knowledge to oversee the construction and operation of a nuclear power plant and (2) that the frequent contact with licensee personnel might lead the RI to lose his or her objectivity. To address the first concern, the report explained that RIs had the appropriate skills and training to function as the principal inspector for the site, conducting general inspections in a variety of areas. Specialist inspectors from the regional office support and supplement the resident's efforts. The second concern was also recognized and anticipated by the NRC staff, who adopted several measures to minimize the potential for loss of inspector objectivity. These preventive measures included selecting mature, experienced inspectors; limiting the tour of duty at a site to 3 years; strengthening the code of conduct; ensuring frequent resident contact with regional supervisors; and expanding the program to require a minimum of two residents at all operating sites (although budgetary limitations precluded the staff from fully implementing this staffing goal). This report also included the results of an independent study of the perceptions of the RI Program. NRC Headquarters and regional staff, RIs, and licensee personnel all provided both positive and negative insights, but overall, the resident program was regarded as an improvement in the NRC inspection process.

During the initial staffing effort, the Nation was experiencing a period of high inflation and rising mortgage rates that affected the ability of Government agencies to adequately reimburse their employees for the increased costs of relocation. This situation was a factor in the high turnover rate of the inspectors initially assigned to RI positions. In 1981, the tour length was extended from 3 to 5 years, and a special salary schedule (3 steps above the general salary schedule) was authorized to address major problems in recruiting and retaining RIs. A revised policy was also established in 1981 that provided for the assignment of at least one RI at each site, with additional RIs assigned on the basis of licensee performance and plant design. The agency began to recruit and assign more than one inspector to most sites in order to increase the scope of the safety inspection program, aid in maintaining objectivity, and enlarge the pool of experienced RIs.

In December 1981, the Commission also proposed legislation to amend the Atomic Energy Act of 1954 to compensate RIs for certain moving costs beyond those normally allowed for Federal employees (mortgage points, bridge loan interest, and title insurance costs). Citing financial losses due to relocation as a key factor, the Commission stated that it anticipated "severe difficulty in recruiting and retaining the highly trained and competent

individuals needed to make the Resident Inspector Program effective." Congress was not favorable to this legislative proposal and directed the NRC to study and report on the financial hardship issue, along with any new request for legislation. In April 1983, the NRC submitted its report, in which it estimated that the average financial loss to RIs would be about \$7,700 as a result of relocation. Subsequent changes in Federal relocation policies provided some relief in this regard.

In 1982, the Executive Director for Operations authorized the regional administrators to extend the 5-year RI tour length on a case-by-case basis. The agency was attempting to balance the long-range goal of periodic relocations that were considered desirable against the possibility of a high attrition rate and the associated cost of training replacements. The policy of extensions beyond 5 years was meant to be a temporary measure pending approval of financial assistance legislation or other relief for moving costs of RI's.

In November 1983, the General Accounting Office (GAO) recommended the development of an alternative approach to mandatory relocation of RIs. The GAO audit report agreed that NRC management should maintain the prerogative to relocate individual RIs when it is in the best interest of the NRC, but GAO believed there were better ways to preserve the objectivity of RIs than by mandating relocation within a set time period. GAO found that mandatory relocation was likely to result in a loss of experienced RIs and a concurrent need to recruit and train replacements. GAO also noted that it typically took 1 to 2 years for RIs to fully acquaint themselves with a facility, resulting in a limited time at full proficiency if RIs were relocated every 3 to 5 years. The Commission agreed with the recommendation and in January 1984 decided not to fix the RI tour at any specified length. Each RI's continuing assignment on site was to depend on the needs of the agency, job performance, and continued objectivity. The issue of financial hardship was also partially addressed with an expansion of the NRC's moving benefits in 1984, addition of a General Services Administration relocation services contract (including home purchasing) in 1987, and the continuation of the three-step, within-grade pay incentive while on site.

However, in 1988, with 4 additional years of experience with the relocation policy, NRC management determined 5 years to be the desired maximum length for an RI tour. This timeframe was selected in keeping with the agency's policy of maintaining inspector objectivity, providing for a fresh and vigorous look at reactor operations, and developing a pool of highly qualified inspectors who could eventually bring their experience back to the regional offices and Headquarters.

In 1994, the Executive Director for Operations appointed a Resident Inspector Review Group to conduct a review of the RI Program. The results of this study were presented to the Commission in SECY-94-181, "Implementation of Changes to the Resident Inspector Program Resulting From a Staff Study of the Program," dated July 8, 1994. The study was prompted by both senior management concerns about the quality of candidates for the RI Program and concerns expressed by RIs over the 5-year relocation policy, relocation costs, career advancement opportunities, and the impact of pay on RI pay differentials. The following program enhancements were recommended by the review group:

Relocation Bonuses: Payment of appropriate Federal Relocation Bonuses, ranging from 10 to 25 percent of annual salary, is now considered for all NRC employees who enter, transfer within, or leave the RI Program, provided they have at least a "Fully Successful" rating on their most recent performance appraisal and sign a Mobility Agreement. The Mobility Agreement states, in part, that the inspector is expected to accept reassignment to any reactor site or NRC location as necessary to serve the best interests of the NRC.

Saved Pay: This initiative provides saved pay for RIs who are transferred (after 4 years in the program) out of the RI Program by a management-directed assignment (to a regional or Headquarters' position). Residents whose pay exceeds the regular pay schedule upon leaving the program save their resident salary by not reverting back to the normal pay scale. Future salary increases for these individuals are limited until their pay is equal to that for like positions in the regions or Headquarters.

Resident Pay Schedule: After reviewing several options, the review group recommended continuing with the current RI pay schedule, but incorporating the locality pay adjustment for sites designated as "high cost areas." The adjustment is in addition to the resident pay schedule and is limited to the difference between the specific area locality pay and the "rest of the US."

Development Programs: The RI and Senior Resident Inspector (SRI) Development Programs were initiated in 1995. These programs were designed to establish an available pool of qualified candidates prepared to fill vacant RI and SRI positions. These programs have not provided enough replacements to fill resident vacancies as previously discussed under "Comparison of Past and Present Experience Levels" of the Commission paper.

In addition, several initiatives were recommended and endorsed by the review group that pertain to career development and enhancement. The NRC adopted the aforementioned policy changes beginning in November 1994.

LOSSES FROM THE RESIDENT INSPECTOR PROGRAM

FY 1994	External Losses	Internal Losses	Total Losses
SRIs *	3	10	13
RIs **	1	5	6
Total	4	15	19

FY 1995			
SRI's	1	11	12
RI's	7	5	12
Total	8	16	24
FY 1996			
SRI's	3	12	15
RI's	5	7	12
Total	8	19	27
FY 1997			
SRI's	10	11	21
RI's	7	11	18
Total	17	22	39
FY 1994 - FY 1997			
SRI's	17	44	61
RI's	20	28	48
Total	37	72	109
* SRI means Senior Resident Inspector ** RI means Resident Inspector			