Attachment 6- Resident Inspector Demographics

Introduction:

This attachment provides the annual update on resident inspector (RI) demographic data as requested by the Commission in 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 analysis of the overall program data for the resident and senior resident inspector (SRI) groups (see Table 1 and 2; Figure 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, and November 2001. Median values were used to make the comparisons.

"NRC time" is total number of years the individual spent as an 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 2001 RI and SRI Groups:

Demographic data for 2001 (Table 1 and Figure 1) indicates that there was an increase in all categories for the RI group since 1994. An increase in "relevant non-NRC experience" value for the RI group indicated that the regions were still able to recruit individuals with extensive non-NRC experience into the RI program. Additionally, a stable "NRC time" and increasing "qualified total resident time" metrics indicated that a sufficient number of experienced RIs remained in the program to provide a stable RI inspection force. Consequently, the experience level (qualified total resident time) for the RI group has increased to a level of three years. This is the highest experience level attained by the RI group since the Agency started tracking RI demographics in 1994.

Likewise, the 2001 demographic data show a similar improvement for the SRI group (Table 2 and Figure 2). All parameters have increased since reaching a recorded low in 1997. "NRC time" and "qualified total resident time" parameters are increasing indicating that experienced SRIs are electing to stay in the program. The increase in the "qualified total resident time" for the RI and SRI groups appears to be directly attributable to increasing the RI site rotation policy from five to 7years in 1998.

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

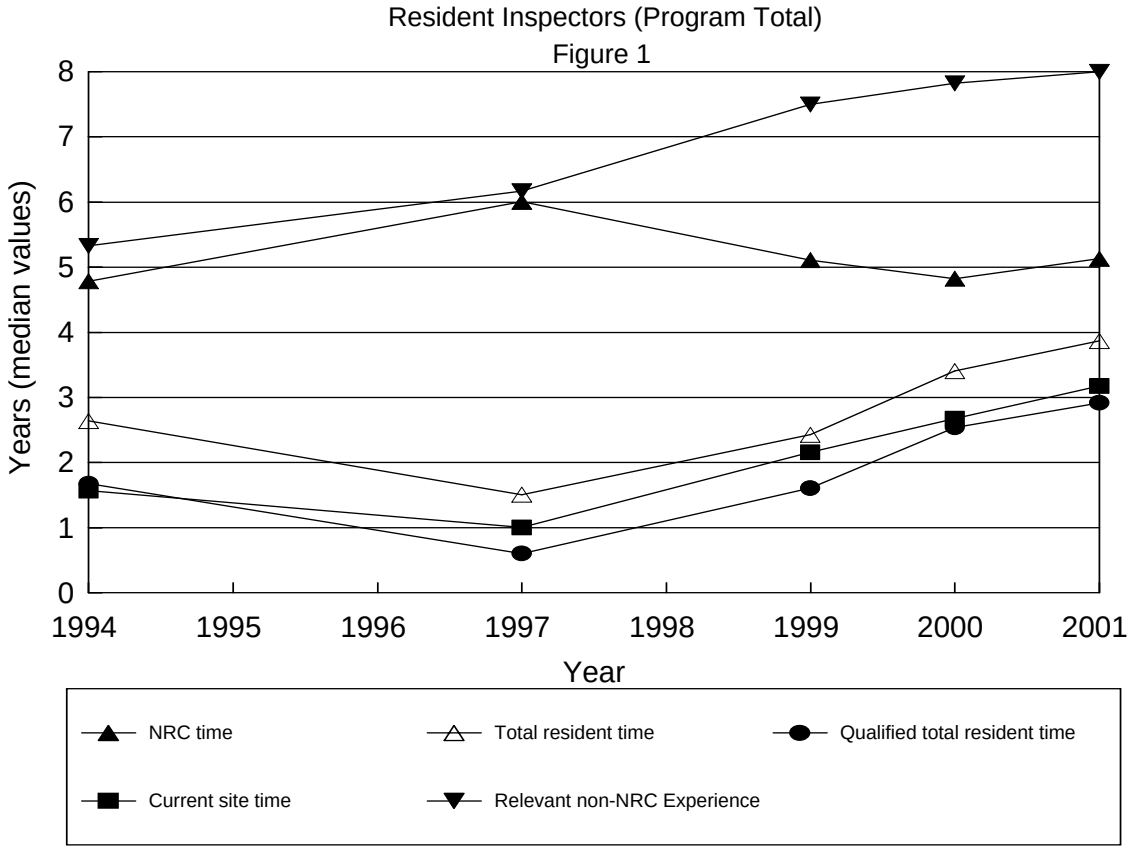
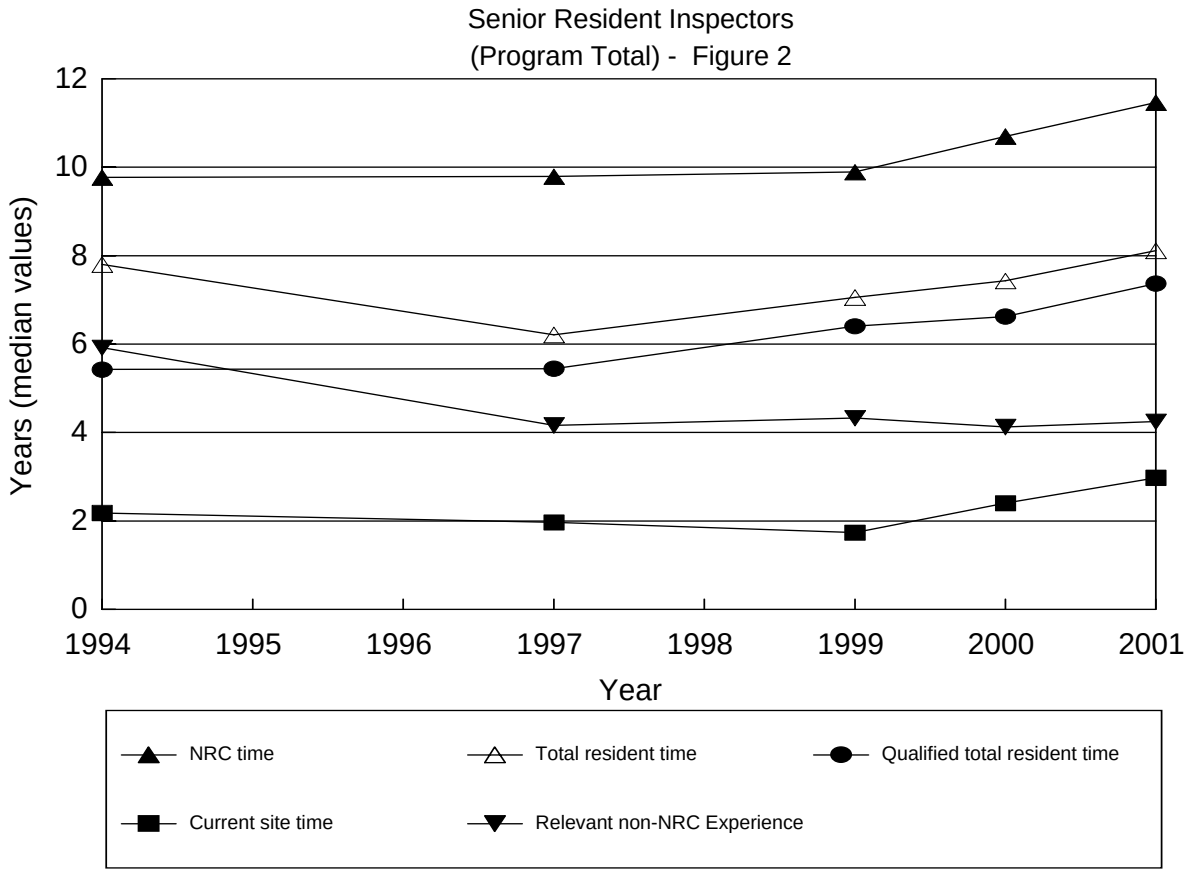


Table 2 - Summary of SRI Group Experience Levels (in years)						
		Apr. 94	Nov. 97	Sept. 99	Dec. 00	Nov. 01
NRC time	average	10.46	9.93	10.44	11.18	12.03
	median	9.78	9.80	9.90	10.70	11.47
Total resident time	average	7.59	6.93	7.60	8.07	8.66
	median	7.81	6.22	7.06	7.44	8.12
Qualified total resident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

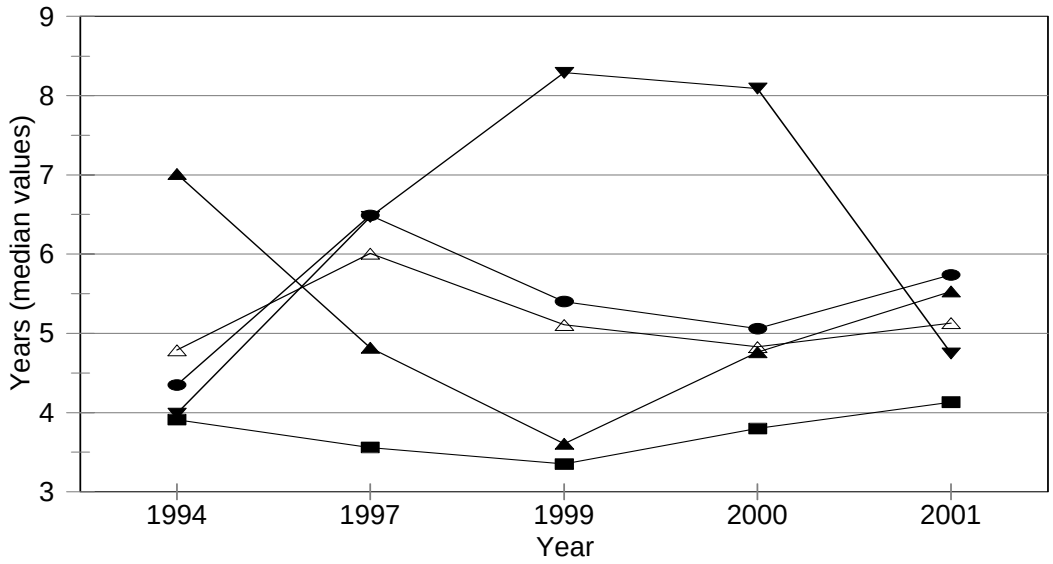


Regional Comparisons:

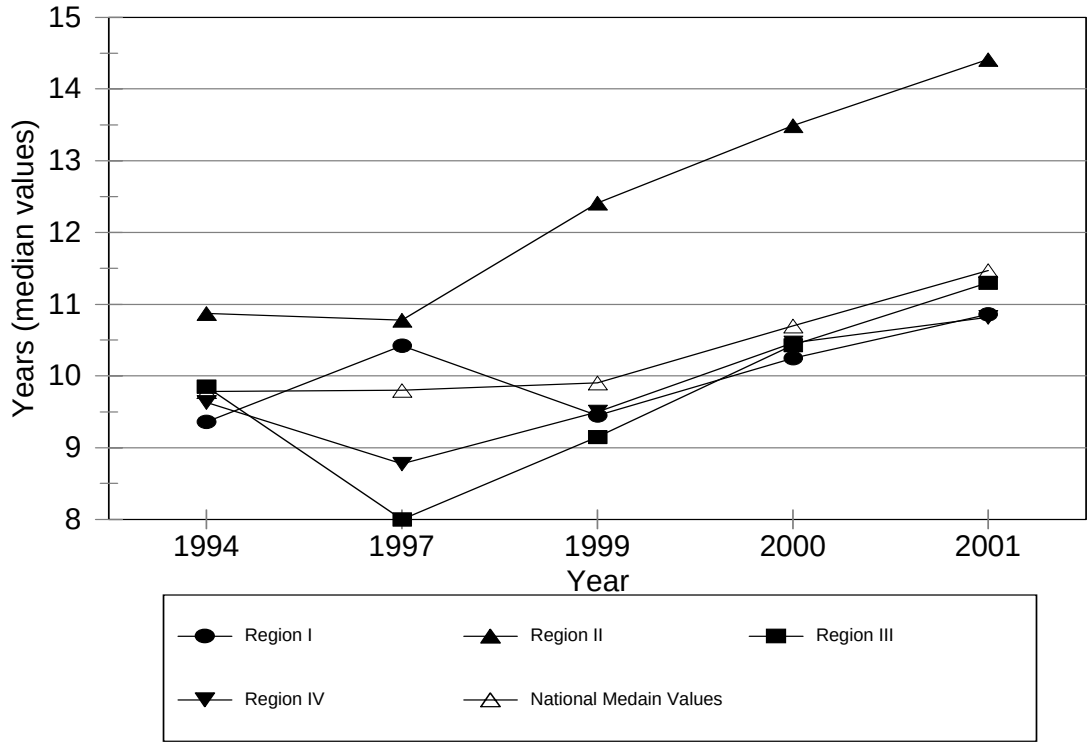
NRC Time:

NRC time for the RI and SRI groups increased nearly in all regions. The decrease in NRC time for Region IV RIs along with the increase in the SRIs' NRC time appeared to indicate that some RIs in Region IV were being promoted to the SRI positions. The vacancies left open by the departing RIs were filled by new hires into the agency.

NRC TIme (RIs only) - Figure 3

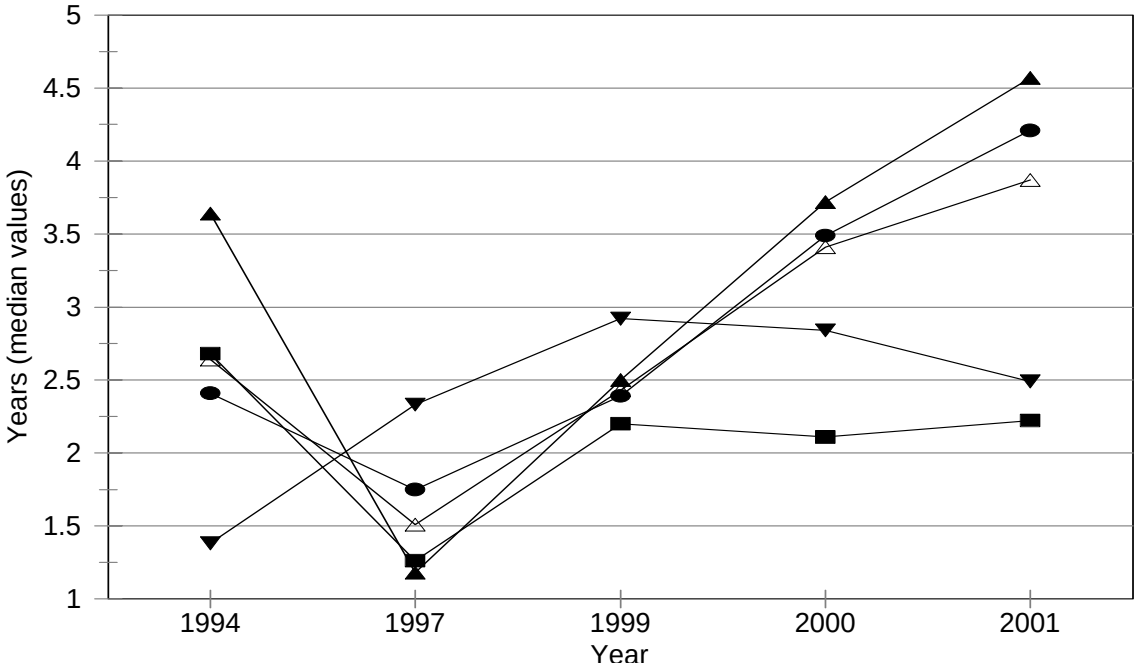


NRC TIme (SRIs only) - Figure 4

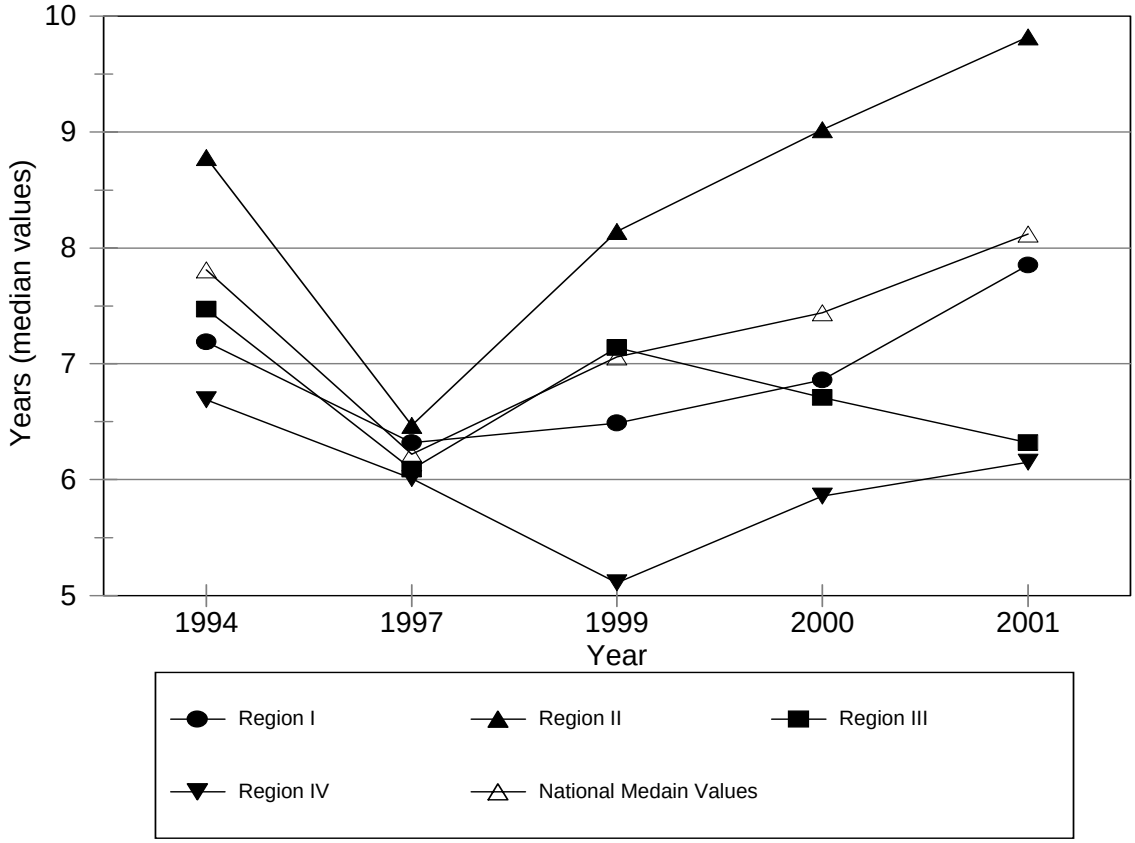


Total Resident Time: Regions I and II currently have the most experienced RIs and SRIs. Regions III has hired new RIs and SRIs which resulted in either a stable or lower total resident time for the RI and SRI groups in their region. Likewise, Region IV has recently hired new RIs which resulted in lower total resident time for the RI group.

Total Resident Time (RIs) - Figure 5

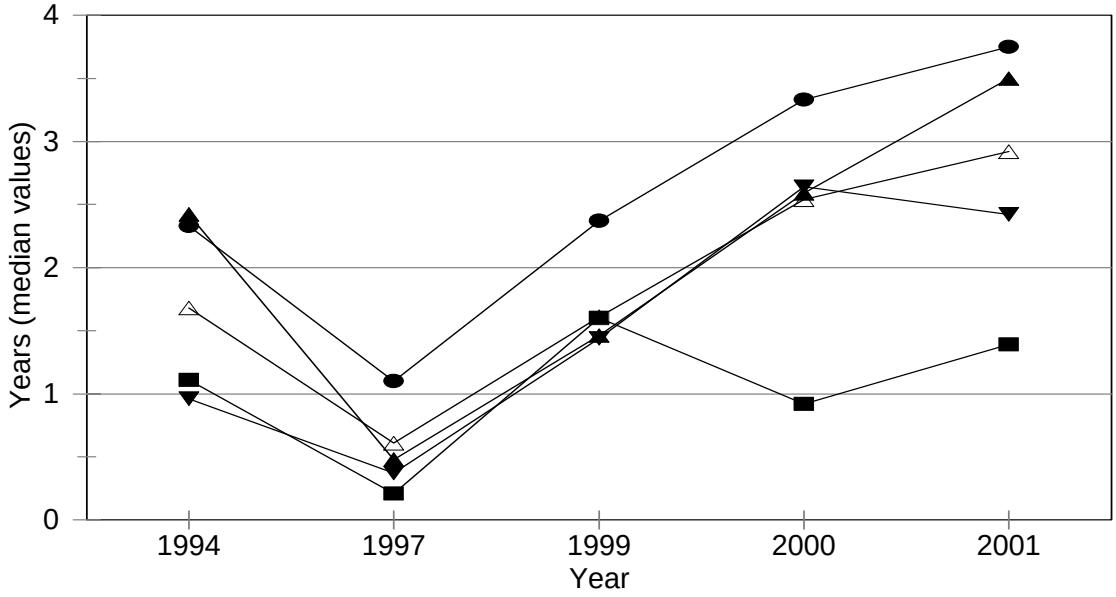


Total Resident Time (SRIs) - Figure 6

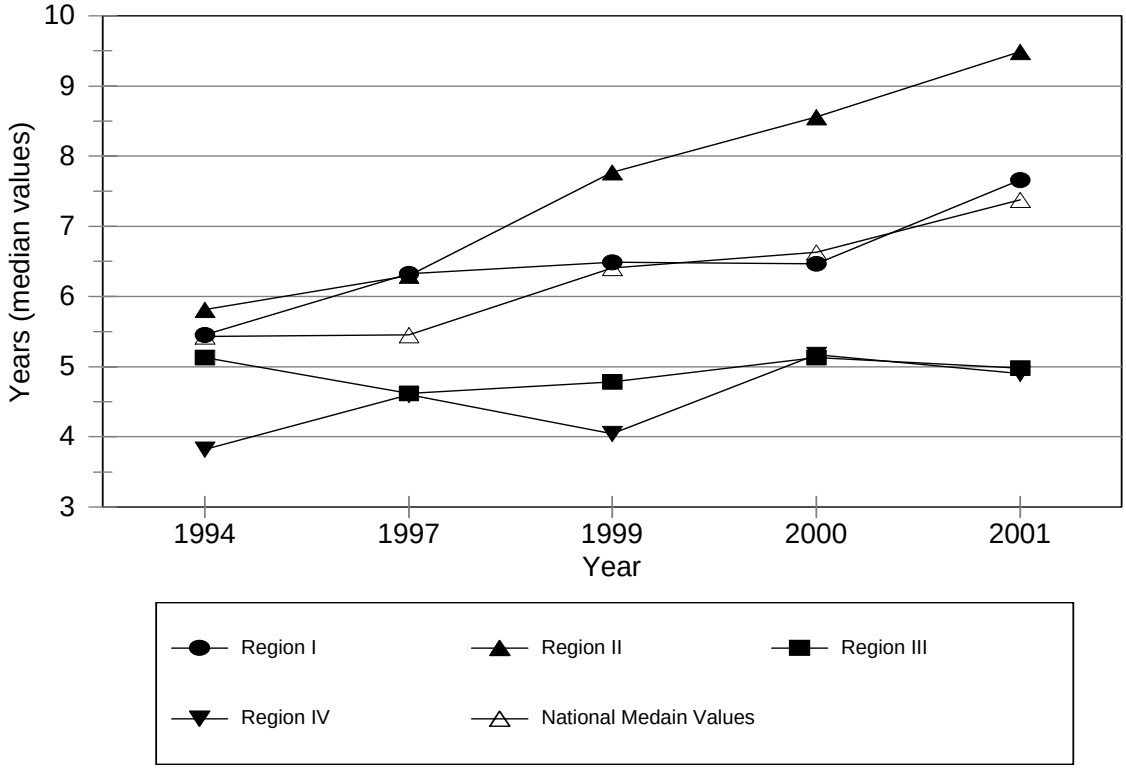


Qualified Total Resident Time: There was an increase in the experience level of qualified RIs for most of regions. There was a slight decline in Region IV.

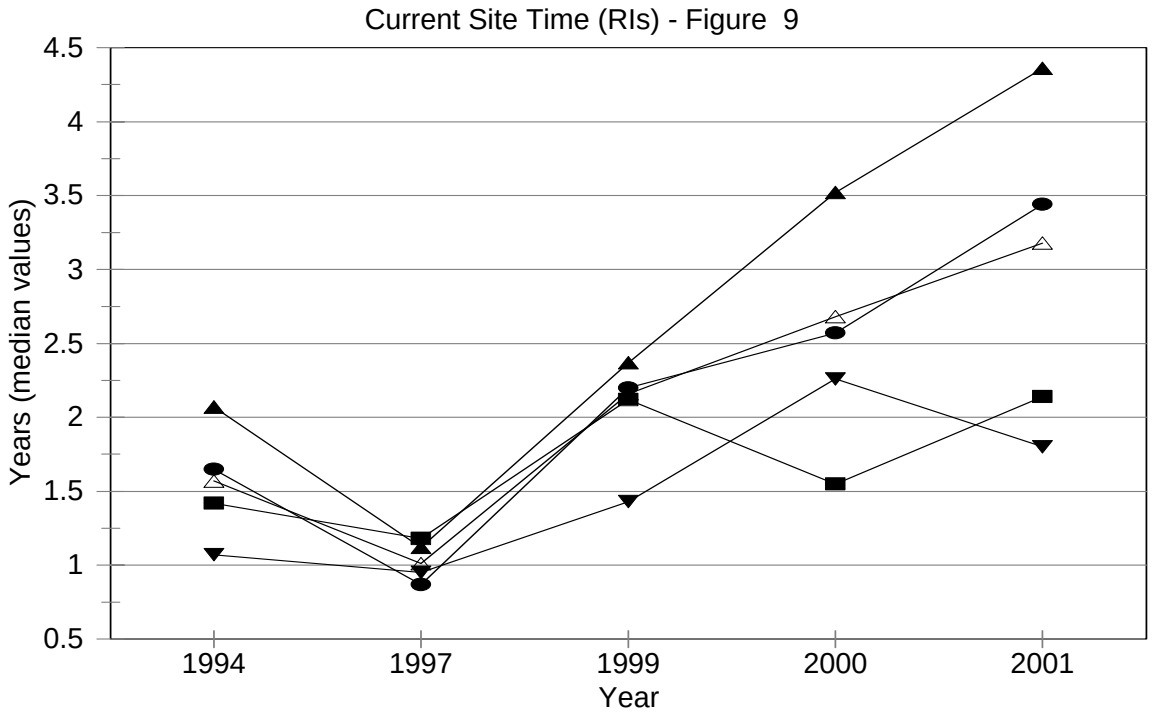
Qualified Total Resident Time (RIs)
Figure 7

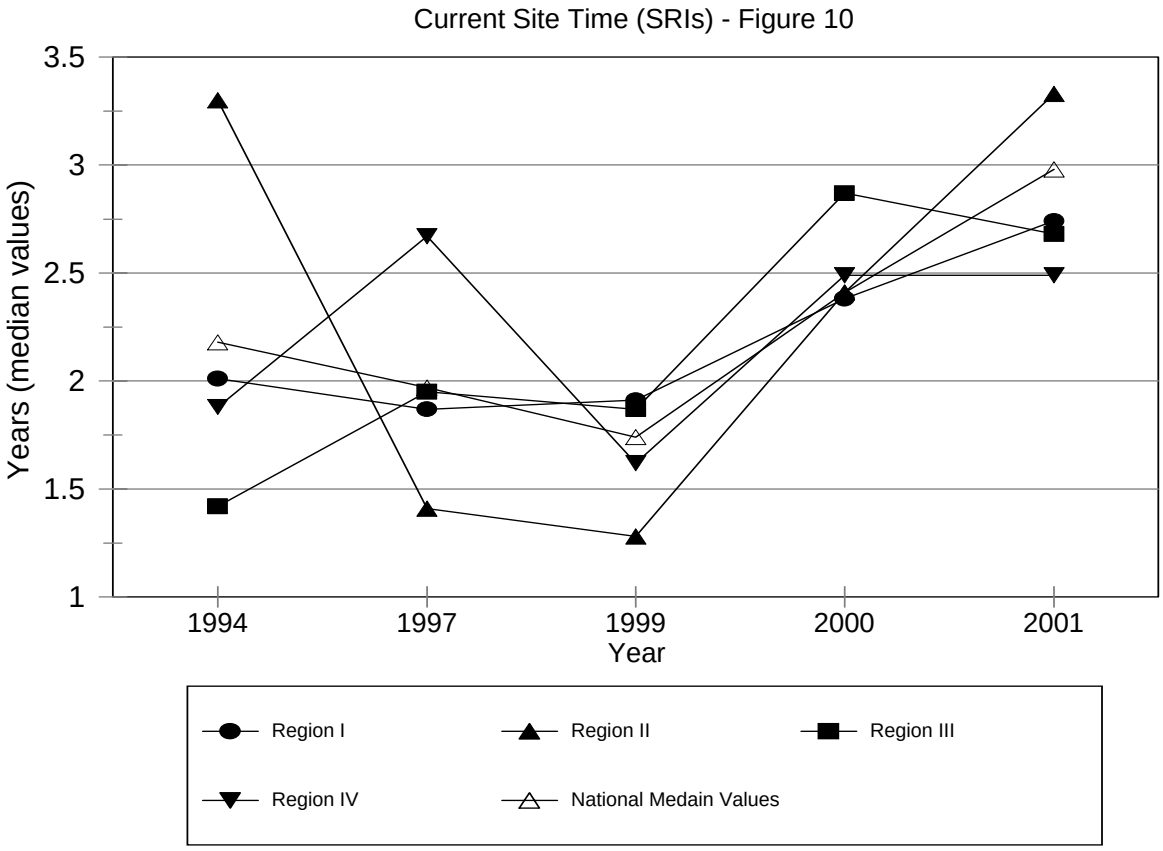


Qualified Total Resident Time (SRIs)
Figure 8



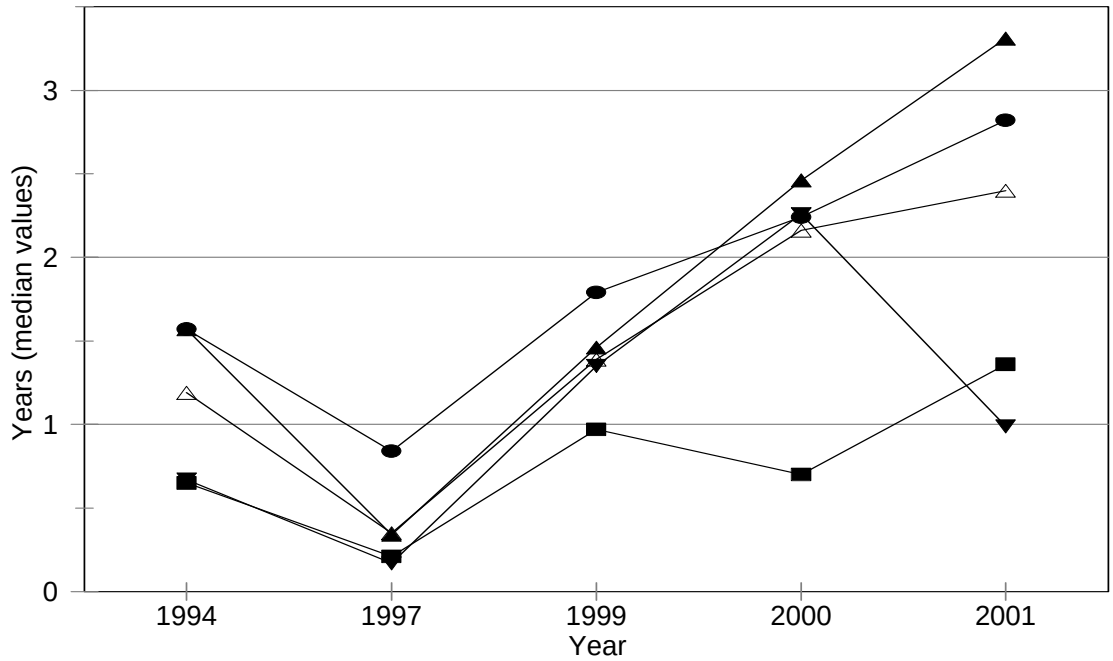
Current Site Time Regions III and IV metrics were lower than other regions indicating that RI positions were recently filled in some of the sites in Regions III and IV. There were no discernable differences in the SRI metrics amongst the regions.



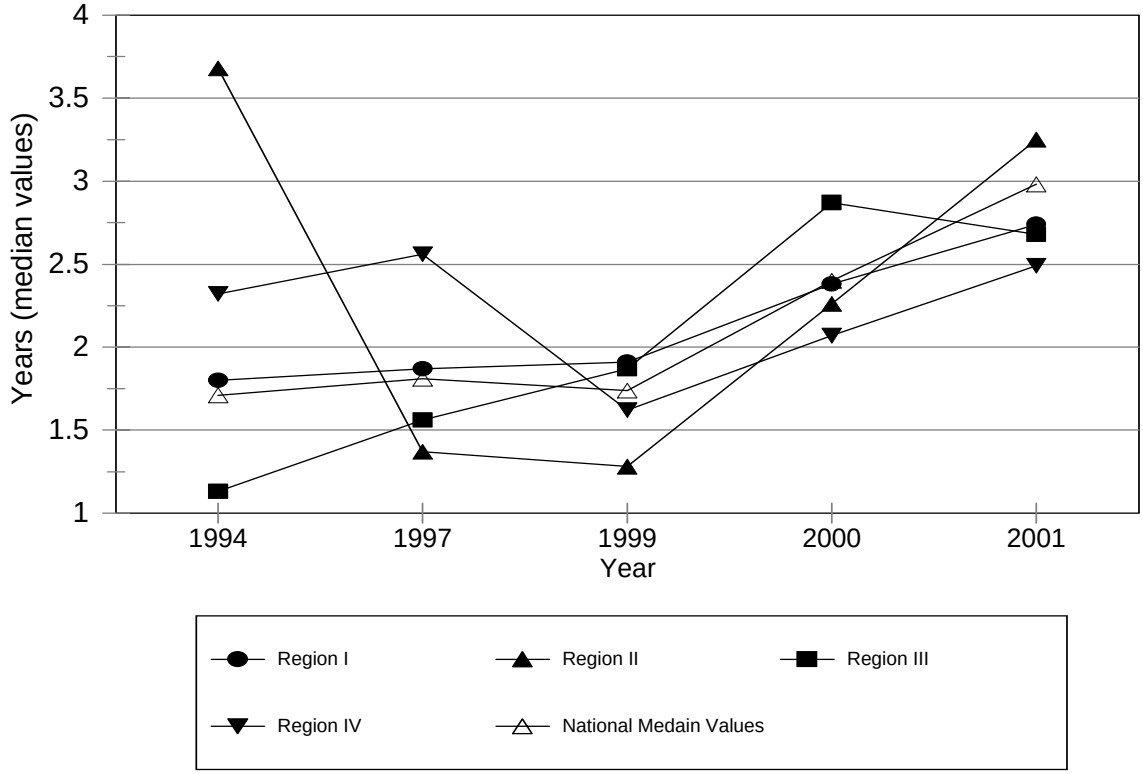


Qualified Current Site Time: Regions III and IV metrics were lower than other regions indicating that RI positions were recently filled in some of the sites in Regions III and IV. There were no discernable differences in the SRI metrics amongst the regions.

Qualified Current Site Time (RIs)
Figure 11

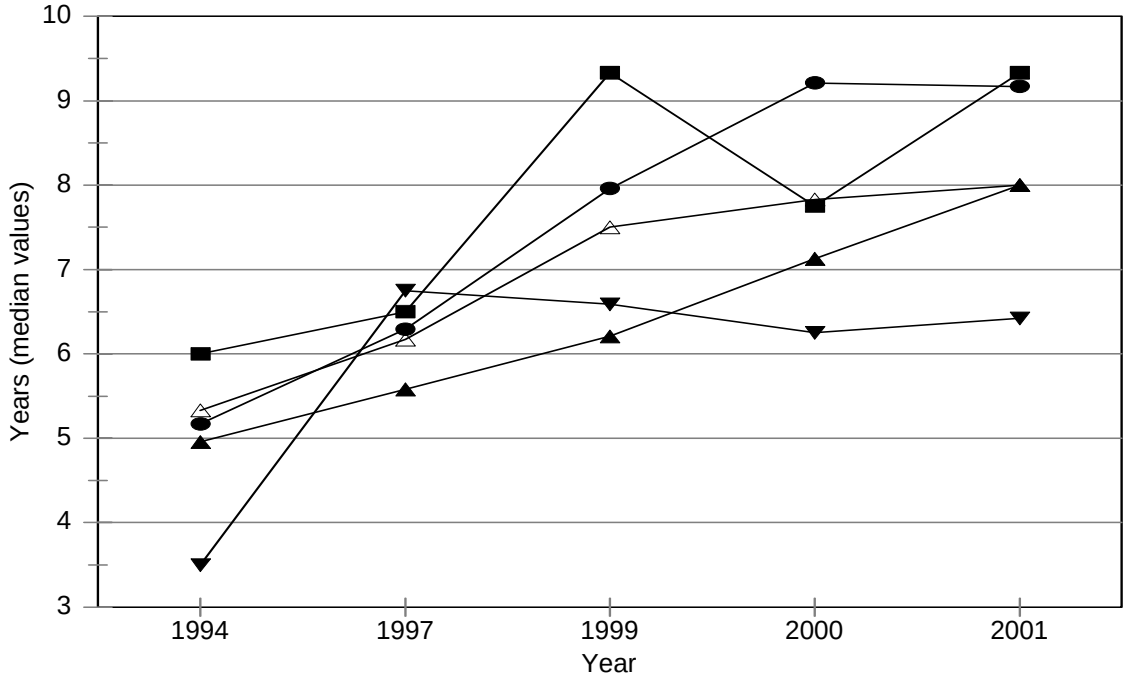


Qualified Current Site Time (SRIs)
Figure 12

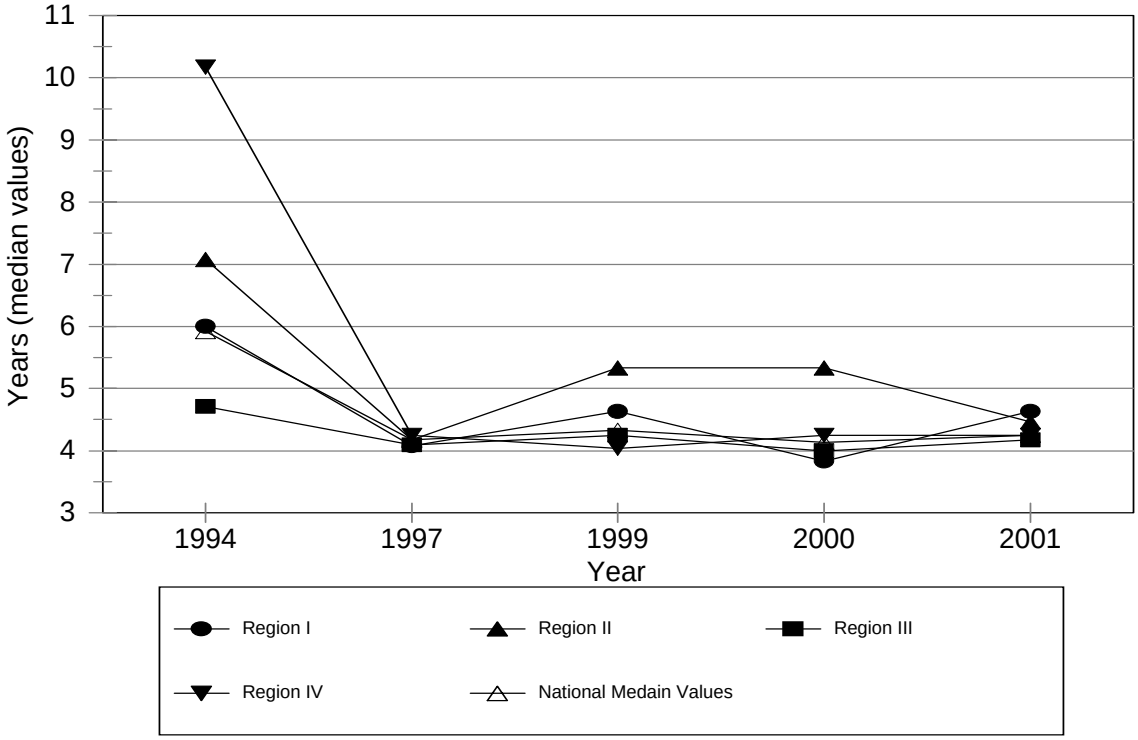


Relevant Non-NRC Experience (RIs): There were no major differences in the RI or SRI group with respect to the non-NRC experience between the regions.

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 2001 indicated that the RI program remained attractive to many experienced engineers. On average, the new hire into the resident inspector program had about 14 years of relevant non-NRC experience. This was the highest experience level for new hires since the Agency started maintaining RI demographic data.

The 2001 data also indicated that hiring of engineers with limited (defined to be less than three years) relevant non-NRC experience declined. However, the recent agency guidance to hire 25 percent new-hires may impact the percentage of new hires with less than three years relevant non-NRC experience. Table 3 shows the percentage of new RIs with less than three years of relevant non-NRC experience from 1994 through 2001.

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

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

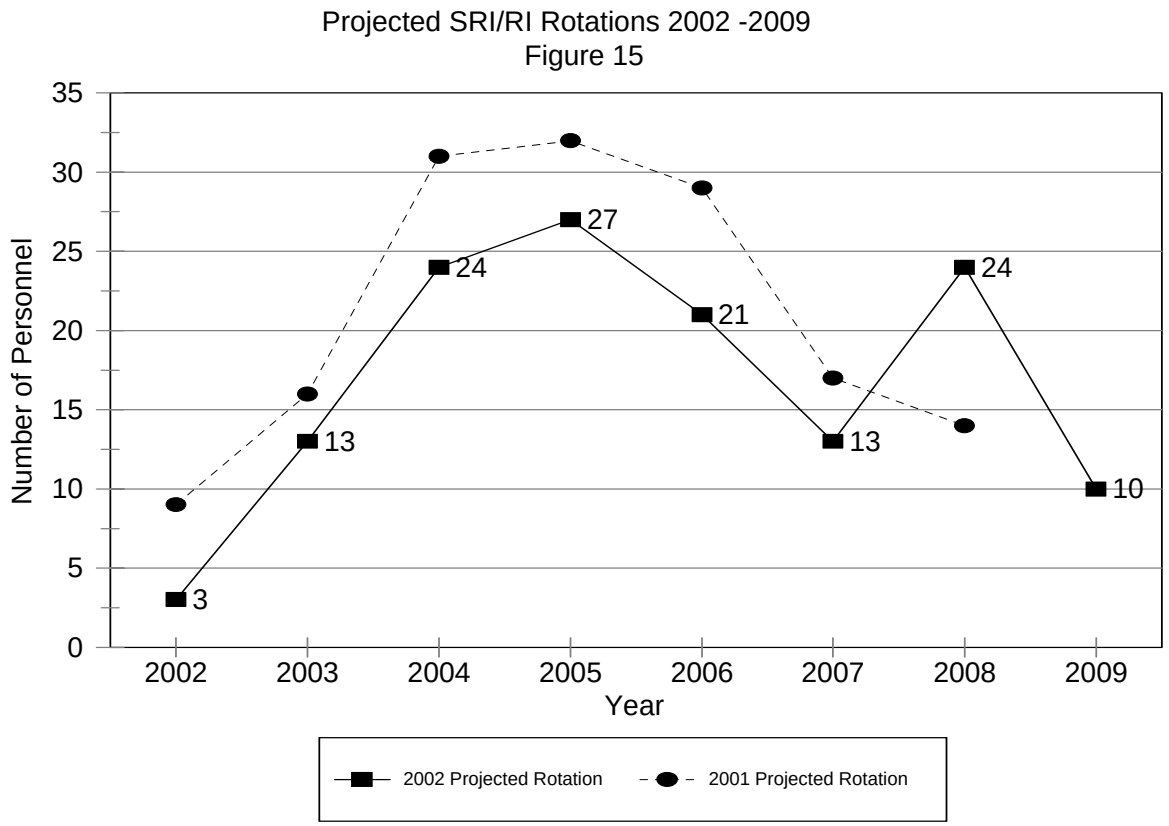
* indicates that data was only available from 5/1/1994 through 09/30/1994

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 Rotations

Figure 15 shows the number of RIs and SRIs who are scheduled to rotate, according to information that was currently available. There is an increase in the projected rotations during the years 2004 through 2006 and in year 2008. It is anticipated that the demographic data will be influenced strongly by the estimated 53 percent (72 RIs expected to rotate during the years 2004 through 2006 divided by a total of 135 resident inspectors in the program) of the RIs and SRIs who will rotate during the years 2004 to 2006. The level of projected rotations may warrant continuation of more aggressive overhire practices in order to reduce the expected impact on the RI demographics, particularly in light of the RI/SRI personnel staffing challenges as a result of the change to the “N+1" to “N” RI staffing policy.

Comparison of the 2001 and 2002 SRI/RI projected rotation indicates that the magnitude of the personnel scheduled for rotation between the years 2004 through 2006 was reduced. Further, a peak in the year 2008 appears to be from filling the RI positions during the year 2001. Likewise, a peak in the number of personnel rotations during the years 2004 through 2006 was most likely caused by the change in the RI rotation policy from five to seven years. The RI site rotation policy was changed in 1998.



CONCLUSIONS:

The 2001 demographics show a stable or improving trend in nearly all RI and SRI statistics when compared to the initial data collected in 1994. Program improvements (e.g., change to the relocation policy from five to seven years; implementation of locality pay) and close management of the RI resources appeared to have contributed to the improved program stability and increased RI and SRI experience levels in the regions.

The staff has no recommendations for changing the RI program at this time. However, the staff will continue with a more aggressive overhire policy in order to reduce the expected impact from the projected increase in the resident inspector rotations during 2004 through 2006 years and from changes made to the RI staffing policy in 2000 (“N+1" to “N” RI staffing policy change). The enhancements (increased pay, longer rotation schedule) have increased the stability of the RI program and stemmed the overall decline in RI experience. Therefore, the staff does not intend to provide a separate demographic report to Commission in the future. However, the staff will continue to monitor the RI demographic data annually and the staff will report to the Commission in the event that there is a notable decline in the RI demographics in the annual reactor oversight process self-assessment report. Additionally, the staff intends to evaluate the impact of the transition to “N” residents on the ROP over the course of the next year and report the results to the Commission in next year’s self-assessment report.