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.

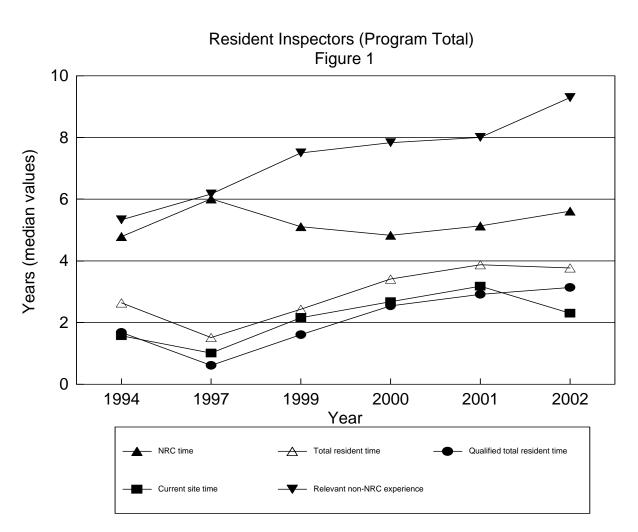
"NRC time" is total number of years the individual spent as an Nuclear Regulatory Commission (NRC) employee; "total resident time" is total number of years the individual spent in the RI program, and "qualified total resident time" is the time spent by the individual after completing the resident/operations 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.

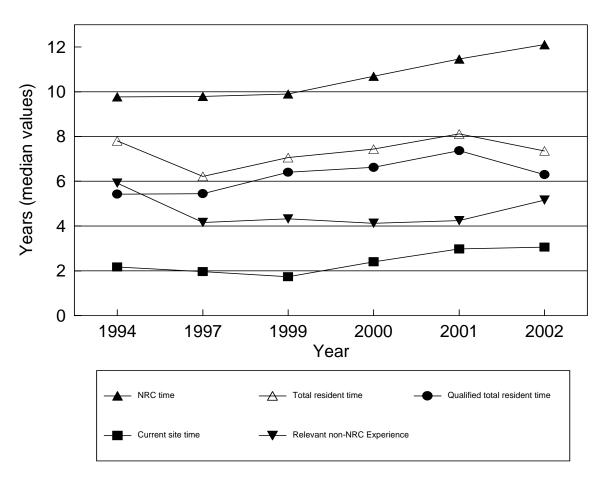
The experience level for the SRI group decreased slightly as indicated by the decrease in the "total resident time" and "qualified resident time" metrics (Table 2 and Figure 2). The median experience level of the SRI group was about six years with three of the six years being at their currently assigned 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.

Т	able 1 - Sun	nmary of RI	Group Exp	erience Lev	els (in years	s)	
		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	average	2.38	1.76	2.53	3.15	3.11	3.14
resident time	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	average	5.83	6.60	7.74	8.07	8.8	9.68
experience	median	5.33	6.17	7.50	7.83	8.0	9.29

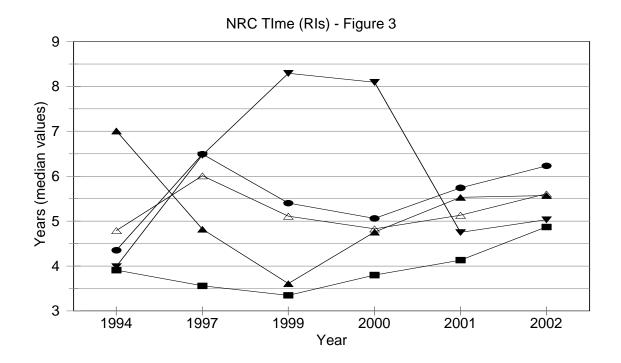


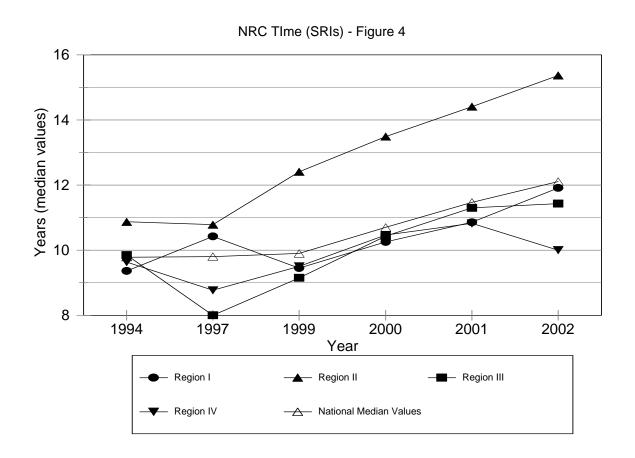
Та	ble 2 - Sumr	mary of SR	I Group Exp	erience Lev	els (in year	s)	
		Apr. 94	Nov. 97	Sept. 99	Dec. 00	Nov. 01	Nov. 02
NRC time	average	10.46	9.93	10.44	11.18	12.03	11.85
	median	9.78	9.80	9.90	10.70	11.47	12.11
Total resident time	average	7.59	6.93	7.60	8.07	8.66	8.17
	median	7.81	6.22	7.06	7.44	8.12	7.36
Qualified total	average	5.62	6.03	6.62	7.27	7.94	7.36
resident time	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	average	6.87	5.30	5.61	5.62	6.07	7.26
experience	median	5.92	4.17	4.33	4.13	4.25	5.17

Senior Resident Inspectors (Program Total) - Figure 2

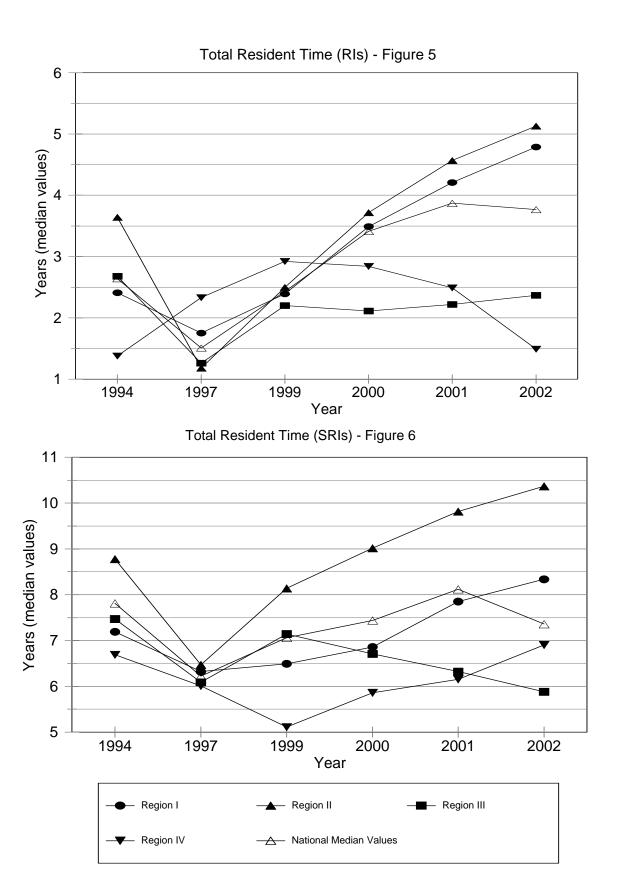


NRC time: NRC time for the RI and SRI groups increased nearly in all regions. There was a slight decrease in NRC time for Region IV SRIs. Region II SRIs continued to have the most experience with the agency.

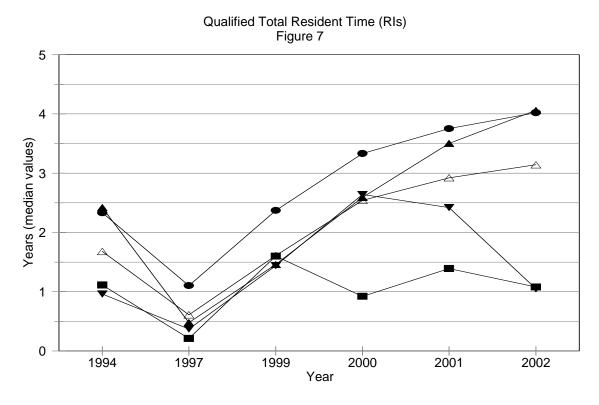


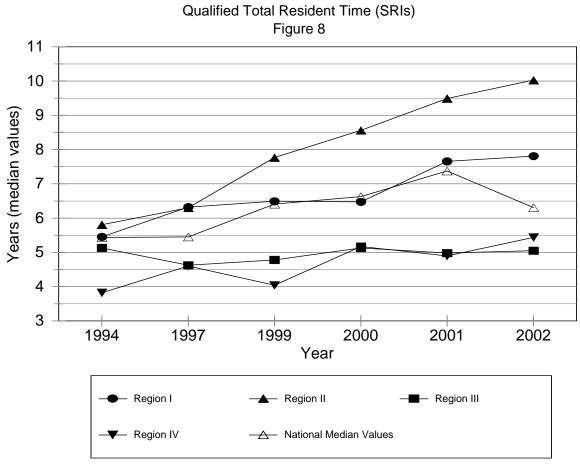


<u>Total Resident Time:</u> Total resident time metric for RIs in Region IV decreased because four new RIs entered the program in 2002. Likewise, this metric for SRIs in Region III decreased because five new SRIs entered the program in 2002.

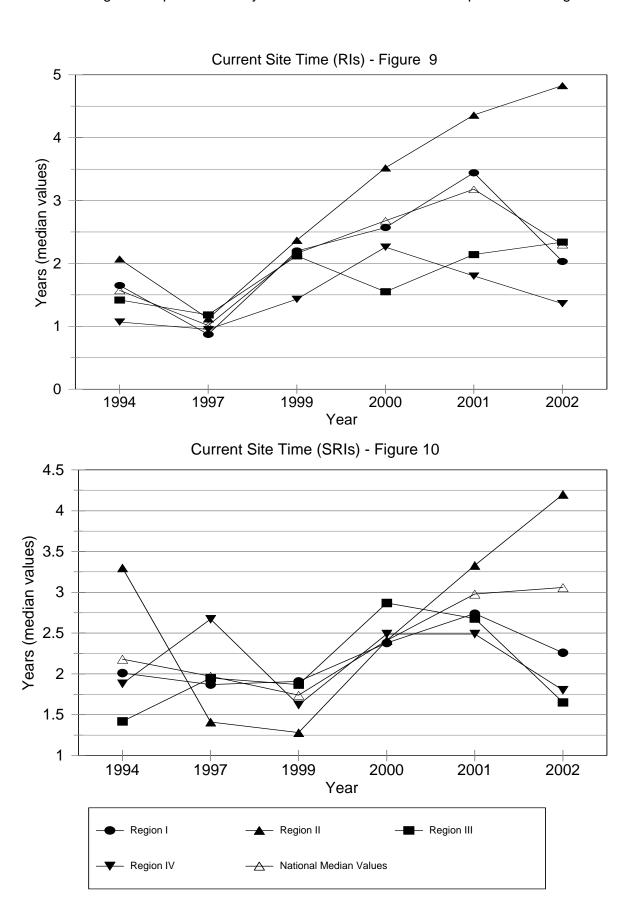


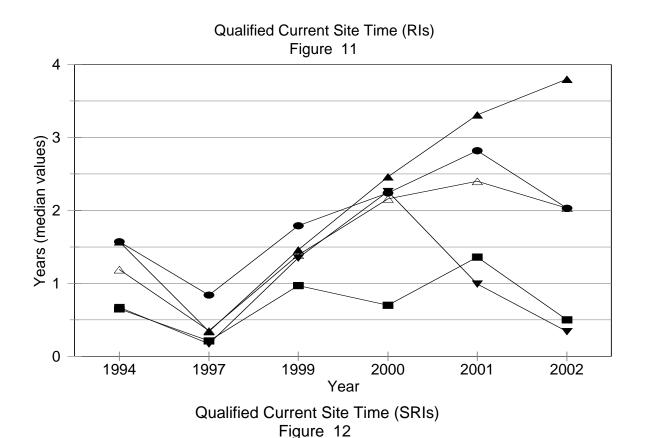
<u>Qualified Total Resident Time:</u> There was a decrease in the experience level of qualified RIs in Regions III and IV because of new hires in 2002. Consequently, their RI metrics were below the national median values.

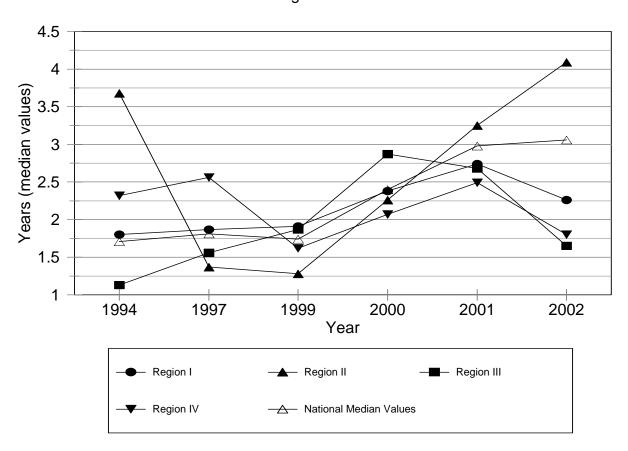




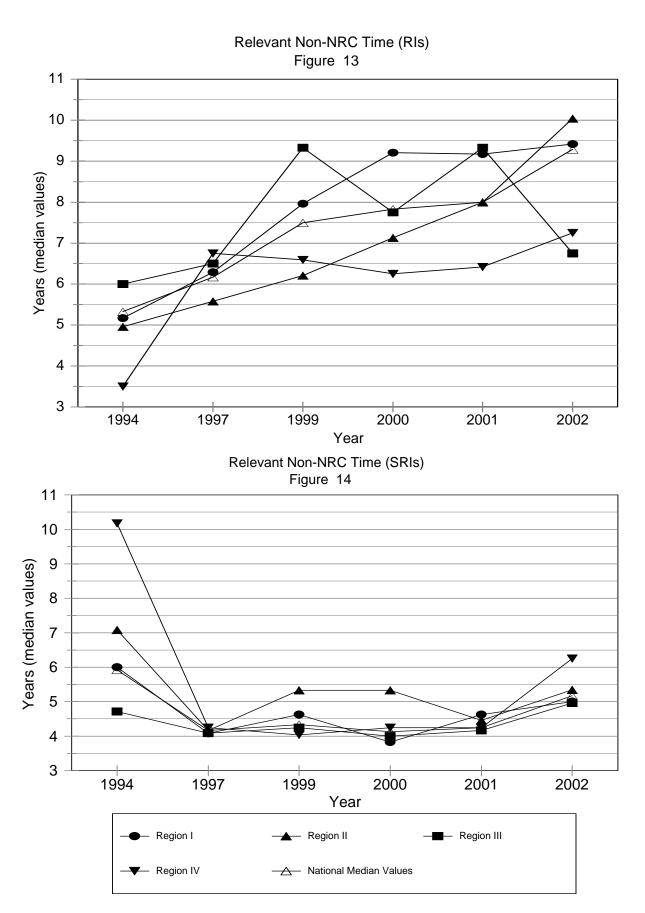
<u>Current Site Time:</u> Regions I, III, and IV metrics were lower than Region II because of RI turnover. Region II experienced very little turnover in the RI and SRI positions during 2002.







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.



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%	0%	0%	6%	12%	0%	31%	6%	20%
(3/7)	(0/2)	(0/14)	(1/18)	(2/17)	(0/5)	(4/13)	(1/16)	(3/15)

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

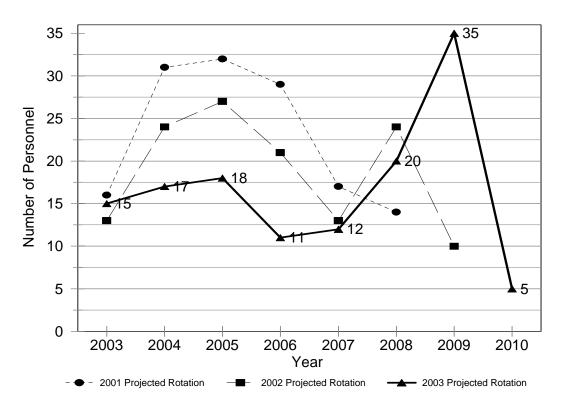
The percentages in the table represent the ratio of those RIs hired in that particular year who had fewer than three years of relevant non-NRC experience to the total RIs hired.

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

		R		ISPECTOR P	_		
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 I	NSPECTOR I	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	INSPECTO	RS 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

		SEN	IOR RESII	DENT INSPEC	CTORS ONLY	1	
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

				NSPECTOR I			
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	INSPECTO	RS 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

		SEN	IOR RESII	DENT INSPEC	CTORS ONLY	1	
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										
		NRC TIME	TOTAL RESIDENT TIME	QUALIFIED TOTAL RESIDENT TIME	CURRENT SITE TIME	QUALIFIED CURRENT SITE TIME	RELEVANT NON-NRC TIME				
REGION											
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			
Region II	Median Average	5.85 9.07	3.83 5.96	3.83	1.82 2.55	1.68 2.12	5.63 5.63			
Region III	Median Average	8.70 6.97	5.21 5.12	3.72 3.43	2.57 1.81	1.59 1.17	5.33 6.52			
Region IV	Median Average	6.02 6.60	3.79 3.80	2.25 2.77	1.42 1.68	1.00 1.38	5.58 6.75			
ivedion in	Median	5.56	2.84	2.51	1.38	1.17	5.75			
National	Average Median	7.56 6.90	5.05 3.91	3.61 2.81	2.08 1.72	1.66 1.40	6.22 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				