SECY-99-227

September 13, 1999

FOR: The Commissioners

FROM: William D. Travers /s/
Executive Director for Operations

SUBJECT: N+1 RESIDENT INSPECTOR STAFFING POLICY

PURPOSE:

To recommend that the N+1 resident inspector policy be revised in light of current industry safety performance.

SUMMARY:

Since 1988, the NRC has used a staffing policy for resident inspectors that assigned one more resident at a site than the number of units at that site. This has been referred to as the N+1 resident inspector staffing policy ("N" for the number of units at a site and "N+1" to indicate the total number of resident inspectors stationed at that site). The N+1 resident inspectors conduct a combination of core and plant-specific (including reactive and regional initiative) inspections at operating nuclear power plants. The NRC has approved exemptions to this policy when licensee has demonstrated sustained superior performance. The staff believes it is time to reevaluate the N+1 staffing policy to ensure effective and efficient use of inspection resources.

BACKGROUND:

RESIDENT INSPECTOR PROGRAM

The resident inspector (RI) program began in 1978. It was established to improve the NRC's inspection program by providing NRC inspectors on site who have knowledge of conditions at licensed facilities, improving the NRC's ability to independently verify licensee performance and improving the NRC's incident response capability. The RI program has evolved over the years, and adjustments have been made to ensure that the sites are adequately staffed with qualified resident inspectors in order to comply with the inspection program goals. There continue to be three primary functions of the resident inspectors: direct inspection, early response to events, and knowledge of plant status. Resident inspectors are required to be knowledgeable about a multitude of engineering and science-related applications that are associated with plant operations. They need to be familiar with the areas evaluated by specialist inspectors in order to identify when a potential problem exists. Specialist inspectors, typically located in the regional offices, provide in-depth expert knowledge necessary to comprehensively review specific areas associated with the NRC's safety mission. Specialist inspectors perform in-depth inspections in areas such as engineering design, radiation controls, security, emergency preparedness, and fire protection. Both resident and specialist inspectors will play a key role in the risk-informed baseline inspection program currently being pilot tested at nine plants.

In March 1980, the NRC submitted a report to Congress on the status of the RI program. In its response to this report, Congress raised two concerns: (1) that the individual RI may lack the breadth of technical knowledge to oversee the full range of activities involved in the construction and operation of a nuclear power facility and (2) that the frequent contact with licensee personnel might lead RIs to lose their objectivity. The NRC addressed these concerns in a variety of ways, including development of inspector qualification requirements, limiting the tour of duty at a site, strengthening the code of conduct, ensuring frequent contact between regional supervisors and resident inspectors, and expanding the program to require a minimum of two residents at all operating sites. This action provided for N+1 resident inspectors at single unit sites.

In response to NRC concerns about safety performance, the NRC adopted an N+1 resident inspector staffing policy in 1988 for multiple unit sites. This policy required one more resident at a site than the number of units at the site. This policy placed agency inspection resources where they were needed to address plant-specific issues. Other benefits derived from the establishment of the N+1 policy at multi-unit sites were better flexibility to facilitate site coverage, ability to provide inspections at backup sites, additional time for training, flexibility to schedule vacations, and participation in other inspection activities. The additional resident inspector was not intended to fulfill core inspection responsibilities.

EXEMPTIONS TO N+1 RESIDENT INSPECTION STAFFING

In 1992, the staff identified that the efforts to allocate inspection resources through the Systematic Assessment of Licensee Performance (SALP) program were not entirely effective. Therefore, the NRC began to grant exemptions to the N+1 policy in recognition that some licensees had made considerable improvement in performance. Exemptions from the N+1 resident staffing policy were justified on the basis of nuclear plant performance in accordance with Field Policy Manual No. 18. To determine if an N+1 exemption was warranted, the regions performed a screening process using systematic assessment of licensee performance (SALP) ratings (i.e., SALP category 1 ratings in at least three functional areas, including plant operations, and no category 3 ratings). The regional administrator (RA) also considered other factors, such as overall resident inspector staffing and experience and the proximity of the site being considered for an N+1 exemption to other sites. The Director, Office of Nuclear Reactor

Regulation (NRR), reviewed and approved the exemption request and informed the Executive Director for Operations. The exemption was granted for a 2-year period. Currently three plants are exempted from the N+1 policy: Vogtle, North Anna, and Comanche Peak. In addition, there are eight current vacancies in resident inspector positions at multi-unit sites. During this exemption period, the regions and NRR monitor site performance to assure that the exemption justification remains valid. If declining performance is identified, the RA or the NRR Office Director can rescind the exemption to the N+1 policy at any time during the 2-year exemption period. N+1 exemptions have been rescinded seven times since 1993.

SHORT TERM RESOURCE IMPLICATIONS OF IMPROVED SAFETY PERFORMANCE

Since 1985, the NRC has trended United States (U.S.) nuclear industry safety performance and reliability through the use of performance indicators that track objective measures of performance. Over the past decade, U.S. nuclear industry average safety performance has steadily improved, with

statistically significant improvement in five of the indicators as noted in the attachment. Of note is that the number of initiating events resulting in scrams has declined significantly over the past 10 years, and this is reflected in fewer and less complicated plant transients (i.e., fewer safety system actuations and significant events).

The NRC's recognition of improvements in the safety performance of the nuclear industry is reflected in a reduced reactive inspection program for FY 1999 through FY 2001. These include a reduction of 18 full-time equivalent staff years (FTEs) in plant-specific inspections for FY 1999 and a decrease of 10 additional FTEs in plant-specific inspections for FY 2000. In addition, a reduction of 8 FTEs in core inspection effort for FY 2001 was planned in the spring of 1998 during the FY 1999 budget planning. The planning assumptions used in the spring of 1998 remain in effect today. The current planning assumptions for FY 2001 do not consider the effectiveness of the revised reactor oversight process. Adjustments to the planning assumptions will not be developed until the pilot study is complete. The NRR direct budgeted FTE for the regional offices is listed below and includes the above assumptions, as well as adjustments for permanently shutdown plants and inspector labor rates.

NRR DIRECT FTE AT REGIONAL OFFICES FOR ALL PROGRAMS

1998	1999	2000	2001
425	401	392	386

With improved industry performance and concurrent reductions in reactive resource needs, staffing considerations of efficiency and effectiveness require the agency to reexamine the geographic location of its reactive inspection resources. As part of this process, the staff has reevaluated the N+1 resident inspector staffing policy and how it contributes to the NRC's safety mission.

DISCUSSION:

The N+1 resident inspector policy was created at a time when it was necessary to place additional resources at reactor sites to better fulfill the NRC's safety mission. Today, with significantly improved industry performance, it is no longer necessary to have additional resources to conduct plant-specific inspections at all sites. Many of the resources that can be used to support the plant-specific inspection effort are located at various resident sites, making it less effective and efficient to deploy these resources where they can be best applied. The proposed resident staffing policy would increase the flexibility to assign inspection resources where they are most needed. Removing the N+1 resources from multiple unit sites will provide the regions the ability to allocate resources on the basis of licensee performance and would not result in a reduction of inspection resources. With the current N+1 policy and the recent reduction of plant-specific inspection reflected in the budget for FY 1999 - FY 2001, the regions have generally absorbed the reduction by reducing their region-based staffs. Therefore, resident inspectors from better performing sites have more frequently been assigned to perform plant-specific inspections at poorer performing sites.

The current N+1 resident staffing policy affects how much inspection a plant receives. When resident inspectors are assigned to a site, an implied expectation is that those residents will conduct the majority of their inspections at that site for the duration of the assignment, thus that site would be more likely to receive additional inspection. Elimination of the N+1 resident staffing policy from multi-unit sites allows the regions the flexibility to balance regional staffing needs with the requisite specialist skills. This policy change would potentially affect 34 multiple unit sites, resulting in a minimum of two resident inspectors at each site which remains responsive to the previously noted Congressional concerns.

As noted earlier, budget planning assumptions for FY 2001 have not considered the resources required for the revised reactor oversight process. Once the staff has gained experience implementing the risk-informed baseline inspection program, we will have a better idea of the resources necessary to complete the baseline. Eliminating the N+1 policy should not adversely impact implementation of the revised reactor oversight process, since the RAs will continue to assign plant-specific inspection resources based on licensee performance. The remaining portion of the new inspection program that will provide for response to risk-significant issues and events is currently being developed. Therefore, the staff proposes to report to the Commission on the utilization of regional inspection resources in June 2001 after one year of experience with the revised inspection program. In the interim, the staff proposes not to refill vacant N+1 resident inspector positions at multi-unit sites as they become vacant. In situations where licensee performance warrants additional oversight, the RA will consult with the Director, NRR and the Deputy Executive Director for Reactor Programs prior to the assignment of an additional resident inspector. The Commission will be informed of any multi-unit site where performance warrants the assignment of an N+1 resident inspector. The staff expects use of this exception will be rare.

The staff considered whether to recommend elimination of N+1 resident staffing at all units, including the 33 single-unit sites. Historically, two residents have been assigned to single-unit sites. Maintaining two inspectors at a single-unit site provides the flexibility for scheduling site coverage and time away from the site as explained above and provides for a second knowledgeable person for discussion of issues that arise during inspections. If single-unit N+1 residents were eliminated, the regional staff would need to be supplemented to include some inspection resources for site coverage during inspector vacations, training, or some other inspection activity not performed at the resident inspector's assigned site. For these reasons, the staff does not recommend staffing any operating reactor site with less than two resident inspectors.

The staff's current projection for attrition among resident inspectors is not expected to completely offset the relocation of plant-specific inspection resources through the elimination of N+1 resident staffing at multi-unit sites. With Commission approval, the staff will not refill vacant N+1 resident positions. In implementing this policy, the staff does not intend to reassign any resident inspectors to achieve N resident staffing until after it reports to the Commission on regional resource utilization in June 2001, as noted earlier. If warranted, the staff will then work with the Office of Human Resources to manage a transition for the individuals affected by this change.

There are fee implications associated with reducing the number of resident inspectors from N+1 to N in multi-unit sites. Currently, Part 170 fees are assessed to reactor licensees for all of the resident inspectors' time, except leave time. The resident inspectors' direct inspection efforts are charged to the specific inspection report and their non-inspection effort is charged to the docket and billed as a separate line item on the inspection fee invoice. For non-resident inspectors, only time spent on direct inspection effort is billed to the licensee. Revising the N+1 policy to reduce the number of resident inspectors at reactor sites would reduce the amount recovered under Part 170. A corresponding increase in all reactors' Part 171 annual fees is expected as a result of transferring inspectors from resident positions to regional positions where non-inspection time is charged as overhead.

COORDINATION:

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

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

The Office of Public Affairs has reviewed this Commission paper for public confidence implications and has no objections to its content.

The staff will arrange for discussion with the Union on this subject, as appropriate.

RECOMMENDATION:

That the Commission approve the staff's plans to revise the resident inspector staffing policy to require two resident inspectors at single and dual unit sites and three resident inspectors at triple unit sites. While managing the transition to staffing multi-unit sites with N residents inspectors, RAs will utilize resident inspectors at multi-unit sites that currently have N+1 staffing to perform inspection or other related duties in a manner that does not create unnecessary regulatory burden. N+1 vacancies at multi-unit sites will not be refilled unless unique conditions warrant.

The staff will report to the Commission in June 2001 after the first year of full implementation of the revised reactor oversight process and will include in this report a recommendation on regional inspection staffing.

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Attachment: As stated

ATTACHMENT

U.S. ANNUAL INDUSTRY AVERAGE PERFORMANCE INDICATORS

PERFORMANCE INDICATORS	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
AUTOMATIC SCRAMS	5.28	4.50	3.60	2.26	1.85	1.63	1.52	1.43	1.13	1.04	0.95	0.81	0.51	0.49
SAFETY SYSTEM ACTUATIONS	2.74	2.09	1.51	1.23	1.31	1.00	1.00	.078	.079	0.52	0.47	0.36	0.35	0.32
SIGNIFICANT EVENTS	2.38	1.66	0.85	0.88	0.77	0.46	0.28	0.30	0.26	0.21	0.12	0.09	0.08	0.04
SAFETY SYSTEM FAILURES[1]	N/A	N/A	3.31	3.33	3.48	3.71	3.40	3.54	3.30	2.05	1.98	2.98	2.77	2.52
FORCED OUTAGE RATE (%)	11.0	11.0	9.54	7.95	9.92	7.20	8.95	7.55	8.58	9.17	5.93	8.92	10.10	9.65
EQUIPMENT FORCED OUTAGES PER 1000 HOURS	0.90	1.11	0.59	0.45	0.45	0.39	0.36	0.31	0.24	0.24	0.26	0.25	0.22	0.19
COLLECTIVE RADIATION EXPOSURE (person-rem)	577	501	410	388	332	336	255	267	243	203	202	193	161	133[2]
AVAILABILITY (%)[3]	N/A	66.2	68.0	70.1	68.8	71.7	74.0	73.8	75.0	77.0	80.3	78.3	73.5	80.5

[1]Improved methods for classifying safety system failures were incorporated into the performance indicator program in 1987 are not comparable and are not given.

[2]1998 data estimated from first three quarters.

[3]Availability data for 1985 are not available.

Sources: Licensee event reports submitted per 10 CFR 50.73; monthly operating reports submitted per technical specifications and Regulatory Guide 1.16; Institute of Nuclear Power Operations; and "World Nuclear Performance, "McGraw-Hill nuclear publication.

Note: 11 units off line for 1997: Salem 1; Zion 2; Millstone 1,2,3; Clinton: Browns Ferry 1; LaSalle 1,2; Maine Yankee; Crystal River 3, which greatly affected availability data.