REPORT BY THE

Comptroller General

OF THE UNITED STATES

Placing Resident Inspectors At Nuclear Powerplant Sites: Is It Working?

The Senate Committee on Environment and Public Works asked GAO to analyze the Nuclear Regulatory Commission's nuclear powerplant inspection program and to consider alternatives for improving it.

At least two resident inspectors will be stationed at each commercial site. This new concept should complement and not replace the regionally based inspection system. However, several weaknesses in the new program should be corrected to make the resident inspection concept successful.

EMD-80-28

NOVEMBER 15, 1979

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-164105

The Honorable Jennings Randolph
Chairman, Committee on Environment
and Public Works
United States Senate

Dear Mr. Chairman:

In response to your request of May 24, 1979, signed also by Senator Stafford, and Chairman Hart and Senator Simpson of the Subcommittee on Nuclear Regulation, here are the results of our review of the Nuclear Regulatory Commission's nuclear powerplant inspection program. Our report discusses the evolving resident inspection concept where at least two inspectors are stationed at each commercial powerplant site. We also discuss several weaknesses that must be resolved by the Nuclear Regulatory Commission to make the program successful.

We provided the Nuclear Regulatory Commission an opportunity to review a draft of this report. Commission official's comments are reflected in the report where appropriate. As arranged with your office we will not release this report for 3 days unless you publicly announce its contents earlier.

Sincerely yours,

Comptroller General
of the United States

COMPTROLLER GENERAL'S REPORT TO THE CHAIRMAN, SENATE COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

PLACING RESIDENT INSPECTORS AT NUCLEAR POWERPLANT SITES: IS IT WORKING?

D I G E S T

The Nuclear Regulatory Commission's new resident inspection plan together with its present regional inspection system should be an improvement in ensuring nuclear reactor safety.

The nuclear industry and the Commission have complementary responsibilities in assuring the safe operation of commercial nuclear powerplants. The Commission establishes rules, regulations, standards, and guides for the construction and operation of nuclear powerplants. The nuclear industry has the direct responsibility to design, construct, test, and operate the plants according to these rules. The Commission through its licensing and inspection programs attempts to assure that the industry is fulfilling its responsibility, and that public health and safety is protected. (See p. 1.)

In the past, regional inspectors traveled from five offices to inspect nuclear reactor sites and other facilities. Only about 25 percent of their time was spent at the powerplants. The rest was spent at the regional offices. To improve the program. the Commission decided to supplement it with resident inspectors assigned to each site. (See p. 1.)

The regional system provides a core of nuclear specialists who make inspections of a number of reactor sites. This enables the Commission to compare different reactors and utilities and adjust its inspection methods accordingly. The regions can also maintain overall unified management and direction. This is vital and should not be weakened or depleted as the resident inspection is increased. (See p. 15.)

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Resident inspection provides a full-time inspector at each plant. Onsite time and direct observation of the utility, the reactor, and all other activities will be increased. (See p. 16.)

There are clear advantages to jointly using both. However, if the revised program is to be successful, the Commission must correct certain weaknesses by

--requiring that resident inspectors perform more direct observations than reviews of records and providing resident inspectors with more administrative support,

--defining the role of the resident inspectors and establishing what qualifications and training they need, specifically requiring them to have plant-specific training, and a level of training comparable with a reactor operator,

--assigning resident inspectors to those reactor sites that are most in need of regulatory attention,

--coordinating the interface between the existing regional inspection approach and the evolving resident inspection approach, and

--reevaluating and restructuring the performance appraisal team and developing appropriate goals and measures of effectiveness for its nuclear powerplant inspection program.

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ABBREVIATIONS

GAO	General Accounting Office
NRC	Nuclear Regulatory Commission

CHAPTER 1

INTRODUCTION

The nuclear industry and the Nuclear Regulatory Commission (NRC) have complementary responsibilities in assuring the safe operation of commercial nuclear powerplants. NRC establishes rules, regulations, standards, and guides for the construction and operation of nuclear powerplants. The nuclear industry has the direct responsibility to design, construct, test, and operate the plants according to these rules. NRC, through its licensing and inspection programs attempts to assure that the industry is fulfilling this responsibility, and that public health and safety is protected.

The current NRC inspection program has evolved over the past 22 years as the nuclear industry and the safety awareness of the public have grown. Since the first commercial nuclear powerplant became operational at Shippingport, Pennsylvania, in 1957, 70 nuclear powerplants have been constructed and licensed to operate throughout the United States. Ninety-eight more nuclear reactors are in various stages of construction. Inspections at these plants are made by so-called "regional inspectors" from five NRC regional offices.

On the basis of NRC statistics, about 25 percent of the regional inspector's time is spent onsite, inspecting the reactor owner's activities. Most of the balance of the time is spent in the regional offices preparing for inspections, evaluating inspection findings, and documenting inspections. Consequently, the regional inspection program places considerable confidence in the capability of the reactor owner and the accuracy and completeness of his statements and documents.

In June 1974, NRC's Office of Inspection and Enforcement began a 2-year trial program of assigning inspectors to locations at or near nuclear power reactor sites. The program involved assigning two NRC inspectors to locations from which they could inspect a total of four reactor sites. In evaluating the trial program, the Office of Inspection and Enforcement concluded that placing inspectors at reactor sites (resident inspectors) was viable, specifically because it made more efficient and effective use of inspectors' time.

BASIS FOR THE RESIDENT INSPECTION PROGRAM

An April 1977 study on NRC inspection alternatives was forwarded to the NRC Commissioners for their consideration. Using very subjective criteria, the study concluded that, while the present regional inspection approach was

effective, improvements to the program were needed. Consequently, the concept of full-time resident inspectors to complement the regional inspection effort was introduced as a preferred alternative, and the study described advantages that could be gained from it.

A resident inspector could extend NRC's onsite examination of the implementation of the reactor owner's quality assurance program through increased direct observation of the work and testing procedures. The inspector could determine that the reactor owner's work and maintenance procedures were adequate and by observation, verify that these activities were conducted properly and at the required frequency. In addition, the inspector could examine events to determine the adequacy of the reactor owner's actions and reports. His proximity to, and familiarity with, a specific site could allow immediate onsite inspector response to significant events. He would not take the place of or duplicate the NRC regional inspection force but would be capable of recognizing actual and potential safety problems and, if necessary, refer these items to the regional inspectors for resolution.

NRC IMPLEMENTS THE RESIDENT INSPECTION PROGRAM

As a result of the April 1977 study report, the Commissioners approved the use of resident inspectors, and the Office of Inspection and Enforcement began assigning resident inspectors to 20 reactor sites. NRC now believes that there is a need to assign more than one resident inspector to some powerplant sites. When a site includes one or more plants in operational or pre-operational testing status, NRC plans to assign one resident for each of those plants plus another resident to be responsible for the overall site inspection effort. This latter resident will coordinate activities of the plant residents and regional inspectors, and be the principal contact with the reactor owner. Under this concept, NRC plans to increase the number of residents to 174 by the end of fiscal year 1981.

SCOPE OF REVIEW

During this review, we evaluated NRC's efforts to develop a joint regional- and resident-based inspection program. Because NRC has not developed a definitive way to measure the effectiveness of its inspection effort, we had to rely on subjective data to decide on the merits of the resident inspection program. We did our work by interviewing officials at the NRC's Office of Inspection and Enforcement headquarters in Washington, D.C., and its Philadelphia,

Atlanta, and Chicago regional offices; the Office of Management and Budget; the headquarters office of the Commonwealth Edison Corporation; two nuclear powerplant sites, and the offices of industry and consumer groups. We also analyzed various studies and evaluations of the NRC inspection program, and inspection programs of other agencies.

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NRC officials agreed with the thrust of the report and its recommendations. Their comments have been incorporated in the report where appropriate.

activities. The resident inspector, according to the NRC code of conduct, must guard against whom his family socializes with, what clubs his wife joins, and what "best friends" his children make. In short, the resident inspector and his family may not socialize with plant employees on a regular basis, even though such persons may be the only people in town that possess similar backgrounds and interests.

While onsite, the resident inspector will probably become acquainted with many, if not, a majority of the plant employees on a first name basis. The longer that the resident inspector remains at the plant, the more he may consider himself a part of that plant's organizational structure. He may even begin to defend the plant against outsiders who raise questions about plant activities. The resident inspector may tend to regard such questions as a reflection on his performance and professional judgment.

Because of these considerations, we believe it will be hard for inspectors to maintain objectivity onsite particularly if he is the only NRC resident inspector assigned to the plant or area. The social difficulties that the inspector and his family will face offsite will probably make matters even worse. This could lead to employee discontent and negatively affect NRC's ability to recruit and retain resident inspectors. Still, a strict code of conduct such as adopted by NRC is necessary to guard against loss of objectivity.

IS 24-HOUR COVERAGE NEEDED?

A: No, unless the duties of the resident inspectors are greatly expanded beyond what NRC expects now.

To provide 24-hour coverage, 7 days a week, would require as many as five or six inspectors per plant. As currently planned, the resident inspector will usually be onsite during the main day shift--8:00 a.m. to 4:30 p.m. This is when maintanance, testing, and other activities are normally carried out at the plant. In addition, the resident inspector can spot-check the off-shifts as necessary, particularly when more than one resident is assigned to a site.

In the event of an accident, the resident inspector will normally be already onsite or at his residence and only minutes away from the plant. This ability to rapidly follow-up on an accident provides NRC, in effect, with almost 24-hour plant coverage and negates, NRC feels, the need to have a resident inspector onsite at all times.

The resident inspector will provide a communication link between the plant and NRC. NRC does not anticipate that the resident inspector will take control of the plant or supervise plant employees in either normal conditions or during accidents. He will provide information about the plant's status and, during an accident, will describe its severity and the actions taken by plant employees. Because these limited actions can be handled by one person, we do not believe that five or six inspectors are needed per plant site unless the duties of the inspector changes and he takes a more active role in accident control and mitigation.

Currently, there are many on-going studies evaluating the licensing and inspection efforts that NRC used before and during the accident at Three Mile Island. As a result of these studies, it may be necessary for NRC to rethink its regulatory role, including the need to provide 24-hour inspection coverage at reactor sites.

SHOULD RESIDENT INSPECTORS OBSERVE ACTIVITIES OR REVIEW RECORDS?

A: Resident inspectors should concentrate on direct observation because regional inspectors are reviewing records.

Regional inspectors have been criticized in the past because they have spent too little time actually at the nuclear powerplant site and too little time at direct observation. 1/ Because the inspectors are at the powerplant about 25 percent of their time, they must decide how best to use their time. Direct observation gives the inspectors confidence in the quality of the work done, while a review of the plant records provides a complete history of the plant operations.

NRC, in the past, has relied on a review of records to determine the adequacy of plant operations. Therefore, NRC is attempting to orient the resident inspection program toward direct observation of reactor owner activities. However, we found that, to date, the resident inspectors have been asked to do routine, periodic inspections--primarily including a review of records--rather than independently investigate areas where there are suspected problems.

1/"The Nuclear Regulatory Commission Needs to Aggressively Monitor and Independently Evaluate Nuclear Powerplant Construction" (EMD-78-80, Sept. 7, 1978).

When the resident inspection program began, NRC was committed to ensuring that the resident's time would be productively used. As the program has developed, however, the resident inspector has been asked to perform certain routine duties. These duties include, for operating reactors, a weekly inspection of the utility's organization, administration, and quality assurance program. Consequently, the resident inspector has not had ample opportunity to independently inspect the operation of the plant. Extracts from resident inspector responses to an NRC questionnaire support this opinion.

One resident inspector said that the resident inspection program is too regimented for a specific number of items to be inspected and requires too much redundant review of records and procedures. Another commented that the inspector should be allowed some inspection latitude rather than doing things for the sake of doing it. A third inspector may have expressed it best. He said that many of the inspection procedures tend to be of a "cookbook nature," or involve areas of minimal significance to public health and safety. His fear was that in performing all the predefined procedures, significant problems may be overlooked simply because there is not enough time to explore areas independently.

While a review of records is necessary in any inspection effort, we believe that the thrust of the resident inspection program should be the direct observation of plant activities. NRC agrees, in theory, with this concept and is in the process of making adjustments to the program.

SHOULD INSPECTIONS BE UNANNOUNCED?

A: Because of the resident inspection program, unannounced inspections have become less important.

The resident inspector has unrestricted access to the entire plant. Plant personnel do not have the opportunity to prepare for the resident inspector because of his continued onsite presence. Should the resident inspector choose to visit the reactor control room, for example, he may do so unescorted by plant personnel.

Regional inspectors, on the other hand, have had to decide in the past whether their inspection will be unannounced versus announced. NRC policy provides that, to the extent possible, inspections are to be conducted on an unannounced basis. However, loss of staff time may occur if an inspector arrives onsite, and the required records or utility personnel are not available. To avoid this possibility,

regional supervisors have been authorized to determine which inspections can best be done by notifying the reactor owner before the inspection.

The consensus of officials contacted within the Office of Inspection and Enforcement was that it makes little difference whether the regional inspection is announced or not. Utility management generally can predict the dates on which a particular inspection will be performed. Also, because of the time--often as much as 30 minutes--that it takes to gain access to a nuclear powerplant site, utility management might be sufficiently forewarned about the arrival of an NRC regional inspector. We, on the other hand, believe that if an NRC resident inspector is already onsite, the likelihood is diminished that unannounced inspections by NRC regional inspectors will serve any purpose. Exceptions to this may be in the area of powerplant security, where unannounced inspections are important in determining compliance with NRC regulations.

DOES THE RESIDENT INSPECTOR'S ROLE NEED TO BE BETTER DEFINED?

A: Yes, because we found no uniform view among NRC officials on the role of the resident inspector nor NRC guidance on the matter.

While the resident inspector is on duty, he may find something that, if left unattended, could be considered a violation of NRC regulations. In such a case, should the resident advise the reactor owner to take steps to remedy this situation, or should the inspector remain silent and issue a citation after the situation becomes a violation? Some NRC officials said that the resident inspector serves primarily as a communication link between the rest of NRC and the plant. Consequently, the resident should not put himself in the position of making decisions or giving advice. On the contrary, other NRC officials said it would be incumbent on the resident inspector to advise the reactor owner of a potential problem before it becomes a problem.

During an accident situation, the resident inspector will most likely be in the reactor control room observing activities. What if the resident inspector sees that a safety valve is open when it should be closed, or that a system has been turned off when it should be on? Should the resident inspector remain silent, advise the reactor owner that something is wrong, or order that some type of action be taken? Some NRC officials said the resident inspector should only be an observer and nothing else. Others said that, at a minimum, the resident should make

the reactor owner and his employees. Further, each candidate was to have at least 18 months NRC experience and demonstrated above-average performance.

Now, NRC has embarked on a resident program that is different than what was initially envisioned. Though NRC should be commended for its attempt to act as speedily as possible, we question its desire to implement the program by the end of fiscal year 1981.

It should be pointed out, however, that since the accident at Three Mile Island, NRC has been under extreme pressure to expand its resident inspection program and to assign residents much quicker than it had originally anticipated. We believe it would be a mistake for NRC to assign underqualified and undertrained inspectors to reactor sites.

DO RESIDENT INSPECTORS NEED MORE PLANT-SPECIFIC TRAINING?

A: Yes, so that they can be better aware of specific plant activities and do a better job in their inspections.

Before reporting for duty at a nuclear reactor site, the resident inspector goes through a training program which emphasizes most aspects of reactor activity that the resident inspector may encounter. However, the program is general and tells the resident little about the plant he will be inspecting. For instance, all resident inspectors that are to be assigned to pressurized water reactor sites receive training only on a Westinghouse Corporation simulator. This training may be of little use to the resident inspectors assigned to reactors that were designed by other companies. In addition, the resident does not receive training on the specific plant layout, instrumentation, or accident sequences likely to occur.

During our review, we discussed the specific training several utility representatives give their new employees. These utilities seemed willing to allow the NRC resident inspectors to attend these training courses. We believe that NRC should consider taking advantage of this. It would not only permit the resident inspectors to get plant-specific training, but it would also offer them the opportunity to evaluate the adequacy of the training programs.

SHOULD RESIDENT INSPECTORS RECEIVE TRAINING COMPARABLE TO A REACTOR OPERATOR?

A: Yes, it would help the resident inspectors oversee the safe operations of the reactors for which they have responsibility.

Of those persons we contacted, no one believed that the resident inspector should ever take control of a nuclear powerplant. According to those interviewed, the reactor owner's employees are far better trained to handle the powerplant's controls than NRC personnel. That is not to say, however, that the resident inspector should not receive training comparable to a reactor operator. In fact, most of the NRC officials we interviewed considered this an excellent idea.

Currently, the resident inspector is offered training in areas such as reactor operations, reactor construction, safeguards, and health physics. One reactor operations course, as mentioned earlier, is simulator training on a pressurized water reactor. The course is given for 7 days, and upon its completion, the student is expected to have a working knowledge of control room instrumentation, and how it is used to evaluate plant operating conditions.

However, a person obtaining a reactor operator's license normally receives 2 to 3 months' simulator training. While at the simulator, the person observes and participates in the various phases of powerplant operations (such as reactor startups and power-level changes), and learns to use normal procedures, and to a lesser extent, learns to cope with abnormal and emergency conditions. In total, the training program for a reactor operator's license may cover a period of 14 to 17 months. The disparity between the training that the resident inspector currently gets--7 days--and that given to a reactor operator is obvious.

HAVE RESIDENT INSPECTORS BEEN ASSIGNED TO PROBLEM REACTOR SITES?

A: No resident inspectors have not been assigned, on a priority basis, to those reactor sites that NRC considers most needing regulatory attention.

NRC initially assigned resident inspectors to sites that were considered both "good" and "bad" performers. According to NRC, this was intentionally done to gain diverse experience during the early stages of the resident inspection program, and to contribute to final program development. As

the program is now being implemented, however, we believe that resident inspectors should first be assigned to known or potential "bad" performers.

During our visits to three of NRC's five regional offices, officials advised us that, informally, they had compiled data on the operating performance of the reactors within their regions. Despite this data not all inspectors have been assigned to those reactors regarded as "bad" performers. Instead, some inspectors have been assigned to those sites where persons were most willing to go. This was done, according to one NRC official, because the NRC regions have been required to meet a quota in assigning resident inspectors to sites. The only way this quota could be met, this official said, was by allowing persons to volunteer for particular powerplant sites.

We believe that NRC should prioritize the powerplants according to their past performance and history of deviations from regulatory requirements. Those that have demonstrated a bad record should receive the first and most concentrated resident inspection coverage by NRC.

ARE RESIDENT INSPECTORS SPENDING TOO MUCH OF THEIR TIME ON ADMINISTRATIVE MATTERS?

A: Resident inspectors perform an excessive amount of administrative work, consequently losing valuable inspection time.

In response to an NRC questionnaire survey, resident inspectors indicated they spend, on the average, between 20 to 25 percent of their time on clerical matters. Some resident inspectors even said it was necessary to spend as much as 60 percent of their time on clerical work. Resident inspectors are sent many reports to read and file, they must coordinate the visits of inspectors from NRC's regional offices, and they perform other activities that detract from the time they could be inspecting nuclear facilities.

For instance, some resident inspectors spend approximately 15 percent of their time picking up NRC's official mail that is sent to the resident inspector. The resident inspector cannot have mail delivered to the utility site because NRC believes that a utility could possibly tamper with the inspector's mail and compromise a confidential document. Consequently, all the inspector's mail must be routed to a post office box nearest the plant, which may be 25 to 30 miles away. The inspector must pick the mail

up daily, thereby, spending approximately 6 to 8 hours a week for this task.

A possible remedy is hiring secretarial or clerical help to relieve the inspector's administrative burden. NRC has only just recently developed job descriptions on the use of such part-time employees.

ARE RESIDENT AND REGIONAL INSPECTION APPROACHES ADEQUATELY COORDINATED?

A: The inspections conducted by resident and regional inspectors are not effectively coordinated; consequently, each inspection approach may overlap with the other.

If inspections were coordinated, they would serve to complement rather than compete with, and needlessly duplicate, the work of the other. However, for the first year and a half of assigning resident inspectors to reactor sites, little coordination has existed between the approaches.

When NRC developed the resident inspection approach, it retained essentially intact the regional inspection program. The regional inspection program consists of hundreds of inspection procedures that must be performed at various frequencies. For the resident approach, NRC developed additional procedures which were not coordinated with the existing regional procedures. As a result, many resident inspectors have reported problems with the procedures.

One inspector commented there is a lot of duplication of effort, especially in the part of the procedures that describes inspection of pipes. He said he discussed this with his supervisor, but the procedures were not changed. Instead, he was given added assistance to do the procedures. Most other resident inspectors reported that they had identified ways that the procedures could be improved, and made them known to their supervisors. Most said modifications to the procedures have yet to be made.

NRC, at the moment, is beginning to revise and develop adequate inspection procedures for the resident inspectors. With the limited nature of NRC's inspection resources, we think it extremely important that the resident not duplicate the efforts of the NRC regional inspectors. Only by developing coordinated and consistent inspection procedures can NRC hope to make proper and wise use of its resident inspection approach and improve reactor safety.

WHAT MUST NRC DO TO IMPROVE
ITS OVERALL INSPECTION EFFORT?

A: NRC needs to reevaluate and restructure the performance appraisal team as it also establishes goals to measure the effectiveness and efficiency of the overall inspection program.

To improve its overall inspection effort, NRC created a performance appraisal team which has three basic objectives:

--Evaluating the performance of NRC reactor owners from a national perspective.

--Analyzing the effectiveness of the NRC inspection program, including the resident program.

--Confirming the objectivity of NRC inspectors.

In theory, we believe the performance appraisal team is an excellent idea. Based on our analysis, however, the team has accomplished little toward meeting its objectives. Although the team has existed for approximately 2 years, it has evaluated the management at only five nuclear reactor sites, none of which has a resident inspector. More importantly, the performance appraisal team has only evaluated the adequacy of one of the many hundred NRC inspection procedures.

The nuclear accident at Three Mile Island has depleted the staff resources and the primary thrust of the performance appraisal team. Therefore, we believe it extremely important that NRC reevaluate and restructure its performance appraisal team, giving it renewed importance and authority to evaluate and recommend areas where the inspection program can be improved.

As NRC reevaluates the performance appraisal team, one area that must be given attention is the need for the inspection program to have recognized goals so that the team can do its job. Because goals do not currently exist, we believe neither NRC nor anyone else is in a position to measure the effectiveness and efficiency of the inspection program.

During our review, we evaluated the reasons why NRC elected to initiate the resident inspection program. Some of those reasons included the availability of increased onsite time, direct observation versus review records, and greater plant familiarity. To a degree, the resident inspection program has probably accomplished these things.

But the question, "has the resident program increased public health and safety," remains. One possible indicator, according to an NRC official, is the number of violations being reported by resident inspectors.

Several NRC officials said that the resident inspectors have actually cited the reactor owners for less violations than had been expected. One inspector, for example, has reported a total of 14 violations over 12 months' time, while another inspector has reported only 2 violations during the same period. One NRC official speculated that the lower number of violations may mean that the resident inspectors were losing their objectivity. Another official commented that the resident inspectors may be giving all of their violations to the regional inspectors, and recording none for themselves. The new Director, Office of Inspection and Enforcement, said he was not sure if the number of violations were low, but if they were, he was not sure what it would mean.

We agree with the Director, Office of Inspection and Enforcement, because we also could not determine what a high or low number of violations would mean. The reason is that NRC has yet to quantify what it expects to get out of the resident or overall inspection program.

CONCLUSIONS, OBSERVATIONS, AND RECOMMENDATIONS

Recognizing that NRC has not developed quantifiable data on the effectiveness of either the regional or the resident inspection approaches, deciding on a proper inspection balance between these two approaches becomes very difficult. This, notwithstanding, we believe that there are clear advantages to be gained from an inspection program that uses both regional inspectors and resident inspectors in a complementary manner.

The regional inspection approach provides a core of nuclear specialists who can apply their certain skills to a number of nuclear reactor sites. Their inspections are usually of short duration and do not require the inspector to remain at any one reactor for an extended period of time. The regional approach allows NRC to compare different reactors and utilities, and adjust their inspection efforts accordingly. The region can also maintain unified management and direction over the overall inspection effort. We firmly believe that the regional inspection is vital to NRC's inspection effort and should not be weakened or depleted as the resident inspection effort is increased.

The resident inspection approach provides an inspector at each nuclear reactor site. Inspector onsite time will be increased and the opportunity for direct observation of the reactor owner, the reactor, and all other activities will be enhanced. The resident inspector, although not necessarily able to prevent another Three Mile Island type of accident, should help to improve nuclear reactor safety.

In essence, NRC's regional and resident inspection approaches working together will lead to an overall inspection effort that will be more effective in ensuring nuclear reactor safety. However, we believe there are several weaknesses that inhibit the potential success of the resident inspection approach. Therefore, we recommend that the Chairman, NRC, resolve present weaknesses by taking the following steps as it proceeds with the revised inspection program.

--Require that resident inspectors perform more direct observations than review of records and provide resident inspectors with more administrative support.

--Define the role of the resident inspectors and establish what qualifications and training they need, specifically requiring them to have plant-specific training, and a level of training comparable with a reactor operator.

--Assign resident inspectors to those reactor sites that are most in need of regulatory attention.

--Coordinate the interface between the existing regional inspection approach and the evolving resident inspection approach.

--Reevaluate and restructure the performance appraisal team and develop appropriate goals and measures of effectiveness for its nuclear powerplant inspection program.

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