DSI-11
(4)

MEMO TO: Michael J. Case, Technical Assistant,
Division of Reactor Program Management

THROUGH: Alfred E. Chaffee, Branch Chief,
Events Assessment and Generic Communications Branch
Division of Reactor Program Management

FROM: Eric J. Benner 10/23/96
Events Assessment and Generic Communications Branch
Division of Reactor Program Management

Below are additional text provided by the Events Assessment and Generic Communications concerning Direction-Setting Issue (DSI) 11, Operating Reactor Program Oversight, of the Strategic Assessment Issue Paper. Numbers added to the attached draft DSI 11 correspond to the number of each text addition below.

1. NRR screens operational events for potential risk significance and either performs short-term risk assessments or enlists contract support to perform risk assessments. NRR identifies significant events for the AEOD performance indicator (PI) program.

2. NRR has recently revised its generic concerns management process to provide a central location for screening, prioritizing, and managing potential generic concerns.

3. NRR has recently revised its generic concerns management process to provide a central location for screening, prioritizing, and managing potential generic concerns. The process changes have resulted in more consistency of generic requirements and also improved the timeliness of generic communication development and issuance. NRR has developed an events tracking system to provide a central repository for dispositions of all events and generic concerns identified within NRR. This tracking system is available to all NRC personnel to assist in assessment of future events and reduce duplication of staff effort.

4. and performance assessment.

5. and revising its generic concerns management process to provide a central location for screening, prioritizing, and managing potential generic concerns.

6. This reduction would also significantly increase the amount of resources expended on generic issue identification, since each issue would have to be assessed individually. This change would also result in potentially less consistency in generic requirements.

DS13

STRATEGIC ASSESSMENT ISSUE PAPER

DSI 11: OPERATING REACTOR PROGRAM OVERSIGHT

INTRODUCTION

In August 1995, the Nuclear Regulatory Commission (NRC) staff initiated a Strategic Assessment and Rebaselining Project. This project was intended to take a new look at the NRC by conducting a reassessment of NRC activities in order to redefine the basic nature of the work of the agency and the means by which that work is accomplished, and to apply to these redefined activities a rigorous screening process to produce (or rebaseline) a new set of assumptions, goals, and strategies for the NRC. The results of this project are intended to provide an agency-wide Strategic Plan which can be developed and implemented to allow the NRC to meet the current and future challenges.

A key aspect of this project was the identification and classification of issues that affect the basic nature of NRC activities and the means by which this work is accomplished. These issues fall into three categories. The first category includes broad issues defined as Direction-Setting Issues (DSIs). DSIs are issues that affect NRC management philosophy and principles. The second category includes subsumed issues. Subsumed issues are those that should be considered along with the DSIs. The third category includes related issues. These are issues that should be considered after the Commission makes a decision on the option(s) for a DSI. Also, as part of the project, other issues of an operational nature were identified. These are not strategic issues and are appropriately resolved by the staff, and are not discussed in the issue papers.

Following the reassessment of NRC activities, issue papers were prepared to provide a discussion of DSIs and subsumed issues, and to obtain a review of these broad, high-level issues. These papers are intended to provide a brief discussion of the options as well as summaries of the consequences of the options related to the DSIs. Final decisions related to the DSIs will influence the related issues which are listed, but not discussed, in each issue paper. As part of the Strategic Assessment and Rebaselining Project, the issue papers are being provided to interested parties and to the public. Following distribution of the issue papers, a series of meetings are planned to provide a forum to discuss and receive comment on the issue papers. After receiving public comment on the issue papers, the Commission will make final decisions concerning the DSIs and options. These decisions will then be used to develop a Strategic Plan for the NRC. In summary, the Strategic Assessment and Rebaselining Project will analyze where the NRC is today, including internal and external factors, and outline a path to provide direction to move forward in a changing environment.

I. SUMMARY

A. Direction-Setting Issue

In the area of operating reactors, the following direction-setting issue (DSI) was identified:

> Given the changes in the external/internal environment, what are the implications for the current strategies for the operating reactor program?

This issue paper identifies current strategies for the operating reactor program in each of the major functions–reactor licensing, inspection, and performance assessment. It then examines several options for future strategic direction by identifying potential approaches and consequences in light of the anticipated regulatory environment and vulnerabilities in existing programs crought to light by recent issues. Because of the close interrelation between licensing, inspection, and performance assessment, the paper considers any potential impact of an option in one function on the remaining functions.

The Nuclear Regulatory Commission (NRC) staff has implemented several initiatives in the area of operating reactor oversight to improve the regulatory process and foster an environment that is conducive to continual improvements in industry performance while achieving NRC's regulatory mission of ensuring safe plant operations. These initiatives and planned improvements, some in response to specific Commission requests, have been discussed with the Commission.

As the agency positions itself to achieve its regulatory mission in the future, it must consider both the current agency direction and future challenges and influences. These challenges and influences include continued reductions in resource availability for operating reactor oversight, changes in the safety performance of the industry, increased economic pressures on licensees, emergence of new safety issues as the industry continues to mature, availability of new technology, and maintaining appropriate public knowledge of and involvement in the regulatory process.

Finally, in identifying options to address the DSI, the staff found that it was necessary to also consider the subsumed strategic issues. The related Strategic Issues will also be addressed in this paper.

B. Options

Option 1: Review the reactor oversight processes in the context of lessons learned from current issues and develop processes and mechanisms to provide for systematic reexamination of reactor oversight activities to ensure their continued effectiveness

The staff would complete activities already underway to develop improvements to existing processes and practices as a result of lessons learned from issues brought to light by Millstone, Haddem Neck, and Maine Yankee. In addition, this option would result in the strengthening of current processes or development of new processes intended to provide for earlier recognition of areas where desired effectiveness is not being achieved.

Option 2: Seek new approaches within the existing reactor oversight framework to improve effectiveness, work with the industry to foster an environment that is conducive to continued improvements in performance, and provide increased opportunities for public involvement in the regulatory process

The staff would incorporate changes to improve the effectiveness of its reactor oversight processes, including those identified as a result of past lessons, while developing new approaches to encourage continued industry performance improvements in ways that do not diminish the role of the public.

Option 3: Perform a Business Process Reengineering

The staff would perform a business process reengineering (BPR) of the reactor oversight program to identify alternative oversight processes and structures.

II. DESCRIPTION OF ISSUES

A. Background, Bases, and Influences

The operating reactor program provides for oversight of those commercial nuclear power plants currently licensed to operate. It supports NRC in meeting its responsibilities established in the Atomic Energy Act for providing reasonable assurance of adequate protection of public health and safety.

The operating reactor program consists of three major functions: reactor licensing, inspection, and performance assessment. Although each of the functions fulfills a distinct purpose, they are closely related and share common objectives. These are to maintain emphasis on operational safety and plant performance and ensure facility operation and design is maintained within license requirements. Each of the major functions is described below along with its statutory bases and anticipated internal and external influences.

1. Licensing

The licensing function includes those staff tasks involved in the review and processing of applications from licensees for amendments to their operating licenses, such as technical specification (TS) changes and modifications to license conditions including exemption requests. These changes to an

operating license require NRC approval before the licensee can take the requested action. Without such approval, the licensee cannot make the changes requested and, in some cases, may be required to shut down the plant if operation is not feasible under the current license conditions.

Also included in this function are other licensing activities related to maintaining or modifying the operating license. Staff tasks associated with these activities are (1) issuing of orders imposing requirements on licensees or license modifications that result from NRC programs (i.e., generic issue program); (2) responding to petitions (Section 2.206 of Title 10 of the Code of Federal Regulations (10 CFR) from interested parties requesting license modification; and (3) evaluating information received from individual licensees in response to requests for information [e.g., generic letters and bulletins (10 CFR 50.54)], or as required by regulation or license conditions as part of NRC's responsibility for reviewing the safety of the operating licensed facilities (e.g., final safety evaluation report updates and 10 CFR 50.59 reports, changes to quality assurance plans).

The Atomic Energy Act (AEA) (Sections 101 and 103) requires a license for each utilization facility and requires technical specifications (Section 182) to be part of the license. AEA allows for amendments to the licenses (Section 187) and includes requirements for holding hearings in the amending of licenses (Section 189). Under the Energy Reorganization Act of 1974, NRC is responsible for these licensing and regulatory functions. The procedures and requirements governing issuance and modification of these licenses are contained in NRC's regulations (primarily 10 CFR Parts 2 and 50).

The number of power reactors with operating licenses for which NRC has regulatory responsibility is not expected to change significantly. No new operating licenses are under review, and it is not unreasonable to expect three to five currently operating reactors to prematurely shut down over the next 10 years because of economic pressures and concerns regarding aging of equipment. Should past improvements in safety continue, the number of new NRC-mandated regulatory requirements requiring license amendments or licensee action is expected to remain at a relatively low level. However, safety questions will continue to arise at the currently licensed reactors and unexpected operational events will continue to require some licensee action and NRC evaluation. In addition, changes in the regulatory environment as a result of such issues as industry deregulation and component and system aging will pose new challenges for the NRC and the industry. As a result of increasing economic pressure on licensees, the number of licensee activities directed at saving costs is increasing. For example, there is a greater use of probabilistic risk assessments in developing risk-informed, performance-based regulations for meeting regulatory requirements that will allow for cost savings. Many of these approaches offer the potential for further improvements in safety. However, the use of these approaches will likely require a detailed review by the staff to ensure that safety margins will be maintained.

2. Inspection

Through the inspection function, NRC monitors licensee activities by onsite inspections conducted by qualified inspectors. The inspection program is designed to ensure, through selective examinations, that the licensee identifies and resolves safety issues before they affect safe plant operations. The NRC inspection program is audit oriented to verify that relevant activities are being properly conducted and equipment properly maintained to ensure safe operations. Implementation of the NRC inspection program does not supplant the licensee's implementation of its programs or attenuate the licensees' responsibilities to ensure its compliance with the licensing basis unless the licensing basis is properly changed or the licensee is formally excused from compliance by NRC. Rather, the program provides for an independent verification of the effectiveness of the licensee's implementation of its programs and a mechanism to feed back the results to the licensee for corrective action, thereby ensuring that the plants are operated safely and in accordance with NRC requirements.

In response to issues identified through or followed up by the inspection program, NRC may implement a range of enforcement sanctions available through the enforcement program. The enforcement program is used as a deterrent to emphasize the importance of compliance with requirements and to encourage prompt identification and comprehensive correction of violations. The basic enforcement sanctions are notices of violation, civil penalties, and orders of various types. Related administrative actions such as confirmatory action letters and demands for information are used to supplement the enforcement program. The nature and extent of the enforcement action taken by NRC reflect the seriousness of the violation involved.

The inspection program is comprised of three major program elements: core inspections, plant-specific regional initiative inspections, and generic issue inspections (previously called area-of-emphasis inspections). The core inspection program element is to be performed at all operating reactors. It requires inspections of licensee performance in the areas of plant operations, maintenance, engineering, plant support, and effectiveness of the licensee in identifying, resolving, and preventing problems. Plant-specific regional initiative inspections are performed as needed to follow up on operational events and safety issues and to further investigate the root causes and corrective actions related to inspection findings. In general, the level of regional initiative inspection performed at each site is a function of that site's performance. Generic issue inspections are team inspections or one-time individual or group inspections that address areas of emerging safety concern or areas requiring increased emphasis because of recurring problems. Previously conducted generic issue inspections include team inspections of maintenance, emergency operating procedures, electrical distribution systems, and service water. Like core inspections, generic issue inspections are required to be conducted at sites independent of performance. Each of the three major inspection program elements is important in achieving the objectives of the program.

Inspection activities are conducted by resident inspectors located at each operating site and inspectors located in the four regional offices and the Walnut Creek Field Office. In addition, the Office of Nuclear Reactor Regulation has an inspection staff that assists the regional offices and implements selected inspection initiatives.

The operating reactor inspection program provides the framework for the inspection of licensee activities during the 40 years the license authorizes the plant to operate. AEA bestows the broad authority to inspect and to ensure compliance with the provisions of the act. As required by 10 CFR 50.70, licensees must permit inspection by authorized NRC personnel.
Licensees have become increasingly vocal regarding the level and scheduling of NRC inspection activities, inspection consistency, interaction of NRC managers and staff with licensee personnel, and

overall impact of the inspection process on licensee activities. These concerns were identified through such efforts as the 1989 Regulatory Impact Survey; the 1993 regulatory review group (RRG) review of operating reactor regulations and related processes, programs, and practices; and a more recent review conducted by Towers Perrin for the Nuclear Energy Institute (NEI). NRC implemented actions to address the concerns identified. Mounting economic pressures make it likely that industry will continue to focus on the impact of the inspection program as licensees attempt to further reduce costs.

Non-industry stakeholders (e.g., individual citizens and public interest groups) have and will continue to express interest regarding the safety of operating reactors and the effectiveness of NRC oversight. For example, in 1993, the Public Citizen's Critical Mass Energy Project released a report that raised concerns regarding apparent disparities between Institute of Nuclear Power Operations (INPO) evaluation reports and NRC systematic assessment of licensee performance (SALP) reports. Expected changes in the regulatory environment that occur as a result of such issues as plant aging and industry deregulation, will provide continuing challenges to the NRC to ensure that oversight activities are effective and that licensees operate their plants safely. As these changes take place, continued public interest and involvement in the regulatory process is expected.

3. Performance Assessment

Through the performance assessment function, NRC continually monitors and assesses the performance of nuclear power plant licensees to verify that plants are operated safely, and it continually analyzes operational data to identify safety issues and degradations in performance. In addition to integrating the results of inspections and other performance insights on an ongoing basis, NRC conducts periodic, short-term integration activities to identify performance trends and make necessary adjustments to the inspection program through the plant performance review (PPR) process. In addition, NRC conducts periodic, long-term integration of licensee performance and trends through the integrated performance assessment process (IPAP) and the SALP program. The results of these long-term assessment activities are provided to licensees and made available to the public. The senior management meeting (SMM) process, whose primary focus is on operational safety, overlays all performance assessment processes and provides the highest level of NRC management attention to those plants that have exhibited significant performance weaknesses and recognition to plants that have demonstrated sustained superior performance.

NRC programs and processes are designed for identifying early significant declining trends in performance and ensuring recognition and resolution of safety-significant events and conditions specific to individual plants or generic to the nuclear power industry. Each process in NRC's system for determining licensee performance brings in the next higher level of the organization, starting with inspectors and first-line supervisors for the inspection program, up to and including the Executive Director for Operations (EDO) for the SMM.

The staff documents, analyzes, resolves, and disseminates information on immediate and long-term safety concerns that arise from the operating experience. The regions, the Office of Nuclear Reactor Regulation (NRR), and the Office for Analysis and Evaluation of Operational Data (AEOD) continually collect and evaluate operational safety data obtained from reports from licensees and vendors, inspections, and industry groups. The program, which is described in Management Directive (MD) 8.5, "Operational Safety Data Review," ensures that NRC headquarters and regional offices maintain a coordinated capability to analyze operational experiences, establishes responsibilities for tracking and resolving potential generic issues, ensures information on operational experience is current, and provides for coordination between the associated NRC offices to avoid unwarranted duplication of efforts and to increase the effectiveness of the operational safety data review. The regions and NRR perform an initial review for safety importance and generic implications and the need for any immediate followup action by NRC. NRR continually discusses its review and followup of events and conditions with the regions, AEOD, and other interested NRC organizations. It provides summary data to NRR management for consideration at the SMM.

AEOD analyzes the data for industry trends and patterns, analyzes and evaluates generic problems, and communicates the lessons learned to the other NRC offices and industry. AEOD also screens operational events for further detailed analysis to identify precursors to potential severe core damage accident sequences (accident sequence precursors). In addition, AEOD conducts a plant-specific analysis of plant trends discussed in the performance indicator (PI) report. The PI reports display on a quarterly basis trends and deviations analysis for eight indicators, accounting for different operational conditions.

The assessment of licensee performance was implemented by the Commission as a response to the recommendations of General Accounting Office Report EMD-79-16 as well as recommendations in the "Report of the President's Commission on the Accident at Three Mile Island" in 1980. Before that time, NRC relied on periodic NRC inspections to identify problems with plant performance. The SMM process was established after the June 1985 loss-of-feedwater event at the Davis-Besse plant. The lessons learned from that event showed that there was a need for senior managers of the agency to integrate information available from several offices regarding licensee performance to identify sites where the agency needed to increase its oversight.

At the request of the Commission, the staff developed the Performance Indicator Program in 1986. Since that time the number of indicators has evolved into the existing set of seven. The Commission reaffirmed, in response to SECY-95-135, "Changes to the Performance Indicator (PI) Program," the need for the program and endorsed proposed enhancements to reduce cost and to produce risk-based indicators.

PPRs were implemented in 1988 as part of a major revision to the inspection program to provide a vehicle for the staff to review performance and therefore adjust inspection effort in between SALPs. IPAPs were added to the inspection program in 1995 as an independent mechanism to verify the effectiveness of the inspection program at a site.

The current assessment process was most recently endorsed by the Commission in response to SECY-95-085, "Recommendations on the Senior Management Meeting Process for the Continued Use of Trending Letters and for Plants Remain on the Problem Plant List for an Extended Period," and SECY-95-163, "Improvements to the Power Reactor Inspection Program and Implementation of the Integrated Performance Assessment Process."

Experience has shown that the overall operational safety performance of operating commercial power reactors has been steadily improving in recent years. The industry has continually expressed concern about what it believes are inconsistencies in the NRC's implementation of its performance assessment processes and the inappropriate use of these assessments by financial organizations and other third parties. Changes have been made to the SALP process to specifically discourage the use of numerical SALP scores and averages and the Commission has written to specific financial institutions to discourage this misuse; however, increasing competitive pressure on the nuclear industry and the deregulation of rate setting may lead to continued if not more widespread concerns by the industry and attention from financial institutions misuse. Despite improvements in performance, changes in licensing and inspection, as described above, will necessitate increased effectiveness of performance assessment activities to ensure that licensees conduct activities to ensure safety.

State agencies have shown an increased interest in licensee performance assessments, and information requests and attendance at some SALP meetings have increased. The Government Performance and Results Act will place greater emphasis on measuring the outcome of programs e.g., the safety performance of reactors, in fulfilling the agency mission.

B. Current Agency Direction

This section describes current strategies and direction being taken by the staff in each of the areas of licensing, inspection, and performance assessment. These initiatives and planned improvements, some in response to specific Commission requests, have been discussed with the Commission.

Through agency initiatives and in response to governmentwide efforts, NRC has remained committed to the pursuit of regulatory excellence in the oversight of operating reactors. It continually evaluates the effectiveness of reactor oversight programs and processes in ensuring safe plant operations and initiates efforts to improve the regulatory process and foster an environment that is conducive to continual improvements in industry performance. To foster this environment in the area of operating reactors, NRC has sought to (1) actively involve licensees in setting regulatory standards, (2) educate licensees to ensure they have a clear understanding of past and changing regulatory requirements, (3) eliminate unnecessary and burdensome processes in order to make compliance easier, (4) regularly measure and report on licensees performance in areas both where improvements are necessary and where performance is strong, and (5) make compliance consequential by providing incentives for high levels of performance while increasing regulatory attention for licensees whose performance is poor.

In addition, NRC has made a continual effort to provide diverse opportunities for public involvement in the regulatory process. The results of these efforts have been reflected in several changes to programs and practices in the area of operating reactor oversight.

1. Licensing

NRC has, for several years, worked to identify and eliminate unnecessary regulatory burdens so that licensees and NRC can better focus on safety- significant issues. NRC has been engaged in a program to eliminate unnecessary regulatory requirements as part of the Continuing Program for Regulatory Improvement. This program consists of the previous Marginal to Safety Program, RRG Implementation Plan, and Cost-Beneficial Licensing Action Plan:

- The Marginal to Safety Program is the agency's continuing effort to eliminate or modify regulations that are marginal to safety and impose a substantial regulatory burden on licensees. The program has been redirected to focus on petitions for rulemaking and proposals for

revisions to generic guidance documents. This program change reflects the policy that industry should play a major role in initiating regulatory improvements.

- The RRG Implementation Plan consists of task actions and milestones for implementing RRG recommendations for potential elimination of significant burden with little or no safety impact. A majority of the recommendations have been resolved and considerable progress has been made in resolving the remaining recommendations.

- The Cost-Beneficial Licensing Action Plan is an agency initiative begun on a pilot basis in mid-1993 to increase the staff's responsiveness to submittals from licensees that reduce or eliminate license requirements that have an incremental, small effect on safety but a high economic burden.

The Continuing Program for Regulatory Improvement has enabled increased licensee and NRC focus on safety-significant issues while reducing unnecessary regulatory burden. The activities in this area are consistent with the Administration's National Performance Review (NPR) initiative and are expected to continue.

Over the last several years, as part of the Technical Specification Improvement Program (TSIP), NRC has worked with owners groups to streamline TSs. Through this initiative, the agency has provided a program by which licensees can voluntarily update TSs consistent with vendor-specific standard technical specifications (STSs). Through STSs or line-item improvements, licensees can relocate provisions of existing TSs to other licensee-controlled documents. Efforts in this area enable licensees to remove license conditions that are marginal to safety and to remove or modify requirements where burdens are not commensurate with their safety significance and thus to free up licensee and NRC resources to focus on those areas of greatest significance.

Equally as important, they provide increased involvement by the regulated industry in setting standards. This direction, consistent with national direction established by the Administration through such initiatives as the National Program Review, is expected to continue.

In response to a request from the Chairman to the EDO, dated November 30, 1995, the agency initiated reviews of the underlying issues raised by the refueling practices at Millstone. The subject of these reviews included 10 CFR 50.59 and processes for implementing the rule, determining the licensing basis for spent fuel pools at all operating power reactors and comparing actual practices to the bases, and incorporating final safety analysis reports (FSARs) into routine inspection. The staff also initiated a review to examine the results of the other reviews, inspections, and investigations to determine the implications of their findings on the NRC's programs and processes. For example, the OIG report on Maine Yankee touched on some of the same issues raised at Millstone and will be considered in this lessons learned activity. The generic implications of the results of this effort will be used to improve NRC's oversight of licensing activities to ensure that facility operation and design is maintained within license requirements while maintaining emphasis on operational safety and plant performance.

NRC is reviewing past exemptions to identify regulations for which multiple exemptions have been granted. This effort will enable the staff to identify regulations where changes may be necessary. Approximately three quarters of the exemptions granted by NRC are associated with six rules (fire protection, containment testing, property insurance, emergency planning, general design criteria, and physical protection). NRC has amended regulations pertaining to containment leakage testing and is reviewing the other regulations for appropriate changes. Efforts in this area will result in improved regulations and reduced unnecessary regulatory burden.

Consistent with the philosophy that the regulated industry should play a major role in the regulatory improvement program, the staff encourages industry to develop standards and guidance documents to be used by licensees for implementing regulatory objectives. For example, industry is working with NRC to develop guidance in the area of instrumentation and controls regarding use of 10 CFR 50.59 for making instrumentation and control changes (electronic upgrades). Activities such as this serve to promote regulatory excellence by facilitating standardized industry practices and establishing a common understanding of safety objectives and acceptance criteria.

NRC has and will continue to improve the efficiency of the licensing process. The staff recently revised its internal procedures for processing license amendments for operating plants and for preparing plant-specific TSs for new licensees to better respond to the needs of licensees and the public in the area of licensing.

The staff is conducting activities to expand the use of probabilistic risk assessment (PRA) methods in operating reactor licensing and other areas of reactor oversight. The PRA Implementation Plan (SECY-94-219 and SECY-95-079) defines staff efforts to convert the conceptual structure of the PRA policy statement into practical guidance for staff uses of PRA in reactor regulation. As described in SECY-95-280, one aspect of the plan is the development of a risk-informed regulatory framework. The staff has identified the principal parts of this framework. It is working to develop probabilistic considerations and integration of deterministic and probabilistic aspects of the framework through a six-step process. The steps are the following: identifying specific applications, conducting pilot programs, developing and documenting an acceptance process and criteria, making near-term regulatory decisions, developing formal PRA standards, and making long-term modifications to regulations (if necessary). This process is now being applied to a number of regulatory applications, including maintenance rule implementation, motor-operated valve testing associated with Generic Letter 89-10, and inservice inspection. NRR and the Office of Nuclear Regulatory Research (RES) are working jointly to complete these efforts in the next 3 to 4 years. The strategic direction taken by the agency in this area will be considered by the Commission in addressing the DSI on Risk-Informed/Performance-Based Regulation.

The agency has worked to establish and maintain an effective relationship with industry in the area of licensing. In addition to conducting periodic and routine surveys of industry to obtain feedback of the impact of NRC activities on licensee operations, NRC has conducted periodic meetings and workshops with licensees and the public to discuss NRC regulatory programs (licensing, inspection, and performance assessment) and solicit feedback. Public workshops, similar to the "Marginal to Safety" and fire protection workshops, and meetings such as the annually conducted Regulatory Information Conference provide opportunities for improved licensee involvement in and understanding of the regulatory process.

NRC strongly endorses the National Performance Review (NPR) philosophy of "Putting the Customer First," with its corollary policy of public responsiveness. In activities that predate NPR, the Commission issued "NRC Principles of Good Regulation" as a guide to agency decisionmaking and individual conduct of NRC employees. Among these, the principle of openness in communications and decisionmaking has resulted in several initiatives. In the area of reactor licensing, these initiatives include improvements to the

10 CFR 2.206 petition process to increase public participation and enhance communications with the petitioner. Continued initiatives in this area to broaden opportunities for public involvement in the licensing process are anticipated.

2. Inspection

A fundamental principle of the inspection program, which relies on the limited, selective examination of licensee activities to determine whether licensee facilities are being operated safely and in accordance with the regulations, is that inspection program resources (and focus) are allocated as a function of licensee performance. In addition, inspectors, using a performance-based approach, focus their attention on activities important to safety and reliability. Performance-based inspection emphasizes field observation of activities and results over in-office review of programs and processes. These principles are expected to become increasingly important as overall operating reactor oversight resources continue to decrease.

NRC is committed to improving the application of a risk-informed, performance-based approach to inspection. The staff is developing guidance for the use of available PRA information in the planning and conduct of inspection activities. Inspection guidance is being developed in one or two documents, which can then be referenced in individual inspection procedures. Inspection procedures associated with observation of maintenance activities and with review of 10 CFR 50.59 evaluations and design change packages will be the first to be revised to reference the new guidance. A parallel effort is being undertaken to bring together the current NRC PRA training curriculum, condense the material to specifically address the needs of inspectors (and perhaps project managers and technical reviewers), and package it into a concentrated 2 to 3-week course. Finally, various vehicles such as the periodic Inspectors Newsletter will be used to provide regular feedback to inspectors on the successful use (and potential misuse) of PRA.

The agency's direction in this area is evolving. The Commission's evaluation of the DSI on Risk-Informed, Performance-Based Regulation will likely affect current and future inspection program direction. In addition, as discussed above, the results of the staff's review of lessons learned regarding the Millstone issue may have implications in this area.

As described above, NRC is conducting a review of its existing regulatory processes, including licensing and inspection, in response to issues raised at Millstone and related underlying issues at Haddem Neck and Maine Yankee. The subject of these reviews include 10 CFR 50.59 and processes for implementing the rule, determining the licensing basis for spent fuel pools at all operating power reactors and comparing actual practices to the bases, and incorporating final safety analysis reports (FSARs) into routine inspection. Concurrently, the staff also developed new guidance for enforcing compliance with FSARs and associated regulations and began scheduling vertical slice, safety system functional inspections to assess the design basis of selected systems at selected plants.

NRC is committed to continuing efforts to provide increased opportunities for industry involvement in establishing significant inspection processes and procedures. For example, in addition to working closely with industry to issue a guidance document for implementing the maintenance rule, NRC performed a series of pilot inspections and conducted a public workshop to discuss the results and obtain input. Similarly, after the draft IPAP procedure was developed, NRC conducted a public workshop to obtain public feedback. These efforts improved the inspection program by establishing a common understanding of expectations and views.

NRC has and will continue to encourage licensees to utilize self-assessments (and third-party audits) to

ensure they identify potential issues for improvement before they result in significant performance problems. For example, NRC permits licensees, with NRC approval, to conduct self-assessments in lieu of an NRC inspection. This was created to promote increased licensee ownership for oversight of plant safety and rewards plants that have demonstrated strong safety performance. Additionally, it has resulted in NRC inspection resources

The staff will provide for increased public awareness of inspection activities and results. For example, as part of recent changes to the PPR process, the staff began the practice of publishing inspection plans following the PPR for the next 6 months. In addition, inspection team leaders make increased use of public exit meetings where potential public interest exists.

NRC has routinely conducted internal assessments of the effectiveness and efficiency of the inspection program. On November 16, 1992, the Office of Policy Planning issued its report (OPP-92-01) on the assessment of the NRC reactor inspection program. In 1993, the staff conducted an assessment of the effectiveness and implementation of the inspection program and gave the results along with proposed improvement actions in SECY-93-241. In late 1994, the staff issued specific findings and generic recommendations that resulted from an ad hoc task force's assessment of the effectiveness of the implementation of NRC's inspection program at South Texas. The staff currently conducts ongoing audits of selected inspection topics to identify areas of needed improvements. These activities are expected to continue.

The staff recently initiated efforts to conduct (with contractor support) a job-task analysis (JTA). The inspector utilization model used to budget inspector activities such as level of direct inspection, preparation and documentation, and training has not been updated since the mid-1980s. Since then significant changes in inspection and oversight have occurred. These changes, including the agency's increased emphasis on integration of inspection insights through the establishment of the SMM and PPR processes and the growth of administrative and other non-inspection activities, have increased demands on the inspection staff. In addition, the elimination of regional section chiefs has led to the redistribution of responsibilities to the branch chief and to the project engineer. Similarly, the current movement toward integrated inspection reports may have resulted in the addition of new tasks to the resident staff. The JTA will provide an appropriate methodology for obtaining information on the impact of these combined activities and will enable management to establish task priority and distribution; establish uniform position responsibilities; identity knowledge, skills, and abilities; and make strategic decisions regarding inspection resources and their distribution.

NRC solicits feedback from industry and the public on the effectiveness and impact of inspection activities. In the fall of 1989, the staff initiated the regulatory impact survey. The results were forwarded to the Commission in SECY-91-172, "Regulatory Impact Survey - Final." In response to Commission direction, the staff implemented a process whereby licensees can provide continuing feedback regarding regulatory impact. NRC has also been responsive to feedback provided through such industry efforts as the Nuclear Regulatory Review Study (Towers Perrin report). These efforts have resulted in meaningful improvements in the effectiveness and implementation of the various reactor oversight processes and have served to improve communications between NRC and the regulated industry.

3. Performance Assessment

NRC has and will continue to provide a major emphasis on ensuring that its performance assessment processes result in the early identification of plants with poor performance and adverse safety trends before the problems reveal themselves as events. Although operating experience in recent years

shows that, overall, the performance at operating reactors has been improving. NRC continues to identify individual plants with marginal performance and significant operational problems. It recently initiated efforts to upgrade its continual and periodic integration processes to further improve the staff's abilities in this area. (3)

To establish an environment that encourages licensees to perform well, as well as permit increased agency focus and oversight on licensees who perform poorly, NRC has incentives for licensees who have exhibited sustained strong performance. For example, as discussed above, those plants that perform well receive the least NRC inspection; those that perform poorly undergo the most. In addition, in response to Commission direction, the staff revised management directive (MD) 8.6, "Systematic Assessment of Licensee Performance (SALP)," to extend the SALP cycle for any plant that achieves a superior performance rating in all functional areas in the previous SALP cycle. These initiatives are intended to provide financial incentives through reduced docket-related costs, reduced licensee costs associated support to inspection and so forth.

NRC has and will continue to revise the existing performance assessment process to improve its effectiveness, eliminate redundancies, and communicate the results more clearly to licensees and the public. For example, in 1993 NRC, with input from industry and the public, implemented a major revision to the SALP process. The revised process was approved by the Commission. It calls for increased management involvement in the process, a reduced number of areas to be evaluated, and a streamlined report to make it more concise and more clearly focused on significant issues. In addition, at the direction of the Commission, the revised process requires that the meeting held by NRC with the licensee to provide the result of the SALP be open to the public. As an added benefit, the changes to the SALP process have resulted in a reduction in NRC direct effort of approximately 25 percent since the revision was implemented.

In response to Commission direction, the staff is developing additional guidance that will more clearly communicate the overall plant evaluation process to industry and the public. In addition, the staff is developing additional structure to enhance the objectivity of problem plant

There is nothing in here addressing NRR's more to certainly project management / senior review Nothing discussion historic record capsulated

identification and to explicitly describe assumptions, evaluations, and criteria for plants on the problem plant list. These changes are responsive to feedback received from industry and the public and are consistent with governmentwide regulatory reinvention initiatives.

III. DISCUSSIONS

As described above, AEA bestows broad authority for NRC to conduct activities related to operating reactor oversight.

With 110 power reactors currently licensed to operate, NRC's mission of protecting the public health and safety in this area will continue for some time. While incremental improvements, described above, have and will continue to be made, it is appropriate to reevaluate the agency's strategies for oversight of operating reactors. The strategic issues addressed in this paper are as follows:

A. Direction-Setting Issue

Given the changes in the external/internal environment, what are the implications for the current strategies for the operating reactor program?

B. Subsumed Strategic Issues

1. With the expected reduction in the number of licensing actions and reductions in resources, what is the appropriate way to manage change in this area?

2. How will the NRC ensure that, with the reduced number of licensing actions reviewed by the staff, the current level of safety will be maintained? Will there be a need to increase resources in other areas such as inspection? (4)

3. Is the Operating Reactor Inspection Program staff optimally organized, and are the resources distributed in a manner to utilize them most efficiently?

4. What changes should be made to the resident N + 1 policy?

5. What changes should be made to the regional inspection program?

C. Related Strategic Issue

1. How can we optimize the processes for evaluating the performance of power reactor licensees?

2. How should the NRC modify its rules and approach regarding review of financial qualifications issues so as to focus its resources more sharply on assessing the impact of economic stress on safety performance?

The options to address the DSI identify various approaches to improving the effectiveness of NRC's processes for providing regulatory oversight of operating reactors in light of identified vulnerabilities and anticipated changes in the regulatory environment. The options also address the subsumed issues. Because Related Strategic Issue (1) relates to the performance assessment process, which is an integral function in the reactor oversight program, it is also addressed here.

IV. OPTIONS

In this section, the paper describes in more detail options to be considered by the Commission and examines their effects on NRC's mission, including protection of public health and safety and effective and efficient regulation. Because of the broad nature of the options, in some instances the staff found it necessary to identify specific approaches in each area of licensing, inspection, and performance assessment that would be illustrative of the direction the staff would pursue with the adoption of the associated option.

All options have as their underlying purpose the continued pursuit of regulatory excellence. Option 1 provides for changes to existing processes and direction to address current vulnerabilities and ensure that future weaknesses are detected early. Option 2 goes beyond improving current programs and processes (including establishing new processes where warranted) to seeking new approaches within existing frameworks. Option 3 provides a total reengineering of operating reactor oversight to identify alternative oversight processes and/or structures based on a fresh look. The Commission may elect to adopt an option (or more than one option) without adopting all of the associated approaches. Likewise, the Commission may elect approaches within an option without adopting the overall option.

References are made to those approaches that also address the subsumed issues and Related Issue (1).

Option 1: Review the reactor oversight processes in the context of lessons learned from current issues and develop processes and mechanisms to provide for systematic reexamination of reactor oversight activities to ensure their continued effectiveness

1. Approach

This option assumes that the overall structure and direction of the agency's processes to provide oversight of operating reactors is appropriate. As described above, these processes have continually evolved through the years. In this regard, the agency has experience as a "learning organization." As

experience is gained through event followup, lessons learned, or as new issues emerge, the agency has responded by examining the effectiveness of its programs and program implementation.

Despite past improvements in the area of operating reactor oversight and overall improvements in the operational safety performance of the industry, recent issues including those brought to light by Millstone, Haddam Neck, and Maine Yankee indicate that vulnerabilities exist in current NRC programs and processes or their implementation.

This option provides for a comprehensive review of the areas of licensing, inspection, and performance assessment to identify any areas of needed improvement. In addition, this option would include development of mechanisms to provide for systematic reexamination of the reactor oversight program to ensure its continued effectiveness and to maximize agency learning in response to emerging issues.

Reviews are currently underway. Activities in various stages of completion include:

- Review of 10 CFR 50.59 and processes for its implementation.
- Review of spent fuel pool licensing basis and comparison with actual practices.
- Inspection by a special inspection team at Millstone and Hadden Neck.
- Inspections of FSAR as part of routine NRC inspections.
- Review of Millstone allegations and employee concern programs to assess the adequacy of Millstones and NRC's handling, processing, and responsiveness to allegations and concerns.
- Establishment of a task force to examine the results of individual reviews, inspections, and investigations to determine implications of findings on NRC's programs and processes.
- Independent safety assessment team inspection at Maine Yankee.
- Establishment of a lessons learned task group to address issues related adequacy of the staff's review, coordination, and followup processes.

The staff has already initiated action to address several identified weaknesses. These include developing revised guidance for enforcing compliance with FSARs and associated regulations and conducting vertical slice inspections to assess the design basis of selected safety systems at selected plants. Overall lessons learned and long-term improvement actions will be identified in the coming months.

In addition to addressing the DSI, this option addresses Subsumed Strategic Issues (2), (3), (4), and (5) and the Related Strategic Issues.

2. Consequences

The following consequences are anticipated:

- This option will provide changes in programs and processes. As a result, implementation costs for both the NRC and industry will be phased-in as necessary changes are identified and resultant improvements are implemented.

- As a result of the ongoing lessons learned reviews, the staff will likely identify areas where existing policy and practices will need to be revised. The industry has already expressed concerns regarding the impact of possible changes.

- NRC will need to provide opportunities for industry and public involvement, where appropriate.

Option 2: Seek new approaches to improve effectiveness, work with the industry to foster an environment that is conducive to continued improvements in performance, and provide increased opportunities for public involvement in the regulatory process.

The staff would incorporate changes to improve the effectiveness of its reactor oversight processes, including those identified as a result of past lessons, while developing new approaches to encourage continued industry performance improvements in ways that do not diminish the role of the public.

A. Licensing

1. Approach

The staff would undertake activities to (a) increase the role of industry in the oversight of licensing, (b) provide increased opportunities for public involvement in the licensing process, and (c) greatly expand the use of communication technology to improve the efficiency of the licensing process.

In addition to addressing the DSI, this approach also addresses Subsumed Strategic Issues (1) and (2).

2. Consequences

a. As described previously, conversion to standard technical specifications and line-item improvements enable licensees to relocate requirements from TSs to licensee-controlled documents. These requirements can subsequently be changed without NRC approval. In conjunction with giving licensees this increased freedom, industry would be encouraged to play a greater role in developing generic approaches and guidelines that are intended to ensure that as changes are made to relocated requirements that do not require prior NRC approval (e.g., changes pursuant to 10 CFR 50.59 that do not involve an unreviewed safety question) the current level of safety is maintained. Once NRC endorses these generic approaches and guidelines, industry would be encouraged to conduct activities to promote their uniform acceptance and implementation by individual licensees. NRC would not relinquish its responsibility related to licensing and monitoring compliance. However, on the basis of increased confidence as a result of demonstrated successful implementation of these generic approaches and guidelines, NRC would rely more on industry certification and less on onsite

verification. The following consequences are anticipated.

- This approach could result in improved industry performance and greater uniformity among licensees as appropriate criteria are established and industry oversight processes are established and implemented.

- This approach could result in long-term reductions in NRC workload (and resources) in the area of licensing oversight as NRC is able to place greater reliance on industry for obtaining uniform licensee performance in accordance with accepted guidelines. As discussed previously, NRC would continue to audit licensee performance to ensure regulatory requirements are met. In the short term, this approach would likely result in an increase in NRC workload associated with initial process development, endorsement of standards and the like.

- This approach would result in increased costs to industry to work closely with NRC to develop approaches and guidelines and provide oversight. The impact of these increased costs would be felt at a time of increasing economic pressures on the industry.

- In the past, NRC activities that provided for an increased role for industry in the regulatory process, including setting standards and overseeing their implementation, have precipitated public concerns about whether the agency was maintaining the requisite independence.

- In implementing this approach, NRC would need to be mindful of legal constraint, for example, that it does not impermissibly delegate activities to licensees.

The DSI on the Role of Industry addresses the balance to be achieved between relying on industry measures and taking independent regulatory action to ensure safety and maintain the public trust. Commission decisions pertaining to the DSI may affect the Commission's considerations in this area. In addition, the results of the staff's review of the issues brought to light at Millstone may have implications regarding NRC's current licensing oversight activities and the feasibility of placing greater reliance on industry for this oversight in the future.

b. Increased opportunities for public involvement in the licensing process (e.g., increased information about activities and informal meetings) could result in the following consequences:

- Broadening public involvement would enhance public trust. As provisions are relocated to licensee-controlled documents, through adoption of such programs as standard technical specifications, which will enable licensees make changes to them without obtaining NRC approval, some opportunity for public awareness of licensee activities would be diminished. Diverse or increased opportunities for public involvement could potentially offset this impact.

- This approach would enable the NRC to gain information from diverse sources and foster increased public understanding.

- This approach would potentially result in increased NRC workload associated with conducting meetings, resolving comments, and so forth.

- Conversely, by providing increased opportunities for the public to become aware of NRC licensing deliberations, raise concerns and questions, and the like, this approach might result in fewer letters and formal hearings.

- This approach might affect the expediency with which licensing issues might be resolved.

- This approach could require changes in existing regulations and internal procedures.

The DSI on Public Communications Initiatives addresses the broad range of strategic options pertaining to optimizing the credibility of nuclear programs, the openness of NRC activities, and the efficiency of public communication. Commission decisions on the DSI might affect the Commission's considerations in this area.

c. Beyond incremental improvements to utilize evolving communication technology, NRC could make significant changes in the area of licensing (e.g., NRC could make possible the electronic processing of amendment requests similar to the electronic processing of income tax forms allowed by the Internal Revenue Service). The following consequences are anticipated:

- This approach would result in greatly increased efficiency in possible savings in administrative resources for licensees and NRC.

- Adoption of this approach would require an initial investment of NRC resources and effort and close participation of licensees to overcome potential challenges in such areas as electronic signature and legal requirements for official record processes.

- Significant changes in the use of communications technology would require an initial investment in staff training.

- This approach would necessitate a change in regulatory requirements regarding written communications (e.g., 10 CFR 50.4) and other affected regulations.

- NRC would need to address legal issues related to document compilation (ensuring that the document received is the document that was sent), document integrity during use, and document preservation. Currently, license applications must be made in writing, under oath or affirmation. Any acceptable electronic process must provide the same capability for authentication and oath or affirmation. Collaborative software and draft control must be able to ensure that changes are made to the correct draft by authorized personnel. Challenges associated with ensuring that preservation requirements are satisfied must also be addressed. For example, any requirement to retain a document for more than 10 years currently cannot be satisfied without a paper copy because the National Archives does not recognize durability of electronic documents beyond 10 years. Finally, NRC would need to ensure that any process adopted was readily accessible to the public.

Any activity in this area is directly related to the agency's public communications and information technology/information management strategies and initiatives. Therefore, actions taken should be evaluated in the context of the broader agency actions. In addition, adoption of this approach should be considered along with other business process reengineering efforts.

B. Inspection

1. Approaches

NRC could pursue the following approaches:

a. Flexibility in staffing multiple-unit sites would be increased to enable improved distribution of NRC inspection resources on the basis of licensee performance. For example, the $N+1$ policy for staffing multiple-unit sites would be eliminated or modified to provide increased flexibility to regional administrators to establish site staffing on the basis of licensee performance. This approach would apply to staffing at multiple-unit sites only; current requirements for minimum staffing of two resident inspectors at single-unit sites would be maintained.

b. NRC would evaluate the use of existing technology in developing new inspection approaches. The staff would explore several areas, including innovative approaches used by other agencies and organizations regarding uses of technology in inspection applications. It would also explore the use of expert systems, remote inspection, and meeting/technology.

In addition to addressing the DSI, this approach also addresses Subsumed Strategic Issues (3), (4), and (5).

2. Consequences

a. Associated with increased flexibility in staffing multiple-unit reactor sites, the following consequences are anticipated:

- The staff expects to achieve improved allocation of inspection resources on the basis of licensee performance. It is important to note that the elimination of the $N+1$ policy could result in increased staffing (e.g., $N+2$, etc.) at some sites and reductions of staffing (N) at others.

- Since $N+1$ is a staffing policy that determines where inspectors live, this approach would not affect total inspection resources.

- This change could be phased in with routine resident relocations, thereby minimizing personnel reassignments.

Final decisions regarding this approach would be influenced by ongoing initiatives in other areas. For example, in response to a memorandum from the Chairman to the EDO, dated November 30, 1995, the staff is conducting a review to determine whether existing oversight processes need to be improved or whether new processes need to be developed that would have produced earlier NRC recognition of and action on the issues brought to light at Millstone. This review will address both licensing and inspection aspects of operating reactor oversight. Any changes in the agency's approach to oversight of the industry's implementation of the FSAR and the 10 CFR 50.59 review process that result in increased field verification (inspection oversight), whether a result of a strategic decision under this DSI or in response to the ongoing staff review, might affect inspection workload and resource utilization.

b. The consequences associated with evaluating existing technology in developing new inspection approaches vary depending on the scope of the evaluation to be conducted. They include the following:

- A full-scope inspection program reengineering effort would likely be costly in both staff effort and costs and therefore, would likely be viewed as unjustified in light of continued improvements in industry performance.

- A more limited review of, for example, off-the-shelf capabilities for use within the existing processes would be less costly, but would also likely produce more limited results.

- Either effort could result in the identification of innovative approaches that would increase efficiency while improving oversight of licensing activities, facilitating improved risk-informed, performance-based inspection, and enabling greater integration of insights to reach

conclusions regarding licensee performance. This would be increasingly important as overall resources devoted to inspection continued to decrease.

C. Performance Assessment

1. Approach

NRC could pursue the following approaches:

a. NRC would significantly reduce the effort expended on performance assessment processes in light of improved industry performance and the success of industry (and third-party) self-assessment activities. This option would go beyond current staff initiatives that would result in a reduction of unnecessary redundancy between processes and resultant modest resource savings.

b. The staff would provide opportunities for increased industry understanding of and involvement in the performance assessment process.

In addition to addressing the DSI, this approach also addresses Related Strategic Issue (1).

2. Consequences

a. A significant reduction in the scope and effort devoted to performance assessment processes would likely result in the following consequences:

- This reduction would increase the availability of existing NRC resources to focus more closely on direct observation of licensee activities and results.

- This reduction would mean a reduction in the staff's ability to integrate various performance information. Recent evaluations of the effectiveness of operating reactor oversight processes have indicated that although the inspection process has resulted in the identification of significant issues, better integration of the insights obtained would have resulted in earlier recognition of the existence of significant performance problems. Therefore, a significant reduction in resources for performance assessment would necessitate some increase in inspection effort (e.g., inspection preparation and report integration) and changes in inspection approach to ensure that necessary integration of insights occurs. (6)

- As described in Section II.B.2, NRC's evaluation of licensees' performance serves as a basis for decisions regarding the allocation of inspection focus. With significant reductions in the area of performance assessment, the staff would need to carefully reevaluate the existing process for allocating inspection resources to ensure that these resources are devoted to those plants and areas where performance weaknesses exists. (As the availability of resources for inspection oversight of operating reactors continued to decrease, the ability of NRC to devote effort to areas of greatest significance and concern would become increasingly important.)

- With significant reductions in resources devoted to performance assessment, continued refinements would need to be made in the way the NRC evaluates licensee performance to ensure that it remained able to accurately diagnose performance and adverse trends. In addition, as NRC did less inspection, the performance assessment process would be required to arrive at conclusions regarding licensee performance on the basis of fewer insights. Therefore, even in the absence of significant reduction in this area, further refinements would

be necessary.

- The reduction would result in reduced costs for licensees to the extent that reductions in the area of performance assessment result in reductions in total NRC resources allocated for oversight of operating reactors.

b. The following consequences would likely result from increased industry involvement in the NRC performance assessment process.

- Increased industry involvement in the performance assessment process would result in increased industry understanding of NRC performance expectations, clearer communication of issues and concerns, and potentially greater licensee acceptance of results and necessary improvement areas.

- Increased industry involvement in the performance assessment process could make NRC subject to public concerns regarding the independence of the process. Thus, NRC would need to consider giving the public appropriate opportunities for involvement.

- This approach would likely require increased NRC resources to respond to input, address concerns raised, and so forth.

- Should increased involvement include actual observation of the assessment process, this observation would potentially inhibit the quality of the staff's debate.

Option 3: Perform a Business Process Reengineering

1. Approach

The staff would perform a business process reengineering (BPR) of the reactor oversight program to identify alternative oversight processes and structures. The BPR approach consists of examining a business or process in its entirety, including infrastructure, to see how it can be made more effective and efficient. It examines what the overall process is intended to accomplish and then develops a zero-based redesign of the process, taking full advantage of technological advances. The BPR would include a review of the regulatory practices of other organizations including both nuclear and non-nuclear and foreign and domestic. For example, the staff would consider approaches used by other foreign regulators such as periodic safety reviews, described in International Atomic Energy Agency Safety Series No. 50-SG-012, "Periodic Safety Review of Nuclear Power Plants," dated November 1994.

This option addresses the DSI and all Subsumed and Related Strategic Issues.

2. Consequences

In 1994, the first NRC BPR was applied to materials licensing. The result has been the development of a fundamentally new process for licensing that is intended to (1) perform at least an order of magnitude faster than the current system; (2) be supported by clear, consistent, and timely regulatory guidance; and (3) ensure that no adverse effect on public health and safety results from its implementation. While the BPR in the materials area focused on licensing only, under this option, the staff would undertake a BPR of the integrated functions of licensing, inspection, and performance assessment. In conducting a BPR for the operating reactor oversight program, the following

consequences are anticipated:

- A BPR will be costly in terms of NRC funds and resources. The approximate cost to date for the NMSS BPE initiative has been about $2 million (predominantly contract expense) and 10 staff years. Given the broader scope of a BPR for operating reactors, overall costs would be expected to be somewhat greater, although it is difficult to accurately estimate them at this time.

- During conduct of the BPR and while transitioning to revised programs and processes, NRC will need to maintain continuity with existing processes to ensure overall programs continue to maintain safety of plants and facility compliance with regulatory requirements.

- Because of the likely impact of any significant changes, industry interest in the BPR would be expected to be strong.

- Similarly, public interest would be expected to be strong. Opportunities for public involvement in the process would enable the NRC to gain information from diverse sources.

IV. RELATED ISSUES

After the Commission has made decisions concerning the Direction-Setting Issue discussed above, additional issue(s) such as those related to implementation details will be addressed as the Strategic Plan is implemented. The related issues are listed in this section to provide a more complete understanding of the higher level Direction-Setting Issue.

1. How can we optimize the processes for evaluating the performance of power reactor licensees? This related strategic issue is discussed above.

2. How should the NRC modify its rules and approach regarding review of financial qualifications issues so as to focus its resources more sharply on assessing the impact of economic stress on safety performance?

Given recent trends to more numerous complex mergers and restructuring, the agency may be called upon to evaluate financial issues that less directly affect matters of safety than operational activities which the agency routinely reviews. The focus of the Commission's regulations and operating reactor oversight programs is not a direct assessment of the financial performance of the utility. However, when NRC evaluates safety performance, it does implicitly evaluate financial performance through its observations of plant material conditions, reliability and availability of the plant, and other performance indicators. Therefore, decisions on this DSI that affect NRC activities in the areas of licensing, inspection, and performance assessment will influence this issue.

AEOD is preparing a study entitled "Economic Stresses That Cause a Strain on Safety Performance." Findings from this study should be considered in the context of options to address the DSI.

V. COMMISSION'S PRELIMINARY VIEWS

Staff actions regarding the various options should be held in abeyance pending the Commission's final decision on this issue paper. The Commission's preliminary views are:

The NRC should continue with its ongoing comprehensive review of the areas of licensing, inspection, and performance assessment to identify any areas of needed improvement. This would include development of mechanisms to provide for systematic reexamination of the reactor oversight program to ensure its continued effectiveness and to maximize agency learning in response to emerging issues (Option 1). The thoroughness of ongoing lessons-learned reviews will be key to improvement. The lessons-learned from these reviews must be applied across the industry, where appropriate, and must be verified for effectiveness. The staff should be proactive in ensuring continuing effectiveness of the reactor oversight program by considering in a systematic way how the changes in the regulatory environment might affect future reactor oversight. Currently, the changes in the regulatory environment involve such issues as industry deregulation and component and system aging.

The NRC should pursue several aspects of Option 2. These include encouraging the industry to develop generic guidelines that can be endorsed by the NRC and carried out by the industry, providing increased opportunities for public involvement, expanding the use of technology to improve the efficiency of the licensing and inspection processes where feasible and appropriate, increasing flexibility in staffing multiple-unit sites to enable improved distribution of NRC inspection resources on the basis of licensee performance, and improving the effectiveness and understanding of the performance assessment process.

With regard to performance of a Business Process Reengineering of the reactor oversight program (Option 3), the staff should consider lessons learned from the ongoing use of work process reengineering to establish more efficient and automation-assisted processing of materials license and amendment requests. If successful, the NRC should consider similar methods to improve various aspects of the reactor oversight program. As an initial step, after the consideration of lessons learned, the staff should identify for Commission review and approval which areas, if any, of the reactor oversight program could benefit from work process reengineering. This could include a review of the

consideration of "best practices" [illegible] foreign and domestic, nuclear and non-nuclear)

STRATEGIC ASSESSMENT ISSUE PAPER SUMMARY

I. SUMMARY

A. Direction-Setting Issue

In the area of operating reactors, the following direction-setting issue (DSI) was identified:

> Given the changes in the external/internal environment, what are the implications for the current strategies for the operating reactor program?

This issue paper identifies current strategies for the operating reactor program in each of the major functions--reactor licensing, inspection, and performance assessment. It then examines several options for future strategic direction by identifying potential approaches and consequences in light of the anticipated regulatory environment and vulnerabilities in existing programs brought to light by recent issues. Because of the close interrelation between licensing, inspection, and performance assessment, the paper considers any potential impact of an option in one function on the remaining functions.

The Nuclear Regulatory Commission (NRC) staff has implemented several initiatives in the area of operating reactor oversight to improve the regulatory process and foster an environment that is conducive to continual improvements in industry performance while achieving NRC's regulatory mission of ensuring safe plant operations. These initiatives and planned improvements, some in response to specific Commission requests, have been discussed with the Commission.

As the agency positions itself to achieve its regulatory mission in the future, it must consider both the current agency direction and future challenges and influences. These challenges and influences include continued reductions in resource availability for operating reactor oversight, changes in the safety performance of the industry, increased economic pressures on licensees, emergence of new safety issues as the industry continues to mature, availability of new technology, and maintaining appropriate public knowledge of and involvement in the regulatory process.

Finally, in identifying options to address the DSI, the staff found that it was necessary to also consider the subsumed strategic issues. The related Strategic Issues will also be addressed in this paper.

B. Options

Option 1: Review the reactor oversight processes in the context of lessons learned from current issues and develop processes and mechanisms to provide for systematic reexamination of reactor oversight activities to ensure their continued effectiveness

The staff would complete activities already underway to develop improvements to existing processes and practices as a result of lessons learned from issues brought to light by Millstone, Haddem Neck, and Maine Yankee. In addition, this option would result in the strengthening of current processes or development of new processes intended to provide for earlier recognition of areas where desired effectiveness is not being achieved.

Option 2: Seek new approaches within the existing reactor oversight framework to improve effectiveness, work with the industry to foster an environment that is conducive to continued improvements in performance, and provide increased opportunities for public involvement in the regulatory process

The staff would incorporate changes to improve the effectiveness of its reactor oversight processes, including those identified as a result of past lessons, while developing new approaches to encourage continued industry performance improvements in ways that do not diminish the role of the public.

Option 3: Perform a Business Process Reengineering

The staff would perform a business process reengineering (BPR) of the reactor oversight program to identify alternative oversight processes and structures.

ACRONYMS

DSI 11: OPERATING REACTOR PROGRAM OVERSIGHT

AEA	Atomic Energy Act
AEOD	Office for Analysis and Evaluation of Operational Data
BPR	Business Process Reengineering
DSI	Direction-Setting Issue
EDO	Executive Director for Operations
FSAR	Final Safety Analysis Report
IPAP	Integrated Performance Assessment Process
JTA	Job-Task Analysis
MD	Management Directive
NEI	Nuclear Energy Institute
NPR	National Performance Review
NRR	Office of Nuclear Reactor Regulation
PI	Performance Indicator
PRA	Probabilistic Risk Assessment
PPR	Plant Performance Review
RRG	Regulatory Review Group
SALP	Systematic Assessment of Licensee Performance
SMM	Senior Management Meeting
SRM	Staff Requirements Memorandum
STS	Standard Technical Specifications
TS	Technical Specification

TSIP Technical Specification Improvement Program