April 24, 1998 SECY-98-090

FOR: The Commissioners

FROM: L. Joseph Callan /s/
Executive Director for Operations

SUBJECT: SELECTED ISSUES RELATED TO RECOVERY OF MILLSTONE NUCLEAR POWER STATION UNIT 3

PURPOSE:

To provide the Commission the staff's assessment of three issues related to the Restart Assessment Plan (RAP) for Millstone Unit 3. The staff has evaluated these issues to be acceptable to support restart of Unit 3. A summary discussion of these three issues is presented in this paper and a more detailed discussion is provided as attachments. The staff's evaluation of the remaining issues required for Unit 3 restart readiness assessment will be addressed in a forthcoming paper.

BACKGROUND:

On November 4, 1995, the licensee (Northeast Nuclear Energy Company (NNECO)) shut down Millstone Unit 1 for a planned refueling outage. During an NRC investigation of licensed activities at Millstone Unit 1 in the fall of 1995, the NRC staff identified potential violations in the refueling practices and operation of the spent fuel pool cooling systems. The violations involved inconsistencies with the Updated Final Safety Analysis Report (UFSAR). The NRC issued a letter to the licensee on December 13, 1995, requiring them to inform the NRC before restarting of Millstone Unit 1 pursuant to Section 182a of the Atomic Energy Act of 1954, as amended, and Section 50.54(f) of Title 10 of the *Code of Federal Regulations* (10 CFR 50.54(f)), of the actions taken to ensure that in the future it would operate that facility according to the terms and conditions of the plant's operating license, the Commission's regulations, and the plant's UFSAR.

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In January 1996, the NRC designated the three units at Millstone as Category 2 plants on the NRC's watch list. Plants in this category have weaknesses that warrant increased NRC attention until the licensee demonstrates a period of improved performance. On February 20, 1996, the licensee shut down Millstone Unit 2, declaring both trains of the high-pressure safety injection (HPSI) system inoperable because of a design issue (there was potential that the HPSI throttle valves could become plugged with debris in the sump recirculation mode). On March 30, 1996, the licensee shut down Millstone Unit 3 after finding that containment isolation valves for the auxiliary feedwater turbine-driven pump were inoperable because the valves did not meet NRC requirements. In response to (1) a licensee root-cause analysis of Millstone Unit 1 UFSAR inaccuracies that identified the potential for similar configuration management conditions at Millstone Units 2 and 3, and (2) design configuration issues identified at these units, the NRC issued 10 CFR 50.54(f) letters to the licensee on March 7 and April 4, 1996. These letters required that, before restarting each unit, the licensee inform the NRC of the corrective actions taken regarding design configuration issues at Millstone Units 2 and 3.

In June 1996, the NRC designated the three units at Millstone as Category 3 plants on the NRC's watch list. Plants in this category have significant weaknesses that warrant maintaining them in a shutdown condition until the licensee can demonstrate to the NRC that it has both established and implemented adequate programs to ensure substantial improvement. Plants in this category require Commission authorization to resume operations.

On August 14, 1996, the NRC issued a Confirmatory Order (Order) directing the licensee to contract with a third-party to implement an Independent Corrective Action Verification Program (ICAVP) to verify the adequacy of its efforts to establish adequate design bases and design controls. The ICAVP is intended to provide additional assurance, before a unit restarts, that the licensee has identified and corrected existing problems in the design and configuration control processes.

On October 24, 1996, the NRC issued an Order directing that, before restarting any Millstone unit, the licensee develops and submits to the NRC a comprehensive plan for reviewing and dispositioning safety issues raised by its employees and ensuring that employees who raise safety concerns can do so without fear of retaliation. The order also directs the licensee to retain an independent third-party to oversee implementation of its comprehensive plan.

On November 3, 1996, the NRC created a new organization, the Special Projects Office (SPO), within the Office of Nuclear Reactor Regulation, to provide a specific management focus on future NRC activities associated with the Millstone units. The SPO's responsibility for activities at Millstone includes all licensing and inspection activities required to support an NRC decision on restart of the Millstone units.

In SECY-97-003, "Millstone Restart Review Process," dated January 3, 1997, the staff described to the Commission processes and approaches that the NRC staff will use to oversee the corrective action programs at the three units of the Millstone Nuclear Power Station. The staff is applying the guidelines of NRC Manual Chapter (MC) 0350, "Staff Guidelines for Restart Approval," to the restart approvals for Millstone Units 1, 2, and 3.

On January 30, 1997, the staff and the licensee briefed the Commission on their respective activities at Millstone. Subsequently, on April 23, August 6, and December 12, 1997, and February 19, 1998, the staff, the licensee, and applicable independent organizations involved in Millstone oversight activities provided the Commission updates on these activities.

DISCUSSION:

At the most recent Commission meeting on Millstone status on February 19,1998, the Chairman provided issues for the staff to consider in preparation for upcoming Commission meetings. In its staff requirements memorandum (SRM) dated March 18, 1998, the Commission provided guidance to the staff on the information it needs to make a restart decision on Millstone Unit 3. In the SRM, the Commission directed the staff to provide crisp, clear analyses of the restart-related issues with recommendations (where appropriate) and a summary of independent NRC actions supporting staff decision-making on Millstone's restart. Three particular issues associated with restart readiness of Unit 3 discussed in the SRM are addressed in this paper (1) licensee progress to establish a safety-conscious work environment (SCWE) and an effective employee concerns program (ECP); (2) an assessment of licensee improvements to oversight and quality assurance; and (3) NRC staff plans for monitoring licensee resolution of nonrestart-related issues/items (i.e., backlog management). These are the three items the staff plans to address during the Commission meeting on May 1, 1998. Remaining issues identified in the staff's restart assessment plan (RAP) for Unit 3 and the March 18, 1998, SRM will be covered in a subsequent Commission paper that will be developed before a second Millstone Unit 3 Commission meeting.

The staff has identified in the Restart Assessment Plan (RAP) the issues, including those related to the two NRC Orders that require resolution before a unit restarts. Programmatic issues identified in the Unit 3 RAP include corrective action program improvements, work planning and control improvements, procedure upgrade programs, employee concerns program improvements, and oversight and quality assurance improvements. The RAP also includes staff activities to evaluate the completion of the ICAVP and the licensee's response to NRC's 10 CFR 50.54(f) letters regarding Millstone Units 1, 2, and 3. The actions listed in the generic Inspection Manual Chapter 0350 restart checklist that are applicable to Millstone, such as those regarding management effectiveness and self-assessment capability, are also included in the plan. The plan provides for the conduct of an Operational Safety Team Inspection (OSTI), which was completed on April 24, 1998, and for which a public exit is planned on May 5, 1998. As noted above, for each of three issues, the staff is prepared to provide its overall assessment related to restart readiness for Unit 3. Executive summaries follow that support the staff's conclusions related to each of these areas. More detailed analyses of the licensee's and the NRC's activities to address each of these issues are contained in Attachment 1 (ECP and SCWE), Attachment 2 (oversight and quality assurance), and Attachment 3 (backlog management).

(1) Employee Concerns Program and Safety Conscious Work Environment

NRC assessments and NNECO self-assessments identified the failure of past management processes and procedures to effectively handle safety issues raised by its employees. Concerns were also raised about the manner in which the licensee treated employees who brought safety and other concerns to the attention of management. In its September 1996, report, "Millstone Independent Review Group Regarding Millstone

Station and NRC Handling of Employee Concerns and Allegations," the NRC staff determined that, in general, an unhealthy work environment, which did not tolerate dissenting views, and did not welcome or promote a questioning attitude, has existed at Millstone plants for the past several years. Because of these concerns, on October 24, 1996, the NRC issued an Order to NNECO requiring that it take specific actions to resolve problems in the process for handling employee safety concerns at the Millstone station.

As required by the Order, NNECO developed and implemented a comprehensive plan for reviewing and dispositioning safety issues raised by its employees, and ensuring that employees who raise safety concerns can do so without fear of retaliation. NNECO's plan included elements to improve the operation of its Employee Concerns Program (ECP) organization, to enhance management and employee training related to establishing and maintaining a safety-conscious work environment (SCWE), to form an Employee Concerns Oversight Panel, and to identify and respond to organizational SCWE challenges. NNECO began implementation of the plan elements in February 1997, and substantially completed the program elements by January 1998. NNECO developed four restart success criteria and periodically provided assessments of its progress with respect to the criteria. In its March 31, 1998, letter, NNECO informed the NRC that substantial progress in implementing the comprehensive plan had been made and that the current safety-conscious work environment supports the restart of Millstone Unit 3.

NNECO also submitted for NRC approval the proposed independent third-party oversight program organization to oversee implementation of its comprehensive plan. On April 7, 1997, the NRC approved Little Harbor Consultants, Inc. (LHC), subject to final confirmation of financial independence, as the third-party organization. In May 1997, LHC developed, and submitted for NRC approval, its oversight plan detailing activities to oversee NNECO's implementation of its comprehensive plan. The LHC oversight plan includes activities for identifying the past and present safety culture at Millstone, evaluations of ECP and SCWE programs and processes, evaluation of program implementation, and measurement of program implementation. Using information developed from structured surveys of Millstone employees, program assessments, and monitoring of site activities, LHC developed a process to evaluate licensee performance, relative to 12 attributes it identified in its oversight plan that are usually present when a strong safety culture exists. LHC periodically evaluated NNECO's four success criteria based on these 12 attributes. LHC's latest evaluation, presented at the April 7, 1998, meeting, with NRC and NNECO, found the licensee's performance acceptable for restart with respect to the four criteria.

Regarding actions required by the Order, NRC staff reviewed and commented on the licensee's comprehensive plan, reviewed and approved the third-party organization that will oversee the comprehensive plan, and reviewed and approved the third-party organization oversight plan. NRC staff has assessed the effectiveness of NNECO's implementation of its programs for handling employee safety concerns, relying considerably on the findings of LHC oversight activities. The staff evaluated a sample of NNECO's programs and activities, and reviewed LHC oversight activities. Staff evaluation of NNECO's ECP and SCWE programs included (1) reviews of programs,

procedures, and data; (2) observation and monitoring of program activities; and (3) a team evaluation of NNECO's ECP and SCWE activities. Results of staff evaluations of NNECO programs were also used by the staff to assess the effectiveness of LHC activities. Periodic, joint meetings with NRC, LHC, and NNECO were held to discuss the status, issues, and actions regarding the SCWE and ECP.

Based on review of documentation, monitoring of LHC activities, and NRC team evaluations, NRC staff concludes that LHC has effectively carried out its oversight functions. LHC's structured interviews of the licensee's employees that were performed in the summer of 1997, and again in February 1998, were well planned and well documented. The survey findings contained detailed and relevant findings and recommendations. The structured interviews, along with input from site events and program reviews, have provided a well-founded framework and basis for LHC's assessment of the Millstone safety culture. Comparing LHC's findings with NRC's evaluation of NNECO's SCWE and ECP, LHC's programmatic observations and findings appear accurate and thorough in the identification of deficiencies and weaknesses. LHC was particularly thorough and detailed in its oversight efforts of licensee's activities to improve its ECP. The staff therefore has high confidence in the results and conclusions of LHC's assessment of licensee performance and program status.

The staff concludes, based on its reviews, evaluations, and consideration of the findings of LHC, that NNECO has met the restart requirements of NRC's October 24, 1996, Order. Additionally, the licensee's ECP and SCWE are well-established and functioning effectively at Millstone. Employee concerns are prioritized based on safety significance, identities are protected, case resolution is timely, and there is appropriate followup on corrective action adequacy. Further, significant improvements have been made in the training provided to employees and contractors regarding SCWE and the ECP. In addition NNECO has established effective supplemental measures (e.g., the Executive Review Board, Focus Area Plans, and Leadership Surveys) that provide enhanced assurance of providing and maintaining an SCWE. The staff also considers that NNECO has developed adequate plans, following restart of a unit, for monitoring the site's safety environment, addressing problems as they may arise, and applying necessary resources to support ECP and SCWE programs.

The staff notes that in accordance with the NRC's October 24, 1996, Order, the independent third-party oversight organization will continue at Millstone until the licensee demonstrates by its performance that the conditions which led to the requirement of that oversight have been corrected to the satisfaction of the NRC. As documented in the staff's ECP/SCWE plan, submitted in SECY-97-283, "Recovery of Millstone Nuclear Power Station," the staff anticipates that at least six months beyond restart will be required to evaluate the licensee's continuing performance in the ECP/SCWE areas.

(2) Oversight and Quality Assurance

Quality assurance and oversight is a restart issue due to past ineffective leadership, program implementation, management support, corrective actions and self-assessments, as identified by internal and external audits, including NRC inspections.

NNECO developed a broad-based corrective action program to address the deficiencies identified through internal and external assessments of Nuclear Oversight (NOS). Included among these actions were promulgating corporate expectations for NOS, reorganizing and staffing, establishing new hold point inspection procedures, improving communications between line organizations and NOS, improving the skills of NOS staff in performance-based assessment, and developing a process to assess key issues in the recovery process known as the Nuclear Oversight Restart Verification Plan (NORVP).

The NRC has closely monitored the progress being made in the NORVP and other associated areas. It also independently assessed selected attributes to ensure satisfactory completion of issues. NRC inspectors evaluated NOS effectiveness through the routine inspection program as well as the special inspections associated with the closure of items in the Restart Assessment Plan Significant Items List. An NRC team inspection examined the area of nuclear oversight using NRC Inspection Procedure 40500, "Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems," from February 9 through 20, 1998. The inspection covered several areas including the review of NOS, which is the NNECO quality assurance program required by 10 CFR 50, Appendix B. The team also examined the Technical Specification required Independent Safety Engineering Group (ISEG) and Nuclear Safety Assessment Board (NSAB) activities. Through NRC inspections, the staff confirmed that NNECO has established an effective self-assessment process that contains definitive management expectations regarding the need for performance improvement, an emphasis on self-assessment training, and enhanced procedural controls.

The NRC staff concludes that oversight is adequate to support the restart of Millstone Unit 3 based on (1) the reorganization and replacement of key managers within NNECO and specifically NOS; (2) the promulgation of improved management expectations; (3) the establishment of open communications between the line and NOS and within NOS; (4) the completion of staffing and improved quality and training of the NOS staff; (5) development of a viable inspection and audit program; (6) demonstrated improvements in NOS problem identification and assurance that corrective actions are implemented; (7) improved performance of quality control inspectors; (8) a credible performance by the safety committees; and (9) an effective self-assessment program.

(3) Backlog Management

Effectively managing backlogs contributes measurably to achieving effective work planning and controls and a functional corrective action program. These are areas in which the licensee had demonstrated weaknesses which resulted in the staff including them as key items in its Restart Assessment Plan. Backlog issues were also highlighted by the Commission as an area of concern during the February 19, 1998, Commission meeting and in its subsequent staff requirements memorandum of March 18, 1998.

On April 16, 1997, the NRC issued a letter to NU requesting information pursuant to 10 CFR 50.54(f) that superseded previous letters requesting information pursuant to 10 CFR 50.54(f). The April 16, 1997, letter requested the licensee to provide information related to the following four items (1) the significant items that needed to be accomplished before restart; (2) the list of items to be deferred until after restart; (3) the process and rationale NU is using to defer items until after restart; and (4) a description

of the actions taken to ensure that future operation of the unit(s) will be conducted in accordance with the license, regulations, and UFSAR.

In accordance with the requests contained in the 10 CFR 50.54(f) letter, the licensee has provided its response to all four items, the most recent being its response to item (4) submitted on March 31, 1998. The licensee provided its screening criteria to determine if an item was restart related or not based on 4 criteria. An item was classified as startup required if it was necessary to accomplish any one of the following (1) implement or support a change to plant technical specifications; (2) correct a licensing or design basis deficiency; (3) accomplish a restart license commitment, or (4) resolve an operability concern associated with a maintenance rule group 1 or 2 system. The licensee has also provided periodic updates to its deferred items list.

On March 31, 1998, NNECO provided the NRC its Backlog Management Plan as an integrated, structured approach to successfully manage and disposition the backlog of identified open items for Millstone Unit 3. In this plan, the licensee describes its methodology, process, goals, commitments, and performance indicators to effectively manage and trend performance related to backlogs. The licensee also noted that it had already completed a large percentage of the deferrable items as evidence of its intent to effectively address the backlog. As part of its assessment of the aggregate significance of the backlog, the licensee's PRA group performed a risk assessment of deferred assignments in its Action Item Tracking and Trending System (AITTS) and determined that there was no measurable impact on core damage frequency. Within its plan, the licensee describes its intent to disposition (complete, schedule, or eliminate) all the deferred work items that exist at the time of startup by the end of its next refueling outage (currently scheduled to take place approximately 10 months after restart of Unit 3). The licensee also commits to provide the NRC quarterly assessments of its performance related to the established goals for reducing the backlog.

The NRC has conducted four inspections to review the licensee's implementation of its criteria for determining whether items could be deferred, including at a minimum, reviewing the one-line description of each deferred item. During its first inspection, the NRC concluded that the criteria used by the licensee provided the necessary information requested in item (1) of the April 16, 1997, 10 CFR 50.54(f) letter. However, the staff questioned the completeness and accuracy of the deferred items list. NNECO implemented corrective actions, including increased management oversight and a specific validation and verification process which has resulted in improved performance. Subsequent inspections noted improved quality, though several deficiencies were noted by the staff which required corrective actions by the licensee. The staff determined that there would have been no substantive safety impact on plant operations if those items that had originally been classified as not required for restart had remained deferred until after startup. Given the conservative criteria for determining if an item can be deferred, the substantial progress made by the licensee in completing deferred items, and the relatively low number and safety significance of items found by the staff in its inspections that did not meet the deferral criteria, the staff has confidence that the cumulative safety significance of the body of deferred items is low and acceptable for restart.

The staff's review of the licensee's Backlog Management Plan indicates that although there are aspects of the plan that are being further refined and developed by the licensee, it is a plan that can be an effective management tool if properly implemented. Recognizing that implementation of past programs has been a chronic weakness of the licensee, within the next year the staff will conduct a team inspection using NRC

Inspection Procedure 40500, “Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems.” As part of this inspection, the team will assess the licensee’s performance in managing its backlog. This will be in addition to the staff’s quarterly review of the information provided by the licensee on its progress and performance in executing its Backlog Management Plan. The staff’s overall assessment is that the plan is acceptable and can work if properly implemented.

CONCLUSION

The staff concludes that in the three areas discussed above, ECP/SCWE, Oversight and Quality Assurance, and Backlog Management, the licensee has made appropriate improvements and established adequate programs that would support restart of Unit 3. As noted earlier, another Commission paper will be developed prior to the next Commission meeting to discuss restart readiness of Unit 3 that will provide the staff’s assessment of the remaining major issues contained in the Restart Assessment Plan and the March 18, 1998, SRM.

L. Joseph Callan
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Attachments:
1. Evaluation of Readiness of Northeast Nuclear Energy Company’s Safety-Conscious Work Environment and Employee Concerns Program
2. Oversight and Quality Assurance
3. Backlog Management

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NOTE: This paper was reviewed by the Technical Editor

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ATTACHMENT 1

EVALUATION OF READINESS

OF NORTHEAST NUCLEAR ENERGY COMPANY'S

SAFETY-CONSCIOUS WORK ENVIRONMENT AND

EMPLOYEE CONCERNS PROGRAM

TO SUPPORT PLANT RESTART

Attachment 1

TABLE OF CONTENTS

I. INTRODUCTION

This report documents the status and results of NRC's assessment of Northeast Nuclear Energy Company's (NNECO) programs and activities to improve their programs and processes for handling safety issues raised by employees and for ensuring that employees who raise safety concerns are not discriminated against. Section II of the report provides background regarding identification of past failures in NNECO management processes for handling employee safety concerns, and NRC actions to ensure that the problem has been appropriately addressed. Section III describes licensee actions taken and programs implemented to improve the safety-conscious work environment (SCWE) at Millstone station. Section IV presents the activities of the independent third-party organization to provide oversight of NNECO's implementation of actions to upgrade their SCWE. Section V describes NRC's activities to independently assess NNECO's programs and the third-party's oversight of those programs and their implementation. Section VI presents staff assessment findings of NNECO programs and the oversight activities of the third-party organization. Section VII describes the restart readiness assessment findings of NNECO and the third-party organization, and Section VIII presents NRC's conclusion supporting a determination that NNECO's programs and processes are improved and support the restart of Millstone Unit 3.

II. BACKGROUND

In late 1995, the NRC determined that since the late 1980's Millstone Nuclear Power Station had been the source of a large number of employee concerns and allegations related to safety of plant operations and harassment, intimidation, retaliation, and discrimination (HIRD) of employees. The NRC had conducted numerous inspections and investigations that had substantiated many of the concerns and allegations and had cited the licensee for violations. The NRC also had taken escalated enforcement action. Notwithstanding those actions, the licensee was not effective in handling many employee concerns or in implementing effective corrective action for problems that had been identified by concerned employees.

On December 12, 1995, the NRC established a Millstone Independent Review Group (MIRG) to conduct an evaluation of the history of the handling of employee concerns and allegations. The charter for the MIRG directed it to evaluate the licensee's effectiveness in addressing Millstone-related employee concerns and allegations. The MIRG was requested to identify root causes, common patterns between cases, and lessons learned and to recommend plant-specific and programmatic corrective actions.

The MIRG conducted a review of licensee allegation files, related inspection reports, NRC's Office of Investigation, and the Office of the Inspector General investigations, enforcement actions, U.S. Department of Labor actions, and previous NRC management reviews from 1985. The review included in depth case studies of selected employees' concerns and allegations to identify root causes, common patterns between cases, and lessons learned.

The MIRG concluded, in its September 1996, report, that in general, an unhealthy work environment, which did not tolerate dissenting views and did not welcome or promote a questioning attitude, had existed at Millstone for several years. This poor environment had resulted in repeated instances of discrimination and ineffective handling of employee concerns.

The MIRG identified seven, principal root causes for of the employee concern problems:

- Effective problem resolution and performance measures;
- Insensitivity to employee needs;
- Reluctance to admit mistakes;
- Inappropriate management style and support for concerned employees;
- Poor communications and teamwork;
- Lack of accountability;
- Ineffective Nuclear Safety Concerns Program (NSCP) implementation.

The MIRG also concluded that these root causes underscored a common theme of management failure to provide the dynamic and visible leadership needed to bring about required, basic attitude changes. None of the findings of the team were new. The problems identified had been identified previously to NNECO management by its own self-assessments, yet the same problems continued.

These problems had been recognized by NNECO management as early as August 12, 1991, when a Northeast Utilities Allegations Root Cause Task Group issued a report that highlighted the lack of respect and trust between employees and their management, and insufficient management sensitivity to routine employee concerns, as the causes. Furthermore, an organization contracted by NNECO issued a report on May 1, 1995, that revealed that the old culture of the 1980's had not been completely replaced by a culture encouraging the identification of problems and a questioning attitude. On January 29, 1996, NNECO issued a Millstone Employee Concerns Assessment Report that reiterated many of the same problems.

The report concluded that many of the problems still existed because the licensee had not implemented past recommendations in a coordinated and effective manner. There was a concurrent lack of commitment to and accountability in implementing corrective actions that resulted in a failure to proactively resolve emerging issues. This situation was compounded by the general failure of individual licensee managers to admit when they were wrong. All of those factors contributed to a strained and ineffective relationship between management and some employees. Finally, the report concluded that the effectiveness of the NSCP had been historically undermined by a lack of executive management support.

In May 1996, the nuclear committee of the licensee's Board of Trustees established a Nuclear Committee Advisory Team to evaluate the performance of the licensee's nuclear program. A Fundamental Cause Assessment Team (FCAT) was also formed to evaluate whether management actions were effectively addressing the causes of the declining performance. The FCAT identified the following fundamental causes of the decline in performance--

- top level of the licensee's management did not consistently exercise effective leadership and articulate and implement appropriate vision and direction;

- nuclear organization did not establish and maintain high standards and expectations;
- nuclear organization's leadership, management, and interpersonal skills were weak.

The FCAT report highlighted an "arrogant" management style which had further eroded Millstone employee trust and confidence and which had contributed to NNECO's repeated failure to correct clearly identified problems.

In light of the foregoing, the NRC concluded that the licensee needed to take action to correct and improve its handling of safety concerns raised by its employees so that concerns would be acted upon promptly and adequately and that employees who brought forth such concerns could do so without fear of retaliation. Therefore, the NRC issued an Order on October 24, 1996, requiring that, prior to resumption of power operations, the licensee was to --

(1) Develop and submit to the NRC, a comprehensive plan for reviewing and dispositioning safety issues raised by the licensee's employees, and ensuring that employees who raise safety concerns would not be subjected to discrimination. The plan had to address the root causes of past performance failures as described in the FCAT and MIRG reports.

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(2) Retain an independent third-party, subject to the approval of the NRC, to oversee implementation of the comprehensive plan. The third-party organization chosen to oversee the conduct of the licensee's comprehensive plan had to be independent of the Licensee, such that none of its members had any direct, previous involvement with the activities at the Millstone station that the organization would be overseeing.

The Order specified that the independent third-party was to develop and submit for NRC approval an oversight plan to monitor and oversee the licensee's efforts to correct and prevent repetition of its past failures in its treatment of employee concerns and of those employees who raised such concerns.

Finally, the Order required that the plan for the independent third-party, oversight must continue to be implemented until the licensee demonstrated by its performance, that the conditions that led to the requirement of that oversight had been corrected to the satisfaction of the NRC.

III. LICENSEE ECP and SCWE ACTIONS

In response to the Order, the licensee initiated several programs and actions to begin to correct the problems identified by the NRC and by its own staff. Some of the more significant actions are discussed below.

A. SELECTION OF THIRD-PARTY OVERSIGHT ORGANIZATION

NNECO proposed Little Harbor Consultants, Incorporated (LHC), as the independent third-party, organization in letters dated December 23, 1996, January 14, 1997, and February 4, 1997. The NRC conditionally approved LHC as the third-party organization on April 7, 1997, subject to receipt of financial independence certification letters from NNECO and LHC. NNECO and LHC submitted the financial independence certification letters on April 25, 1997, and April 30, 1997, respectively. NRC, in its letter of August 19, 1997, formally approved LHC as the third-party contractor for Millstone station.

B. NNECO COMPREHENSIVE PLAN

NNECO established a task force of volunteer employees, including representatives of exempt staff, non-exempt staff, contractors and union, to design and develop a comprehensive plan to address work environment and employee concern program changes. Two facilitators with extensive background in employee concerns were employed to assist the task force in developing the new program. While developing the plan, the task force actively solicited input from the Millstone employee population for consideration in the formulation and presentation of the comprehensive plan and the revised Employee Concerns Program (ECP).

The task force issued a report on January 22, 1997, containing its recommendations for the comprehensive plan. Among other things, it recommended the establishment of a new ECP and the creation of an Employee Concerns Oversight Panel.

NNECO submitted the initial comprehensive plan to the NRC in January 1997, and a revised comprehensive plan in August 1997. The comprehensive plan recommended by the task force consisted of six key elements:

- rebuilding employee, agency, and public trust
- training and orientation
- organizational, policy and procedure change recommendations
- employee concerns program
- Employee Concerns Oversight Panel
- performance action items

The performance action items consisted of a list of over 130 items in three phases (1) those items necessary to be completed prior to the effective date of the new ECP revision; (2) those items required during initial program implementation; and (3) those items necessary to be completed on an ongoing basis. The list of action items in the task force report were assigned to various organizational units at Millstone and correlated to the various root causes identified in the NRC Order.

C. EMPLOYEE CONCERN PROGRAM (ECP)

The restructured ECP proposed by the employee concerns task force and established by NNECO had three fundamental steps: intake, triage, and investigation. The intake

phase entails a process in which a trained interviewer receives the employee concerns and ensures that, with the concurrence of the concerned individual, it is accurately documented. Attempts are made to resolve the concern informally or through the normal channels or mediation with supervision while at the same time maintaining the confidentiality of the concerned individual, even if it is not requested.

If the issue cannot be resolved immediately, the concern goes to the Triage phase for evaluation and classification and recommend a resolution plan to the ECP Director. Finally, an investigation is conducted to determine whether or not the concern is substantiated. During the investigation, and at its conclusion, ECP maintains contact with the concerned individual as to its status.

NNECO began immediately to increase the number of people assigned to the ECP by hiring contractors who had significant experience dealing with ECP programs in other industries. Whereas, prior to the Order, there were only 3-4 full-time people assigned to the program, in April 1998, there were about 25. Many of the ECP staff are contractors, but NNECO is in the process of changing over to full-time NNECO employees.

D. SAFETY-CONSCIOUS WORK ENVIRONMENT (SCWE)

SCWE applies to all the site activities to foster an environment where site employees feel comfortable raising any issues important to them without fear of retaliation or discrimination. To emphasize the SCWE, the President and Chief Executive Officer, Nuclear, issued Nuclear Group Policy 16, “Safety Conscious Work Environment” on August 7, 1997, that stated NNECO’s policy with respect to this issue. It noted that all employees and contractors had a right to raise concerns, and could do so without fear of retaliation. It further noted that management had the responsibility to maintain that policy. In conjunction with the SCWE, NNECO published a list of 18 attributes that it believed made up a SCWE.

Before late summer 1997, there was no separate, formal organization known as SCWE. At that time, however, the Vice President of Operations was given the responsibility for SCWE and became its executive sponsor. An official organization was then formed reporting to him with a full time staff that included the ECP Director. The group has the responsibility for coordinating SCWE activities for NNECO. Currently, the group consists of about 15 persons with a SCWE Issue Manager, the Director of ECP, and the Director of Nuclear Human Resources(HR), all reporting to the Vice President of Human Services who reports to the Vice President of Operations. The Issue Manager organization is further broken down into Focus Area Resolution, Survey Coordination and Analysis, Training Coordination, and SCWE Communications and Comprehensive Plan.

E. EMPLOYEE CONCERN OVERSIGHT PANEL (ECOP)

The ECOP, which reports to the President and CEO, Nuclear, of NNECO, is composed of Millstone employees whose function is to monitor the employee workplace environment and to provide independent oversight and assessment of the ECP. It also ensures that the action elements of the comprehensive plan are implemented and sustained. It is composed of about 16 volunteers from all parts of the Millstone

organization who serve about a 16-month assignment. The Administrator is assigned to ECOP full-time.

F. EXECUTIVE REVIEW BOARD (ERB)

The purpose of the ERB is to review any significant personnel action before such action is taken to ensure that it is proper and prudent, and not the result of HIRD. For NNECO employees and contractor personnel, significant personnel action includes a written reprimand, suspension, demotion, removal from duties, or termination. The ERB also reviews contractor reductions-in-force. This review can be by reviewing the specific list of people to be reduced, or the process used to determine the order of reductions. Excluded from this review are contractor releases specifically related to planned completion of a known scope of work or managed task. Background information describing the action being proposed is provided to the ERB, for its use in making a decision, by HR for NNECO employees and by the Contracts Group for contract employees.

IV. THIRD-PARTY OVERSIGHT ORGANIZATION ACTIONS

As required by the Order, LHC submitted their proposed Oversight Plan to the NRC for review and approval on May 2, 1997, and Revision 1, to the plan on June 13, 1997. NRC concluded that LHC's Oversight Plan had the scope and depth necessary for judging the effectiveness of NNECO's program for resolving and disposing employee safety concerns and on July 14, 1997, approved the plan. The LHC Oversight Plan specifies three primary activities.

The first activity is assessing Millstone safety culture. The plan presents a list of 12 attributes that describe an "ideal" safety culture. LHC assessment approach includes gathering data through structured interviews, observations of daily site activities, and comparing these data with the 12 attributes of an "ideal" safety culture.

The second activity is conduct of programmatic evaluations to verify that programs being used to correct existing problems at the site and to prevent recurrence of these problems have been properly designed and subsequently implemented. These programmatic evaluations include reviews of NNECO's Comprehensive Plan, the ECP, various corrective action programs, and the Root-Cause Evaluation Program.

The last primary activity is communications and reporting. Elements of this activity include holding periodic meetings open to the public, with the licensee and NRC providing NNECO with feedback on LHC observations, conclusions, and recommendations, and reporting the results of their activities to the NRC.

V. NRC SCWE AND ECP ASSESSMENT ACTIVITIES

A. GENERAL APPROACH

The effectiveness of NNECO programs and program implementation associated with fostering and maintaining a SCWE and for handling employee safety concerns were assessed by independent NRC staff reviews of licensee programs and reliance on the findings of the third-party oversight organization activities. The NRC staff directed its resources to evaluate a sample of NNECO programs and activities and on review of

LHC's oversight activities. This approach provided the staff with independent assessment of the effectiveness of NNECO programs as well as establishing confidence in LHC's assessment approach and findings.

B. STAFF ACTIONS

As discussed previously, NRC staff reviewed and commented on NNECO's comprehensive plan for reviewing and dispositioning safety issues raised by its employees. The staff also reviewed and approved NNECO's selection of LHC as the independent third-party, to provide oversight of the licensee's implementation of its plan. Further, the staff reviewed and approved LHC's plan for oversight of NNECO's programs required by the Order.

Separate from LHC oversight activities, the NRC performed independent assessment activities of licensee and LHC performance, including:

(1) Participation in periodic meetings open to the public between NNECO, NRC, and LHC that covered the results and findings of LHC assessment activities and the status of NNECO SCWE and ECP program activities. Between May 1997, and April 1998, nine meetings were held.

(2) Staff periodic review of NNECO programs, procedures, and performance data. This function was performed in Headquarters and onsite and in preparation for the periodic meetings held with NNECO and LHC.

(3) Onsite observation and monitoring of NNECO program activities.

(4) Onsite observation and monitoring of LHC program activities.

(5) Conducted a team evaluation of NNECO's ECP and SCWE (December 1997 and January 1998).

(6) Conducted a team evaluation of LHC oversight activities (December 1997 and January 1998).

(7) Assessment from SCWE perspective of corrective action and related programs using the guidance of NRC Manual Chapter (MC) 0350, and NRC Inspection Procedures 40500.

(8) Evaluated the program success criteria, performance measures, and quantitative performance metrics established by NNECO and presented at the periodic meetings.

C. ASSESSMENT MEASURES

NNECO's actions to improve its programs were assessed using the findings of LHC, licensee self-assessments, performance indicators, and NRC evaluation findings and observations. Staff prepared an assessment plan that included standards for

determining the adequacy of NNECO's actions to improve their programs for reviewing and dispositioning safety issues raised by employees. Staff assessed NNECO ECP programs to ascertain whether (1) employees are knowledgeable of ECP program and the programs function; (2) concerns brought to ECP are kept confidential and are addressed promptly; (3) concerns are prioritized based on safety significance and that there are no concerns open requiring correction prior to restart; (4) employees are informed of the status and resolution of their concerns; and (5) concerns raised about the use of the ECP are evaluated and properly addressed. Staff assessed NNECO SCWE programs to ascertain whether (1) managers are trained on SCWE elements; (2) policy on SCWE promulgated by management is received and understood by employees; (3) function of line organization in resolving issues is fundamental in SCWE; (4) action plans for focus areas are established and adhered to; (5) existence of no focus areas that would inhibit safety issue identification and resolution; (6) findings of Employee Concerns Oversight Panel reviews and SCWE self-assessments support restart; (7) third-party organization assessments for restart completed and basis for recommendation documented; and (8) plans for maintaining SCWE after plant restart is in place and acceptable.

D. INTERACTION WITH THE PUBLIC

Between May 1997 and April 1998, nine meetings were held between LHC, NRC, and NNECO to discuss the status of SCWE and ECP activities. These meetings were held near the Millstone site and were open to the public. In addition, the public was kept informed about Millstone SCWE and ECP activities at the periodic meetings held with the public in Waterford, Connecticut. At each of these meeting, summaries were provided of ongoing SCWE and ECP activities and the public was provided the opportunity for comments. Also, LHC attended and participated in several of the meetings to present the results of their recent activities.

VI. STAFF ASSESSMENT FINDINGS

A. NNECO ECP PROGRAMS

Organization

As noted previously, the ECP staff consists of about 25 persons of which about 15 are contractors. However, NNECO has started changing over to a permanent NNECO staff. The organization has independence, resources, and management support to perform thorough, unbiased investigations.

The Millstone ECP investigators are generally divided into a technical group and HR group. The staff determined the number of investigators was appropriate to effectively handle the number of concerns being seen. The ECP organization does not have any

other significant duties and appears to be sufficiently independent from the rest of the NNECO organization to allow for thorough and unbiased investigations.

Staff found the licensee's ECP organization had the independence, resources, and management support to perform thorough, unbiased, investigations. The minor discrepancies found by the team did not significantly detract from the program or its accomplishments.

Processing Concern Cases

The ECP receives concerns related to a wide variety of topics such as nuclear safety or quality, management, industrial safety, security, and sexual harassment. Concerns can be received from former and present employees and former and present contractors. About 14 concerns per month were received during 1997. For each of the concerns, the ECP established a case.

NRC evaluators independently reviewed 18 ECP case files that were either closed or resolved after July 1997. ("Resolved" means that a concern has been evaluated and a corrective action plan has been approved but the action has not been completed. "Closed" means that the corrective action has been completed.) The NRC evaluators found that the concerns were prioritized based on safety significance, identities were protected, case resolution was timely and there was appropriate follow-up on corrective action adequacy. For two of the case files, the NRC verified that the corrective action had been completed as stated. The NRC also found that the conclusions of all of the ECP evaluations were properly supported by NNECO's investigations, the investigations were unbiased, corrective actions were proper to resolve the issues, and communications with employees about their concerns were improving. The NRC found that the ECP was properly protecting the identities of those individuals raising concerns to the ECP. The NRC also found some minor discrepancies. These included the licensee's communicating on a timely basis to persons who raised concerns, classification of some cases, and, in one case, premature closure of a concern.

Training

The NRC evaluators performed interviews and qualification record reviews to assess the qualifications of the ECP investigators. Although, the licensee had administrative weaknesses regarding documentation of qualifications, the NRC evaluators found the investigators to be well qualified and properly trained for their duties.

Metrics

The Millstone 3 Performance Indicator Report is intended for use to track and trend the readiness of the Millstone station and Millstone 3 to restart. Data tracked include information related to Common Restart Readiness Indicators, Operations indicators, Maintenance indicators, Corrective Actions, Engineering indicators, and SCWE indicators.

Indicators for tracking the performance in the SCWE include numbers of employee concerns, employee concern backlog, employee concern resolution timeliness, and

NNECO condition report statistics. These indicators cover a range of program areas related to the SCWE and provide an appropriate data to trend and analyze. Based on review of the indicators applicable to the SCWE, it appears that the ECP program at Millstone Nuclear Power Station is functioning more effectively now than it was in 1996, when the MIRG report on "Handling of Employee Concerns and Allegations at Millstone Nuclear Power Station Units 1, 2, and 3 From 1985 to Present" was released.

Organization Interfaces

The NRC reviewed applicable organization charts, the ECP and HR protocol document, and interviewed individuals from the ECP, HR, and Contract Administration to evaluate organization interfaces. The NRC also interviewed the ECP Enhancement Program Project Manager and the HR Director and Managing Partner to assess the working relationship between ECP and HR. Both managers believed the relationship between these two groups has recently improved greatly. As part of this relationship, HR assigned two individuals to work on the ECP staff. Also, the HR and ECP staffs have participated in joint meetings. The two organizations also have developed a formal protocol signed by the Director, ECP and Vice President - HR. The protocol provides a formalized process to be used to handle employee concerns referred to the HR organization by the ECP.

The NRC also interviewed the Director, Contracts and Project Management, and the Manager of Contracts about their organization. They stated that any discipline to contractors is done mainly by the contractors' organization. Because of the recent problems that occurred in the motor-operated valve (MOV) organization, the licensee has taken a number of corrective actions to ensure adverse actions are not the result of protected activities. The licensee has instructed the contractors that formal discipline must be reviewed by the Executive Review Board to ensure it is not the result of harassment, intimidation, discrimination, or retaliation. They interface regularly with ECP regarding cases involving contractors. They also wrote a new procedure, "Procurement and Administration of Contractor Services, OA 13," to improve the overall management of contractors. The contractor closeout checklist also offers an ECP session for those contract employees leaving Millstone. The responsibility for ensuring this closeout checklist is completed is with the contractor.

The NRC evaluators also interviewed the HR Recovery Officer about his role. He stated he was required by the Chief Executive Officer to provide guidance for HR-related issues for a 3 to 5-month period, ending in February 1998. The NRC was informed recently that the Vice President - Human Services, has assumed those responsibilities. He stated that the HR Director and Managing Business Partner perform the day-to-day management of the onsite HR staff. His major focus is on three areas (1) Improving consistency of HR' policy implementation at the Millstone site; (2) developing a leadership and team building training program for all Millstone employees; and (3) developing a strategic work force plan.

NRC evaluators concluded the interface between the ECP and HR organizations has greatly improved over that noted by the MIRG. It was also determined that the

licensee's initiative for recognizing individuals for bringing up concerns provided positive encouragement for identifying potential safety issues.

B. NNECO SCWE PROGRAMS

Staffing and Organization

Until late November 1997, staffing and support for SCWE appeared weak. There was no formal organization, and vacancies related to SCWE activities went unfilled. There appeared to be little or no central focus, and the staff did not appear to be held accountable for their SCWE activities. NNECO had implemented several programs to improve performance in this area and had appointed the Recovery Officer for Unit 3 as the Executive Sponsor for the program. However, designation of SCWE organizational responsibilities and staffing remained weak until early December when NNECO established a formal SCWE organization and delineated specific responsibilities for personnel in the organization. Open vacancies were filled, and the ECP organization was moved from Nuclear Oversight to the new SCWE organization. The SCWE organization was expanded and now includes the Director of HR; the Director of ECP; a SCWE Issue Manager; and functional areas of regulatory interface, focus area resolution, survey coordination, training coordination, and the SCWE comprehensive plan.

In February 1998, NNECO published a SCWE Handbook that formalized the major elements that had been developed by Millstone to ensure an SCWE is fostered and maintained. The Handbook is a resource and reference for Millstone leadership and employees and for Millstone personnel directly involved with monitoring the health of the SCWE. It is considered by the licensee as a living document that will be updated periodically to ensure it remains a useful resource for Millstone personnel. The Handbook describes the policy and expectations for an SCWE, defines an employee's concern, and describes how employees can raise issues or concern. It briefly defines the applicable regulations and NNECO policy, expectations for supervisors to respond to employee concerns, and gives the points of contact.

Management Leadership Assessments

One section of the SCWE Handbook describes the leadership development (Leadership Assessment) survey that is given periodically to provide feedback to supervisors and managers on their strengths and weaknesses. In November 1997, the site conducted such a survey (third in a series - the first was in November 1996, and the second in June 1997). In general, the results continued to show improvement. For example, from a total of 2597 responses (1756 employees and 841 contractors) the raw scores improved from 4.71 percent in November 1996, to 5.70 percent in June 1997, to 5.80 percent in November 1997. The raw scores are based on a numerical rating system in which the employee is asked to rate a leader either ineffective, somewhat effective, effective, very effective, or extra ordinary, with a corresponding numerical rating from 1 (ineffective) to 8 (extra ordinary). If a supervisor or manager is rated less than 4

(effective) senior management initiates corrective action such as a program to help the supervisor or manager to improve.

Identification and Resolution of Focus Areas

The NRC reviewed the Focus Area Plan that describes the standards, expectations, and course of action to address focus areas. Focus areas are areas where challenges to the SCWE exist. The Focus Area Plan calls for specific action plans to be developed for each focus area. Generally, the NRC evaluators found that the licensee has made considerable progress to improve its identification and resolution of focus areas. In mid-1997, NNECO had identified 33 such focus areas and initiated corrective action; as of March 1998, the number of focus areas were down to nine. The NRC found some weaknesses in the action plans used for the resolution of focus areas. Specifically, weaknesses were found in the program with respect to (1) prioritizing focus areas by significance, (2) review and attention by management both in the development and implementation of the action plans, (3) assurance that the scope of its action plan is adequate and addresses all possible organizational areas, (4) consistency and quality amongst the action plans, (5) setting and scheduling milestones, (6) developing the basis for closing the action plans as complete, (7) evaluating the effectiveness of meeting goals and objectives of each action plan, and (8) identifying action plans as confidential and to follow procedures for confidentiality, as is done with other documents dealing with personnel actions.

The NRC notes that the trend at decreasing numbers of focus areas is an indication that NNECO has taken action to resolve organizational focus areas; however, the NRC notes that no new focus areas were identified even though SCWE personnel were active in interceding in identified potential organizational focus areas. NNECO explained that its current policy is not to identify an area with personnel interaction issues as a focus area under circumstances where the focus area is identified early and actions are initiated to resolve the issue. Staff determined this approach acceptable, but noted that since the criteria for identification of 'focus areas" had changed, tracking of the number of "focus areas" may not be a useful indicator.

Training

Because of the licensee conclusion that there was a lack of knowledge regarding the requirements of 10 CFR 50.7, "Employee Protection," training was developed for all supervisors and managers on the SCWE. NNECO also revised existing training program, to include ECP indoctrination. NRC evaluators attended several sessions of the SCWE training and found the training to be well attended, with good participation. Overall, the NRC evaluators concluded the training to be a worthwhile effort in addressing the licensee's shortcomings in this area.

NNECO considers "Forum for Leadership Excellence," "Managing for nuclear Safety," "Civil Treatment," and "50.7 Familiarization," to be the training courses that are to be completed by the supervisors of Unit 3 to satisfy the training objective. The licensee's training department maintains a database to track those individuals that have taken the required training.

Surveys were taken by NNECO to determine from employees how they believed their supervisors and managers were performing with respect to SCWE. Based on

leadership survey feedback, low scoring manager's work with the HR staff to develop individual improvement plans. The NRC evaluators found that candid criticism of the low scoring performers was directly addressed in the three improvement plans reviewed. The licensee's program of training, employee surveys, and feedback to supervisors and managers was found to be an effective method for introducing and enforcing a SCWE at Millstone.

As part of its SCWE training for non-supervisors, the licensee held an SCWE standdown while NRC evaluators were onsite. The stand down was intended to allow 1 hour for the supervisors to provide further discussion on the information presented in a SCWE videotape that was previously shown to the site personnel. The standdowns were held at the work group level. The NRC evaluators attended several of the standdown sessions. The evaluators observed that the standdown sessions were well attended, provided a good exchange of information and led to the development of worthwhile action items. The NRC also viewed the SCWE videotape that was previously shown to the staff and viewed the lesson plan material that accompanied the videotape and found the information to be helpful for establishing a SCWE and informing the employees of their opportunity to use the ECP if they have concerns.

NRC evaluators also attended a session of the licensee's "Civil Treatment for Employees," and "Partnership Beyond 2000," training for employees. The "Civil Treatment for Employees" training outlined a standard of behavior that should be followed in the work environment. The "Partnership Beyond 2000" training covered fostering a workplace environment where employees feel welcome to raise safety concerns and included training on the ECP.

The licensee's revision to its Plant Access Training (PAT) training that covers the training on the ECP program was reviewed. Specifically, Plant Access Training Manual-Module 7, dated May 21, 1997, which covers "Employee Concerns," was evaluated. The NRC evaluators found the training generally acceptable.

To promulgate lessons learned during the implementation of the comprehensive plan, the licensee uses handouts titled "Briefing Sheet for First-Line Supervisors." The supervisors are expected to pass this information to their subordinates. The licensee has not developed plans regarding conducting periodic refresher training specifically for SCWE.

The licensee has made significant improvements in the training provided to its staff regarding the SCWE and the ECP. Generally, the NRC evaluators found that the licensee's program provides accurate and meaningful training on SCWE and ECP. The licensee is also ensuring training records are kept to ensure the training is given to those that require it and soliciting and using feedback to determine the training's effectiveness.

ECOP

ECOP is composed of a diverse group of Millstone employees including non-exempt workers to exempt managers. ECOP monitors the Millstone workplace environment

and provides oversight and assessment of the ECP organization. It is composed of a Chairperson, three non-exempt employees, two exempt non-supervisory employees, two exempt supervisory employees, and two consultants. There is also a group of alternates that can sit on ECOP under certain circumstances as denoted in the Charter. Although ECOP began its duties in mid-1997, most people involved at that time were serving on a part-time basis, which made it difficult for ECOP to perform meaningful activities. A sufficient level of dedicated full-time employees was not achieved until October 1997, and it was not until this time that ECOP began to function fully.

NRC evaluators determined that ECOP was sufficiently independent from the ECP organization that it was chartered to oversee. The ECOP Chairperson, who is responsible for the day-to-day functions of ECOP, reports to the President and Chief Executive Officer - Nuclear. Reports, surveys, and assessments generated by ECOP reach high levels of management within the licensee's organization, such as the President and Chief Executive Officer - Nuclear, ECP Director, Vice President of Nuclear Oversight, Nuclear Committee to the Board of Trustees, Nuclear Committee Advisory Team and Vice President Operations and SCWE Sponsor.

The NRC reviewed the ECOP Charter and implementation procedures. The charter was clear and concise, described the responsibilities, panel composition, meetings, self-assessments, qualifications, and training, ECOP activities, and reports. ECOP implements its charter through the use of the Protocol Set (implementation procedures). The Protocol Set contained sufficient information and covered a wide range of areas to enable the ECOP to carry out its chartered functions. The Protocol Set covered oversight and assessment of the ECP, review of HIRD cases, workplace environment assessment, third party reviews, employee termination reviews, meeting protocol, self-assessments, responding to concerned individuals, verification and validation of Comprehensive Plan action items, and assessment of the HR organization.

An important function of ECOP is to try to identify instances of HIRD, to review the workplace for chilling effect, and to identify and report "focus areas." ECOP's method for possible early detection of potential conflicts is through the use of ECOP surveys given to various work groups at Millstone on a routine basis. ECOP routinely surveys about 300 site personnel on a quarterly basis to solicit their opinions on a variety of issues. It also uses surveys to rapidly pulse the organization to determine if there are any chilling effects after high profile events occur. The survey process appeared to be effective. Also as part of this survey process, ECOP has a list of 40-50 "core" personnel that it surveys and uses as a benchmark. It also conducts facilitated meetings with various organizational units on site if it becomes aware of potential problems developing in a group.

The ECOP organization is also chartered with overseeing and assessing the ECP. The ECOP organization uses ECOP-01, "Oversight and Assessment of the ECP," to monitor and assess ECP activities. The NRC evaluators reviewed several assessments of the ECP that included: "Review of the ECP Manual and NGP 2.15 - Guidelines for the

Handling of Employee Concerns," "ECP Focus Groups Summary," and ECP Review - Third Quarter." The NRC evaluators found the reports to be of good quality, containing various recommendations to improve the areas audited.

ECOP is chartered to monitor the Millstone workplace environment and to provide to the President and Chief Executive Officer - Nuclear, independent oversight and assessment of the ECP. It also must give its approval for restart. As part of this effort, it issues quarterly reports where it grades the four SCWE attributes as satisfactory or unsatisfactory. In its latest report, issued April 7, 1998, for the first quarter of 1998, it rated all of the criteria as satisfactory. Furthermore, it concluded "The Panel has determined that the Millstone Station safety conscious work environment can support the start up of Unit Three."

Response to Personnel Action Cases

Since the summer of 1997, there were several high visibility incidents at Millstone station involving the SCWE, the employee concerns program, and potential HIRD issues. In July 1997, there was an incident involving licensee disciplinary actions associated with present and former training department staff. Those disciplinary actions resulted in allegations of discrimination and chilling effect on other members of the work force. Also in July - August 1997, another incident occurred involving personnel actions taken against two contractors working in the MOV department. Those personnel actions were subsequently considered inappropriate, reversed, and remedial actions were taken by NNECO. This incident also had implications of potential chilling effect on site workers. In a third incident, one that occurred while the NRC evaluation team was on site, a manager in the maintenance department was removed from his position and transferred to another department. This incident resulted in concerns raised by those working for the supervisor regarding the appropriateness of this action.

While each of these incidents occurred because of deficiencies in licensee processes, or lack of management sensitivity to personnel actions taken (e.g., potential for a chilling effect), NNECO took deliberate and prompt actions associated with resolving issues raised by each of the incidents. The two incidents that occurred in late summer of 1997, led to SCWE program adjustments and enhancements. Once the potential chilling effect of the incidents was recognized, actions were taken to assess and allay those concerns. With respect to disciplinary actions, NNECO took steps, including the formation of the Executive Review Board, to provide additional measures to assess potential discriminatory and chilling effects of these actions. Licensee actions to recognize and more proactively address emerging issues were demonstrated in NNECO's initial response to the third incident discussed above. The NRC considers that each of the incidents represent management willingness to admit to mistakes or problems in their processes and a willingness to take prompt actions to address the cause. The NRC evaluators also consider that measures taken by the licensee, including SCWE training and formation of the ERB, should serve to preclude and better handle developing personnel actions, such as the two incidents that occurred in the late summer of 1997.

Executive Review Board

In the summer and fall of 1997, there were instances at Millstone that involved disciplinary actions against NNECO employees and contractors that caused, or threatened to cause chilling effects because of the way they were handled. A contributing factor to the potential chilling effect of these disciplinary actions was that decisions had not had appropriate management review before the actions were taken. In response to these events, Millstone formed the ERB which reviews proposed disciplinary actions against NNECO employees and contractors.

The ERB finalized its charter on December 16, 1997. The four board members were the Vice President of Operations; the Director, HR; the Manager of Contracts; and the Issue Manager for SCWE. Ex officio members were the Chairman of the ECOP; a representative of the SCWE group; and a representative of Legal. Guests, investigators and support personnel attend ERB meetings.

The ERB reviews proposed personnel actions before they are taken whenever line management believes there is a need to take such action involving a company or contractor employee. The primary consideration of the ERB is whether the proposed action involves the potential for discrimination in accordance with the provisions of 10 CFR 50.7 or the action may result in a chilling effect.

An NRC evaluator observed an ERB meeting and determined that the meeting format accomplished the goals and objectives as intended.

Corrective Action Programs

An NRC team inspection performed onsite from February 9 through February 20, 1998, inspected NNECO's controls in identifying, resolving and preventing issues that degrade the quality of plant operations or safety at Millstone Unit 3. The NRC's overall assessment of the corrective action program was that it was functioning, but the program will continue to require careful monitoring by NNECO to ensure sustained performance.

In the management area, the NRC evaluators found that management communications methods with the plant staff were a strength. There was a common understanding of management's expectations by plant personnel. However, it was noted that a strategic plan and vision statement on where the plant is headed are in draft. This was considered a weakness in view of the fact that the current management has been in place since late 1996. Overall, the Nuclear Group Policies and Standards were considered good. Although teamwork initiatives at the first line supervisor and above were developed, there is a need to extend this to the worker level.

Observations and interviews showed that managers and supervisors encourage employees to identify problems. The plant staff felt that management is receptive to problems brought forward, and individuals generally characterized the environment as improved and currently receptive to problem identification. The team noted that there is

no reluctance or reservations expressed by individuals to identify problems through the Corrective Actions Condition Report process, to the ECP or to the NRC.

There has been an improvement within the traditional quality assurance and quality control function of the Nuclear Oversight organization's audits and evaluation group. The number of auditors has significantly increased as well as their qualifications, and knowledge level has increased. Audit program procedures are acceptable. There are four new audit managers. Oversight has the opportunity to concur with the corrective actions taken for audit findings and nonconformance reports.

LHC also evaluated the corrective action program and concluded, at the April 7, 1998, public meeting, that the CAP is currently performing acceptably well through implementation of corrective actions for Unit 3. LHC also concluded that it is still too early to confirm the long-term effectiveness of many of the corrective actions being implemented.

Planning of SCWE Efforts Beyond Restart of Millstone Unit

During the NRC team evaluation completed in January 1998, it was found that the licensee had not sufficiently developed plans to address actions for maintaining and enhancing an SCWE beyond the restart of a Millstone unit. Specifically, processes for maintaining the ECP and SCWE infrastructure, monitoring of performance, including recognition of program degradations, and phasing out of oversight organizations were not addressed in licensee planning documentation.

Subsequent to the on site team evaluation, in February 1998, NNECO provided the Commission its document “Progress Toward Restart Readiness and Long Term Improvement at Millstone Station.” The plan identified key performance indicators and self-assessment activities that will be used to continue monitoring performance at Millstone. It organized the plan into five strategic areas: safety; operating excellence; work environment; organization effectiveness; and external relations. SCWE is one of three sub-sections of work environment. However, the plan was preliminary and not complete.

NNECO’s March 31, 1998, submittal to the NRC included plans, including commitments and actions, for monitoring and maintaining an SCWE past the restart of Millstone Unit 3. These plans included the following elements:

- Maintenance of the organization and structure of SCWE processes that are currently in place at least through the startup of Millstone Unit 2. This includes consolidation of the SCWE-related functions under a single executive.

- Implementation of an oversight program to review SCWE that will include both internal self-assessments and external independent assessments.

- Continuance of providing NRC with updates on SCWE Key Issues, including any changes to the SCWE section of NNECO’s performance plan.

- Training on SCWE-related matters will continue, with emphasis on refresher training and training for new arrivals.

Staff considers that the licensee plans provides an acceptable framework for assuring the organizational and resource support necessary to assure maintenance of a SCWE.

C. LITTLE HARBOR CONSULTANTS, INC. (LHC) OVERSIGHT ACTIVITIES

The independent third-party team chosen by NNECO and approved by the NRC to oversee the ECP program at Millstone was LHC. LHC members had experience in auditing and evaluating various technical and organizational programs as well as experience in evaluating and implementing employee concerns programs. The team leader served at Comanche Peak as Chairman of the Senior Review Team which set the policy for the Comanche Peak Response Team which was the third party organization responsible for assuring Texas Utility management of Comanche Peak licensability. One team member coordinated the South Texas Project Employee Concern Program. Another team member, a private attorney, specialized in the area of wrongful discharge, discrimination, employment invasion of privacy matters and similar issues. That team member has also provided consulting services for the ECP development and training to corporate management and employee concern investigators on identifying and responding to employee concerns.

In its submittal proposing LHC as the independent third-party organization, NNECO attached the team members resumes. The NRC staff reviewed the resumes for the technical qualifications of the individuals and also for independence from having worked previously on Millstone projects. The NRC staff also asked both NNECO and LHC to certify, under oath, that the company as well as the individuals were financially independent of NNECO. The NRC staff also conducted extensive telephone interviews with each team member. The NRC found the LHC team members qualifications and independence acceptable for their assigned tasks.

Assessment of Millstone Safety Culture

LHC's Oversight Plan, Section 3.2, identifies a set of 12 attributes that, when present in an organization, generally indicate the existence of a strong safety culture. At a meeting on November 13, 1997, between NRC, LHC, and NNECO representatives, LHC presented a windows methodology it had developed for evaluating the Millstone Station's SCWE. This methodology rated each of the 12 attributes with respect to their being acceptable to support restart of a unit. The methodology also compared the 12 LHC attributes with the 4 SCWE success criteria developed by NNECO. Since November 1997, LHC has periodically rated the licensee with respect to the 12 attributes and NNECO's 4 success criteria. In conjunction with the review and approval of the Oversight Plan, the NRC staff reviewed and found acceptable LHC's presentation of attributes that were indicative of a strong safety culture. LHC stated that information from the structured interviews; assessment and investigation of site events and findings from the programmatic evaluations all factored into the periodic ratings. On the basis of

(1) information presented by LHC in assessments of its 12 safety culture attributes, and NNECO's 4 success criteria, and (2) review of LHC files that NRC staff considers that LHC's approach is sound and assessment findings are well supported.

LHC conducted structured interviews as a principal instrument for establishing a baseline and to measure subsequent changes in the safety culture. LHC performed its first set of structured interviews in June to July 1997. The second set of interviews was conducted in February 1998. A large population of the workforce was interviewed (239 in the first set, and 298 in the second). The selection process was designed to ensure a cross section of workers from every work group and department. The interview questions involved a broad spectrum of SCWE issues, including the willingness of the workforce to raise concerns, the confidence of the work force that safety concerns will be handled properly, the existence of a questioning attitude at the site, and the general work environment at the site. These interviews were determined to be thorough, well structured, and carefully administered, and to provide sound bases for measuring the attitudes of the workforce.

Programmatic Evaluations

The NRC evaluation team verified through discussions with LHC personnel, and by attending meetings with LHC and NNECO personnel, that LHC conducted a thorough review of the NNECO's comprehensive plan. LHC presented its initial findings in a meeting with NNECO on May 13, 1997, in which it concluded the following (1) the plan is an adequate approach for upgrading the Millstone ECP; (2) the creation of an independent concerns oversight panel has the potential to accelerate progress toward achieving the plan goal; (3) the plan did not address the full scope of the NRC Order of October 24, 1996, (4) the plan did not sufficiently address the normal programs for problem identification and resolution; and (5) the plan did not clearly identify criteria for success or measurement techniques. NNECO subsequently proposed changes to the plan to address these issues and recommendations made by LHC.

LHC completed its programmatic review of the ECP program and presented its findings at a meeting with NNECO on June 3, 1997. LHC concluded that (1) the documented program contained the basics for an improved ECP; (2) the ECP Manual did not address the full breadth of processing employee concerns; (3) the program did not provide for expected management overview; and (4) the ECP Manual lacked the following elements (a) it did not contain a requirement for conducting an annual external assessment as committed to in the plan; (b) it required all NNECO employees to participate in an exit interview but the site exit process did not ensure that these employees would be directed to the ECP; (c) the Manual did not address coverage for contractors at offsite locations; (d) handling of NRC-referred allegations was not covered; and (e) it did not address personnel qualifications and training. NNECO subsequently revised its program to address LHC findings and recommendations. Staff considered LHC review of the ECP program thorough and complete, and their follow up on NNECO's response to findings assured identified issues were appropriately addressed.

LHC reported the results of its initial review of implementation of the NNECO ECP in a presentation on July 22, 1997, to the NRC and NNECO. This evaluation identified a

number of implementation deficiencies, including a lack of discipline, non-compliance with the ECP and the ECP Manual, loss of confidence by some employees in the ECP, and concerns not being consistently and properly resolved or closed. On November 13,

1997, LHC presented to NRC and NNECO the findings of its continuing review of ECP activities. Among the LHC activities reported were reviews of ECP case files, interviews with ECP staff and employees who raised concerns, and observations of ECP activities, such as case intakes, staff meetings, ECP closure panels, and focus group meetings. Although LHC noted improvements in the organization and leadership of the ECP, the training of the ECP staff, and program definition, the review raised some remaining issues and made additional recommendations. As a result of its activities, LHC reported, at a Commission briefing on December 12, 1997, that the ECP was being implemented effectively. The NRC staff finds that the LHC approach and its conduct of the review of NNECO's implementation of the ECP have been thorough and complete. At a meeting open to the public on January 27, 1998, with NRC, NNECO, and LHC representatives, LHC reported on its completion of (1) reviews of ECP HIRD case files and (2) observations of ECP activities. At this meeting, LHC reported that the ECP has responded and corrected deficiencies, and demonstrated an ability to effectively resolve employee fears about retaliation. Findings during the NRC evaluation of ECP implementation, including reviews of case files, were consistent with those of LHC and confirm the ECP improvements made by NNECO in responding to LHC recommendations.

LHC presented its findings on NNECO's corrective action program at a meeting open to the public with NNECO and the NRC on September 24, 1997. LHC conducted the evaluation in three phases. The first phase was a review of condition report (CR) classifications. LHC reviewed 100 CRs and found only 3 that were questionable and 2 of those 3 were essentially treated as Level 1 reports. LHC found this result acceptable. In phase II, LHC evaluated the implementation of the CAP from initiation of a CR to the approval of the corrective actions. The results were (1) site personnel were aware of the CAP and are generally initiating CRs when appropriate; (2) investigations to determine the nature of the condition and the surrounding facts were adequate; (3) most root cause evaluations were adequate; (4) the waiver of root cause evaluations for Level 1 CRs was not always justified; and (5) root-cause evaluations varied in quality, level of detail, and report format. Observed weaknesses were (1) cause evaluations were stopped at too high a level of cause; (2) root causes were too generally worded to lead to focused corrective actions; (3) the licensee was reluctant to address individual performance issues; (4) the requirement to address each cause code for Level 2 CRs could lead to too many actions; (5) the tendency to address all contributory causes for Level 1 CRs sometimes weakened the focusing on the root cause; and (6) the requirement to complete in 30 days could be too restrictive for broad programmatic problems. The NRC reviewer found that this evaluation was thorough and complete and the recommendations well supported.

LHC conducted several comprehensive, independent investigations and evaluations of alleged HIRD. One independent investigation involved allegations of retaliation and

chilling effect associated with disciplinary action taken by NNECO in July 1997 against personnel who had worked in the training department. Another independent investigation performed by LHC involved potential harassment and intimidation associated with disciplinary actions taken by NNECO against contract employees in the MOV Department. LHC issued formal reports for both of these investigations. LHC

findings associated with these events were also discussed at meetings attended by NRC, LHC,
and NNECO. On the basis of a review of the reports, monitoring of LHC's conduct of the investigation, and LHC's presentation of its findings, the NRC staff considers that the investigations were well conducted and documented. LHC also monitored and conducted independent assessments of other incidents at the site, including a deteriorating situation in the Oversight Quality Control Group. The findings from LHC's investigations of the cases helped NNECO understand weaknesses in its processes associated with the events and contributed to the licensee's development or confirmation of corrective actions. LHC monitored the licensee's actions to address the events and verified the licensee's final resolutions of actions where appropriate.

As previously discussed, LHC has reviewed in detail and monitored, for example, the ECP; the corrective action program; and comprehensive plan. When the NRC evaluation team reviewed LHC's activities in December 1997, and January 1998, it found that LHC had not yet evaluated the Employee Concerns Oversight Program or a number of the activities of the SCWE program. Subsequent to the NRC team evaluation, LHC scheduled and conducted oversight activities for significant elements not previously covered.

Communications, Reporting, and Administrative

The Oversight Plan provides guidance for LHC's presentation of observations, conclusions, and recommendations to NNECO on its efforts to improve the site's SCWE. Although recommendations were routinely and formally given to NNECO by LHC in periodic meetings and reports, NNECO's responses to the recommendations had not, until after the beginning of the year, been formally tracked by LHC. The NRC evaluation team members considered tracking and assessment of licensee responses to LHC's findings a very important activity in ascertaining the status and effectiveness of licensee programs and in providing feedback to NNECO. In seven public meetings between LHC and NNECO (May 1997 and March 1998), LHC provided about 111 recommendations to NNECO. Through April 1, 1998, NNECO had responded to all but four of them (those four were issued by LHC to NNECO in a letter dated March 20, 1998). Of the total, 43 are fully acceptable to LHC, 24 are acceptable, but LHC still wants to monitor the corrective actions, and 40 require further evaluation by LHC.

The NRC evaluators reviewed LHC's first quarterly report submitted on November 25, 1997. The report referred only to slides and documentation presented by LHC consultants at the periodic meetings between LHC, NNECO, and the NRC. Although this information had been docketed and contained some detailed information, the NRC staff did not consider that the first report met the intent of oversight plan commitment for a detailed report. For example, documents presented at the periodic meetings did not describe routine activities conducted by LHC, the status of ongoing major activities, details on bases for findings, and the status of licensee's responses to LHC's

recommendations. Subsequent to the NRC team's evaluation, LHC submitted a report for the last quarter of 1997. This report contained a description of LHC activities for the period October 1 – December 31, 1997, a summary of the results of presentations to the NRC and NNECO, a description of public interactions by LHC other than formal presentations, the status of LHC recommendations to NNECO, and discussed activities anticipated for the next quarter. The staff considers this report much more

comprehensive, and satisfies the intent of the oversight plan regarding appropriate report detail.

D. NRC ALLEGATIONS

In 1996, the NRC received 71 allegations regarding Millstone. Of the 71 allegations, 14 have been substantiated and 21 are still open. In 1997, the NRC received 74 allegations (the highest number of allegations for any nuclear power plant site in 1997). Of the 74, 10 were substantiated and 24 are still open. For those allegations received and closed in CY 1996 and 1997, the percent of allegations substantiated decreased from 28 percent to 20 percent. In 1998, the NRC received 5 allegations in January and 5 in February. In 1996, NNECO received 96 concerns of which 53 have been substantiated. In 1997, NNECO received 199 allegations, of which 109 have been substantiated. NNECO received 27 concerns in January 1998, and 20 in February 1998.

The number of allegations coming to the NRC regarding Millstone has been high and relatively constant over the past two years, although there appears to be a slight decrease in the rate of allegations received in the last six months. In consideration of factors such as the vigorous efforts by NNECO management encouraging employee's to make their concerns known, the NRC staff does not consider the continuing high number of allegations at Millstone to be, by itself, indicative of poor or failing SCWE. Past experience at sites with recovering programs dealing with employee concerns where there is active construction or maintenance programs have shown continuing high incidence of allegations even after program upgrades. Further, since NNECO is receiving significantly more concerns than the NRC is receiving allegations, there does not appear to be a problem with respect to the willingness of NNECO's employees to take their concerns to NNECO for resolution.

VII. NNECO AND LHC RESTART READINESS ASSESSMENT

A. NNECO

NNECO's SCWE Handbook specifies four criterion required to be met for restart of a Millstone unit: They are --

(1) Demonstrate that employees are willing to raise concerns.
(2) Demonstrate that management is effective in evaluating, prioritizing, and resolving employee issues.
(3) Demonstrate that the ECP is effective in addressing issues raised by employees that are not resolved satisfactorily by other means within the organization.

(4) Demonstrate that line management is effective in identifying, investigating and resolving areas where the attributes of a SCWE are challenged or lacking.

In a March 31, 1998 submittal to the NRC, NNECO presented its assessment that they meet the four success criteria for successful establishment of a SCWE at the Millstone site and are therefore ready for Unit 3 restart. Additionally, NNECO noted that ECOP, Nuclear Oversight, and the Nuclear Safety Assessment Board, have concurred that SCWE is satisfactory and will support the restart of the units.

B. LITTLE HARBOR CONSULTANTS, INC. (LHC)

As noted above, LHC identified 12 attributes that it believed were indicators of a strong safety culture. In evaluating the progress of the ECP and SCWE programs at Millstone, LHC allocated its 12 attributes to the four NNECO success criteria. The success criteria and the attributes were graded by LHC from red (significant weakness) to green (world class). In between there were three levels of yellow - yellow minus, yellow, and yellow plus. In the opinion of LHC, attributes graded yellow minus or red was not acceptable for restart. LHC periodically assessed NNECO performance with respect to its attributes and NNECO's four criteria and resented the results to the NRC, NNECO, and to the public in a series of meetings open to the public beginning in December 1997. The last presentation of its assessment results was April 7, 1998, and at that time LHC assessed NNECO as having acceptable performance for restart in each of the four criterions.

Some of LHC's positive conclusions about NNECO's SCWE and ECP were (1) employee satisfaction continues to improve; most recently 88 percent of those contacted would use the ECP again; (2) communications with employees has increased and improved; (3) ECP Processing Manual, Rev. 3, is more user friendly, the forms have been greatly improved, and the development of a rapid resolution process provides a good mechanism for handling and documenting issues conducive to fast resolution; (4) ECP investigations are well performed and documented; (5) additional training in sensitivity in dealing with employees has been conducted; (6) additional training in how to investigate HIRD/alleged 10 CFR 50.7 issues has been conducted; and (7) ECP contribution to "lessons learned" process has been significant.

LHC noted that the HIRD concerns being received by ECP show a trend of decreasing overall level of significance. LHC stated that they consider the SCWE area to be satisfactory to support restart of Unit 3 and noted that an extraordinary level of resources are currently involved in nurturing and overseeing the SCWE at Millstone.

VIII. CONCLUSIONS

The actions required in the October 24, 1996, Order, to be accomplished before the restart of any Millstone units have been completed. NNECO developed, submitted for NRC review, and implemented a comprehensive plan for reviewing and dispositioning safety issues raised by its employees and ensuring that employees who raise safety concerns are not subject to discrimination. NNECO submitted, for NRC approval, a proposed independent third-party

organization, LHC, to oversee implementation of NNECO's comprehensive plan. LHC submitted, for NRC approval, its plan to oversee NNECO's implementation of its comprehensive plan. As specified in the Order, third-party oversight will continue to be implemented until NNECO demonstrates, by its performance, that the conditions which led to the requirement of that oversight have been corrected to the satisfaction of the NRC.

Based on review of documentation, monitoring of LHC activities, and NRC team evaluations, the NRC staff concludes that LHC has effectively carried out its oversight functions. LHC's structured interviews of the licensee's employees that were performed in the summer of 1997, and again in February 1998, were well planned and well documented. The survey findings

contained detailed and relevant findings and recommendations. The structured interviews, along with input from site events and program reviews, have provided a well-founded framework and basis for LHC's assessment of the Millstone safety culture. Comparing LHC's findings with NRC's evaluation of NNECO's SCWE and ECP, LHC's programmatic observations and findings appear accurate and thorough in the identification of deficiencies and weaknesses. LHC was particularly thorough and detailed in its oversight efforts of licensee's activities to improve its ECP. The staff therefore has high confidence in the results and conclusions of LHC's assessment of licensee performance and program status.

Based on review of documentation, monitoring of NNECO activities, NRC team evaluations, and consideration of LHC findings, the NRC staff concludes that the NNECO's ECP and SCWE are established and functioning effectively at Millstone. Employee concerns are prioritized based on safety significance, identities are protected, case resolution is timely and there is appropriate follow-up on corrective action adequacy. Further, significant improvements have been made in the training provided to employees and contractors regarding SCWE and the ECP. In addition NNECO has established effective supplemental measures (e.g., the Executive Review Board, Focus Area Plans, and Leadership Surveys) that provide enhanced assurance of providing and maintaining an SCWE. The staff also considers that NNECO has developed adequate plans, following restart of a unit, for monitoring the site's safety environment, addressing problems as they may arise, and applying necessary resources to support ECP and SCWE programs.

The staff concludes that NNECO's programs for handling safety issues raised by employees, and in ensuring that the employees who raise safety concerns are not discriminated against have significantly improved and are sufficient for licensee operation of Millstone Unit 3. The staff notes that in accordance with the NRC's October 24, 1996, Order, the independent third-party oversight organization will continue at Millstone until the licensee demonstrates by its performance that the conditions, which led to the requirement of that oversight, have been corrected to the satisfaction of the NRC. The staff anticipates that at least 6 months beyond restart will be required to evaluate the licensee's continuing performance in the ECP/SCWE areas.

ATTACHMENT 2

OVERSIGHT AND QUALITY ASSURANCE

INTRODUCTION

The Restart Assessment Plan addresses oversight and quality assurance as the combined activities of the quality assurance organization function as required by 10 CFR Part 50, Appendix B, the reviews performed by safety committees as required by the Unit 3 technical specifications, and the self-assessment function performed by line management organizations to improve processes by identifying strengths and weaknesses. Oversight and quality assurance (QA) is a restart issue due to past ineffective leadership, program implementation, management support, corrective action, and self-assessments, as identified by internal and external audits, including NRC inspections.

BACKGROUND

The licensee identified its oversight function as deficient through self-assessments and external and internal audits, and as a contributing factor in its declining performance. The root-cause evaluation of *Effectiveness of Oversight Organization* by the Yankee Atomic Electric Company, dated September 10, 1996, examined the failure of Quality Assessment Services, the Independent Safety Evaluation Group (ISEG), and the Nuclear Review Board (NRB) to identify the deficient Final Safety Analysis Report control process and the degraded radioactive waste conditions, predominately in Unit 1. They found that management did not support these functions adequately.

In addition, the Joint Utilities Management Assessment (JUMA) issued its report on July 17, 1996. One conclusion was that the QA program audits, surveillances, and inspections were not effective in the implementation of their mission and resolution of identified problems. In addition, the JUMA audit found that recommendations for improving QA effectiveness, identified in previous QA internal and external assessments, had not been addressed.

On July 22, 1996, the Nuclear Committee Advisory Team issued a report to the Nuclear Committee of the Northeast Utilities Board of Trustees that forwarded previous report findings by the Fundamental Cause Assessment Team. In that report, it noted, “Senior executives at Northeast Utilities, from the CEO to senior nuclear site executives, were ineffective over a number of years in providing vision, direction, and leadership necessary for the management of the NU nuclear power program... Key performance issues, such as an effective corrective action program,... critical self evaluation processes were not fully appreciated by senior management even after they were identified by outside industry and regulatory agencies.”

The Systematic Assessment of Licensee Performance evaluations for the period December 1990 to July 1994 twice judged Safety Assessment and Quality Verification to be Category 3. Weak self-assessments and ineffective independent oversight contributed to the low level of performance.

LICENSEE CORRECTIVE ACTIONS

Northeast Nuclear Energy Company (NNECO) developed a broad-based corrective action program for the deficiencies identified through internal and external assessments of Nuclear Oversight (NOS). Included among these actions were: promulgating corporate expectations for NOS, reorganizing and staffing, developing new hold-point inspection procedures, improving communications between line organizations and NOS, improving the skills of NOS staff in performance-based assessment, and developing of a process to assess key issues in the recovery process known as the Nuclear Oversight Restart Verification Plan (NORVP). The NORVP contained approximately 20 key issues that were intensively tracked by NOS that gauged the performance improvements being made by the line organization. One of the key issues was NOS recovery. The NRC staff and managers closely monitored the progress being made in the NORVP during the recovery process.

NRC ACTIVITIES

An NRC team inspection examined the area of nuclear oversight using NRC Inspection Procedure 40500, "Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems," from February 9 through 20, 1998. The inspection covered several areas including the review of NOS, which implements the NNECO quality assurance program required by 10 CFR 50, Appendix B. An understanding of the current viability of the licensee's oversight program was obtained through personnel interviews, program evaluations, procedure reviews, and an assessment of the NORVP. The team also examined the Technical Specification (TS), required ISEG and Nuclear Safety Assessment Board (NSAB) activities.

Preceding the IP 40500 team inspection, the resident, regional, and contractor inspectors evaluated NOS effectiveness through the routine inspection program as well as the special inspections associated with the closure of Restart Assessment Plan Significant Items List items.

On April 13, 1998, an NRC Operational Safety Team (OSTI) started an evaluation of the readiness of plant hardware, staff and management programs to support a safe restart and continued operation of Millstone Unit 3. For example, the OSTI has verified that management programs, such as self-assessments, communications, independent oversight, management review committees, and safety committees are adequate to support safe operation. Although this inspection has not been completed, the preliminary results were incorporated into the staff's overall evaluation of oversight.

1. NUCLEAR OVERSIGHT ORGANIZATION

(A) Management Support of Oversight Function

The root-cause finding of most of the assessments, done of NNECO by independent groups before 1997, was that management failed in its leadership role to provide clear expectations and appropriate standards for employees. Central to the management leadership improvements was the replacement of key officers and managers throughout the organization, bringing fresh

perspectives, and an understanding of current industry philosophies regarding the relationship between cost-effectiveness and safety. The NOS organization has been reorganized and a workable infrastructure established. The NOS organization has essentially completed its recovery plan to improve performance through programmatic and organizational changes.

The NRC has observed examples of strong, two-way vertical communications within the organization. The NRC observed a free flow of information to management, and management's ability to communicate to employees effectively. To promulgate the new management expectations and perspectives, NNECO has developed several mechanisms to communicate its new policies and standards to plant staff. It has issued "Nuclear Group Policies and Standards," (a daily newsletter), displayed posters enumerating management's expectations, and held periodic meetings with the staff. NRC observations of the daily meetings have shown effective interdepartmental interactions, a questioning attitude by participants, and a positive management presence.

Additionally, the NNECO management expended substantial effort in team-building training for managers and supervisors. Conflicts between individuals in different departments have occurred, but management has been quick to respond and take effective corrective actions, including long-term actions to resolve the conflict and reduce recurrences. This is in sharp contrast to past practices that alienated plant staff and failed to deal with root causes.

Further evidence of management support is seen in the improved staffing and knowledge levels of NOS personnel assignments. The audit staff has increased from 5 to 20 auditors, and high-quality personnel are rotated into the organization from the line functions.

(B) Audits and Evaluations

NRC review of the audit process found procedures were comprehensive and clearly written. The controlling audit procedure has strengthened the audit process by more clearly defining audit expectations, audit checklists, and the composition of the audit team; thus, providing for a more in-depth audit. Audit findings are issued as Level 1 condition reports, which ensures that they receive a high-level of attention by management. Although the line management is responsible for correcting any deficiencies identified in condition reports, the audit group has established its own computer tracking system of open findings. This information is provided to audit managers and certain line personnel and is used as a tool to track overdue or inadequate audit corrective actions. All audit findings receive followup for adequacy of corrective actions on a sampling basis.

Historically, audit exit interviews were not well attended by line management. A recent review of audit exit interview records showed good attendance by line management and staff.

NOS developed a program to monitor Millstone Unit 3 readiness for restart as part of NORVP. The NORVP was issued in August 1997, and continues to track progress on a bi-weekly basis in specific assessment areas, designated as “key issues.” This gives line management an independent assessment of critical areas that required resolution before making plant mode changes. NOS has steadfastly maintained differing, and sometimes unpopular, positions during the recovery process that have given line management useful insights on performance. NNECO management has openly discussed these NOS findings at the NRC/NNECO public status meetings. This shows a healthy relationship and professional respect between the line organization and the oversight function.

(C) Quality Control

Historically, the role of quality control (QC) had been diminished by the systematic elimination of QC hold points in procedures. The QC function was viewed primarily as a means to meet a regulatory requirement.

The NRC reviewed quality control procedures, interviewed personnel and accompanied QC inspectors in the field. The QC inspectors were experienced and qualified in their area of expertise, as well as knowledgeable of the site work control process and documentation requirements. The QC group reviews QA work packages to identify QC hold points before the packages are released to the field. Standardized inspection points for routine work activities have been developed, ensuring critical activities receive appropriate inspection. All of the interviewed QC inspectors stated they would stop work if the appropriate circumstances were presented because they felt they had management support. The NRC observed this in the field, as QC inspectors stopped jobs due to questions with proposed sign-off points and movement of heavy loads.

2. SITE SAFETY COMMITTEES

(A) Independent Safety Engineering Group (ISEG)

The ISEG is required by the Millstone 3 TSs. Its purpose is to provide independent reviews of plant operations and assess operating experience in its recommendations to improve safety and reduce human errors. Historically, the ISEG was not effective in prioritizing and following up on its recommendations, nor in managing its backlog of operating experience reviews.

The NRC staff found that the ISEG did critical reviews of plant operations and made appropriate recommendations for resolution of issues. For example, the ISEG identified significant work control issues in the high-voltage switchyard and stopped work. The NRC found that the ISEG staffing met the technical specification requirements. The ISEG uses the site action request process to track the status of recommendations and perform a closeout of each item.

The ISEG has reduced the backlog of unreviewed operating experience items from several hundred to approximately 40. In 1997, the ISEG performed 12 independent reviews, down from the 24 completed in 1996, because of an increased focus on reducing the operating experience backlog. The independent reviews included human performance evaluations intended to improve safety through human error reduction. The NRC staff found that the operating experience reviews were generally thorough and complete. Besides this backlog, site implementation of operating experience was mixed because a site procedure establishing expectations had not been issued. The ISEG was responsible for incorporating generic operational issues into the Unit 3 daily status report to highlight the importance of operating experience to operational safety. The NRC staff identified examples of ineffective use of operating experience in recovering the unit. For example, Information Notices were not initially included in the configuration management plan and there were incomplete corrective action for Generic Letters. The licensee has taken corrective action to enhance its review of operating experience and ensure that this information is used within its programs.

(B) Nuclear Safety Assessment Board

The Nuclear Safety Assessment Board (NSAB) is required by the TSs and is responsible for the oversight of line management activities. Specific areas of expertise are defined by the TSs for board composition. Historically, the Nuclear Review Board (NRB, the NSAB predecessor) was ineffective in identifying management issues and problems, and it lacked management support to resolve issues identified by the NRB.

The NSAB was reconstituted in 1997 to include senior NNECO managers, recovery officers, and senior nuclear industry members. Expectations for the NSAB were communicated by the Chief Executive Officer, including increased NSAB attention of Nuclear Oversight. NRC attendance at board meetings noted that the board members asked probing questions, displayed significant knowledge of the issues, and provided appropriate oversight. For example, NRC inspectors observed that the NSAB Chair requested the vice president of Nuclear Oversight to conduct an assessment to validate the adequate resolution of several historical issues. The NRC staff found that NSAB's evaluations of issues involving fire protection and employee training, and its review of Nuclear Oversight to be effective. The NSAB was the advocate for updating and maintaining the Unit 3 Operational Readiness Plan. This plan specified the philosophy for restart issue management and restart elements required to prepare Unit 3 for operational readiness. In addition, NSAB has effectively carried out its audit program requirements.

(C) Site Operations Review Committee

The Site Operations Review Committee (SORC), as its name implies, is a site-wide review committee. It is also required by Technical Specifications. It

reviews Millstone activities that affect site-wide operations to ensure they are conducted according to the Unit 3 operating license and regulatory requirements.
The NRC staff concluded that SORC was effective in integrating site-wide license and technical requirements. The NRC concluded that SORC was performing its requirements and was effective in identifying potential safety issues.

(D) Plant Operations Review Committee

The Plant Operations Review Committee (PORC) is required by the Technical Specifications and its multi-disciplinary membership provides oversight of Unit 3 operations to assist the Unit Director. The PORC routinely reviews changes to operations, processes and programs. The creation of the Station Qualified Reviewer for procedure reviews permitted PORC to more accurately focus on operational issues .

The team observed that PORC members were properly focused on safety and compliance with regulatory requirements. PORC issues were tracked in the plant corrective action system, and the team determined that PORC issues received timely disposition.

3. SELF ASSESSMENT

Historically, NNECO failed to implement an effective self-assessment program. The Performance Enhancement Program (PEP) was a broad self-assessment effort developed in the early 1990s to address declining performance. The PEP lacked management support and for the few self-assessments completed, generally failed to identify significant issues because of low standards and accepting the status quo for performance. In addition, management was unable to complete actions based on the results of its self-assessments.

The NRC staff confirmed that NNECO has currently established an effective self-assessment process that contains definitive management expectations regarding the need for performance improvement, an emphasis on self-assessment training and enhanced procedural controls. Line management is accountable and has assumed ownership for doing self-assessments, which are required by all organizations. Training was provided to station personnel to ensure a common understanding and purpose. The Nuclear Oversight organization must also complete self-assessments and was tasked with assessing the effectiveness of the self-assessment program.

NRC inspections of the self-assessment activities found that they were formal, proactive, critical and effective. For example, the NRC Inspection Procedure 40500 inspection team reviewed several self-assessments done by the Nuclear Oversight organization regarding audits, training, quality control, and work processes. In addition, the team reviewed 20 Unit 3 self-assessments and concluded that the technical adequacy was improved and the results were used to identify program strengths and areas for improvements. Overall, the organizational self-assessments identified

organization, process and program weaknesses before they became self-revealing or identified by outside organizations. A significant indicator of the effectiveness of the self-assessment program is that most problems were self-identified at a low threshold and were corrected/improved in a timely manner.

CONCLUSIONS

The licensee developed a broad corrective action program for the deficiencies identified through internal and external assessments of oversight. The NRC has closely monitored the progress being made in the NORVP and other associated areas. It also independently assessed selected attributes to ensure satisfactory completion of issues. The NRC staff concludes that oversight and quality assurance is adequate to support the restart of Millstone Unit 3 based on (1) the reorganization and replacement of key managers within NNECO and specifically Nuclear Oversight; (2) the promulgation of improved management expectations; (3) the establishment of open communications between the line and NOS and within NOS; (4) the completion of staffing and improved quality and training of the NOS staff; (5) development of a viable inspection and audit program; (6) demonstrated improvements in NOS problem identification and assurance that corrective actions are implemented; (7) improved performance of quality control inspectors; (8) a credible performance by the safety committees; and (9) an effective self-assessment program.

ATTACHMENT 3

BACKLOG MANAGEMENT

INTRODUCTION

Effectively managing backlogs contributes measurably to achieving effective work planning and controls and a functional corrective action program. Work planning and controls, and corrective action are areas in which the licensee has demonstrated weaknesses and, therefore, were included in the staff's Restart Assessment Plan as key areas in which the NRC would focus its activities to assess the restart readiness of Millstone Unit 3. Backlog issues were also highlighted by the Commission as an area of concern at the February 19, 1998, Commission meeting and the subsequent staff requirements memorandum (SRM) of March 18, 1998. Key issues regarding the licensee's backlogs, which bear on the staff's assessment of restart readiness at Unit 3 follow. Has the licensee appropriately classified planned work activities as either required to be completed for restart or as deferrable until sometime after restart? Also, does the licensee's plan for managing deferrable work provide a process for assuring that this work is completed in a timely fashion?

BACKGROUND

On December 13, 1995, the NRC issued a letter to Northeast Nuclear Energy Company (NNECO) requesting NNECO, pursuant to 10 CFR 50.54(f), to provide information describing actions taken to ensure that future operations of Millstone Unit 1 will be conducted in accordance with the terms and conditions of the Millstone Unit 1 operating license, the Commission's regulations, including 10 CFR 50.59, and the Millstone Unit 1 Updated Final Safety Analysis Report (UFSAR). Similar letters were issued to NNECO for Millstone Unit 2 on March 7, 1996, and Unit 3 on April 4, 1996. In those letters, the NRC requested that the information be submitted no later than seven days before restart of the respective Millstone units.

By letter dated May 21, 1996, the NRC further requested, pursuant to 10 CFR 50.54(f), a comprehensive list of design and configuration deficiencies identified for Millstone Unit 1 after the 10 CFR 50.54(f) letter of December 13, 1995, was sent, and a comprehensive list of design and configuration deficiencies identified for Millstone Units 2 and 3 after the Adverse Condition Report 7007 Event Response Team Report was issued. The purpose of this list was to obtain information on the issues that raised questions concerning operability of required equipment and the existence of unreviewed safety questions.

Because of the increased level of NRC oversight, the classification of the units at Millstone as Category 3 plants, the two Confirmatory Orders issued to NNECO in 1996, and the creation of the Special Projects Office, the information needed by the NRC before plant restart changed considerably. By letter dated April 16, 1997, the NRC superseded the requests contained in the previously mentioned 10 CFR 50.54(f) letters and requested the following items (1) the significant items that needed to be accomplished before restart; (2) the list of items to be deferred until after restart; (3) the process and rationale NNECO is using to defer items until after restart; and (4) a description of the actions taken to ensure that future operation of the unit(s) will be conducted in accordance with the license, regulations, and UFSAR. NRC

requested the licensee to submit its response to items 1, 2, and 3 within 45 days of the letter, and items 1 and 2 were to be updated approximately every 45 days, thereafter. Item 4 was requested to be submitted 14 days prior to the Commission meeting to discuss restart for each individual unit.

Although backlogs at restart are expected, the size of the Millstone backlog and the licensee's ability to effectively deal with the backlog is of concern to the NRC and is an area that has been inspected very closely. Historical problems at Millstone have included corrective action programs that were weak in ensuring comprehensive and effective corrective actions. In the past, narrowly focused corrective actions have failed to resolve all aspects of the underlying problem. The NRC is focusing attention on the backlogs at Millstone and the licensee's process to manage the backlog.

LICENSEE CORRECTIVE ACTIONS

1. 10 CFR 50.54(f) Letter Response

By letter dated May 29, 1997, the licensee submitted the requested information of the 10 CFR 50.54(f) letter (items 1, 2, and 3) for Millstone Units 2 and 3. The licensee did not submit the information for Millstone Unit 1 in the first submittal because of a decision to scale back work and minimize resource expenditures during 1997. To develop the significant items for restart list, the licensee reviewed all adverse condition reports (ACRs) open as of January 1, 1996, and all ACRs and condition reports (CRs) initiated after that date. Significance level A or B ACRs and Level 1 CRs were included as significant items. The lower significance level ACRs/CRs were screened further and those issues that questioned the operability or design basis function of maintenance rule group 1 or 2 systems were included as significant items. Maintenance rule group 1 and 2 systems included safety related systems and risk significant systems.

In its May 29, 1997, submittal, the licensee provided the screening criteria used to defer items. Similar criteria are also provided in the licensee's Project Instruction (PI) 20, "Unit 3 Startup Item Administrative Instructions." Items screened by the licensee to determine if they could be deferred included unresolved item reports (UIRs), non-significant ACRs and CRs, non-conformance reports (NCRs), engineering work requests (EWRs), and automated work orders (AWOs). An item was classified as startup required if it was necessary to accomplish one of the following actions:

- Implement or support a change to plant technical specifications;
- Correct a licensing or design basis deficiency;
- Accomplish a restart license commitment; or
- Resolve an operability concern associated with a maintenance rule group 1 or 2 system.

If the item did not fit any of these categories, it was considered for deferral, subject to licensee management review.

By letter dated July 14, 1997, the licensee submitted the required information for Millstone Unit 1 and an update for Millstone Units 2 and 3. Over the next 10 months, the licensee provided the NRC with updates to its deferred items list. On March 31, the licensee provide the NRC with its final 10 CFR 50.54(f) response for Unit 3, that describes the actions taken by NNECO to ensure that future operation will be conducted in accordance with the terms and conditions of the operating license, the Commission's regulations, and the Final Safety Analysis Report.

2. Backlog Management

Backlog issues were highlighted by the Commission as an area of concern at the February 19, 1998, Commission meeting. In a letter dated February 23, 1998, NNECO indicated its intent to provide two Backlog Management Plan submittals during March 1998. As part of this response, the licensee noted that it will provide NNECO's commitment involving added assurance that deferrable items will be completed on a schedule commensurate with the safety, regulatory, and business significance of the item. The licensee also indicated that the submittal will be responsive to the direction provided during the February 19, 1998, Commission briefing. The first submittal dated March 12, 1998, provided NNECO's Backlog Management Plan Methodology and a preliminary outline and content for the Backlog Management Plan. On March 31, 1998, NNECO submitted to the NRC its Backlog Management Plan as an integrated, structured approach to successfully manage and disposition the backlog of identified open items for Millstone Unit 3.

The Backlog Management methodology, as described by the licensee, will reflect the following process functional requirements:

- "Backlog of Deferred Work" will be dispositioned prior to entry into Mode 2 following refueling outage 6 (RFO6);

- Utilization of existing Unit and Station work control and prioritization processes to disposition work items, including an option not to pursue performance enhancement items;

- Stepwise raising of management standards and expectations for plant and personnel performance considering industry benchmarks;

- Monitor performance and results using existing Unit and Station tools and techniques;

- Maintain visibility on work items initiated prior to or during this outage (including ICAVP DRs and CMP Discovery Items);

- Conduct periodic assessments of results to provide added assurance that management standards are being conservatively applied;

- Maintain visibility on the "Backlog of Deferred Work" through appropriate inclusion into the unit schedule.

The Backlog Management Plan contains the licensee's Backlog Management performance targets for both near-term, post-restart, expectations and the RFO6 restart targets. RFO6 is currently scheduled to take place approximately 10 months following restart of Unit 3. The current targets are provided as Enclosure 1. The Backlog Management Plan also contains the licensee's commitments associated with the plan and are provided as Enclosure 2.

NRC ACTIVITIES

Since the licensee has a history of not being effective in implementing corrective actions, the NRC has been closely monitoring the remediation efforts of NU to vitalize the corrective action process over the two year shutdown period. The close out of deferred items will continue to be evaluated after restart.

1. 10 CFR 50.54(f) Letter Response Review

Four inspections have been conducted related to the lists of items that needed to be accomplished prior to restart and those that could be deferred to assess the content of the lists and whether the deferrals were appropriate. During the initial inspection, the NRC reviewed the licensee's process for identification of significant items for restart and items which could be deferred. The NRC also reviewed the one line descriptions of all the deferred items and selected a sample of items for further review. In selecting the items for further review, the NRC considered the safety significance of the systems and the potential for system operability to be affected, based on the one line description. In subsequent inspections, the NRC reviewed the one line description of all the updates to the deferred items list since the previous inspection, and selected items for a more detailed review similar to the process described above.

The initial inspection of the Millstone Unit 3 restart and deferral list was conducted in July 1997. Inspection of the Millstone Unit 2 and 3 deferral lists was conducted in October 1997. During the subsequent inspections conducted in February and April 1998, the NRC reviewed the licensee's update to the Unit 3 deferred list. Updates to the Unit 3 deferred list after the licensee's March 19, 1998, submittal were reviewed as part of the Operational Safety Team Inspection.

As a result of the initial inspection, the NRC concluded that the criteria used by the licensee for developing the significant items for restart list provided the necessary information requested in paragraph 1 of the revised letter dated April 16, 1997, pursuant to 10 CFR 50.54(f). During each inspection, the NRC reviewed the deferred list as described above. The NRC staff generally found the licensee's process for evaluating items for deferral until after restart to be appropriate. During the initial inspection, the NRC staff questioned the completeness and accuracy of the list. As a result, the licensee implemented several corrective actions, including defining management roles

and responsibilities, developing a specific verification and validation process, and increasing management oversight. During subsequent inspections, the NRC staff noted improvements in the quality of the list. Some discrepancies in the deferred items list that did not meet the licensee's deferral criteria were also noted by the staff and were subsequently corrected by the licensee. Even in those instances, the staff determined that there would have been no substantive safety impact on plant operations if those items had been deferred until after startup.

During the April 1998 inspection, the NRC staff did not find any significant items on the deferred list that needed to be completed prior to restart. The NRC staff also reviewed a random sample of all open action requests (ARs) in the Action Item Tracking and Trending System (AITTS). The inspectors selected a sample of 200 ARs, of a total of approximately 9600 open ARs, to determine that items planned to be complete prior to restart were appropriately included in the significant items for restart section of the 50.54(f) submittal. For items planned to be completed after restart, the inspectors determined if the items satisfied the criteria for being deferred and, where appropriate, were included on the items to be completed after restart section of the submittal. The results of the review of the random sample of open ARs was that the NRC staff did not find any ARs on the deferred list that needed to be completed prior to restart.

Though the staff has not performed a specific risk analysis of the deferred items list to determine if there is a increase in risk from the cumulative body of deferred items, risk insights were a factor in the process the staff used to select items for further review. Additionally, in light of the conservative implementation of the licensee's criteria for determining whether an item could be deferred or not and the staff's review of the descriptions of all the deferred items, the staff has a high degree of confidence that the overall significance of the body of deferred items is low. At the request of its Nuclear Safety Assessment Board (NSAB), the licensee's PRA group performed a risk assessment of the AITTS and deferred engineering work items to determine the aggregate safety impact and concluded that there was no measurable impact on core damage frequency. The licensee did identify nine engineering modifications that are being deferred until after restart that could enhance core damage risk and recommended that these items receive high priority in the engineering department's work planning efforts.

2. Backlog Management Plan and Methodology Review

The staff has reviewed NNECO's Backlog Management Methodology and Backlog Management Plan. The staff has found that there are a number of facets of this plan and the licensee's performance in this area, thus far, that indicate it will be an effective management tool. First, the licensee has described the methodology for characterizing the backlog in work management categories; processing and prioritizing the issues using established station procedures and management reviews; monitoring performance using key performance indicators; and assessing progress through self-assessments, oversight audits and surveillances, trending reports, and quarterly assessments of the backlog management performance. The licensee has committed to provide the NRC these quarterly assessments of its progress in achieving the

established goals for each of the work management categories it has established. Secondly, the licensee has established a very conservative threshold for identifying items to be addressed. Even though this has resulted in a large body of items being identified as deferrable, the licensee has indicated that approximately 60% of items identified since the beginning of the current outage have been completed. Thirdly, the licensee has described its intent to disposition all of the deferred items, identified as the "Backlog of Deferred Work," prior to start up (Mode 2) of Unit 3 after its next refueling outage (currently planned for sometime in the second quarter of 1999). By dispositioning, the licensee intends to either complete the work, schedule the work, or eliminate the work item from the system with appropriate justification. Finally, the licensee has established reasonable performance targets and appropriate metrics for each of the work management categories.

Some elements of the licensee's plan require further refinement and development. For example, the licensee's current work planning and control processes do not provide for prioritization of work of a less significant nature such as many of those items contained on the deferred items list. The licensee has not yet formulated its criteria for eliminating work items from consideration, which will be the likely result for many of these items. Though the plan addresses the use of self-assessments and Nuclear Oversight audits, the details of how and when these activities will take place have yet to be determined.

The licensee has established an overall conservative decision-making philosophy in identifying items to be addressed before restart that has, with a few exceptions, been effectively applied. The criteria for restart items includes all items that are needed to correct licensing or design bases deficiencies, or resolve operability concerns associated with a maintenance rule group 1 or 2 systems. Those items not meeting the restart criteria were deferrable. There have been relatively few issues found by the NRC in its "smart sampling" of the numerous discrepancy reports (DRs) and ARs that did not meet the licensee's deferral criteria. The methodology, process, goals, commitments, and performance indicators established by the licensee are adequate for effectively managing and trending performance. The licensee has made progress in completing the deferrable items identified since the beginning of the current outage. Given all of the above, it is the staff's assessment that the cumulative safety significance of the body of deferred items is low and acceptable for restart.

In a March 27, 1998, memorandum to the Chairman, the Executive Director for Operations (EDO) forwarded the staff's approach to the resolution of open items at Millstone. In describing this approach, the staff noted that its overall assessment of the cumulative safety significance of the body of deferred items may result in further staff recommendations. These recommendations may include regulatory tool options for the Commission to consider that would ensure the licensee continues to apply appropriate attention to the backlog of deferred items. Although the licensee's plan does not include specific commitments to disposition the body of deferred work, the staff's overall assessment is that the licensee's plan is acceptable and can work if properly implemented. Given the progress made by the licensee in addressing deferrable work and the reporting commitments made by NNECO in its March 31, 1998, letter, it does not appear to the staff that the use of an additional regulatory tool such as a Confirmatory Action Letter (CAL) or Order is warranted at this time. However,

recognizing past program implementation weaknesses, the staff, in addition to its review of the quarterly assessment reports provided by the licensee, will conduct a Corrective Action Team Inspection (IP 40500) within the next year that would include an assessment of the licensee's performance in managing the backlog. Though the staff does not recommend issuing a CAL or an Order at this time, such an action could be taken in the future if the staff's assessment of the licensee's performance warrants.

CONCLUSIONS

The NRC staff concluded that the criteria used by the licensee for developing the significant items required to be completed prior to restart. The staff also concluded that the licensee's evaluation of items utilizing these criteria to determine if they could be deferred until after plant startup was effective. The NRC staff's assessment of the acceptability of the resolution of open items has noted that the licensee's process has resulted in the list containing appropriate items for deferral and has reflected an overall conservative decision-making philosophy.

The staff has reviewed NNECO's Backlog Management Methodology and Backlog Management Plan has concluded that this plan can be an effective management tool. The licensee has established an overall conservative decision-making philosophy in identifying items to be addressed before restart that has, with a few exceptions, been effectively applied. The licensee has established reasonable performance targets and appropriate metrics for each of the work management categories. The licensee has also made progress in completing deferrable items identified since the beginning of the current outage. Based on the commitments provided by the licensee in managing the backlog of deferred work, the staff's continuing assessment of progress by the licensee in completing deferrable work, and the staff's overall assessment of the cumulative safety significance of the body of deferred items, it does not appear that the use of an additional regulatory tool such as a Confirmatory Action Letter (CAL) or Order is warranted at this time. However, recognizing that implementation of past programs has been a chronic weakness of the licensee, the staff will continue to assess the licensee's progress in addressing the backlog and will also carry out a Corrective Action Team Inspection (IP 40500) within the next year.