

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Docket No. 50-423

License No. NPF-49

Report No. 50-423/99-07

Licensee: Northeast Nuclear Energy Company

Facility: Millstone Unit 3

Dates: June 14 through July 15, 1999

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EXECUTIVE SUMMARY

Millstone Unit 3
NRC Inspection Report 50-423/99-07

During the weeks of June 14 and June 28, 1999, an inspection team reviewed the corrective action program using Inspection Procedure 40500, "Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems." The team assessed the effectiveness of the safety conscious work environment using Inspection Procedure 40001, "Resolution of Employee Concerns." The inspection results, summarized in Attachment 1, were provided at public meetings conducted on July 15, 1999, at the Millstone Nuclear Power Station Training Center, and before the Connecticut Nuclear Energy Advisory Committee in Waterford, Ct.

PROBLEM IDENTIFICATION, EVALUATION AND CORRECTIVE ACTION

The licensee continued to implement a high volume, low threshold problem reporting system. Opportunities for improvement were noted in identifying discrepancies and initiating condition reports (CRs) for ineffective corrective actions. Management set clear expectations on corrective action program performance goals. The quality of the root cause investigations was acceptable; however, some investigations did not identify all causes for the event. Consequently, corrective actions were not always comprehensive. In general, corrective actions were effectively implemented. Opportunities for improvement were noted in examples where corrective actions were ineffective, such as those related to organizational changes. The implementation of the design change for the recirculation spray system sump pumps was poor and corrective actions were ineffective on several occasions. The inadequate design change and corrective actions associated with these pumps are violations of the requirements of 10 CFR 50 Appendix B, Section III, "Design Control," and Section XVI, "Corrective Action," respectively. These two violations are being treated as non-cited Violations, consistent with Appendix C of the NRC Enforcement Policy. (1.6)

The licensee had an excellent system to track the recovery backlog through an effective use of key performance indicators (KPI). The change in backlog management plan commitments was supported by a screening process. NNECO was making progress to implement a 12-week rolling maintenance planning and scheduling program. The backlog of risk-significant corrective maintenance was being reduced. The licensee had developed tools to track the completion of corrective actions and assignments, which were effectively used to trend performance. One area for improvement was to assure the KPI for maintenance adequately shows progress in reducing the backlog. (1.6)

The corrective action program was implemented effectively in the maintenance area. Maintenance rule corrective action plans for the auxiliary feedwater, service water, and high pressure injection systems were properly developed and effectively implemented. The implementation of the operability determination process, as well as the corrective actions for items important to safety, were effective. One area for improvement was the licensee's failure to evaluate all relevant safety-related breakers for continued operability. The operator workaround process was effectively implemented, such that the burden on operators was minimized, and an adequate interface existed with the corrective action program for resolution. The licensee had

the capability to identify CRs at Millstone 1 that would impact the operation of Millstone 2 and Millstone 3 through an effective use of the system readiness report that identified common systems, the operation manual on system interaction, and the technical requirement manual. (2.2)

The self-assessment process was critical, and effectively contributed to problem resolution. The operations work observation program had the elements to be an effective tool to improve performance. The Millstone 3 maintenance organization performed well-planned and self-critical assessments of several programs. The Employee Concerns Program's (ECP) self-assessments were generally good and usually critical of the subject areas audited. The self-assessment schedule was an appropriate tool to track initiation of self-assessments. Engineering self-assessments were generally acceptable; however, the corrective actions associated with some assessment findings were narrowly focused. (3.1)

The Nuclear Oversight's audit of corrective actions was effective. The Plant Operations Review Committee and Station Operations Review Committee were effective in fulfilling the requirements of technical specifications, and had appropriately identified, tracked and closed out issues raised during the meetings. The Independent Safety Engineering Group performed the functions required by Unit 3 technical specifications. Evaluations were performed in appropriate areas, detailed recommendations were provided and good follow-up of corrective actions was performed. The industry operating experience program was being implemented effectively. The Nuclear Safety Assessment Board was providing effective oversight of Millstone activities, including a thorough assessment and oversight of the recently completed refueling outage at Unit 3. (4.7)

PROGRAMS TO RESOLVE EMPLOYEE CONCERNS

The Employee Concerns Program (ECP) organization continued to possess the independence, resources and management support to perform thorough, unbiased investigations of employee concerns. Employee surveys, assessments and team interviews indicated that the majority of employees were willing to raise concerns. Generally, the team observed a healthy safety conscious work environment at Millstone. As part of the review of corrective actions, the team queried employees regarding their willingness to raise concerns to management. Based on this limited survey, employees indicated no reluctance to raise safety concerns. In particular, employees indicated that they felt comfortable raising issues through the corrective action processes. However, there was an indication that some workers did not want to be obstacles to meeting schedules and deadlines, and another indication that the on-going reduction in the number of supervisors (supervisory cascade) might have some influence on the ease for potential supervisors to raise issues. (5.5)

The ongoing supervisor cascade, the contracting of Entergy to manage the decommissioning of Unit 1, the planned staff reductions in contractor and licensee positions, and the consideration of a revised pay structure represented significant personnel impacts and a potential challenge to the safety conscious work environment. With these major activities, the site's ability to maintain and monitor the safety conscious work environment will be significantly tested. The Human Services organization, in coordination with other organizations, had recognized these challenges. Taking advantage of the SCWE organization and its processes, the licensee had initiated actions to mitigate the impact of these changes and their impact. (5.5)

TABLE OF CONTENTS

EXECUTIVE SUMMARY	ii
TABLE OF CONTENTS	iv
1.0 PROBLEM IDENTIFICATION, EVALUATION AND CORRECTIVE ACTION	1
1.1 Condition Reporting and Classification	1
1.2 Root Cause Evaluations	2
1.3 Corrective Action Effectiveness	3
1.4 Operability of RSS DAS Sump Pumps	5
1.5 Performance Monitoring, Trending and Backlog Reduction	10
1.6 Conclusions for Problem Identification, Evaluation and Corrective Action	12
2.0 PROBLEM RESOLUTION	13
2.1 Problem Resolution	13
2.2 Conclusions for Problem Resolution	17
3.0 DEPARTMENTAL SELF ASSESSMENTS	17
3.1 Self-Assessment Program and Results	17
4.0 INDEPENDENT OVERSIGHT	20
4.1 Nuclear Oversight - Audits, QC and Evaluations	20
4.2 Plant Operations Review Committee (PORC)	21
4.3 Station Operations Review Committee (SORC)	22
4.4 Independent Safety Engineering Group (iSEG)	23
4.5 Operating Experience Program	24
4.6 Nuclear Safety Assessment Board	24
4.7 Conclusions for Independent Oversight	25
5.0 PROGRAMS TO RESOLVE EMPLOYEE CONCERNS	26
5.1 Employee Concerns Program (ECP)	27
5.2 Safety Conscious Work Environment (SCWE)	31
5.3 Employee Concerns Oversight Panel (ECOP)	38
5.4 Third Party Oversight Audit	39
5.5 Overall Conclusions	40
6.0 MISCELLANEOUS CORRECTIVE ACTIONS ISSUES	41
6.1 Review of Previous Inspection Issues	41
7.0 MANAGEMENT MEETING SUMMARY	46
INSPECTION PROCEDURES USED	47
ITEMS OPENED, CLOSED, AND DISCUSSED	47
LIST OF ACRONYMS USED	48

Report Details

1.0 PROBLEM IDENTIFICATION, EVALUATION AND CORRECTIVE ACTION

The team reviewed a sample of Millstone Unit 3 condition reports and a variety of licensee problem/issue tracking systems to assess the effectiveness of the licensee in identifying, evaluating, and resolving conditions adverse to quality. The Millstone 3 probability risk analysis (PRA) and Maintenance Rule ranking of risk significant systems were considered in choosing the service water, recirculation spray, auxiliary feedwater and safety injection systems as the focus systems for the team review.

1.1 Condition Reporting and Classification

a. Inspection Scope

The team selected a broad sample of Unit 3 Condition Reports (CRs), including CRs from each of the three defined significance levels (1, 2, and 3). The detailed CR review included a verification of proper program implementation per the CR process, as delineated in Millstone Station Procedure RP 4, "Corrective Action Program." The team assessed the effectiveness of the licensee in identifying problems before becoming significant safety concerns.

b. Observations and Findings

Problem Identification

Conditions adverse to quality are documented in Condition Reports (CRs). A CR can be generated to address adverse conditions while performing normal work activities, self-assessments, identified adverse trends, operating experience, and root cause investigations. The CRs are classified into three safety significance levels: CR Level 1 represents a condition that is reportable to the NRC and significantly affects plant safety, reliability, risk, or public safety and/or a condition that is an adverse trend of previously documented conditions that potentially affect safe reliable plant operation. Level 1 CRs are further grouped into four risk priority categories (risk critical, risk related, compliance, and good management). CR Level 2 represents a deficiency that, if left uncorrected, will affect the safe reliable plant operation of the plant or personnel safety. CR Level 3 represents requests for modifications, support, plant improvements, evaluations, and suggestions, including deficiencies that cannot affect plant safety and reliability or public safety.

Problem identification and entry into the CR program were appropriate based on the NRC walkdowns and document reviews, in which noted deficiencies were captured in a CR. The team, however, noted examples of NRC-identified failures to initiate CRs in inspections 50-336/99-01 and 99-08. The team concluded from the sample of CRs reviewed that technical concerns were addressed, corrective actions addressed the identified causes, potential generic implications were identified, event causes were trended to identify generic problems, adverse trends were identified and highlighted, and results were reviewed by management and communicated to workers. Some areas for

improvement were noted. An example was the licensee identified finding in Audit MP 99-A06, in which it was noted that a significance level 1 CR was not always generated as required for corrective actions that were found ineffective. The audit confirmed for the sample of 125 CRs reviewed, that corrective actions were effective in 114 cases. Although the Millstone staff recognized that corrective actions were not effective for 11 CRs and took proper action in five cases to initiate a significance level 1 CR, a significance level 2 or 3 CR was initiated for the remaining six cases.

During 1998, the licensee issued more than 5,000 CRs, but this was prior to the current effort to lower the threshold for CRs. The continued implementation of a low threshold encouraged plant personnel to identify more conditions that need improvement and/or enhancement. The team noted that a low CR threshold may help identify precursors and correct them before they become major problems. The team considered this as a positive contribution to plant safety.

Management Reviews

The team observed the conduct of the daily plant status meetings, and the unit and site management review team meetings that were held to review and assess adverse conditions. The meetings provided a thorough review of the issues, with probing discussions of event details, causes, implications and corrective actions. Positive observations were noted on the review of more than 50 condition reports, assignment extensions, and the status of engineering evaluations. The conduct of the meeting met the requirements of RP-4 in the staffing and function of the Management Review Team (MRT), and the processing of CRs to assure correct significance level, operability reviews, proper assignment, the need for engineering support, establish links to operational mode for plant restart and establish assignment due dates.

Station personnel demonstrated clear ownership of performance issues, and changes to corrective action assignments were provided when good cause was shown with management approval as defined in procedure RP-4. Station management set clear expectations on corrective action program performance goals. The team noted good application of probabilistic risk insights in the review of station activities, as was evident in the ongoing review of maintenance work, the oversight of high risk evolutions during shutdown operations, and the weekly reviews and safety ranking of condition reports.

1.2 Root Cause Evaluations

a. Inspection Scope

The team reviewed root cause evaluations for condition reports, assessed the adequacy of assigned corrective actions, and verified proper tracking and/or implementation of corrective actions.

b. Observations and Findings

The team reviewed a sample of root cause investigations prepared in 1999, as well as the evaluations for the sample of condition reports. Evaluations and actions to address deficiencies were generally effective and there was good agreement between the team's and the licensee's evaluations of events. However, some root cause investigations did not establish the cause that initiated the event. Other deficiencies in root cause evaluations for recirculation spray pump sump issues were noted, as described in Section 1.4. Consequently, the licensee was not able to always implement comprehensive corrective actions. Three examples are discussed below.

Root cause investigation (RCI) M3-99-0015, "Unmonitored Release of Radioactive Liquid Waste Through Unapproved Discharge Pathway," concerned a leak from the A3 Waste Test Tank (WTT) discovered by a plant equipment operator. The outdoor liquid waste tanks had previous leaks similar to this event. Three events resulted in liquid waste entering the yard drain system, of which two resulted in unapproved discharges to the environment. As a corrective action for the previous WTT leaks, the licensee constructed a containment berm to contain the leaks, which also failed to perform its function during the most recent event. The team noted that RCI M3-99-0015 was acceptable, but lacking in that it focused on an analysis of the containment berm, which was built to mitigate a consequence, instead of addressing the failure of the cold weather protection controls which caused the leak.

RCI M3-99-0130, "Inadvertent CO2 Discharge," described an event in which an operator action coupled with a faulty circuit caused CO2 discharge in the Cable Spreading Room (CSR). The RCI was comprehensive relative to the corrective actions for the consequences of the CO2 discharge to other areas outside the CSR, including the control room. The RCI did not identify the cause for the failure of the circuit card.

RCI M3-99-0752, "Inadvertent Discharge of Resin Beads from Condensate Facility Sump," concerned the discovery of resin beads in the Unit 3 Condensate Polishing Facility sump. Tank TK-10 appeared to be the source of the resin. This event was significant because it involved the uncontrolled, unmonitored release of condensate polishing resins into the environment. The team noted that the root cause was attributed to a failure of the barriers that prevent resin release to the environment, but it did not assess the presence of loose resins already in the system.

1.3 Corrective Action Effectiveness

a. Inspection Scope

This inspection scope included an evaluation of the corrective actions and an assessment of corrective action effectiveness.

b. Observations and Findings

The team noted that, in general, corrective actions prescribed in CRs were properly implemented. Corrective actions were generally proper, timely and appropriately completed for high priority items. However, examples where improvement was needed included the instances discussed in Section 1.2 for which the root cause evaluations were not complete. Other examples were identified by the team.

Corrective actions for the recirculation spray system (RSS) sump pump problems were not adequate. In 1998 (CR M3-98-1076) a sump pump failed during post-mod testing due to corrosion and dirt in the air motor. The corrective actions were not adequate to identify that the source of water and dirt was from the system piping and this likely contributed to additional failures. Following the failure of both RSS sump pumps in 1999, one of the causes was corrosion and dirt in the air motor. An air blow down of the piping was completed, but the licensee failed to ensure this action was effective. The team identified that water and dirt remained in the piping and further cleaning and drying of the system piping was necessary.

The corrective actions identified in 1998 to address organizational and programmatic issues associated with the RSS sump pump modification were not effective and an additional root cause evaluation was performed (IRT-99-037 dated July 14, 1999) to revisit the issues.

Organization Changes

The team noted that the Nuclear Oversight Group was effective in identifying a problem in the implementation of corrective actions regarding the site organizational changes. During the performance of a Nuclear Oversight Assessment of the Millstone station's transition process to the "New" organizational structure, Oversight identified that changes to the organization were not implemented in a manner to preserve the licensing basis. Condition Report CR M3-99-0542 documented that licensing basis documents did not reflect the existing organization and were not being revised prior to the implementation of the changes. The licensee identified that three previous root cause evaluations and associated corrective actions failed to prevent recurrence. Consequently, on February 18, 1999, Nuclear Oversight was effective in issuing Stop Work Order M3-99-001 and CRM3-99-0542 to halt further organizational changes.

The team assessed the effectiveness of Northeast Utilities (NU) implementation of the corrective actions in CR M3-99-0542. The team noted the present status of each individual corrective action prescribed in the CR was being tracked by the nuclear oversight group. The corrective action implementation appeared to be adequate. However, the initial corrective actions were not effective. This is a violation of 10CRF50 Appendix B Criteria XVI "Corrective Action." This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Appendix C of the NRC Enforcement Policy. (NCV 50-423/99-07-03)

Ineffective Immediate Corrective Actions

Procedure OP 3260 required off-going shift personnel to sign the shift turnover report. This requirement was established as an action to prevent recurrence for Licensee Event Report (LER) 50-423/94-015-00, which involved a technical specification (TS) prohibited condition for not maintaining the minimum required shift crew composition. However, the team found several instances where various members of the shift crew had not signed the turnover report as required.

Subsequently, the licensee generated condition report (CR) M3-99-2491, which detailed the procedural non-compliance with OP 3260. Operations management was notified and reinforced the expectations regarding sign-out requirements. However, in a follow-up review, the team found additional instances where various members of the shift crew had failed to sign the turnover reports as required, which indicated that the immediate compensatory actions had not been fully effective. As a result, Operations management immediately reinforced their expectations regarding shift turnover to the shift managers and shift technical advisors to ensure procedural compliance will be maintained, and was considered acceptable by the team.

The NRC-identified procedural non-compliance regarding the failure to sign the shift turnover report was of minor significance, since the required technical specification shift complement was maintained at all times. Violations of minor safety significance are not cited per the NRC Enforcement Policy.

1.4 Operability of RSS Room Sump Pumps

a. Inspection Scope (92903)

The team reviewed the licensee's actions that were taken to resolve problems with the safety-related sump pumps in the recirculation spray system (RSS) cubicles.

b. Observations and Findings

During a previous NRC inspection, the inspectors reviewed the design and installation of air driven, safety-related sump pumps installed to remove ground water that drains from under the primary containment basemat to sumps located in the engineered safeguards features (ESF) building. At that time the inspectors concluded that the initial sump pump system design and the pump qualification were inadequate. Significant corrective actions, including system and pump design changes, were required to ensure the system would perform its design function. The team concluded that the immediate corrective actions taken by the licensee appeared to be adequate to ensure system operability. The item was unresolved pending NRC review of the final results of the event review team, NRC review of any LER revision to be submitted and NRR review of the associated license amendment.

During normal operation, non-safety related sump pumps operated to remove water from the sumps and flow testing is only performed on the safety-related pumps once per

refueling outage. During the last refueling outage in May 1999, the licensee attempted to perform flow testing of the safety-related pumps. This was the first flow test since the initial installation of the pumps and both pumps failed to operate. The failures were reported to the NRC in LER 99-06.

The licensee identified several factors that caused or contributed to the pump failures. These included:

- upper air motor bearing not free to move as designed,
- corrosion in the air motor,
- pump air motors filled with oil,
- debris in pump air motors, and;
- vendor technical manual and qualification requirements not properly incorporated in the design.

The licensee took the following actions to address the causes of the pump failures:

- modified the air motor bearings to provide adequate tolerances such that the bearing can float on the tension washer,
- performed an air flush to remove moisture and debris in the air piping,
- installed air dryers in the system to remove moisture from the air supply,
- installed oil traps in the piping to allow removal of excess oil,
- increased the frequency of the surveillance test (flow test) to perform the testing at least quarterly.

On June 16, 1999, the licensee removed pump 3DAS*P15A from the system for inspection to assess the effectiveness of the preventive maintenance task that performs periodic oiling of the air motor. While the pump was removed, an NRC team member examined the pump's motor air supply and return piping and identified the presence of debris (grit) and water, indicating that the corrective action to perform the air flush was not effective. The licensee initiated CR M3-99-2383 to document this condition. The team also noted there were small flakes of the grafoil gasket in the pump air inlet connection.

The licensee then performed hydrolazing of the piping to remove the debris, performed visual inspections to verify the piping was clean and dry and replaced the grafoil gaskets used on the flanged pump joints with flexatallic gaskets.

Following reinstallation, the pump failed to operate during the flow test. The licensee subsequently concluded that the failure was due to the hydrostatic pressure on the pump discharge piping. Due to the interruption of the normal test sequence to inspect the pump on June 16, 1999, the normal practice of draining the pump discharge piping following testing was not performed. This was prior to starting the pump to perform the post-maintenance testing. To resolve this problem the licensee modified the system by removing the check valve installed at the pump discharge piping and thereby eliminating the potential for a static head of water to be present in between pump operations. Both

pumps 3DAS*15A & B performed satisfactorily when started with the discharge piping drained.

Following the inspection, the licensee performed additional testing at a laboratory to further investigate the failure of the pumps to start when the discharge piping was filled with water. The licensee concluded that the actual cause of the failures was the introduction of air into the pump such that the pump was air bound. The air binding occurs when the sump level is lowered to a level well below the pump suction, as occurs when the sump is drained for maintenance and testing.

The team also reviewed a copy of condition report M3-98-1076 which documented the failure of 3DAS*P15A on February 22, 1998, during post-modification testing. The cause of this failure was also attributed to corrosion and grit in the air motor. The corrective action taken in response to this CR was to replace the pumps and perform a quarterly oiling of the air motor to prevent corrosion during extended lay-up periods. There were no actions documented to verify that the air piping was clean and dry. Also, the development and performance of the PM to periodically oil the pumps was not timely in that the first performance of the PM was not until September 29, 1998.

The licensee's root cause investigation for the May 1999 failures also identified that the corrective actions from the investigation of issues identified by the NRC prior to restart from the extended shutdown in 1998 were not effective. As a result CR M3-99-2217 was initiated to investigate the organizational and programmatic issues related to the failure to prevent recurrence of identified failure mechanisms. The licensee's review was in progress at the completion of the inspection and was expected to be completed by July 15, 1999.

As a result of the previous (Inspection Report 98-208) and current inspections, the following deficiencies associated with design control and corrective actions were identified.

10 CFR 50 Appendix B, Criteria III, "Design Control," requires, in part, that:

"Measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in §50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions.

...The design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculation methods, or by the performance of a suitable testing program.

...Where a test program is used to verify the adequacy of a specific design feature in lieu of other verifying or checking processes, it shall include suitable qualification testing of a prototype unit under the most adverse design conditions.

...Design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design and be approved by the organization that performed the original design unless the applicant designates another responsible organization."

Contrary to these requirements, DAR No: M3-97079, "Containment Recirculation Cubicle Sumps 3DAS-SUMP7A/B Design Change," was implemented with the following design deficiencies:

The design specifications did not include an air strainer to protect the safety-related portion of the system from damage or screen plugging from foreign material that could enter the system from the non-safety related air supply.

The design specifications did not include safety-related over pressure protection for the sump pump air motors which are rated for 90 pig.

The design did not provide for an evaluation of all of the non-metallic components for radiation effects and as a result an improper gasket material was utilized

The initial qualification testing of the prototype pump was not performed under the most adverse design condition and, when suitable testing was performed, the pump failed and required a modification to change the material of the air motor blades.

The qualification testing program was not suitable in that it failed to identify that the pumps would not be able to operate if the discharge line was filled with water due to the installation of the check valve in the pump discharge pipe.

The design specifications did not properly specify the in-line oiler for the pump air motors as a safety-related component.

The preventive maintenance requirement of DAR M3-97079 to inject oil into the motors and operate the pumps for one minute to lubricate the internals was properly translated into procedures during the change implementation and as a result the monthly PM was not performed for more than six months after the post-modification testing.

The independent design review was not adequate to identify the numerous design deficiencies.

These deficiencies constitute a violation of 10 CFR 50 Appendix B, Criteria III, "Design Control." The team found that the licensee entered the issues into the corrective action program and promptly corrected the deficiencies. This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Appendix C of the NRC Enforcement Policy. (NCV 50-423/99-07-01)

10 CFR 50 Appendix B, Criteria XVI, "Corrective Action," requires, in part, that: "Measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and

non-concordances are promptly identified and corrected. In the case of significant conditions adverse to quality, the measures should assure that the cause of the condition is determined and corrective action taken to preclude repetition."

Contrary to these requirements, the licensee failed to identify and correct the cause of a failure of pump 3DAS*P15A during post-modification testing on February 22, 1998. The licensee identified the cause of the failure as corrosion and dirt and debris in the air motor. The motor was replaced but the presence of water and dirt in the system air piping was not identified or corrected. Also, a proposed corrective action to perform a periodic oiling of the air motor to inhibit corrosion was not timely. The corrective action was documented in CR M3-98-1076 initiated February 24, 1998 but the first performance of the oiling was not performed until September 29, 1998.

Subsequently, on May 16, 1999, pumps 3DAS*P15A and B both failed to operate during a surveillance test. The licensee identified the cause of the failure to be, in part, corrosion and dirt in the air motors and the corrective actions were to perform an air flush to remove dirt and moisture from the system air piping. On June 16, 1998, the NRC identified that the corrective action to perform the air flush was not effective when water and grit were found to be present in the air system piping.

Corrective actions from the licensee's root cause investigation for CR M3-98-2932 (to address the modification issues identified by the NRC in 1998) were not effective in addressing organizational and programmatic issues that contributed to the pump problems in 1998 and therefore contributed to the 1999 pump failures. The licensee addressed these issues in a root cause report for CR M3-99-2217 dated July 12, 1999.

These deficiencies constitute a violation of 10 CFR 50 Appendix B, Criteria XVI, "Corrective Action." The team found that the licensee had corrected the issues that potentially could affect system operability and the organizational and programmatic concerns are being tracked by CR M3-99-2217. This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Appendix C of the NRC Enforcement Policy. (NCV 50-423/99-07-02)

Although the findings discussed above identify an example of poor performance in the areas of engineering and corrective action, the resultant operability concerns were not significant from an overall plant risk perspective. Factors that reduce the risk significance include the amount of time available to take compensatory measures in the event both sump pumps failed. There would be more than forty days before the water level around the containment would rise to a level where hydrostatic forces on the containment liner would be a concern. Also, although not environmentally qualified, the non-safety sump pumps could be powered and provide ground water removal capability, further extending the time available to provide compensatory measures in the event the safety-related pumps failed.

The inspectors also reviewed two licensee event reports (LERs) associated with this issue. LER 50-423/97-046-00 reported the initial licensee finding that the groundwater in-leakage could adversely affect the operation of both trains of the RSS system. Based

on the installation of the safety-related sump pump system and the subsequent NRC issuance of the associated license amendment (Amendment No. 168), this issue is resolved. LER 50-423/98-036-00 was issued following the identification of design deficiencies in the sump pump system in 1998. The design control issues associated with this LER have been included in NCV 50-423/99-07-01. LERs 97-046 and 98-036 are closed.

1.5 Performance Monitoring, Trending and Backlog Reduction

a. Inspection Scope

This inspection reviewed the status of the Millstone 2 and 3 backlog items, including items deferred beyond restart. The team also reviewed the licensee's methods to monitor and trend performance, and manage work load to resolve issues in the corrective action process.

b. Observations and Findings

Backlog Management

The team interviewed the cognizant managers and supervisors to understand the history and the status of the Millstone 3 and Millstone 2 backlog of corrective actions. The team also reviewed different performance indicators presented by NU in graphical forms. The progress performance indicator (PI) for Millstone 3 depicts the number of open recovery backlog items. The recovery backlog was frozen on 6/29/98 in order to develop strategies to complete the recovery items. These PIs represent those items that were deferred for completion until after startup. Focusing on corrective actions, the team noted that as of May 1999, the corrective action backlog had been reduced by 63% from the initial count of 3915 items in June 1998. The team noted that this was considered acceptable, since it met the acceptance criteria (work-off curve) established by licensee management.

The progress performance indicator (PI) for Millstone 2 depicts the number of open recovery backlog items. The recovery backlog was frozen on May 9, 1999, to self-assess the program, and it represents those items that were deferred for completion until after startup. Focusing on corrective actions, the team noted that as of June 10, 1999, the corrective action backlog has been reduced by 6.7% from the initial count of 2620 items on May 9, 1999.

In addition to these PIs, Millstone 3 issued the first quarter of 1999 backlog management updates. This quarterly report provided an update on the progress achieved in the disposition of work items that were grouped in several work management categories. In this quarterly report, the corrective action items appeared to be under control, monitored and well managed. The team noted that this Millstone 3's quarterly performance report was an excellent tool to track the open item in general and corrective action items in particular.

The team assessed a modification to a commitment associated with the completion of the restart backlogs of Unit 3. The previous commitment for Millstone 3 was to complete disposition of Independent Corrective Action Verification Program (ICAVP) -related backlogs prior to entering Mode 2 after Refueling Outage (RAO) 6 (ref. Letter dated March 30, 1999). The balance of the restart backlog would be dispositioned within six months of restart from the refueling outage. In addition, a similar change was made to the Millstone 2 commitment based on the lessons learned from Millstone 3. According to NU, these adjustments were appropriate in that they allowed an appropriate focus on items which were safety significant. The revised commitment was to complete disposition of the ICAVP Discrepancy Report's (DRA) corrective action assignments by March 31, 2000 for Millstone 3, and December 31, 2001 for Millstone 2. The remaining recovery backlog items such as corrective action items would continue to be prioritized and tracked within the appropriate controlling programs.

The team noted that Millstone 3 had adequate means to review the scheduled work activities to determine if appropriate decisions were made for work rescheduled beyond the refueling outage (RFO6). This assessment included determining if issues existed which could potentially have impact on continued safe, reliable operation of Unit 3. Nuclear Oversight assessed the deferred items from the Unit 3 outage by the development of the Unit Deferred Item Committee (UDC). This committee was set up to develop a process to review all deferred items and prioritize them. The team verified that a backlog management plan was then developed and was based on the UDC priorities. Unit 2 also had a procedure providing guidance and expectations for screening corrective actions and other assignments for deferral.

Corrective Maintenance Backlog

The team reviewed the work planning and scheduling process. The review included: (1) implementing procedures MP-20-WE-SAP02, "On-Line Maintenance," MP-20-WE-FAPO2.1, "Conduct of On-Line Maintenance," and U3 WPC2, "Unit 3 "Work Planning," and MP3705B, "Fix It Now Conduct of Maintenance," (2) key maintenance performance indicators for the first quarter of 1999, and (3) the corrective maintenance backlog. Maintenance and work planning managers and supervisors also were interviewed.

NNECO was making progress to implement a 12-week rolling schedule to plan and implement maintenance at Millstone 3. Adherence to the planned work schedule during the implementing week (T-0) had met or exceeded the licensee's goals of greater than 90 percent for work starts and work completed, indicating that important planning elements such as performance of pre-job walkdowns and prioritization of sponsored and emergent work was functioning effectively. Problems meeting established goals or implementing procedure requirements were captured in condition reports and addressed in the corrective action program. While emergent (non-scheduled) work challenged the completion of planned work during the T-0 week, the percentage of emergent work as a function of total work performed was low (less than 3 percent from February to May 1999). A multi-disciplined "Fix It Now" team effectively contributed to meeting planning goals by making approximately 240 hours per week available to complete minor, unscheduled maintenance and providing operating shift support.

Maintenance backlog items were prioritized appropriately on the basis of impact on the plant design and licensing basis and risk significance. Key performance indicators adequately addressed performance in the maintenance area, and NNECO's performance goals were being met. For example, the backlog of total on-line (non-outage) corrective maintenance items was 336 (goal of less than 400) and the backlog of risk-significant corrective maintenance items was 133 (goal less than 200). While the corrective maintenance work-off trend was relatively flat overall (indicating little backlog reduction), there was a downward trend in risk-significant items, reflecting an effective use of risk information in the conduct of maintenance. NNECO also exceeded its goals for performance of surveillance tests on schedule (greater than 90 percent). The goal for the number of overdue preventive maintenance tasks (none overdue) largely was met during the previous six months, with only nine tasks overdue since December 1998.

The team observed that NNECO only tracked corrective maintenance items that were defined as "equipment not functional," and excluded work orders associated with degraded but functional equipment, the population of which was much greater. Thus, while the present key performance indicator adequately represents progress in addressing more significant items, it did not adequately address the overall department trend in working off the total backlog of maintenance work.

Performance Monitoring and Trending

The team noted the licensee had developed tools to track the completion of corrective actions and assignments, which were effectively used to trend performance. Trend analyses were extensive and effective to monitor progress against established goals in the corrective action and employee concerns program areas. The team noted a good selection of key performance indicators (KPI) that were well supported by data and were accompanied by good analyses to provide management with appropriate recommendations to monitor and improve program performance. Examples included the Corrective Action Department's monthly and quarterly trend reports, as well as the station department and specialty trend reports. In particular, the Millstone Station/Unit 3 First Quarter 1999 Performance Report dated May 1999 was clear in the presentation of performance against goals and whether trends were satisfactory.

1.6 Conclusions for Problem Identification, Evaluation and Corrective Action

The licensee continued to implement a high volume, low threshold problem reporting system. Problem identification was enhanced by a low CR threshold. Opportunities for improvement were noted in identifying adverse conditions and initiating CRs for ineffective corrective actions. Management set clear expectations on corrective action program performance goals. In general, the quality of the root cause investigations was acceptable; however, in some instances, the investigations did not identify all causes for the event. Consequently, corrective actions were not always comprehensive. In general, the corrective actions were effectively implemented. Opportunities for improvement were noted in examples where corrective actions were not effective. The implementation of the design change for the installation of safety-related sump pumps 3DAS*P15A and B was poor and corrective actions to resolve identified problems were

ineffective on several occasions. Several examples of violations of the requirements of 10 CFR 50 Appendix B Criteria III, "Design Control," and Criteria XVI, "Corrective Action," were identified. Ineffective corrective actions were noted related to organizational changes. Three violations are being treated as Non-Cited Violations, consistent with Appendix C of the NRC Enforcement Policy.

The licensee had an excellent system to track the recovery backlog through an effective use of key performance indicators (KPI) on open items in general and corrective action items in particular. The licensee's proposal for backlog management plan commitment change is rationally supported by a screening process criterion. NNECO is effectively implementing a new 12-week rolling maintenance planning and scheduling program. The backlog of risk-significant corrective maintenance met the licensee's goals and was being reduced. The licensee had developed tools to track the completion of corrective actions and assignments, which were effectively used to trend performance. One area for improvement was to assure the KPI for maintenance work adequately represents progress in working off the backlog.

2.0 **PROBLEM RESOLUTION**

2.1 Problem Resolution

a. Inspection Scope

The team assessed the licensee's effectiveness in the implementation of corrective actions relative to operability determinations, operator work around, temporary modifications, maintaining plant equipment, and addressing equipment material deficiencies. The team reviewed several shift turnover reports for compliance with OP 3260, "Unit 3 Conduct of Operations," and assessed various trouble reports (TRS) for appropriate thresholds and corrective action program interface.

b. Observations and Findings

Plant Material Conditions

The team reviewed various trouble reports (TRS) to evaluate the threshold for identification of deficiencies that could be considered conditions adverse to quality. The team determined that the licensee appropriately initiated CRs for deficiencies that were conditions adverse to quality. In addition, the TRS had work orders associated with them, as required, to facilitate the applicable repairs.

The team conducted walkdowns with system and design engineers on portions of the service water, recirculation spray and auxiliary feedwater systems. The plant systems were found to be in good condition, and no material deficiencies were identified by the team that were not already being addressed by the licensee.

The team reviewed a sample of temporary and permanent modifications associated with selected safety systems and found that the modifications appropriately resolved the issue which was the subject of the design change.

Equipment Maintenance

The team reviewed more than one hundred condition reports (CRs), condition report summaries, and corrective action item tracking system items related to the conduct of maintenance. In addition, maintenance department performance indicators for personnel error and rework rates were examined.

In each of the corrective action documents reviewed, NNECO captured and addressed the appropriate technical and human performance concerns at the appropriate significance level per administrative procedure RP-4, "Corrective Actions Program." A maintenance department engineer was assigned the responsibility for reviewing CRs for adverse performance trends.

The reviews used CR cause codes in accordance with procedure SI 100.2, "Station Trending Handbook." The results were reviewed by department managers on a monthly basis, and communicated to first-line supervisors and workers. Condition reports often were initiated when adverse trends were identified. For example, CR M3-98-4223 identified a potential adverse trend in performance of risk assessments for on-line maintenance. Corrective action plans adequately addressed the deficiencies, and the potential generic implications of the issues were identified. The corrective action plans for significant or programmatic issues typically included a corrective action effectiveness review. These reviews effectively identified instances in which corrective actions did not prevent recurrence and highlighted the problems to licensee management.

The team found one case in which a potential adverse performance trend did not appear to have been considered fully. The case involved five instances between October 1998 and June 1999 in which incomplete work packages had been signed off as completed. The licensee treated each as an individual case of inattention to detail, and corrective actions (counseling/discussions with workers) were geared only to each discreet item. Each instance had involved "complex" work orders with multiple trade disciplines or several scope changes. A more broadly focused review of the CRs could have disclosed other causes; i.e., human factor problems in the work control process. The team considered this case a missed opportunity.

The licensee monitored personnel error and rework rates as key maintenance department performance indicators. The rates are evaluated periodically by station managers. The indicators in these areas met NNECO's goals and the low personnel error and rework rates reflected effective corrective actions in the maintenance area.

Maintenance Rule Implementation

The inspector assessed NNECO's implementation of the maintenance rule (10 CFR 50.65) for the auxiliary feedwater, service water, and high pressure coolant injection

systems. The assessment included review of maintenance rule basis documents and corrective action plans.

The auxiliary feedwater, service water, and high pressure coolant injection systems were in maintenance rule (a)(1) goal monitoring status: auxiliary feedwater for exceeding an interim system unavailability criterion, and service water and high pressure coolant injection for exceeding their functional failure criteria. In each case, condition reports were initiated to document exceeding the criteria and each discreet functional failure. Detailed corrective action plans, that were reviewed and approved by a maintenance rule expert panel, discussed the causes of the operational problems and corrective actions for each cause. Industry operating experience was considered in developing the plans. Performance goals and monitoring activities for each failure were established to verify the effectiveness of the corrective actions. NNECO's monitoring data indicated that the systems were trending towards a return to (a)(2) status.

Operability Determinations

The team reviewed several, open operability determinations (ODs) from the licensee's OD Log Index, and in general, the ODs were processed in accordance with RP-5, "Operability Determinations." For example, the ODs had associated assignments for tracking the ODs to closure as required by RP-5. In addition, the ODs that were reviewed had acceptable technical bases for continued operability.

However, in reviewing the licensee's corrective actions for URI 50-423/98-212-04, Circuit Breaker Overhauls and Maintenance (Section 6.1.1), the licensee had identified that the initial operability review of safety-related breakers had not included 125Vdc breakers. After reviewing the OD that was generated to address these DC breakers, the team determined that the impact of this condition is minimal, because: (1) the licensee self-identified the condition; (2) the breakers do not have automatic control functions or active safety functions, i.e., the breakers are required to remain closed; (3) the frequency of the preventive maintenance ensures adequate assurance of operability; and (4) the licensee has established an assignment to ensure an overhaul program is created for these breakers.

Operator Workarounds

The team reviewed the Unit 3 Operator Workaround Management Summary, which the licensee utilized to effectively track the status of workarounds. The summary was updated weekly, and also was a topic covered weekly during the morning management meetings. During the refueling outage, workarounds were tracked normally by the operations department; however, the management meetings did not discuss the status of workarounds except for emphasizing goals for the reduction in the number of workarounds in effect at power.

Of the approximately 21 workarounds that were active during the inspection, all safety significant issues had appropriate connection to the corrective action program. In addition, the number of safety significant workarounds was low enough such that the

impact or burden on operators would be minimal during normal power operations. The team did identify a number of workarounds that were initiated greater than two years ago that calls into question the timeliness of corrective actions. However, while the nature of the workarounds would have a low impact on the operators during shutdown operations and potentially no impact on the operators during power operation, the extended time period for resolution of the degraded conditions was questionable. For example, one operator workaround required the isolation of nitrogen supply to the volume control tank (VCT) during shutdown operations. The licensee had identified this issue in May of 1997, during an extended outage period, and required the nitrogen supply valve to be isolated due to a leaking check valve which prevented normal operation of the pressure control valve to the VCT. While the extended shutdown, as well as the recent refueling outage, provided an opportunity for the licensee to resolve the leaking valve, and therefore, restore pressure control to the VCT to normal, the issue was not resolved. The team verified, however, that the licensee had included these issues into the corrective action program for ultimate resolution.

The team also identified that a large number of workarounds was in the process of closeout toward the end of the inspection, or was being reclassified as alternate plant configurations for tracking on the shift turnover report. Following the closeout and reclassification, about five workarounds were in effect during power operations as of July 1, 1999, and were actively being addressed in the corrective action process.

Millstone 1 Issues that Impact Operations

The team reviewed the corrective action process at Millstone 1 for those items which impact the operation of Millstone 2 and Millstone 3. The team noted an effective process to address backlog issues regarding corrective action implementation at Millstone 1. Specifically, to address the interfacing systems for readiness for the startup of Millstone 3 and Millstone 2, Millstone 1 personnel performed "System Readiness" reviews following procedure No. EN 1001. These formal reviews addressed current and backlog issues. The results of these reviews were presented to the appropriate Unit Plant Operations Review Committee (PORCs) for review.

To address current issues, the licensee provided guidance to operations personnel for the handling of Millstone 1 issues affecting the other two units. This guidance was contained in the PORC approved Technical Requirement Manual Section 1-TRM-7.6. Guidance was also provided to operators in the Operation Manual 10.4. These manuals were developed as a result from the Millstone 2 and Millstone 3 configuration management program efforts and documents prepared to identify the Millstone 1 interfaces.

CRs had a block in Section 1 that identified which unit(s) were affected by the CR. In addition, all Unit CRs were listed on a common site CR list each day for review by the station management teams. This was another opportunity to capture common Millstone 1 issues that may affect the other units. The team noted evidence of this practice in CR No. M11-99-0179 that documented a failed surveillance due to fire pumps inability to develop the required pump differential pressure of at least 100 psid. It was satisfactory

closed through an effective electrical recalibration of the pump gauges and flow instrumentation. CR M1-99-00-3902, CR M3-99-0776 and M2-99-0928 that dealt with tagging were also satisfactorily closed.

The team reviewed 25 additional condition reports initiated at Unit 1 that potentially impacted operations, maintenance, and engineering activities at Units 2 and 3. The sample included all three significance levels and covered the period of 1996-1998. The CRs involved site-wide program issues or instances in which a problem in a program at Unit 1 might also exist in a similar Unit 3 program. Of the samples reviewed, the potential impacts on Unit 3 were evaluated adequately. Also, most of the action items had been completed, and the CRs remained open pending administrative closure (for instance to complete an effectiveness review).

2.2 Conclusions for Problem Resolution

The corrective action program was implemented effectively in the maintenance area. Maintenance rule corrective actions plans for the auxiliary feedwater, service water, and high pressure injection systems were properly developed and effectively implemented. The implementation of the operability determination process, as well as the applicable corrective action program functions for the affected structures, systems, and components important to safety, was effective. One area for improvement was the licensee's failure to identify and evaluate all relevant safety-related breakers for continued operability. The operator workaround process was effectively implemented at Unit 3, such that the burden on operators was minimized, and an adequate interface existed with the corrective action program for resolution. The licensee has the capability to identify CRs at Millstone 1 that would impact the operation of Millstone 2 and Millstone 3 through an effective use of the system readiness report that identified common systems, the operation manual on system interaction, and the technical requirement manual.

3.0 DEPARTMENTAL SELF ASSESSMENTS

3.1 Self-Assessment Program and Results

a. Inspection Scope

The team evaluated the Millstone 3 self-assessment program to verify appropriate implementation in accordance with Self-Assessment Program (OA-11) and to assess the effectiveness of these internal departmental reviews in identifying and correcting problems and enhancing established programs and processes. Specifically, the team reviewed selected self-assessment reports and interviewed responsible department staff to follow-up on self-assessment findings, causal evaluations, and corrective action prioritization and timeliness.

b. Observations and Findings

Operations

The team evaluated the Unit 3 operation's department implementation of the self-assessment program, which included an assessment of the corrective action program interface for problem identification, tracking and resolution. The team reviewed recent self-assessments from late 1998 and early 1999, as well as a self-assessment that was initiated to determine a common cause for recent configuration and control events. The team found that, in general, the self-assessments were performed in accordance with OA-11, "Self-Assessment." Of the three self-assessments recently performed, the licensee had appropriately identified adverse trends within the department, recommended adequate corrective actions, and communicated the results to the department. The team found that the self-assessment utilized to identify the common cause of recent configuration control issues, 3OPS-SA-99-06, adequately communicated to the operations department the preliminary common causes and contributing causal factors. The self-assessment characterized many of the events as "human performance errors," with latent organizational deficiencies as an underlying cause.

The team identified that the self-assessment detailed a long-term recommendation to develop fill and drain procedures for major systems as well as generic guidance for systems and components not covered by procedures. This issue was previously identified at Unit 2, and resulted in a Notice of Violation for lack of fill and drain procedures as detailed in NRC Inspection Report 50-336/98-207. The team was concerned because while generic implications of the violation were identified in a condition report at Unit 2, the results of the licensee's investigation were to be provided to Unit 3, and it could not be determined if Unit 3 acted upon any recommendations. However, the team noted that in August of 1997, Unit 3 performed a self-assessment 3OPS-SA-97-12, which concluded that the population of procedures at Unit 3 met the requirements of Regulatory Guide (RG) 1.33, "Quality Assurance Program Requirements (Operations)." However, it is important to note that the lack of fill and drain procedure issue was identified after Unit 2 had performed a similar RG 1.33 review.

The team also identified that the operations department had implemented a work observation program about one month prior to the start of the recent refueling outage. The program was based, in part, on the Unit 2 operations department work observation program, which has been an integral part of the self-assessment program at that Unit, as well as the site-wide program, OA-5, "Work Observation Program." The team identified, however, that full implementation would occur following the startup from the recent refueling outage, such that the managers and supervisors could focus more of their attention on the work observation program going forward.

The team reviewed the operations department procedure, 3-OPS-1.13, "Work Observations," and determined that the work observations contained within the procedure could potentially provide the operations department with an adequate vehicle for communicating management expectations regarding various operations department activities, provide for another method for verification of effectiveness of corrective

actions, as well as provide real time feedback of problems or trends to the operations staff. In addition, the procedure identified 24 individual work observations that cover a broad range of activities, such as Communications, Control Operator Watch-standing Activities, Pre-Job Brief, and Shift Manager - Command and Control.

Maintenance

The inspector reviewed three maintenance department self-assessment reports: (1) 3MNTC-SA-99-01, "Effectiveness of the Work Observation Program," (2) 3MNTC-SA-99-02, "Effectiveness of the Maintenance Corrective Action Program," and (3) 3MNTC-SA-98-03, "Effectiveness of Tagging at Millstone Unit 3." The self-assessments were well-scoped and planned, with clearly defined acceptance criteria. The reports were self-critical and identified areas for improvement. Condition reports were initiated to address assessment findings and observations, and the planned corrective actions were appropriate and prioritized per corrective action program procedures. Critical corrective action effectiveness reviews were performed to provide assurance that problems would not recur.

The maintenance corrective action program self-assessment evaluated 45 condition reports in the maintenance area to verify that: (1) corrective actions were timely, (2) corrective actions addressed the identified problems, (3) trend information was captured, (4) closure documents were completed. The report concluded that the department effectively supported condition report resolutions. The inspector independently evaluated the same 45 condition reports and agreed with the licensee's conclusion.

Engineering

Engineering self-assessments were generally acceptable. However, the corrective actions associated with assessment findings of 3DE-SA-99-01, "Station Personnel Qualifications for Design Activities," appeared to be narrowly focused.

For example, CR M3-99-0463 identified that a calculation was prepared and reviewed by contract personnel who did not meet the station training and qualification requirements. The only corrective action was to review and countersign the calculation by qualified personnel and review additional work performed by the two individuals. The extent of condition review was to only review additional work performed by the two specific individuals involved. CR M2-99-0467 identified that a safety evaluation was approved by an individual who was not qualified. No corrective action was taken on this issue since two qualified individuals (the preparer and the reviewer) were involved in the development of the evaluation.

The team did note that there were additional assessments and actions in progress to further address problems in the area of engineering personnel training and qualification. However, these actions were not acknowledged in the above CRs to provide justification for apparent narrowly focused corrective actions.

Employee Concerns Program

The team evaluated self-assessments performed by the Employee Concerns Program (ECP) organization to determine whether they were critical. The team reviewed self-assessment reports and the 1999 ECP Self-Assessment Schedule, and interviewed the Manager of ECP Programs.

The team reviewed seven ECP self-assessments performed between November 1998 and May 1999. The self-assessments covered the following topics: 15-day notification of concerned individuals (twice); case file review of alleged 10CFR50.7 concerns; ECP training records; effectiveness of corrective actions (twice), and file security. The reports contained a proposed outline, including purpose and scope, performance criteria, and assessment objectives. The reports discussed strengths, conditions adverse to quality, areas for improvement and follow-up review.

The team reviewed the ECP's self-assessment schedule for 1999 and discussed it with the Manager of ECP Programs. The plan called for periodic self-assessments of eight areas, most notably external assessments, 10CFR50.7 independent assessments, and lessons learned self-assessments. The Manager of ECP Programs stated that he had added several assessments to the schedule since he joined the ECP organization.

c. Conclusions

The operations work observation program could potentially be an effective tool in the improvement of both communications, in the form of effective feedback, as well as the standards and quality of performance within the operations department. The Millstone 3 maintenance organization performed well-planned and self-critical assessments of the maintenance corrective action, work observation, and tagging programs. Findings and observations were addressed appropriately in the corrective action program. The ECP self-assessments were generally good and usually critical of the subject areas audited. The self-assessment schedule was an appropriate tool to track initiation of self-assessments. Engineering self-assessments were generally acceptable; however, the corrective actions associated with some assessment findings were narrowly focused. The team concluded that the self-assessment process was critical, performed in accordance with procedures, effectively contributed to problem identification and resolution, and adequately communicated the results to the staff.

4.0 INDEPENDENT OVERSIGHT

4.1 Nuclear Oversight - Audits, QC and Evaluations

a. Inspection Scope (40500)

The team reviewed a sample of NU's Nuclear Oversight effectiveness assessments of the line organizations.

b. Observations and Findings

The team noted that NU had an effective oversight organization. NU Nuclear Oversight conducts periodic audits of the effectiveness of the line organizations. The team reviewed an audit that was conducted at Millstone Station from February 8, 1999 through February 19, 1999. The audit assessed the effectiveness of the corrective action program implementation for Millstone 3, and the control of nonconformance on Millstone 1.

The report documented seven deficiencies and three observations. Key examples of weaknesses identified in the area of issue identification were 1) failure to re-enter into the Corrective Action Program with level 1 CRs after actions to prevent recurrence for a level 1 CR had been found to be ineffective, and 2) a lack of clarity to determine when a Condition Report Engineering Disposition (CRED) is needed. These deficiencies were documented in CR M3-99-0567 and CR M3-99-0572. The licensee was in process of preparing a programmatic CR to address the failure to prepare level 1 CRs for repeated level 2 CRs.

In the area of issue evaluation, the report documented weaknesses in root cause investigations (early 1998 through the third quarter of 1998) which included failures to define the extent of condition and not going far enough into the investigation process to determine the root cause of human performance issues.

Effectiveness reviews were completed during 1998 by the line organization on Millstone 3 Level 1 CRs, with 11 of 125 cases being determined to be effective. In five of those cases, a new level 1 CR was identified. In six of those cases, either a level 2 or 3 CR was used to report the ineffective corrective actions, or no CR was issued. To address this issue, the licensee issued CR M3-99-0567.

4.2 Plant Operations Review Committee (PORC)

a. Inspection Scope

The team assessed the performance of the Plant Operations Review Committee (PORC) relative to fulfillment of technical specification requirements, including the interface with the corrective action program, as well as the ability of PORC to identify, assess, and resolve issues.

b. Observations and Findings

Overall, the team determined that PORC was successful in meeting its technical specification mandate. A review of meeting minutes identified appropriate questions were raised regarding the adequacy of the technical bases for issues presented during the meeting. Also, follow-up action assignments were associated with the responsible department to ensure appropriate tracking and resolution. The closure of several PORC commitments were also appropriately documented in meeting minutes as required by procedure.

The team observed two PORC meetings during the inspection. In general, PORC members raised concerns, where appropriate, regarding the technical adequacy of the various presentations. For example, during one presentation regarding a sump pump contaminated filter, a PORC assignment was initiated based on PORC's concern that a full safety evaluation might have been required versus the safety screening that was performed.

However, the team identified one minor administrative issue regarding procedural compliance with OA-3, "Plant Operations Review Committee." Specifically, OA-3 requires the documentation of training on Attachment 3, "PORC Training," followed by the submittal of a completed Attachment 3 to PORC and subsequent documentation in the meeting minutes. Contrary to this requirement, the licensee could not provide completed copies of Attachment 3 nor the documentation of completed training in the meeting minutes. As a result, the licensee initiated CR M3-99-2397, and immediate corrective action was taken that fulfilled the requirements of training documentation discussed above. In addition, following the identification of the training issue, the licensee discovered that another requirement of OA-3 was not being completed. Specifically, that distribution of meeting minutes are required to be completed within 45 days of the PORC meeting date. The licensee initiated CR M3-99-2396, and has taken immediate corrective action to ensure future meeting minutes are distributed as required. These examples of a procedure non-compliance regarding meeting minutes were of minor safety significance. Violations of minor safety significance are not cited per the NRC Enforcement Policy.

4.3 Station Operations Review Committee (SORC)

a. Inspection Scope

The team assessed the performance of the Site Operations Review Committee (SORC) relative to fulfillment of technical specification requirements, including the interface with the corrective action program, as well as the ability of SORC to identify, assess, and resolve issues.

b. Observations and Findings

Overall, the team determined that SORC was successful in meeting its technical specification mandate. A review of meeting minutes identified that appropriate questions were raised regarding the adequacy of the technical bases for issues presented during the meetings. Also, follow-up action assignments tied to the corrective action program were associated with the responsible department to ensure appropriate tracking and resolution of open issues. In addition, the closeout of various SORC commitments were appropriately documented in meeting minutes as required by OA-4, "Site Operations Review Committee."

While the team was unable to observe a SORC meeting, the detail of issues documented in the meeting minutes allowed the team to perform an adequate assessment of SORC effectiveness. For example, the SORC approval of a recent revision to the Millstone

Emergency Plan referenced deletion of various Unit 1 procedures, including Stack and Drywell Air Post Accident Sampling System (PASS). Given the licensee's recent focus on shared systems and the potential impact Unit 1 systems could have on the other units, the team questioned how these procedures could be deleted and whether procedures existed to support the other units. However, after discussions with the personnel in the responsible department, as well as the individual presenter of the issue at SORC, it was evident that SORC had raised a similar concern. As a result, the necessary procedures, i.e., for stack sampling post accident, were verified to be in place prior to the revision approval.

4.4 Independent Safety Engineering Group (ISEG)

a. Inspection Scope (40500)

The team reviewed the performance of the ISEG through a review of a sample of ISEG evaluation reports and through interviews of several ISEG engineers.

b. Observations and Findings

The ISEG function is performed by members of the Nuclear Safety Engineering (NSE) department which is comprised of a manager, an ISEG supervisor, an operating experience supervisor and a staff of ISEG engineers. Of the total department staff, ten people are responsible for the performance of ISEG reviews for Millstone. In addition to fulfilling the technical specification (TS) ISEG requirements for Unit 3, this group also performs ISEG functions for the other two units. This same staff also performs operating experience reviews for all three units as part of ISEG activities. The time spent by the entire group in performing ISEG evaluations and operating experience reviews for Unit 3 is appropriate to fulfil the TS requirement of having four full-time ISEG personnel. The team reviewed the experience and qualifications for the staff members performing ISEG functions and confirmed that they met or exceeded the TS requirements.

The team reviewed the recently performed, in-progress and planned ISEG evaluations and found that the areas of review were appropriate and included reviews of shut-down risk controls, engineering personnel qualifications, reactivity management and use of operating experience by the line organization. The team also reviewed several completed evaluation reports and found that they provided good, specific recommendations for improving safety. In one case ISEG identified inadequate management of shutdown risk during the outage and took immediate actions by issuing an order to stop work until appropriate corrective actions were taken by the line organizations to establish proper controls.

The team found that there was good control of ISEG recommendations. All recommendations are now entered into the CR process and ISEG performs follow-up reviews to verify that the completed actions were appropriate to resolve the identified issues.

4.5 Operating Experience Program

a. Inspection Scope

The inspector assessed the use of industry operating experience at Millstone 3. A sample of industry experience evaluations were reviewed involving INPO significant event reports and significant operating experience reports, NRC information notices, 10 CFR Part 21 reports, Westinghouse Corporation infograms, General Electric Corporation service information letters, ABB-CE technical notes, and vendor information letters. Open operating experience evaluations and action items between 1996 and 1998 were reviewed to verify that no outstanding safety issues remained unaddressed.

b. Observations and Findings

The inspector found that the industry operating experience program was working well at Millstone 3. The licensee's evaluations of events and vendor technical information were technically sound, and no significant safety issues remained unaddressed. Information sharing across the three Millstone units was evident; information not directly applicable to Unit 3, such as General Electric service information letters, ABB-CE technical notes, and Units 1 and 2 condition reports and licensee event reports were evaluated.

The Nuclear Safety Engineering (NSE) group, which primarily was responsible for implementing the operating experience program, provided a wide variety of forums for disseminating industry experience, and additional methods for doing so were being developed to increase its availability and use by the line organizations. An internal NSE homepage available at each work station allowed station personnel to access the INPO Nuclear Network, the NRC homepage, the Bechtel search engine (SERCH), and the site CR database. Efforts were underway to broaden access to the Nuclear Network. NSE prepared and posted a file of briefing papers concerning significant operational events, such as incidents involving freeze seals, for use in pre-evolution and pre-job briefings. In addition, a periodic site publication, the "OE Minute" facilitated awareness of industry events and experiences.

Self-assessments and audits of the program identified that decentralization and internalization of industry experience information in the line organizations was incomplete; e.g. not all organizations were utilizing the information that was available as effectively as they might in their daily activities. This area for improvement was being addressed in the corrective action program.

4.6 Nuclear Safety Assessment Board

a. Inspection Scope

The team assessed the effectiveness of the Nuclear Safety Assessment Board (NASB). This assessment included reviewing selected NSAB and subcommittee meeting minutes, observing board and subcommittee meetings, and interviewing board members.

b. Observations and Findings

The team verified that the NSAB meetings and members' qualifications were in accordance with Technical Specifications requirements. Board members were appointed to the NSAB by letter from the Northeast President & Chief Executive Officer. A new NSAB Chairman was appointed on March 1, 1999.

An issue concerning whether the qualifications of NSAB members satisfied the licensee's technical specification requirements for metallurgy experience was raised in NRC Inspection Report 50-423/97-82. The licensee addressed and closed this issue in CR M3-98-0739. The licensee concluded that two NSAB members met the Technical Specification 6.5.3.1 requirement for having appropriate metallurgy expertise. The licensee stated that when needed, alternate or subcommittee members, who have specialist metallurgy experience, are available and assigned to provide specialist review. The team reviewed CR M3-98-0739 and found the licensee's resolution of the issue acceptable.

Portions of the NSAB Safety Evaluation subcommittee were observed on June 22, 1999. The meeting was well attended, documents were provided to participants in advance of the meeting, and subcommittee members were clearly prepared for the meeting. Questions raised by subcommittee members on the safety evaluations reviewed were probing, critical, and appropriately focused on safety. For several of the safety evaluations, including one technical specification change that had been approved by PORC, the subcommittee critically challenged aspects of the evaluation. In several cases, the subcommittee had licensee staff provide details on the evaluation. These examples demonstrate the overall thoroughness of the subcommittee's reviews.

Portions of the NSAB meeting were observed on June 30, 1999. The meeting included presentations by the Unit 2 and Unit 3 Directors, Nuclear Oversight, Training Department, and the chairmen of the five subcommittees. Board members were generally well prepared and most actively participated in the presentations and discussions. Issues and questions raised by the Board often provided probing and critical assessment of licensee activities. For example, the discussion on Unit 3 focused on assessment of the recently completed refueling outage. Board members raised an issue about effectiveness of corrective actions in light of the recurring operation problems with the RSS sump pumps and requested that this issue be addressed as part of an outage lessons learned report being developed. Based on review of past meeting minutes, action items assigned during meetings were effectively tracked by the NSAB secretary and the status of open items was included in the minutes.

4.7 Conclusions for Independent Oversight

The team concluded that the Nuclear Oversight's audit of the effectiveness activities on corrective action implementation appeared to be effective. The PORC had been effective in fulfilling the requirements of technical specifications, and, where appropriate, had identified, tracked and closed out issues raised during the meetings. The SORC had been effective in fulfilling the requirements of technical specifications, and where

appropriate, had identified, tracked and closed out issues raised during the meetings. The ISEG was adequately staffed and was performing the functions required by Unit 3 technical specifications. Evaluations were performed in appropriate areas, detailed recommendations are provided and good follow-up of corrective actions was performed. The industry operating experience program was being implemented effectively. Industry experience information was readily available to station personnel. The backlog of open industry experience items contained no safety significant issues. The NSAB was providing effective oversight of Millstone activities, including a thorough assessment and oversight of the recently completed refueling outage at Unit 3. The implementation of the NSAB was determined to meet the technical specification requirement for member qualifications and meetings.

5.0 PROGRAMS TO RESOLVE EMPLOYEE CONCERNS

Until March 11, 1999, the licensee was under an NRC Order to develop, implement and maintain a comprehensive plan for handling Millstone employee safety concerns. In addition, the Order required independent third party oversight of the employee concerns programs, which was provided by Little Harbor Consultants (LHC).

To address the licensee's progress in this area, the NRC performed three team evaluations of the employee concerns program in December/January 1997, August 1998, and October 1998. After the NRC and LHC determined that the licensee had made adequate progress in restoring a safety conscious work environment (SCWE) at Millstone, the Order was closed. The NRC Staff Requirements Memorandum response dated May 25, 1999, specified that the NRC would continue to monitor and assess the employee concerns and safety conscious work environment areas at Millstone using regional initiative inspections. These inspections would coincide with quarterly third-party assessments by LHC.

The Human Services organization has several programs that are used to identify and resolve employee concerns, most notably the Employee Concerns Program (ECP), Safety Conscious Work Environment (SCWE), and Employee Concerns Oversight Panel (ECOP). Although the licensee stresses the preferred avenue for concern resolution is through immediate supervision, the ECP provides a supplemental or alternative path for the receipt and resolution of employee concerns. The SCWE provides direct and concentrated support for the Millstone station in its effort to enhance the quality of the work environment. The ECOP independently assesses and monitors the Millstone station employee workplace and the effectiveness of the licensee in facilitating a safety conscious work environment.

5.1 Employee Concerns Program (ECP)

5.1.1 ECP Organization

a. Inspection Scope

The team evaluated the ECP organization to determine whether it was independent of line organizations, was adequately staffed, received site management support, and was effective in handling employee concerns. The team reviewed organization charts, conducted interviews with ECP management and investigators, and reviewed ECP performance indicators.

b. Observations and Findings

The team reviewed the latest ECP organization chart. The ECP organization was managed by the Director - Employee Concerns, who reported directly to the Vice President - Human Services, who in turn reported off-site to the President & CEO - Nuclear. Therefore, the ECP organization was designed to be independent of the site organization. Two managers, the Manager of ECP Investigations and the Manager of ECP Programs, reported to the Director. As part of the licensee's site-wide reorganization that has been in progress since late last year, the Director - Employee Concerns and the Manager of ECP Programs were new to their positions since the first quarter of 1999. The team determined that both of the new managers have fully assumed their duties and responsibilities.

Within the investigations group are five licensee investigator positions and four contractor investigator positions. At the time of this inspection, there was only one vacant contractor investigator position, which the licensee planned to fill. Also, in the investigations group are eighteen peer representatives, who have volunteered to be alternative points of contact for employees who want to raise concerns or have questions. Within the programs group were two coordinator positions that were responsible for entering and tracking corrective actions resulting from ECP investigations, and developing and tracking performance indicators. At the time of the inspection, one of the coordinator positions was vacant, but was posted to be filled.

The number of investigators within the ECP organization has remained essentially constant since previous NRC evaluations. Interviews by the team found that ECP personnel believe they received good support from site management and were maintaining their independence from the site since they used their own investigators and developed their conclusions based on the facts discovered during their investigations. If there was a potential conflict of interest, ECP had a process in place that used external investigators to perform the investigation. If a particular investigation required expertise not within the ECP organization, the Director requested help from other sources outside of the area of investigation. ECP personnel believed that they were adequately staffed to handle the number of concerns received.

The ECP performance indicators for 1999 (1/99 - 5/99) showed that 20 concerns have been received per month, which was a slight improvement as compared to the 1998 monthly average of 21. Generally, more than half of the concerns received involved human relations and management-type issues; a minority of the concerns dealt with nuclear safety issues or harassment, intimidation, retaliation and discrimination (HIRD) issues. There were no substantiated cases involving violations of 10CFR50.7. The average monthly age of cases under investigation was 26 days, which was well below the ECP goal of 45 days. The backlog of cases under investigation was 18. These performance indicators showed positive or steady trends in ECP performance. However, one performance indicator showed that completion and verification of corrective actions from ECP investigations had slowed. ECP management indicated that this negative trend was due to the large number of cases that were recently closed and were awaiting corrective action completion; however, an ECP self-assessment indicated that there had also been a recent increase in corrective action assignment extensions. To improve performance in this area, the Director had temporarily assigned an investigator to assist in following and verifying corrective actions, and the ECP planned to be more strict in granting extensions for corrective action completion.

c. Conclusions

The team found that the ECP organization continues to be independent of the site organization and was adequately staffed to perform its function of addressing employee concerns. The ECP organization received appropriate site management support. Performance indicators showed steady or slight performance improvement in the ECP area. The ECP was effective in handling employee concerns.

5.1.2 ECP Investigator Training and Qualification

a. Inspection Scope

The team audited several of the investigator's training and qualification (T&Q) files to determine if they met minimum qualifications and were receiving continuing training required by the Employee Concerns Processing Manual (ECPM). The team attended a continuing training course on HIRD, 10CFR50.7, hostile work environment, and chilling effect issues.

b. Observations and Findings

The team reviewed the ECPM, Revision 4 Change 1, effective May 10, 1999. Change 1 was based on recent ECP experience and lessons learned. The team found the latest manual to be very thorough and well written, and a slight improvement over the previous revision reviewed by the NRC. It provided appropriate minimum qualifications required in order for a person to become an ECP investigator. The team audited T&Q files of several investigators. The investigators clearly met minimum qualifications and were receiving periodic continuing training. However, the team found several minor discrepancies in three investigator's T&Q files. One file was missing a qualification record and two files were missing a course waiver memorandum. These discrepancies

were of minor significance and were corrected by the licensee. The Director - Employee Concerns planned to audit the other T&Q files for similar discrepancies.

The continuing training course attended by the team was in response to an audit performed through the licensee's legal department of ECP cases resolved during the first quarter of 1999 that alleged 10CFR50.7. The audit found that the investigation reports reviewed continued to reflect an understanding of the elements of 10CFR50.7; however, some analyses contained errors or misunderstandings. The training was provided to discuss the "grey areas" of those elements that constituted HIRD, 10CFR50.7, hostile work environment, and chilling effect issues as they related to the actual cases audited. The team noted that the instructor was very knowledgeable in this area and presented the information well. Good class participation was evident.

c. Conclusions

ECP investigators were appropriately qualified and were receiving periodic continuing training. Several minor administrative discrepancies were found in investigator's T&Q files that were corrected by the licensee. A continuing training class on HIRD, 10CFR50.7, hostile work environment, and chilling effect issues were effective, and the class participated well in the discussions.

5.1.3 ECP Case Files

a. Inspection Scope

The team reviewed ECP case files received between January 1 - May 31, 1999, and interviewed ECP personnel to determine if the concerns were appropriately classified, and whether potential nuclear safety issues and 10CFR50.7 issues were effectively addressed and resolved.

b. Observations and Findings

The team reviewed a database description of all concerns (100) received by the ECP during the first five months of 1999. From the brief description provided, it appeared that the concerns were appropriately classified as nuclear safety significant, or potential 10CFR50.7 issues. Of the 100 concerns received during the first five months of 1999, the team reviewed 17 case files that were either resolved (investigation complete) or closed (investigation complete; corrective actions complete and verified) at the time of the inspection by the normal ECP process or the Rapid Resolution process. The Rapid Resolution process could be used to address less complex concerns in a prompt manner without using portions of the normal process, most notably an investigation. Rapid Resolutions normally involved only a few hours of an investigator's time, involved the concerned individual and line management, and were generally completed in a week.

The team determined that all the files were maintained in an officially designated secure location accessible only to ECP investigators and staff, or other authorized individuals. All concerns were formally documented in sufficient detail, and if appropriate, had well

designed plans for an investigation. The concerned individual could request confidentiality, if desired. The concerns were screened and prioritized based on their significance. A formal acknowledgment letter of the receipt of the concern, including specific details, was sent to the concerned individual. The concerns investigated under the normal process were thorough. Interim status was provided to concerned individuals on a regular basis. Records of pertinent conversations, interviews and meetings were included in the files. For the closed case files, appropriate corrective actions that were responsive to the concerns were developed and entered into the Action Item Tracking and Trending System (AITTS). No cases were closed until the corrective actions were completed and verified by the ECP staff. Closure letters were sent to the concerned individuals that appropriately described the resolution of their concerns.

During a review of Rapid Resolution processed files, the team identified a discrepancy with File 685 RR. When the concern was received by ECP on March 8, 1999, the investigator determined that the Rapid Resolution process could be used. At the screening meeting (Triage) on March 9, 1999, the panel determined that the concern involved retaliation and potential 10CFR50.7 implications, but the Rapid Resolution process was used to resolve and close this concern. Although the current ECPM (Revision 4, Change 1, effective 5/10/99) specifically states that allegations containing elements of HIRD cannot be addressed by the Rapid Resolution process, the ECPM in effect at the time the concern was received (Revision 4, effective 9/1/98) did not prevent it. However, ECP Administrative Control procedure "Evaluation and Investigation of Alleged 10CFR50.7 HIRD Concerns (Rev. 1, effective 2/1/99)" required an investigation for potential 10CFR50.7 HIRD concerns, and following completion of the investigation, analyzing the evidence using ECF-9 "Potential 10CFR50.7 Violation Evaluation." Based on the Triage classifying this concern as retaliation with 10CFR50.7 implications, the team believed that an investigation was warranted, which was not possible under the Rapid Resolution process.

The team discussed this issue with the Director - Employee Concerns, Manager of ECP Investigations, and the ECP investigator. Based on these discussions, the team concluded that the Triage conservatively mis-classified this concern because it was similar to another concern that was currently under investigation that involved 10CFR50.7 implications. The concern, as provided by the concerned individual, did not contain retaliation or 10CFR50.7 implications. In hindsight, another Triage should have been held to administratively reclassify this concern. The team had no further questions regarding this file and no specific action by the ECP organization is warranted. No other discrepancies were found with Rapid Resolution processed files.

c. Conclusions

The team concluded that the ECP organization continued to perform thorough unbiased investigations. With one exception, the ECP organization was adequately defining the concerned individuals' issues. The one exception, when Triage conservatively mis-classified a concern as a potential 10CFR50.7 HIRD issue, was considered an administrative error, and did not reduce the overall effectiveness of the ECP organization. The conclusions in the ECP case files were properly supported by the

investigations. Communications with the concerned individuals were acceptable and the ECP organization was properly protecting their identities.

5.2 Safety Conscious Work Environment (SCWE)

5.2.1 SCWE Organization

a. Inspection Scope

The team evaluated the current SCWE organization and its recent transition into the Human Services organization. The team reviewed organization charts, attended meetings, and conducted interviews with SCWE management and staff.

b. Observations and Findings

In a letter to the NRC dated December 9, 1998, the licensee presented plans to transition SCWE activities into a standard human services organization. The last NRC team evaluation in October 1998 found that the licensee had made progress in developing plans for transitioning SCWE functions to the Human Services organization in order to enhance and maintain a safety conscious work environment at Millstone. During this inspection, the team found that the initial phases of the organizational transition have been substantially completed. The manager of the SCWE organization reported to the Director of Human Performance & Development, who reported to the Vice President - Human Services. The SCWE organization has remained essentially unchanged from the organization that existed prior to the transition.

The SCWE organization was responsible for: 1) developing action plans to resolve SCWE cases; 2) coordinating Executive Review Board (ERB) activities to ensure that proposed disciplinary actions were proper and prudent; 3) developing, implementing, and assessing Culture Surveys; and 4) conducting core group surveys. Plans for transition of certain non-10 CFR 50.7 investigation functions from the ECP organization to the SCWE organization were still under development. Two other organizations, in addition to the SCWE organization, provided additional onsite resources for attention to personnel issues and human resource concerns. These organizations also reported to the Director of Human Performance & Development. Based on a review of work output of the SCWE organization, and considering that staffing of the SCWE organization had not been affected, the team considered the organizational transition to not have impacted the effectiveness of its operations.

Past NRC team evaluations of the SCWE organization reported favorably on the practice of key managers within the Human Services organization meeting daily to discuss and coordinate activities. These meetings were chaired by the Vice President - Human Services and included top management from the SCWE, ECP, ECOP, Human Relations, and Legal Department organizations. Since that time, two separate standing meetings have replaced these daily meetings. The "People Team," led by the Vice President - Human Services, and consisting of directors and managers from SCWE, ECP, ECOP, Human Relations, and the Legal Department, met twice a week. The "People Team"

focused their attention on policy issues and more general site issues. The "SCWE Managers," consisting of first level managers and supervisors from ECP, ECOP, and SCWE, also met twice a week. The "SCWE Managers" focused attention on more specific personnel issues or emerging people issues.

The "People Team" and "SCWE Managers" meetings were observed by the team and were found to be constructive, identified emerging issues and coordinated responses within the groups involved. However, ECOP assessments identified that accountability for follow-up on issues and actions discussed at these meetings was not assured in several cases. In the NRC's previous evaluation of this area in August 1998, it was noted that previous weaknesses in accountability for assignments had been corrected. However, it appeared that departing from the daily meeting format, along with new meeting participants, had caused this weakness to reappear. Based on the team's limited observation of these meetings, it was not clear whether this issue had been resolved. The licensee was considering changes to the types and frequency of these meetings, including improved methods to track follow-up actions for emerging issues.

c. Conclusions

The team concluded that the structure of the SCWE organization was acceptable and the licensee had been deliberate in transitioning SCWE functions within the Human Services organization. The licensee continued to be effective in SCWE activities during the organizational transition. Improvements to the "People Team" and "SCWE Managers" meetings were being considered by the licensee to improve tracking of follow-up actions for emerging issues discussed at these meetings.

5.2.2 Monitoring and Assessment of SCWE

a. Inspection Scope

The team evaluated the plans and processes used to assess the safety conscious work environment at Millstone. The team reviewed the SCWE Assessment Plan, interviewed SCWE organization personnel, and examined survey results and key performance indicators.

b. Observations and Findings

The SCWE Assessment Plan, Revision 1, dated February 11, 1999, described the licensee's processes to monitor and assess the safety conscious work environment at Millstone. The Assessment Plan adequately described appropriate program elements for effectively assessing and monitoring the safety conscious work environment. However, the team found that these assessment and monitoring program elements were at varying stages of implementation and change. For example, the licensee was in the process of modifying the approach to several of the safety conscious work environment monitoring instruments, including changing the frequency (from semi-annual to annual) and methods for administering the Culture Survey and Site Leadership Assessment.

Other monitoring elements, such as the Workplace Survey, were in the early stages of development and implementation.

The primary processes for monitoring the safety conscious work environment described in the Assessment Plan included:

Site Culture Survey/Supporting Survey

The SCWE organization distributed and collected the Culture Survey, analyzed the data, and published the results. The survey was structured to obtain feedback in six areas: mission and goals; knowledge and skills; simple work processes; teamwork; self-improvement; and safety conscious work environment. On the basis of the responses to questions, an average score was calculated for each of the six areas. The scores for the first five areas were used to create a composite score, which was known as the "culture index"; the sixth area (safety conscious work environment) was a stand-alone indicator.

The Culture Survey has been conducted six times: June 1996, October 1996, June 1997, November 1997, June 1998, and November 1998. The results of the composite culture index showed a marked improvement for the first four surveys, and a leveling-off and slight decrease in the last two surveys. Based on employee feedback and decreasing response to the last several surveys, the licensee has indicated that employees may be becoming saturated with survey requests. Also, a problem with recording survey data occurred during the last survey in November 1998. It was determined that 97 of more than 1850 responses to the survey were initially omitted when reporting the results. Apparently, some of the surveys were mis-placed and were inadvertently omitted during the scanning process. This problem had minimal effect on the overall survey results and was corrected. However, the error in recording this survey's results caused some loss of confidence by employees in the administration of the Culture Survey. With the exception of this recording error, the team found that SCWE organization was effective in the administration of the Culture Survey, and that the survey results were well presented and useful for management analysis and action. The licensee informed the team that consideration was being given to revising the Culture Survey. Further, the next Culture Survey was not planned until the Fall of 1999, with its frequency planned to be changed from semi-annually to annually.

The SCWE organization administered the first quarter Workplace Survey at the end of March 1999. The purpose of this survey was to provide baseline data for trending the work place environment. The SCWE organization intended to administer this survey quarterly. The team reviewed the survey's questions, process and results, and found that it provided good feedback about the safety conscious work environment. The licensee was continuing the development of approaches for use and trending of the Workplace Survey results.

Site Leadership Assessment

Human Relations administered leadership surveys periodically to solicit information from employees on how management was performing with respect to five key competencies

determined by nuclear executive management to be critical for operational excellence: communications; development; performance; leadership; and handling of concerns. Over time, the results showed trends that indicated where managers were performing well and where improvements could be made. The information from the assessment was given to individuals in leadership positions, and when collected by function and level, was used to produce an overall profile of leadership at Millstone. The Site Leadership Assessment has been administered five times: Winter 1996; Summer 1997; Winter 1997; Summer 1998; and Winter 1998. The results have shown continued improvement in overall site leadership. The overall scores improved from 4.70 in the Winter of 1996; to 5.70 in the Summer of 1997; to 5.80 in the Winter of 1997; fell very slightly to 5.76 in the Summer of 1998; and rose again to 5.84 in the Winter of 1998. These latest results exceeded the site goal of 5.5.

From the Winter of 1996 until the Winter of 1998, the Leadership Assessments were conducted about every 6 months. The next assessment was not planned until the Fall of 1999. The licensee has indicated the plan was to conduct future assessments annually.

Performance Monitoring (KPIs)

The Assessment Plan identified nine performance indicators for continued use as measures of a safety conscious work environment. The performance indicators were: 1) Leadership Assessment (SCWE Element); 2) Culture Survey (SCWE Element); 3) Millstone Employee Concerns Confidentiality Trend, Millstone Station; 4) Licensee Concerns and NRC Allegations Received, Millstone Station; 5) Employee Concern Resolution Timeliness; 6) Employee Satisfaction With ECP; 7) SCWE Case Action Plan Status, Millstone Station; 8) Focus Area Action Plan Status, Millstone Station; and 9) Concerns Alleging HIRD, Millstone Station.

Information from the Leadership Assessments and Culture Surveys have been key to measuring and assessing the safety conscious work environment at Millstone. The Leadership Assessment KPI used worker responses to assessment questions about their willingness to raise issues to management. The KPI showed that in June 1997, 97.8% of employees indicated willingness to raise issues to management; in November 1997, 97.9%; in June 1998, 98.7%; and in November 1998, 96.6%. These results were all well above the licensee's goal of >90%, with a trend showing a leveling of results and slight decrease in the results for the last assessment. The Culture Survey KPI used employee and contractor responses to measure worker perception of the existence of a safety conscious work environment at Millstone. The KPI showed that in June 1997, 82% employees agree that a safety conscious work environment exists; in November 1997, 82%; in June 1998, 86.6%; and in December 1998, 84.7%. The results of this KPI were slightly below the licensee's goal of >90%, with a slight decrease shown for the results of the November 1998 survey. The remaining KPIs have generally shown improving trends in the last several months. Further discussion of some of these KPIs is in Section 5.1.1.

Employee Feedback

The Assessment Plan stated that continuous employee feedback from any/all avenues would be monitored and assessed for any necessary action and indication of performance decline or precursors in the work environment. Although the licensee was considering some objective measures for representing this employee feedback, this monitoring remained a subjective measure.

c. Conclusions

The team concluded that the SCWE organization had several well-established processes that functioned effectively to monitor the safety conscious work environment at Millstone. Some of these processes were being considered for change, while other processes were at varying stages of implementation. The team concluded that coordination in the evolution of these monitoring processes to assure appropriate and current feedback on the status of the safety conscious work environment needed continued management attention. Generally, survey results and KPIs indicated that the safety conscious work environment at Millstone has been sustained.

5.2.3 Oversight of the SCWE Organization

a. Inspection Scope

The team assessed programs and plans that were in place to monitor and oversee the SCWE organization and the safety conscious work environment at Millstone. The team reviewed the SCWE Assessment Plan, interviewed personnel, and reviewed Nuclear Safety Assessment Board Full Committee and Sub Committee meeting minutes.

b. Observations and Findings

The Assessment Plan described processes for oversight of SCWE program implementation to ensure a safety conscious work environment was maintained at Millstone. The processes were designed, in part, to compensate for phasing out oversight provided by LHC as the independent third party organization. Some of these processes, such as Nuclear Oversight assessment, were in the early stages of development and implementation. The Assessment Plan also acknowledged continued periodic assessments by LHC for a period following closure of the NRC's Order in March 1999.

Some of the primary processes for oversight of SCWE programs described in the Assessment Plan included:

Non-NU Third-Party (periodic assessments)

For a one year period following closure of the NRC Order, LHC will be conducting at least two multi-week assessments. These third-party assessments have been

scheduled, with the first assessment conducted by LHC from June 21, 1999, through July 1, 1999. See Section 5.4

Nuclear Oversight

Nuclear Oversight will conduct periodic assessments of SCWE activities.

Implementation of this activity has not been initiated. The procedure for implementation of this oversight activity was recently prepared and issued while the team was on-site.

Corporate Center

On an annual basis, Corporate Center/Legal will perform a review of Human Services case files, including those from the ECP, Human Relations, and SCWE organizations. This review has been performed for ECP case files, but has not been performed or scheduled for Human Relations or SCWE case files.

Nuclear Safety Assessment Board (NSAB)

As part of their assessment role, the NSAB will continue to review site performance and site safety evaluations including consideration of related safety conscious work environment aspects. Based on a review of NSAB Full Committee and Sub Committee meeting minutes and attending some of these meetings, the team found the NSAB giving appropriate attention to safety conscious work environment issues. At the Full Committee meeting held on June 30, 1999, time was specifically allocated to presentation and discussion regarding the performance and status of the safety conscious work environment at Millstone.

c. Conclusions

The team concluded that licensee plans to oversee SCWE programs were established; however, some of the activities were still under development or not yet initiated and required increased management attention.

5.2.4 Executive Review Board (ERB)

a. Inspection Scope

The team evaluated whether the ERB has remained effective since the last NRC team evaluation of employee concerns programs in October 1998. The team reviewed the ERB Charter, interviewed SCWE organization staff, and attended an ERB meeting.

b. Observations and Findings

The ERB was formed in 1997, establishing a controlled review process for proposed disciplinary actions against licensee employees and contractors. A primary purpose of the ERB was to review any significant personnel action at Millstone prior to such action being taken to ensure that it was proper and prudent, and not the result of harassment,

intimidation, discrimination or retaliation. As part of the licensee's phased organizational transition, the ERB process was revised to change the board membership and provide for greater SCWE organization administrative support. The Vice President - Human Services chaired the ERB and Board members included managers from Human Resources, Contracts, and the SCWE organization.

The team found that the ERB Charter, Revision 11, dated March 12, 1999, appropriately defined the ERB's activities and function. SCWE organization personnel were appropriately screening the material provided to the ERB in support of meetings.

c. Conclusions

The ERB provided focused senior level management attention on significant personnel actions and was a thorough and effective review process.

5.2.5 SCWE Training

a. Inspection Scope

The team evaluated whether the SCWE training program has continued to function satisfactorily since the last NRC team evaluation. The team interviewed Training Department personnel and reviewed training records.

b. Observations and Findings

The licensee administered a "quick start" process for SCWE training of new supervisors and managers. The process included videotape, a SCWE Handbook, and a Quick Start Training Requirements Memo. When a new supervisor or manager joined the Millstone team, Human Relations informed the Training Department so that a copy of the videotape, the handbook, and the memo could be sent to the individual. The memo informed the supervisor or manager that he was responsible for viewing the video tape, reading the handbook, and attending the following four training courses: 1) "Managing for Nuclear Safety," 2) "Civil Treatment for Managers," 3) "Employee Relations," and 4) "SCWE." The Training Department tracked completion of SCWE training with the Northeast Utilities Training Information Management System (NUTIMS).

c. Conclusions

The team found the quick-start process to be effective program for providing managers and supervisors with SCWE training. Completion of training was closely tracked and new supervisors received the designated "quick start" training within 90 days of their assignment to a management or supervisory position. NUTIMS was determined to be an effective tool to track completion of required training. Significant past improvements in the SCWE training provided to employees and contractors has been maintained and enhanced.

5.2.6 SCWE Case Process

a. Inspection Scope

The team assessed the effectiveness of the SCWE Case Process to identify, document, and resolve significant challenges to the safety conscious work environment at Millstone. The team interviewed personnel and reviewed SCWE case files.

b. Observations and Findings

The SCWE Case Process was used to identify, monitor, track, and assess actions associated with areas requiring or requesting significant SCWE organization assistance. The goal of this process was to ensure that significant challenges to SCWE-related areas were adequately identified, documented, and resolved.

The SCWE Case Process was described in SCWE Group Case Process, Revision 0, dated May 30, 1998. The process included development of action for identified personnel issues, tracking of actions, and case closure, including assessment of the actions taken.

c. Conclusions

The SCWE Case Process was effective in that appropriate action plans were developed and actions were taken and tracked. However, the team found some minor discrepancies in the case files, including missing survey results and case summary sheets. The SCWE case files opened in 1999 indicated that in all but one case the initiating event was the result of the Leadership Assessment or Culture Survey. While not inappropriate, this appeared to indicate less emphasis on use of other initiating case events, such as corrective actions from ECP case files or ECOP inputs.

5.3 Employee Concerns Oversight Panel (ECOP)

a. Inspection Scope

The team assessed the effectiveness of the ECOP in its oversight of employee concern activities. The team reviewed the ECOP's Charter, implementing procedures and reports, and interviewed ECOP personnel.

b. Observations and Findings

The last NRC team evaluation conducted in October 1998 found that the licensee had been slow to develop and implement a revised process for ECOP. Revision 5 to the ECOP Charter was issued on February 4, 1999. The revised ECOP Charter focused the efforts of the group on advisory and monitoring activities and less on oversight activities. The new Manager of ECOP, who was selected in December 1998, assumed that position in January 1999. Four new ECOP panel members were selected and began their assignments in March 1999.

Although recently restructured and working with new management and staff under a revised charter, the team found ECOP to be operating effectively. The new ECOP manager has taken strong initiative to organize and structure ECOP activities. These initiatives include ECOP assessment of selected licensee personnel actions, development and implementation of a core group survey, and conduct of a self-assessment. The team reviewed the products and reports of each of these initiatives and found them well planned, implemented, and documented. One of the more effective instruments used by ECOP in the past, conducting employee work surveys, was transferred to the SCWE organization. This change did not appear to impact the overall effectiveness of ECOP functions.

The team reviewed the restructured ECOP's first-quarter report that was issued on May 10, 1999. The report assessed three of the licensee's four SCWE attributes (one attribute was not evaluated) and found them to be satisfactory. The report documented assessments performed by ECOP, including an evaluation of line management performance in recognizing and resolving several personnel issues. ECOP was insightful in their assessment pointing out that while SCWE processes were effective in identifying issues, there was a weakness in management's resolution and closure of personnel problem cases. This finding was well supported by the documented analysis, and the resulting recommendations were well focused on resolution of the identified weakness. ECOP's findings were constructively received by management, and actions were initiated to address the identified problem.

c. Conclusions

Although the licensee was slow to implement the revised ECOP Charter and select and install a new ECOP Director and panel members, these personnel were in place and operating effectively with the group focused on assessing the safety conscious work environment at Millstone. The new ECOP manager and panel members have demonstrated good initiative in implementing the activities of the restructured ECOP. Their initial efforts have been very effective in monitoring the Millstone employee workplace environment and have communicated their findings to licensee senior management.

5.4 Third Party Oversight Audit

a. Inspection Scope

The team reviewed Little Harbor Consultants' (LHC) quarterly assessment plan for the safety conscious work environment at Millstone. The team interviewed members of the LHC assessment team and attended their debrief with licensee management on July 1, 1999.

b. Observations and Findings

The purpose of this LHC quarterly audit was to provide licensee management with an evaluation of the site work environment today, as compared to the last assessment

performed by LHC prior to closing the NRC Order in March 1999. This assessment enabled the licensee to determine the status of their efforts to maintain a safety conscious work environment at Millstone.

The audit was accomplished in accordance with a plan developed by LHC that employed two primary approaches. First, the plan specified that LHC would evaluate the programmatic systems and "checks and balances" that the licensee established to reach and maintain a safety conscious work environment. Second, the plan specified that LHC would conduct a series of personnel interviews to sample the fundamental views of Millstone managers and employees toward the safety conscious work environment.

LHC conducted their first quarterly assessment of the ECP/SCWE at the Millstone Station from June 21, 1999 to July 1, 1999. The team found the LHC plan and approach for assessment of the employee concerns program area was appropriate for determining continued progress by the licensee in addressing safety conscious work environment issues. LHC focused on ECP's processing of employee concerns, and the licensee's day to day handling of emerging people issues. LHC interviewed about 60 site employees; these interviews provided them with a broad database to assess the status of whether the licensee was meeting the four SCWE objectives.

c. Conclusions

The team concluded that the LHC audit was well planned and was conducted appropriately to meet the objective of providing licensee management with an evaluation of the current site work environment, as compared to the last assessment performed by LHC prior to lifting the NRC Order. LHC would provide an assessment report to both the licensee and the NRC. The results of their assessment would be provided during a public meeting in the near future. The Millstone Assessment Panel will evaluate the results of LHC's assessment at a future panel meeting.

5.5 Overall Conclusions

The team found that the ECP organization continued to possess the independence, resources and management support to perform thorough, unbiased investigations of employee concerns. The licensee has sustained the safety conscious work environment at Millstone. Employee surveys, assessments and team interviews indicated that the majority of employees were willing to raise concerns. Generally, the team observed a healthy safety conscious work environment at Millstone.

As part of the team's review of corrective action measures, team members queried site employees regarding their willingness to raise concerns to management. Based on this limited survey, these employees indicated no reluctance to raise safety concerns. In particular, site employees interviewed by the team indicated that they felt comfortable raising issues through the corrective action processes. However, there was an indication that some workers did not want to be obstacles to meeting schedules and deadlines, and another indication that the pending reorganization (supervisory cascade) might have some influence on the supervisors' comfort with raising issues.

The ongoing supervisor cascade, the recent contracting of Entergy to manage the decommissioning of Unit 1, planned reductions in contractor and licensee positions, and consideration of a revised pay structure, represent significant personnel impacts and potential challenges to the safety conscious work environment at Millstone. With these major activities, the site's ability to maintain and monitor the safety conscious work environment at Millstone will be significantly tested. The Human Services organization, in coordination with other organizations, has recognized these challenges. Taking advantage of the SCWE organization and its processes, the licensee has initiated actions to mitigate the impact of these changes and their impact on the safety conscious work environment.

6.0 MISCELLANEOUS CORRECTIVE ACTIONS ISSUES

6.1 Review of Previous Inspection Issues

- 6.1.1 (Closed) Unresolved Item (URI) 50-423/98-212-04: Medium Voltage Circuit Breaker Maintenance: URI 98-212-04, was initiated in NRC Inspection Report 50-423/98-212, and documented that manufacturer recommendations for breaker overhauls were not considered by the licensee to be included in the "inspection and preventive maintenance" requirements of Technical Specification (TS) 4.8.4.1.b, and that the licensee was to evaluate why this was not considered a potential violation. The licensee subsequently evaluated the issue and determined: (1) that overhauls were not part of the TS requirement; (2) that the frequency of overhaul from the manufacturer's technical manual was contrary to current industry guidance; and (3) that existing surveillance procedures fully meet the TS requirements. No violations were identified. In addition, the licensee has implemented an extensive overhaul and replacement schedule for safety and non-safety related breakers that is near completion. The team reviewed the licensee's evaluation and determined it was acceptable, therefore, URI 98-212-04 is closed.
- 6.1.2 (Closed) Violation 97-82-02: Independence and organization freedom for personnel who perform health physics functions. The licensee responded by letter dated July 15, 1998 (B17225) to describe the corrective actions and the measures to prevent recurrence. The organization was changed on March 12, 1998 to specify that the Unit 3 Radiation Protection Manager (RPM) reports to the Unit Director. The organization in effect at the time of the inspection showed the RPM reporting to the Station Manager, which provided independence from operating pressures. The licensee implemented station procedure RAC 13 on December 18, 1997 to describe the process to evaluate and implement organization changes, and thereby avoid organization changes that are contrary to the licensing basis. This item is closed.
- 6.1.3 (Closed) Violation (VIO) 50-423/97-82-06: Boric Acid Pump Air Binding. Inspection 97-82 discussed NOV 97-82-06, which was issued due to the licensee's failure to take appropriate corrective actions to prevent a recurring air binding problem with the boric acid transfer pumps. As a result, the licensee implemented programmatic controls, as well as physical design changes to eliminate the recurrent air binding problem. The team concluded that all corrective action commitments instituted following the issuance

of the NOV had been completed. In addition, the team found the corrective actions acceptable, and therefore, NOV 97-82-06 is closed.

- 6.1.4 (Closed) Violation (VIO) 50-423/97-82-08: Service Water Flow Indication Anomalies. NRC Inspection Report 50-423/97-82, detailed the issuance of NOV 97-82-08. The NOV was issued due to the licensee's failure to ensure appropriate corrective actions were completed prior to the closure of an automated work order associated with a modification to correct flow indication anomalies on service water system instrumentation. As a result, the licensee performed procedure changes and operator training to prevent similar events from occurring. As a result, the team found the corrective actions acceptable, and therefore, NOV 97-82-08 is closed.
- 6.1.5 (Closed) URI 50-423/98-06-02: Repetitive waste test tank releases. This item was open pending the completion and review of the root cause investigation and the corrective action implementation for repetitive waste test tank releases. The licensee completed root cause investigation (RCI), No. M3-99-0015, "Unmonitored Release of Radioactive Liquid Waste Through Unapproved Discharge Pathway." This matter was discussed further in Section 1.2 NRC Inspection 98-02 assessed the most recent event, and described the reportability, engineering, preventive maintenance, and environmental issues. The team noted that the corrective action was not complete, but the item was in the corrective action program. This item is closed.
- 6.1.6 (Closed) Violation 50-423/98-72-05 Procedure Defining ISEG Process not SORC Approved. The team reviewed the corrective actions implemented by the licensee to address the subject violation that involved a failure of the Site Operations Review Committee (SORC) to review certain ISEG procedures as required by sections 6.2.3.1 and 6.5.2.6 of the plant technical specifications.

The licensee's corrective actions included review and approval of the affected ISEG procedure NOQP 3.04, Revision 2, "Nuclear Safety Engineering Group Functions and Responsibilities-ISEG and OE Assessment." The procedure was also revised to include the requirement that SORC review and approval was required for any changes. The licensee also performed an assessment of overall compliance with all requirements of Section 6 of the TS. Corrective actions have been completed to address self-assessment findings of additional procedures that required SORC approval.

Nuclear oversight procedure NOQP 1.02, "Nuclear Oversight Department and Quality Program Implementing Procedures," has also been revised to include a review of procedure changes and new procedures to determine if SORC reviews were required. The team concluded that the licensee's corrective actions appropriately addressed the violation and this item is closed.

- 6.1.7 (Closed) Violation 50-423/98-72-10: Safety Functional Requirements Manual Revisions Not Processed Properly and Design Basis Summaries Missing. The team reviewed the corrective actions implemented by the licensee to address two violations of 10 CFR 50 Appendix B, Criterion V, "Instructions, Procedures and Drawings," that requires, in part, that activities affecting quality be prescribed by instructions or procedures and that these activities be accomplished in accordance with these instructions or procedures.

The first violation involved the failure of the licensee to follow PI 29, "Development of Millstone Unit 3 Design Bases Summary Documents," in that a design bases summary (DBS) was not developed for the emergency lighting system when it was reclassified from a Maintenance Rule (MR) Group 3 to a MR Group 2 system. Also, the chemical and volume control system (CVCS) was not completely included in a DBS.

The licensee's corrective actions included revising procedure OA 10, "Millstone Station Maintenance Rule Program," to require the MR Group to notify the owner of the DBS when there is a change to the list of MR Group 1 and 2 system lists. The licensee has also developed DBSs for all required systems. The Design Change Manual (DCM) has also been revised to incorporate the control of DBS into the design change process.

The second violation involved the failure of the licensee to follow procedures for the control of design bases documents for updating the Safety Functional Requirements (SFR) Manual in that two revisions were issued without issuing Design Change Notices (DCNs) and the Generation Records Information and Tracking System (GRITS) was not updated to reflect the correct revision number.

The licensee revised the administrative procedures to incorporate instructions for updating and controlling the SFR Manual into the Design Control Manual and GRITS has been updated to reflect the proper revision of the manual.

The team concluded that the licensee's corrective actions appropriately addressed the violations and this item is closed.

- 6.1.8 (Closed) Unresolved Item 50-423/98-208-07: Recirculation Spray Cubicle Sump Pumps. The NRC review and concerns regarding the sump pumps in the recirculation spray system (RSS) cubicles are described in Section 2.2 of this report. An NCV was issued for this matter. This item is closed.
- 6.1.9 (Closed) IFI 50-423/98-208-06: Completion of Motor-Operated Valve Program Closure Issues The team reviewed four activities to which NNECO committed for closure of the NRC's review of the Generic Letter 89-10 motor-operated valve program at Millstone 3. The commitments were documented in letters to the NRC dated April 25, 1998 (Letter B17178) and May 28, 1999 (Letter B17378). As described below, the team found the licensee's actions to be acceptable for closure of this followup item.

NNECO used the Electric Power Research Institute's performance prediction methodology (EPRI PPM) to predict the thrust required to close steam generator pressure relief bypass valves 3MSS*MOV74A/B/C/D under design basis high

temperature compressible fluid (blowdown) conditions. However, the EPRI PPM model is limited to cold (<150 degrees Fahrenheit) pumped flow conditions. Commitment B17178-06 involved dynamically testing two of the valves under blowdown conditions to verify that the PPM thrust predictions remained valid. The licensee successfully tested valves 3MSS*MOV74C and 3MSS*MOV74D under close to design basis conditions, and the test data indicated that the design assumptions used in the PPM calculations for these valves were acceptable.

The EPRI PPM also was used for gate valves with stainless steel guide and slot surfaces that may experience fluid temperatures greater than 100 degrees Fahrenheit. Since this condition exceeded the assumptions used in the EPRI model, the PPM defaulted to friction coefficients for carbon steel guide and slot surfaces which were considered to be the best available information. NNECO committed to sponsor a test program with EPRI to determine appropriate friction coefficients for its stainless steel valves. At the time of the inspection, an interim report had been received from the test laboratory (Battelle Memorial Institute) and reviewed for applicability at Millstone 3 by MPR Associates, Inc. In accordance with commitment B17378-01, the licensee plans to incorporate the test results into its design thrust calculations prior to restart from the next refueling outage (RFO7). In the meantime, NNECO's continued use of PPM default friction coefficients for these valves is acceptable.

The design thrust calculations for service water butterfly valves SWP*MOV102A/B/C/D used a coefficient of friction of 0.2 for bronze bearings in raw water conditions. This was much lower than the EPRI PPM value of 0.6 for these conditions. In commitment B17178-11, NNECO agreed to dynamically test the valves to ensure that the assumed coefficient remained valid. The dynamic tests conducted in May 1999 resulted in bearing friction coefficients that exceeded the 0.2 design assumption for three of the four valves. (The highest coefficient was 0.233.) NNECO initiated condition report M3-99-2010 to document the condition. EPRI PPM calculations performed using a friction coefficient of 0.24 showed that the valves remained capable of performing their design functions with some margin for degradation. The licensee intends to retest an additional valve during the eighth refueling outage to determine whether additional degradation has occurred. The team considered this approach to be acceptable.

In order to improve the design margins of safety injection system valves 3SIL*MV8804A/B and 3SIH*MV8802A/B, NNECO committed to implement design changes prior to restart from the sixth refueling outage. (Commitment B17178-12) During the outage, the motor pinion and worm shaft gears of valves 3SIL*MV8804A/B were changed and the control scheme of valves 3SIH*MV8802A/B were changed from torque switch to limit switch control. The team reviewed design change DCR M3-98044 and concluded that the design margins had been increased to be consistent with NNECO's motor-operated valve program assumptions.

- 6.1.10 (Closed) URI 50-423/97-82-01: Measuring and Test Equipment Program Issues. in response to measuring and test equipment (M&TE) program performance deficiencies, NNECO implemented a new M&TE program that included a centralized metrology laboratory, a new program owner and supervisor, and training for laboratory staff and

equipment users. The new program became effective in January 1998. This item was opened pending completion of the corrective actions specified in adverse condition report (ACR) M1-96-0614, full program implementation, and completion of a corrective action effectiveness evaluation.

The nuclear oversight group performed a comprehensive audit (MP-98-A15) of the new program in July 1998, and concluded that the program effectively implemented the requirements of 10 CFR 50, Appendix B and the Northeast Utilities quality assurance plan. The assessment was performed by qualified auditors, including technical specialists from other nuclear facilities, and included an effectiveness review of previous audit findings. Areas for improvement were found, but no significant deficiencies were identified. The inspector reviewed eight of the ten condition reports that documented the audit's findings. Significance levels were assigned in accordance with corrective action program procedures. Corrective action plans adequately addressed the discrepancies. With the exception of long-term followup reviews, all of the action items were completed.

The inspector reviewed the summaries of the 214 condition reports associated with M&TE that were initiated between January 1998 and June 1999. Most of the items either were administrative or involved routine maintenance items such as equipment requiring re-calibration. The large number of condition reports reflected a low threshold for capturing problems in the corrective action program. The inspector identified no adverse M&TE program performance trends and no violations of NRC requirements.

- 6.1.11 (Closed) VIO 50-423/97-82-07: Incorrect Condition Report Significance Levels. This violation involved the licensee's mis-classification of the significance levels of two condition reports that pertained to NRC generic letter commitments. NNECO initiated condition report (CR) M3-98-0933 for the condition and responded to the Notice of Violation in letter B17225 on July 15, 1998. The mis-classification was attributed to human error due to insufficient procedure guidance in that it had not been recognized that the two condition reports involved NRC commitments. NNECO revised the corrective action program and regulatory affairs and compliance department administrative procedures to clarify that a significance level of at least 2 must be assigned and the regulatory affairs department become involved when regulatory commitments or issues that impact the plant licensing or design bases are identified. In August 1998, the licensee completed a satisfactory review of the effectiveness of the corrective actions.

The inspector reviewed approximately 150 CRs and CR summaries during the inspection and identified no instances of incorrect significance level assignments. Condition report M3-98-4232, involving a licensee-identified adverse trend in missed NRC commitments, was categorized appropriately at the highest significance level (Level 1), indicating that the corrective actions for this violation were effective in preventing recurrence.

- 6.1.12 (Closed) LER 50-423/97-046-00 Containment Recirculation Spray System Cubicle Flood Potential. This item is discussed in Section 1.4. LER 97-46 is closed.
- 6.1.13 (Closed) LER 50-423/98-036-00 Engineering Safety Features Building Sump Pump Design Deficiencies. This item is discussed in Section 1.4. LER 98-36 is closed.

7.0 MANAGEMENT MEETING SUMMARY

Meetings were held periodically with licensee management during this inspection to discuss inspection observations and findings. A summary of preliminary findings was also discussed at the conclusion of the on-site inspection on July 2, 1999. Public meetings were held on July 15, 1999 at the Millstone Training Center, and before the Connecticut Nuclear Energy Advisory Committee in Waterford, Ct, to discuss the team's findings and conclusions. The slides used at the public meetings are included as Attachment 1 to this report.

PARTIAL LIST OF PERSONS CONTACTED

D. Amerine	VP Engineering Services
R. Necci	VP Nuclear Oversight and Regulatory Affairs
S. Scace	Director Nuclear Oversight
P. Grossman	Director Plant Engineering
S. Heard	Manager, Independent Review Team
D. Smith	Manager, Regulatory Affairs
W. Watson	Regulatory Affairs
D. Harris	Regulatory Affairs
M. Gentry	Director, Human Performance and Development
D. McCracken	Assistant Unit Director
P. Prezkop	Manager, Employee Concerns Oversight Panel
T. Burns	Director, Employee Concerns Program

INSPECTION PROCEDURES USED

IP 40500	Effectiveness of Controls for Identifying, Resolving, and Preventing Problems
IP 71707	Plant Operations
IP 92901	Follow-up - Operations

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

99-07-01	NCV	Inadequate Design Control for RSS Sump Pump Issues
99-07-02	NCV	Inadequate Corrective Actions for RSS Sump Pump Issues
99-07-03	NCV	Inadequate Corrective Actions for Organizational Changes

Closed

99-07-01	NCV	Inadequate Design Control for RSS Sump Pump Issues
99-07-02	NCV	Inadequate Corrective Actions for RSS Sump Pump Issues
99-07-03	NCV	Inadequate Corrective Actions for Organizational Changes
98-212-04	URI	Medium Voltage Circuit Breaker Maintenance
97-82-02	VIO	Organizational Freedom for HP Functions
97-82-06	VIO	Boric Acid Pump Air Binding
97-82-08	VIO	Service Water Flow Indication Anomalies
98-72-05	VIO	Procedures Defining ISEG Process
98-72-10	VIO	Safety Functions Requirements Manual
98-208-07	URI	Recirculation Spray Cubicle Sump Pumps
98-208-06	IFI	Completion of MOV Program Closure Issues
97-82-01	URI	Measuring and Test Equipment Program Issues
97-82-07	VIO	Incorrect Condition Report Significance Levels
98-06-02	URI	Repetitive Waste Test Tank Releases
97-046-00	LER	Containment Recirculation Spray System Cubicle Flood Potential
98-036-00	LER	Engineering Safety Features Building Sump Pump Design Deficiencies

LIST OF ACRONYMS USED

ACR	Adverse Condition Report
AFW	auxiliary feedwater
AITTS	Action Item Tracking and Trending System
AR	Action Request
AWO	automated work order
CR	Condition Reports
CSR	cable spreading room
CVCS	component valve cooling system
DBA	design bases accident
DBS	design base summary
DCM	design change manual
DCN	design change notice
DR	discrepancy report
ECOP	Employee Concerns Oversight Panel
ECP	Employee Concerns Program
ECPM	Employee Concerns Processing Manual
EPRI PPM	Electric Power Research Institute performance prediction methodology
EDG	emergency diesel generators
ESF	engineered safeguards features
GRITS	Generation Records Information and Tracking System
HIRD	harassment, intimidation, retaliation and discrimination
ISEG	independent safety engineering group
KPI	key performance indicators
LER	Licensee Event Report
LHC	Little Harbor Consultants
M&TE	measuring and test equipment
MDMRT	multi-disciplinary management review team
MOV	motor-operated valves
MR	Maintenance Rule
MRT	management review team
NCV	Non-Cited Violation
NNECO	Northeast Nuclear Energy Company
NO	Nuclear Oversight
NOVP	Nuclear Oversight Verification Plan
NSAB	Nuclear Safety Assessment Board
NU	Northeast Utilities
NUTIMS	Northeast Utilities Training Information Management System
OD	operability determinations
ODI	Operations Department Instruction
PASS	Post Accident Sampling System
PM	preventive maintenance
PORC	Plant Operations Review Committee
PRA	probability risk assessment

RCI	root cause investigation
RG	Regulatory Guide
RSS	Recirculation Spray System
SCWE	Safety Conscious Work Environment
SFR	startup field report
SORC	Station Operations Review Committee
SW	service water
T&Q	training and qualification
TM	temporary modifications
TR	trouble report
TS	Technical Specifications
UDIC	Unit Deferred Item Committee
VCT	volume control tank
WTT	waste test tank

Attachment 1

**40500 and 40001 TEAM INSPECTION
MILLSTONE UNIT 3**

Exit Meeting

July 15, 1999

Inspection Report 50-423/99-07

AGENDA

**INTRODUCTIONS
TEAM FINDINGS AND CONCLUSIONS
REGIONAL MANAGEMENT OBSERVATIONS
LICENSEE COMMENTS
CLOSE MEETING**

NRC STAFF AVAILABLE FOR QUESTIONS FROM PUBLIC AND MEDIA

FOLLOWING THE PUBLIC MEETING

Team Composition and Schedule

William Raymond - Team Leader

Rick Urban - Asst. Team Leader

Paul Cataido

Larry Scholl

Doug Dempsey

Joe Carrasco

Phil McKee (Contractor)

Onsite Inspection weeks of June 14 - 18 and June 28 - July 2, 1999

Inspection purpose and guidance

Evaluate the effectiveness of licensee controls in identifying, resolving, and preventing issues that degrade the quality of plant operations or safety.

NRC INSPECTION MANUAL, Inspection Procedure 40500

Assess the effectiveness of the safety conscious work environment to review how NNECO resolves employee concerns.

NRC INSPECTION MANUAL, Inspection Procedure 40001

Inspection Team Findings and Presentation Format:

- Problem Identification
- Root Cause Evaluations and Corrective Action Development
- Corrective Action Tracking and Trend Analysis
- Self Assessment
- Independent Oversight
- Employee Concerns Program Review
- Overall Summary

Problem Identification Review Scope

- Selected Condition Reports (Level 1,2, and 3)
- Risk Significant Safety System Reviews (RSS, SIS, AFW, and SW)
- Operability Determinations (ODs)
- Temporary Modifications
- Millstone Unit 1 Common Systems that Impact Operations

Problem Identification Findings and Conclusion:

Licensee problem identification and processing via the Condition Report (CR) process was effective.

- Low threshold and high volume of CR's initiated daily
- Appropriate assignment of Significance Level
- Appropriate reviews and screening (Site and Multi-Discipline Management Review Team)
- Opportunities for improvement were noted

Problem Identification Observations:

- System reviews identified no problems not already addressed
- Operability Determinations (OD) technically sound, and provided appropriate justifications for system operability
- Temporary Modifications adequately implemented and resolved the design issue
- A good process to address conditions at Millstone 1 that might impact operations at Millstone 2 and 3

- Two examples of opportunities for improvement
 - an OD did not initially include all breakers (125 vdc)
 - initiate SL1 CR for ineffective corrective actions (SL1's & SL2's)

Root Cause Evaluations and Corrective Action Development Findings and Conclusions

Licensee root cause evaluations and corrective actions were generally effective, with improvement needed in some root cause evaluations and corrective action timeliness and effectiveness

- Corrective actions for maintenance rule systems properly implemented
- Evaluations and actions to address deficiencies were generally effective
- Process to address operator burdens effectively implemented, and well interfaced with the corrective action process
- Good agreement between the team's and licensee's cause evaluations
- Corrective actions generally proper, timely and appropriately implemented for high priority issues

Root Cause Evaluations and Corrective Action Development Findings and Conclusions (cont'd)

Areas for Improvement

- Cause evaluations did not always identify triggering mechanism
- The team noted some recurrent events, missed opportunities for timely corrective actions, immediate compensatory measures not fully effective, and ineffective corrective actions (*potential NCV for organization changes*)
- Corrective action backlog remains high
- Corrective actions for RSS sump pump issues were not adequate (*two potential non-cited violations (NCV) for 10 CFR 50 Appendix B Criteria for design control and effective corrective actions*)

Corrective Action Tracking and Trend Analysis

Corrective action Tracking and Trending was found to be good.

Trend Analysis by the Licensee was extensive and effective to monitor progress in meeting established goals.

- Key Performance Indicators
- Corrective Action Dept. monthly and quarterly trend reports
- Department and specialty trend reports
- Department Self Assessments

Backlog management control was good, with slow progress in reducing the work load.

Departmental Self Assessments

The team found that the self-assessments were critical, and effectively contributed to problem identification and resolution.

- Self-critical reviews performed by the Operations, Maintenance, and Engineering groups.
- Implementation of the Management Observation Program was a good example of assessments that provided feedback on management expectations and process improvements.

Opportunity for Improvement

The self-assessment corrective actions for engineering personnel training and qualification issues were narrowly focused

Independent Oversight Review Scope

- Plant Operations Review Committee (PORC)
- Station Operations Review Committee (SORC)
- Station and Multi-disciplined Management Review Teams (MRT)
- Independent Safety Engineering Group (ISEG)
- Nuclear Safety Assessment Board (NSAB)
- Nuclear Oversight Organization

Oversight Committees

The team observed that the review committees were effective in overseeing the unit activities and providing unit staff and management with appropriate feedback.

- Good safety and problem resolution focus by each group.
- PORC and SORC enforce quality presentation standards.
- ISEG evaluations provided effective oversight of shutdown risk (stop work order) and good recommendations for improvement.
- The Operating Experience program is working well.
- The NSAB and MRTs are functioning well and provide critical assessments of unit activities.

Opportunity for Improvement

Documentation of PORC Member Training

Complete actions to disseminate Operating Experience Information

Nuclear Oversight

Nuclear Oversight organization was very active and involved with Unit 3 operations, and provided good independent oversight of activities

- Several audits show quality and depth in Oversight reviews
- Oversight was effective to identify program and performance issues, and provide real time feedback to the line organization
- The Nuclear Oversight Verification Plan (NOVP) provided good integrated ratings and assessments of outage activities
- Nuclear Oversight was effective in identifying areas for improvement in the corrective action process (Audit MP-99-A06), and instances of ineffective corrective actions (stop work order)

Employees Concerns Program (ECP) Implementation

The Millstone Employee Concerns Program remains an effective vehicle for processing concerns and nuclear safety issues

- ECP cases reviewed showed that the issues were appropriately processed and investigated
- Most recent issues identified to the ECP were human relations and management type issues
- Recent surveys and performance indicators showed positive or steady trends in ECP performance
- Reconstituted Employee Concern Oversight Panel (ECOP) organization is functioning effectively
- Activities to transition the safety conscious work environment (SCWE) functions to the Human Services organization have been deliberate

Employees Concerns Program (ECP) Implementation (cont'd)

Opportunities for Improvement

- Administrative discrepancies in ECP training & qualification files
- Mis-classification of a potential harassment, intimidation, retaliation, discrimination (HIRD) case
- "People Team" and "SWCE Manager" meetings to better coordinate and communicate resolution of emerging issues (prior NRC concern in 1998)
- Timely completion of ECP corrective actions; use of extensions
- Improve measures and key performance indicators (KPIs) for changes in survey frequency and questions
- Complete initiatives described in the SCWE Assessment Plan

Employees Concerns Program (ECP) Implementation (cont'd)

Areas for Continued Attention

- Key performance indicator (KPI) - willingness to raise issues - level or slight decline (98.7% to 96.6%)
- Worker perception that SCWE exists is below goal of 90% (survey showed 84.7% agreement)
- Worker input to team - no reluctance to raise "safety concerns" through corrective action process; some indication of not wanting to be obstacle to schedules, and potential impact of supervisory cascade on raising issues

Remain Diligent to SCWE Issues During Pending Organization Changes

Overall Summary

The Corrective Action, Employee Concerns and SCWE Programs have been effective

- Low threshold for problem identification
- Generally effective cause evaluations, some weaknesses noted
- Appropriate corrective action assignment and tracking
- Problem resolution generally effective
- Generally self-critical and functional self assessment process
- Active and effective Nuclear Oversight organization
- Three potential non-cited violations, and areas for improvement (identification, evaluation, and effective corrective actions)
- Continued acceptable performance in the employee concerns program area; need to remain diligent in maintaining a safety conscious work environment during organization changes

The team noted progress in corrective action program implementation, with areas for continued improvement

Region I Management Oversight Observations and Remarks

Licensee Comments and Feedback