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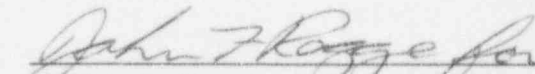
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Inspection Summary: Announced team inspection by regional personnel to perform a performance-based review of the independent oversight function at Seabrook, with a focus on the activities of the review committees, the independent safety engineering group, and the quality assurance program.

Results: Refer to the Executive Summary.

EXECUTIVE SUMMARY

SEABROOK STATION INSPECTION 50-443/94-80

The objective of this review was to conduct a performance-based inspection of the self-assessment program at Seabrook, with a focus on the independent oversight provided by the review committees, the independent safety engineering group, and the quality assurance program. The team focused its initial inspection activities in the areas of electrical maintenance, mechanical maintenance and Instrumentation & Controls (I&C) to gain insights on performance. The team then reviewed the activities of the independent oversight groups to determine how performance issues were identified and addressed. Because of the central role line management has in interfacing with oversight groups and implementing improvement initiatives, the inspection also reviewed many self-assessment functions under line management. The inspection activities were conducted during two separate weeks at Seabrook Station, with the intervening week spent reviewing program performance and technical information gathered during the first week on site.

NAESCo has recognized the need to improve station procedures and plans to initiate a Procedure Upgrade Program to improve format, human factors and technical quality of the procedures. Similarly, the work control process is complex and can contribute to the incorrect performance of work in the absence of strict adherence to the process. The Work Control Interface Committee is addressing this area. During observations of work activities in the plant, the team noted good work practices in the field, work packages were acceptable, workers showed a good regard for procedure controls, and there is an improving relationship between the line organization and Quality Program (QP) personnel. No schedular pressures were evident in the field or in daily planning sessions.

The team reviewed nine elements of oversight and self-assessment within the line organization. Programs initiated to improve performance appear to have the right elements for success. The Occurrence Review Committee is performing well. The STAR and Supervisory Walkdown Programs have the potential for improving performance. The new STAR program is currently used to identify areas for improvement; but, further development is needed to inform management of trends and to assure long-term actions are completed. The Human Performance Evaluation System has not been effectively used to correct personnel errors. Although the line organization has instituted several good self-assessment practices, self-assessment at the station lacked formal program guidance, and was inconsistently applied.

The SORC meets its license requirements. An exception occurred in April 1994 regarding the quorum requirement, when the Assistant Operations Manager was considered a member. NAESCo took actions to address this violation of technical specification 6.4.1.3. SORC effectiveness could be improved as indicated by the number of documents (licensing amendments and safety evaluations) sent to the NSARC where weaknesses are identified. The Independent Review Team (IRT) has been used to elevate issues needing action. Implementation of IRT recommendations in the past has been incomplete or not effective, as indicated by weaknesses in the maintenance area in 1994, which were previously identified in a 1990 self-assessment.

The quality assurance (QA) program was established by QA procedures, and the QA department was implementing an audit, surveillance and inspection program with qualified personnel in accordance with the QA Manual and the QA instructions. Audits were of good technical content and included field observations and examinations. QA has a demonstrated track record of developing substantive findings, which provided an evaluation and assessment of the program under review. The audit reports focused corrective actions in areas to fix the identified deficiencies and made good recommendations. Better quality trend reports are now in place to measure performance. The corrective action process (CAP) has been significantly improved and appears to contain the elements for an effective program. Further evaluation is required after the program has been in place to determine the long-term effectiveness.

The team concluded that ISEG is effective in its oversight function and meets section 6.2.3 of the technical specifications (TS). ISEG evaluates plant and industry events and independently evaluates operating and maintenance activities to ensure nuclear safety is maintained. ISEG provided good reviews of issues and made positive recommendations to the Seabrook organization. ISEG performed well for the review industry operating experience, but has not been well utilized for monitoring in-plant activities. More in-plant observations will facilitate the review of the effectiveness of station programs. ISEG monthly reports are acceptable, but were weak in the use of "boiler plate" conclusions for evaluation of station activities. These weaknesses are being addressed. The team concluded that ISEG is an integral part of the total self-assessment program and provides considerable value to the safety of operation.

The team concluded the NSARC is effective in its oversight function and meets the requirements of the TS. Committee membership covers technical areas required, and most members attend and participate in meetings; however, attendance by the station manager was poor. Assessments were of sufficient depth to identify problems and focus on effectiveness as well as programmatic compliance. Reports are timely and complete, recommendations are tracked, and management is provided with needed information. Upper management support of committee activities is evident. NSARC trends performance, and has increased activities in this area over the last six months. NSARC could improve its oversight and trending of plant deficiencies, through better attendance by the station manager and better followup of performance indicators.

The QP oversight at Seabrook, in a broad sense, is effective and does identify the program and process changes needed to improve safety performance. The independent oversight function could be improved through more timely development of performance issues. Corrective actions were less than fully successful in the past because line management and the independent oversight groups did not verify the effectiveness of the actions put in place. The QP used sponsored reviews to validate trends identified by the audits process, and to give impetus to needed changes. QA recently improved the tools needed to effectively manage its corrective action processes, manage commitments and provide improved trending tools. It is too soon to assess whether the NAESCo initiatives and actions will work. The team observed symptoms of organizational stress within the line organization. NAESCo should monitor organizational stress to assure no loss of effective oversight.

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ATTACHMENT 1, Exit Meeting Attendees

DETAILS

1.0 PURPOSE

The purpose of this review was to determine the effectiveness of the licensee's self-assessment and improvement programs, including the functions of the line organization and the independent review and oversight committees and the quality assurance program. The objective was to determine whether the licensee's programs were successful in providing NAESCo management with accurate assessments of plant performance and in providing for independent oversight of safe plant operation.

To accomplish the objective, the team first reviewed activities in the maintenance, surveillance and I&C areas, and the activities by the line organization. The team then reviewed the activities of the independent oversight groups to understand how these groups identified performance problems and what actions were taken to address the issues.

The team reviewed QA audits and assessments and the program to detect adverse trends. Site Operations Review Committee (SORC) and nuclear safety audit and review committee (NSARC) activities were reviewed and meetings were attended, as available. The team reviewed the activities of the independent safety engineering group (ISEG). The team also reviewed the results of other NAESCo-sponsored audits by the oversight groups, such as the independent review team (IRT) and the joint utility management audits (JUMA). The team reviewed the status of self-assessment and other programs to evaluate processes established by NAESCo to improve performance. The team relied on interviews with key management and staff for portions of the inspection and used independent observation and evaluation of programs and processes to complete the inspection.

2.0 BACKGROUND

2.1 Performance History

The performance history for Seabrook is provided in the most recent SALP report (dated November 18, 1993) and in the inspection record. The maintenance area was assessed as performing at an adequate level, with several problems during the last SALP period. There was a need to improve procedure adherence and a number of instances of inattention to detail in the control of work caused minor safety system transients and equipment failures.

There is a history of personnel errors starting in 1989 (preoperational period) in which the operators failed to follow the procedure and trip the reactor on low pressurizer level. Corrective actions included the implementation of the STAR program for operators, and the values for excellence program. The auxiliary operator log issue in 1991 provided a second indication of an underlying performance problem. Corrective actions at the time were not focused on the underlying culture issues.

The third operating cycle ended with the start of the refueling outage on April 8, 1994. Performance problems experienced during the cycle included eight reactor trips and an increase in the rate of personnel performance errors. The recurrence of significant personnel errors in the third operating cycle, by both operators and other plant personnel, showed there was an underlying cause responsible for performance issues and a problem in developing lasting fixes to problems.

In response to NRC enforcement in mid-1993, NAESCo initiated a personnel error response team (PERT), which provided recommendations to address the causes and prevent recurrence. The PERT identified underlying cultural issues: personnel errors were being tolerated; there was a lack of ownership and responsiveness to problems absent management attention, and management was sometimes isolated from event details. The problem in addressing personnel performance stemmed, in part, from a rationalization by both management and workers that errors were inevitable. Standards have been raised and management expectations were communicated to the staff. NAESCo stated that the message is reaching the worker level, but more time reinforcing expectations with a consistent message is needed to improve the culture.

The PERT also identified program issues: the STAR and supervisory walk-down programs were ineffective; the work control program was overly complex; there was a lack of followup in corrective actions; and there were too many trend reports and the trend reports conflicted. The licensee also took actions to address trip reduction, procedure compliance and procedure quality. In September 1993, a review of the independent oversight functions by the joint utility management audit (JUMA) identified weaknesses in the quality assurance programs and the oversight groups. JUMA found that workers did not fully appreciate their role in assuring quality, and believed quality belonged to the quality programs (QP). Management has communicated its expectations about quality, including the worker's role in assuring quality, and the function of the QP.

In spite of the above initiatives to improve performance, the ability to implement lasting corrective actions remains to be demonstrated at Seabrook. The NRC recently noted weaknesses in the root cause determinations and in corrective actions regarding repairs on the main steam isolation valves. On April 10, 1994, while opening the containment air lock, eleven workers were injured as a result of a failure to follow procedures. The 1994 first quarter trend report notes that the occurrence of excessive personnel errors remains a problem. The status of NAESCo actions to improve operations was discussed in a meeting with NRC management on April 14, 1994. The meeting focused on the licensee's efforts to bring about a positive cultural change to improve overall performance.

2.2 Defense-in-Depth and Safety Assessment

In the following summary, independent oversight is used in the broad sense as those management processes that assure quality in Seabrook operations. The independent oversight function is defined in the Seabrook operating license and the formal 10 CFR 50 Appendix B, QA Program (QAP), which established the framework for quality in plant operating activities, independent oversight, and self-assessment.

The concept of defense-in-depth used in plant design also applies to the independent oversight function, in that safety in operation is provided by a multi-tiered framework:

- (1) A qualified work force implements management's programs and processes. Defense-in-depth begins with the worker who sees quality as his responsibility and who verifies that his work is performed correctly. This level includes self-assessment to result in continuous improvement in safety performance.
- (2) The next line of defense is line management, who provides workers with sound procedures and processes and the necessary tools and allocates resources appropriately. Management establishes policies and standards for safety performance and sets an example. Management monitors performance against expectations to identify where corrective actions are needed to assure policies are met.
- (3) Another level of defense lies within the oversight groups, which includes the ISEG, the NSARC and the QA Program, and other activities sponsored by the QA organization. These groups independently assure the first two levels are achieving the desired level of performance, identify weaknesses or adverse trends, and provide upper management the information needed to assure continuous improvement in safety performance.

The team examined the programs and processes at Seabrook within this framework to assess the independent oversight and self-assessment functions. The levels of oversight addressed included: the administrative controls established to assure qualified personnel follow programs to assure quality in safety activities, audits, inspections and surveillances by the QAP to measure performance and provide management the feedback it needs on performance, oversight by the offsite safety review committee to review the QAP audit results to detect trends and to advise the Senior Vice President on matters affecting safety, and the effectiveness of line management, including the performance of self-assessments, and the activities of the site operations review committee.

3.0 INSPECTION OF MAINTENANCE ACTIVITIES

3.1 Observation of Work

The team conducted performance-based inspections of selected maintenance and surveillance activities. The review included the processes and procedures for the conduct of preventive and corrective maintenance, and the observation of maintenance related activities in the field. Procedures and work packages were reviewed for general content and quality. Maintenance personnel were interviewed to assess their knowledge and commitment to quality maintenance. The team reviewed supervisory and management oversight. A walk-through inspection of the I&C shops and plant I&C systems also was made. Work observed or reviewed included:

- Change of condensate pump screen filters;
- "A" RHR heat exchanger welding;
- Work on the Containment Building Spray Pump (CBS-P-9B);
- Primary Component Cooling Water Heat Exchanger (17B);
- Primary Charging Pump "A" oil change;
- FW-511 Loop Calibration (IN-1640-140);
- Service Water pipe welding;
- Disassembly of Main Steam Line Safety Valves;
- Service Water Motor Operator Valve Testing - LS0569.09 (A);
- Lockout Relay Replacement for DCR 94-008 - LS94-1-3;
- Protective Relay Work, Motor Control Center: Inspection, Preventive Maintenance - LX0557.01;
- Protective Relay Work, Motor Control Center: Overcurrent Protective Relay Test - LX0557.22; and
- Several Motor Control Center Cleaning Activities.

The team found that maintenance personnel followed procedures and written instructions well. The quality of the work packages had been a concern in the past, but the technicians stated and team observations confirmed that the packages have improved. The workers were

identifying problems during preparatory review of the procedure (an electrical drawing needed was not provided in the work package) or during the work activity (field labeling of wires did not match drawing). The team noted a prejob briefing for electrical maintenance provided information so that the people involved with the work activity understood what was to be accomplished and how it would be done. The use of supervisory hold points in maintenance procedures was considered a positive initiative.

For the surveillance and mechanical maintenance activities observed, the team found the workers to be knowledgeable and observed good supervisory and management oversight of the activities and good support and coverage by Quality Control. The team noted that workers were using procedures and work areas were clean. No problems were identified that had not already been identified by NAESCo staff. Field observations verified that personnel were knowledgeable of procedural requirements and plant design. Work and surveillance packages were complete and had acceptable detail to perform the designated tasks. Drawings and vendor manuals generally were included to augment the knowledge and skills demonstrated by maintenance personnel. Good coordination was observed between plant departments, and activities were discussed at the daily planning meeting.

Because of the potential benefits of reliability centered maintenance (RCM) expressed by a number of employees, the team discussed RCM with those responsible for the program. NAESCo has studied six systems. The first system studied was the diesel generators and it was found to be too complex to implement the RCM improvements. The other systems studied have had some recommendations implemented but they have not been followed by the RCM engineers. Work on RCM is presently on hold and will be factored into the implementation of the Maintenance Rule.

In summary, the team observed noted good work practices, that work packages were acceptable, that workers showed a good regard for procedure controls, and that there was an improved relationship between the line and QC. No undue schedular pressures were evident in the field or in the conduct of daily planning sessions.

3.2 Seabrook Staff Interviews

The team conducted interviews with mechanics, technicians, and supervisors in electrical maintenance, mechanical maintenance, and the I&C departments. In addition to managers in the maintenance department, the team also interviewed managers in the line and the quality assurance organizations. The observations made from the interviews of this limited sample of station personnel are presented below.

- First-line supervisors were burdened with administrative work, which may impact their ability to direct workers in the field.

- Worker knowledge and the ability to respond to events was a strength. There was no perceived impact of cost-cutting initiatives. None of the workers felt undue pressures to take shortcuts in their work, nor did they feel that management sent out mixed messages on work quality and schedule.
- Employees felt they had good communications with QC and that QC was effective in monitoring performance. The relationship with QC was very good. There have been personnel interchanges between the I&C department and QC, promoting a close relationship.
- There was no problem with making constructive criticism, and workers felt they had management's support in identifying safety concerns. No problems with teamwork were identified. Employees were familiar with the STAR program.
- I&C technicians felt there were too many procedures in the I&C manual; hence, requirements were sometimes fragmented and distributed over a number of procedures creating confusion, omission, and complicated work situations.
- Sometimes I&C procedures were contradictory and unclear. To determine the applicable requirement, one may have to research more than three or four procedures in a different section of the I&C manual. For example: procedure MA3.2 did not address voiding of any repetitive test; procedure MA2.1 indicated that repetitive tests could be voided; and procedure SM7.1 gave the actual process for voiding a test.
- Technicians, as well as supervisors, indicated that the I&C qualification training, especially the system training, was very effective. However, the technicians felt the refresher training was weak, since no structured training was provided for new instruments and/or upgraded instrumentation after design changes/modifications.
- Supervision knew of the "Integrated Tracking System" and was aware that there were approximately 60 I&C items on the list, but was not confident that they could reduce the backlog with current resources without impacting the routine work.
- I&C supervision felt there was too much backlog in the current work because of the 100% preventive maintenance (PM) policy. However, there was an effort to prioritize the work and issue a new policy on PM.
- Workers were not sure if middle management fully supported the new programs. There was a lot of perceived accountability at the top management and at the worker level, but workers perceived that middle management did not seem to have any accountability or responsibility. Some workers said middle management was not sympathetic to procedure problems.

- Workers did not have much contact with middle management until about a year ago. The situation is improving now. However, in workers' opinions, it was still "sparse" and "inconsistent."

Finally, interviewees were asked to describe the conduct of business at the Seabrook Station. Most felt that management wanted problems identified. With respect to procedures and safety practices, the majority thought that they were being followed by the plant staff and that, when in doubt, management expected them to proceed conservatively. Although many felt that the resources were provided to do the job right, it might not always be done right the first time. In this area, as well as the area of paying attention to detail, all the interviewees agreed that, while this may be everyone's intention, there is a clear need for improvement. The effectiveness of maintenance, as well as quality assurance, received high grades by all persons interviewed. Additionally, the quality assurance program was thought to have a large positive impact on plant safety.

4.0 MANAGEMENT PROGRAMS

4.1 Work Control Process

The work control process at Seabrook Station is defined in the Maintenance Manual and the station administrative procedures. The work control interface committee (WCIC) provides a management overview of work control activities at Seabrook. As part of the PERT reviews, NAESCo found that the work control process was overly complex and the program and procedures should be improved. The WCIC was tasked with the providing the focal point for the improvement activity.

The WCIC's task is to review and evaluate overall work control practices and provide those recommendations necessary to improve communications between departments, promote inter-organizational teamwork, and enhance work quality at the station. The committee reports to the Station Manager. NAESCo initiated actions to update and reissue the Maintenance Improvement plan (MIP), to provide guidance on good industry practices. The upgrade would specifically target the reduction of personnel errors as related to maintenance activities. The revised MIP was scheduled for issuance in September 1994 and would address areas such as personnel development, maintenance effectiveness and self assessment of maintenance performance.

In response to the PERT, a WCIC subcommittee reviewed the work control process to determine its impact on personnel error. The subcommittee concluded that the process, if used as written, does not contribute to personnel error. However, implementation of the process is inconsistent, the process logistics are complex, aggravated by physical location of support staff, and responsibilities associated with the process are not always clear. Therefore, there is ample opportunity for the work control process to falter. The licensee has begun to implement the recommendations of the WCIC subcommittee in order to improve the process.

4.2 Procedures

There are about 3400 technical procedures and about 600 administrative procedures in effect at Seabrook. In 1992, following the receipt of an INPO finding regarding procedure usage and licensee verification of that finding, the licensee initiated steps to improve procedure compliance and to enhance the procedures. The licensee found that maintenance workers were interpreting steps and not following the procedures, because they had used the procedures before. In 1993, plant personnel received procedure compliance training. They were instructed to follow the procedures or implement changes if the procedures could not be followed.

The PERT report identified the need to improve procedure compliance and quality (see Section 2.1 above). The licensee now believes that personnel are following the procedures, but that procedure quality could be better. Therefore, the licensee initiated a Procedure Upgrade Project (PUP) in late 1993. Through the PUP, the licensee intends to improve personnel performance by providing written instructions that meet procedure users' needs; to enhance procedure quality by providing procedures that are clear, accurate, and complete; and to improve the efficiency of writing, revising, reviewing, approving, and using procedures. The procedures will be enhanced through the incorporation of human factors and validation of technical content. The licensee intends to have the program in place to support the PUP by July 1994, and expects the project to take four additional years to complete. The team found that the PUP has good attributes and should help to improve the quality of procedures once implemented.

The licensee has also requested a license amendment (#93-20), which would delete the biennial review requirement and add a station-qualified reviewer (SQR) program. The licensee believes that they currently spend about 90,000 hours a year on procedure changes, revisions, and biennial reviews. They believe that about 50,000 of these hours are spent on the biennial review. Upon deletion of this review, most of these hours would be used for the PUP. This amendment is currently being reviewed by the NRC.

The team reviewed the current status of procedure biennial reviews. As of May 2, 1994, about 50 technical procedures had expired (beyond two years plus six months grace period since the last biennial review). The licensee has taken steps to ensure these procedures are not used. The team reviewed a sample of these procedures, which showed that the reviews were not currently needed because the procedures either were not used routinely or had been superseded and not yet cancelled.

In summary, there are a large number of procedures that affect quality and safety activities at Seabrook, which require periodic review and revision. In spite of NAESCo initiatives to streamline the review process, the effort to review procedures requires an extensive amount of resources. NAESCo has initiated plans to upgrade procedure quality, and to further improve the procedure review process.

4.3 Site Operations Review Committee (SORC)

The team reviewed site operations review committee activities in the 1993 to 1994 time frame to determine if the SORC was functioning in accordance with Seabrook license requirements. The team attended several SORC meetings during the inspection, reviewed a sample of the 1994 meeting minutes, and interviewed licensee personnel. During the meetings attended, most of the SORC's time was focused primarily on procedure changes, revisions and biennial reviews, although little discussion accompanied these reviews. The licensee uses subcommittees for procedure revisions and biennial reviews; therefore, approval by the full SORC is, basically, a formality. A few temporary modifications, design change requests, modifications, and station information reports were also reviewed, and the discussion surrounding these reviews was of more substance and quite constructive. Review of the previous meeting minutes also showed that the majority of the SORC's time was spent dealing with procedures. In 1993, 3440 of the 4220 items reviewed by the SORC dealt with procedure revisions, changes, cancellations, and periodic reviews. The licensee believes that about 6000-7000 person-hours a year are spent in SORC meetings. They believe this will be cut by about 65%, once the biennial review program is deleted and the SQR program is in place.

The SORC maintains a list of action items that are tracked on the commitment management program. The items are prioritized and have due dates. The team reviewed the current list, and did not identify any concerns. Technical Specification 6.4.1.2 states that the SORC shall be composed of the chairman and nine members. The station manager is the designated chairman, but an alternate can be designated. Of 96 SORC meetings conducted in 1994, the station manager chaired only 28 meetings (about 30%).

The team noted that several licensing amendments and safety evaluations reviewed and approved by the SORC were later reviewed by the NSARC, which identified weaknesses in the documents. For example, NSARC questions regarding the timeliness of establishing containment and performance of surveillance requirements led to cancelling License Amendment Request 93-12, "RHR Reduced Refueling Mode Flow Rates," after the request had been approved by the SORC.

TS 6.4.1.2 also identifies the operations manager as a SORC member and the assistant operations manager is not identified. TS 6.4.1.3 states that all alternate members shall be appointed in writing by the SORC Chairman to serve on a temporary basis; however, no more than two alternates shall participate as voting members in SORC activities at any one time. TS 6.4.1.5 states that the quorum of the SORC shall consist of the chairman or his designated alternate and four members including alternates.

In an April 12, 1994, memorandum, the licensee had identified the assistant operations manager as a SORC member. During meetings on April 14 and 15, the licensee considered the assistant operations manager to be a member, not an alternate and, therefore, documented that they had two members and two alternates present. However, per the TSs, the assistant

operations manager can be an alternate, but not a member. Therefore, during these SORC meetings, the licensee did not meet the quorum requirements, because they actually had one member and three alternates present for the meetings. After identification of this issue by the team, on May 12, 1994, the licensee revised the list of members and alternates for the SORC and designated the assistant operations manager as an alternate to the operations manager.

In summary, the team found that the SORC was meeting its license commitments with the exception of the quorum requirement, which is considered a violation of Technical Specification 6.4.1.3. This violation will not be cited because the licensee's efforts in correcting the violation met the criteria specified in Section VII.B of the Enforcement Policy, dated January 1, 1994. Specifically, the violation was of minor safety significance, was promptly corrected when identified, and could not have been prevented by previous corrective actions. Overall, the SORC has not been as effective as it could be as indicated by the number of documents that are approved by the SORC prior to the NSARC identifying weaknesses. Implementation of the SQR program and deletion of the biennial review program should reduce the number of procedures reviewed by the SORC and help to improve the overall effectiveness of the SORC.

4.4 Self-Assessment Processes

The 1993 JUMA audit provided an assessment of the independent oversight function at Seabrook, with a focus on three areas: the extent to which line management understood the quality program (QP) strategic plan; the extent to which line management understood their roles and responsibilities in assuring quality; and the effectiveness of the QP in assuring quality. The audit results indicated that the majority of the line managers were not aware of the strategic plan. JUMA found that line managers felt little direct responsibility for assuring quality, and believed that the quality assurance organization (QA) was responsible for quality through the conduct of inspections, audits and surveillances. Finally, JUMA found that specific segments of the quality organization could be more effective by updating the program to be less compliance orientated, and by improving the relationship between the QA and the line organizations.

NAESCO identified the need to shift to a culture that was focused on continuous improvement in both the line and quality organizations. NAESCO initiated actions in three broad areas: improving teamwork - executive management began an series of team-building sessions in October 1993 to enhance line management recognition, acceptance and implementation of quality principles and practices; improving the relationship between quality and the line; and improving the quality program. QA took the added initiative to establish a set of self-assessment program guidelines for the line organization.

Prior to 1994, self-assessment practices were used by several groups in the line organization at Seabrook, but the process was inconsistently applied across the station. Examples of self-assessment practices included the activities of the work control interface committee, the

STAR program, the post-outage organization critiques, the SIR and OIR processes, and the supervisory walkdown programs. More formal self-assessment programs are under development at the conceptual stage in the planning and scheduling, the site services and the chemistry and health physics groups.

In the near term, QA initiated a series of meetings and training sessions with the line groups to discuss the results of the JUMA audit, to describe the concept of self-assessment, and to describe the line's role and responsibility for quality. As of April 1994, QA had met with eleven different groups in the line organization, and the meetings are ongoing. In addition to defining existing self-assessment practices, QA is collecting self-assessment procedures and programs from across the industry as input to defining the guidelines at Seabrook. In the long-term, QA is writing a corporate level procedure that will establish a set of guidelines and state NAESCo management expectations on self-assessment. The procedure is scheduled to be issued in mid-1995.

In summary, self-assessment practices have been in place at Seabrook, but the program lacked formal guidance and was inconsistently applied. A significant initiative is in progress by QA to define a set of guidelines and to assist the line organization in developing a formal self-assessment process. The effectiveness of these activities remains to be demonstrated. The team selected several existing self-assessment practices for further review as part of the assessment of the independent oversight activities at Seabrook, as described in the sections that follow.

4.4.1 Occurrence Review Committee (OIR/SIRs)

Under the new NAESCo program, condition reports (CDRs), operational information reports (OIRs), and station information reports (SIRs) are the core of the corrective action process. The licensee initiated the occurrence review committee (ORC) in February 1994 to review corrective action documents and determine significance factors, areas of concern category, and preliminary causes. This preliminary information is used to generate trend reports for management. The committee's goal is to foster a self-critical and questioning attitude in reviewing the corrective action documents to aid in the effective resolution of the causes prior to the development of an adverse trend. In the past, QA personnel individually decided the preliminary cause for each corrective action document to use in the trend reports. The licensee believes that using a group of people from many disciplines for this up-front determination of preliminary cause will result in better trending.

The ORC meets weekly to review corrective action documents generated the previous week. The committee is chaired by nuclear safety assessment (NSA) trend personnel and consists of representatives from several groups including Technical Projects, Operations, HPES, Training, Nuclear Quality, Maintenance, Engineering and ISEG. The licensee expects consistent membership representation and is currently identifying a designated representative from each group and an alternate. The committee issues monthly and quarterly trend reports.

The team attended two ORC meetings (April 27 and May 9) during the inspection. The committee members appeared to work well together and were able to discuss each issue, arriving at a consensus in all cases. None of the members seemed reluctant to voice his opinion, even when it went against the consensus of the rest of the group. The HPES coordinator was very helpful during these discussions and acted as a facilitator for the group. However, the degree of preparation for the meetings varied; the first meeting observed by the team was better than the second. For example, during the meeting on May 9, of the nine OIRs that were reviewed, only one had the necessary additional information (brought to the meeting by the members) needed to determine a preliminary cause for the event. Two OIR reviews were postponed, with one of the members tasked with providing additional information before the end of the week. The other OIRs reviewed received nothing more than an educated guess as to a preliminary cause. The workload also appeared to be building, as the ORC was unable at each meeting to complete their review of the corrective action documents on the agenda.

With regard to workload, the chairperson stated that they had expected the ORC to have to review about five corrective action documents per week. Instead, there were 130 corrective action documents generated in the first quarter of 1994. Consequently, the licensee is considering a procedure revision that would relax the requirement to review every OIR. Several similar reports could be combined and evaluated as one; or, once immediate obvious corrective action is taken, no additional evaluation would be needed. However, in either case, the OIR data would still be used for trending purposes, just less resources would be needed for performing evaluations of the OIRs.

The team reviewed the trend report for February 1994 and found it to be very good. Previously, trend reports had grouped the corrective action documents only by preliminary cause. Now the reports include significance factors that should help direct management's attention to the significant problems.

In summary, the use of the ORC to review corrective action documents to determine preliminary causes for trending purposes is a positive initiative that has improved the quality of trend reports provided to management. However, there are indications that the ORC is overburdened, which could impact its long-term effectiveness.

4.4.2 STAR Program

STAR is an acronym for Stop-Think-Act-Review, the four steps of a self-checking technique designed to avoid human errors. NAESCO has adopted the STAR self-checking technique to improve individual and overall Seabrook Station Performance by providing personnel with a tool to help "Do it Right, On Time, Every Time."

Procedure NM 12340 describes the STAR Program, which the licensee initiated site-wide in February 1994. NM 12340 is a detailed procedure that describes the self-checking technique, management support for the program, and the use of STAR feedback report

forms. The report form is used to identify lessons learned from self-checking practices that identify and prevent inappropriate actions. The feedback process of the program also includes the implementation of necessary immediate corrective actions such as procedure changes and labeling requests and the inclusion of lessons learned in department memos, night orders, and department meetings. The feedback process is coordinated by the HPES coordinator, who is tasked with maintaining a data base of all STAR feedback reports, trending the reports to develop measurements of performance patterns associated with the STAR self-checking technique, and distributing appropriate reports or trends to the appropriate training supervisors for inclusion in lesson plan development and to other department managers.

The STAR program was advertised via publication in the site newsletter, and through discussion in management meetings, general employee training, and other training classes. There is obvious management support for the program at the higher levels in the organization. Also, the response from the staff has been very positive with report forms being submitted daily. The licensee has taken some immediate corrective actions, based on review of the feedback report forms. However, there is a developing backlog of suggestions from the feedback process. Further, the STAR report form database is being developed, so no trending reports have been issued. Also, the distribution of forms to other departments has not occurred.

In the past, similar programs had been implemented in the operations and maintenance departments. However, these programs were not well developed or supported and, therefore, were not very effective. The new STAR program is a strength in that it is currently being used by the staff to identify near misses and areas for improvement. However, the program has yet to be developed to inform management of trends and to assure actions are taken to address all areas for improvement. Licensee management needs to follow through with actions to address the areas for improvement identified by the staff to ensure the long-term effectiveness of the program.

4.4.3 Supervisory Walkdown Program

The supervisory walkdown program was developed to put managers and supervisors in the plant for observation and evaluation. The scope of the program changes depending on areas of concern at the time. The program started in the late 1980's as an opportunity for managers and supervisors to interface and get to know the work force. In the early 1990's, following criticism by INPO of safety and housekeeping at Seabrook, the program focused on those areas and provided some benefits in 1993. In 1993, the PERT made a recommendation that the scope of the program be revised to include procedure adequacy, procedure compliance, job performance, personnel and equipment concerns, and programmatic issues, in addition to safety and housekeeping. The licensee is currently revising the program and intends to implement it after the current refueling outage. The licensee expects the new program to help ensure management's involvement in daily work activities leading to improved performance with less personnel error.

The scope of the old program was limited and, therefore, was not effective in identifying issues other than housekeeping and personnel/industrial safety issues. The scope of the new program appears appropriate and should provide improved oversight if implemented appropriately.

4.4.4 Maintenance Supervisory Oversight Program

The Maintenance Supervisory Oversight Program is described in procedure MM 10.3, "Maintenance Field Observation." The program has been piloted since mid-1993, and the maintenance department manager intends to evaluate the value of the program following the current refueling outage. The purpose of the program is for maintenance group management and staff professionals to observe the preparation and conduct of maintenance field activities. The licensee believes that the field observations will provide valuable feedback to the field-work process in areas such as training, procedures, programs, housekeeping, and human performance. The field observations are performed to ensure thorough and consistent management attention to work activities and to ensure that management expectations are carried out during daily maintenance activities.

The team found that the program as described in MM 10.3 includes very good attributes. For example, it provides techniques for supervisors to use during field observations, including encouraging openness and normal performance, explaining the observation as a team approach, maintaining a healthy pessimism, and reviewing the observations with the work crew. The mechanical maintenance, electrical maintenance and I&C departments have been implementing the program since mid-1993. Each group had numerous observations and had identified areas for improvement. However, only in the electrical maintenance department had the field observations been compiled into reports that summarized good practices observed and recommended action items. These actions were then tracked on an internal department tracking system until completion. Actions completed included several procedure enhancements and additional training and practice time on the use of the battery load testers. It appears that the mechanical and I&C departments are unable to follow through with identifying recommended actions and implementing them. In some cases, the team noted, based on comments on the observation sheets regarding lack of feedback from the program, that the observers themselves were frustrated with the program. The electrical maintenance department manager also noted that he is having difficulty following through on items that he does not have the resources internally to address.

The team concluded that each of the maintenance departments is using this program to identify areas for improvement. However, only the electrical maintenance department supervision is following through with the observations by implementing improvements such as procedure changes and providing additional training.

4.4.5 Human Performance Enhancement System (HPES)

NAESCO uses the human performance enhancement system to investigate the causes of human performance issues. The team reviewed the procedure governing HPES (OE 4.4, "Human Performance Enhancement System") and the HPES studies completed since September 1993 (19 Studies). The program was also discussed with the HPES coordinator. The HPES coordinator position was described as a full-time position; however, other duties such as the STAR program, participation in study groups, and the editor of a newsletter compete for his time. Several other employees have been trained to do HPES studies and are assigned events as parallel duty. Even though the procedure indicates that anyone can initiate an HPES study, it appears that HPES is used selectively by management and is not a company-wide system available to the employee. The team did not notice HPES forms to be readily available in the plant to report events. Direction to perform HPES studies comes from the Station Manager. There is a backlog of HPES studies to be done.

Based on the recurring issues with personnel error, the team concluded that the HPES system has not been fully effective in correcting human performance problems. This could be because the system has not been fully and effectively implemented at Seabrook.

4.4.6 Summary of Self-Assessment Practices

In summary, the line has instituted several good self-assessment practices. However, self-assessment at the station lacked formal program guidance, and was inconsistently applied. The occurrence review committee is performing well. The STAR and supervisory walkdown programs have been (or are being) revitalized and have the potential for improving performance. Also, the maintenance supervisory oversight program is being used effectively by the electrical maintenance department to implement improvements. However, the HPES has not been used effectively for identifying and correcting human performance problems. The team noted that a backlog was developing for each of the self-assessment practices that could negatively impact their long-term effectiveness.

5.0 INDEPENDENT OVERSIGHT FUNCTION

This part of the inspection focused on oversight groups, which includes the independent safety engineering group (ISEG), the nuclear safety audit and review committee (NSARC), the quality program (QP), and other activities sponsored by the QA organization. At Seabrook, the QP organization also includes the ISEG, and the independent review team (IRT). The ISEG is prescribed by the plant technical specifications (TS), but the IRT is established by the licensee's own initiative to assure an in-depth and independent review and assessment of selected processes and events at the plant that may require management attention. The team also reviewed the results of other audits sponsored by the oversight groups, such as the Joint Utility Management Audits (JUMA).

5.1 Quality Assurance Program

The quality assurance program for NAESCO is described in the "Operational Quality Assurance Program (OQAP)," manual and is implemented by various implementing procedures. The OQAP defines requirements and controls that are applied to activities associated with the design, maintenance, and operation of safety-related structures, systems, components, and materials. The responsibility of the key personnel, with regard to the implementation of the OQAP, has been established and documented in the manual. The licensee personnel utilize the OQAP manual as policy directives and program requirements in developing, revising, and/or assessing the adequacy of programs, procedures, and guidelines.

The senior vice president of NAESCO has the ultimate responsibility and authority for the development, approval, implementation, and effectiveness of the quality assurance program. QA management has a good focus on the mission of the QA program, and what quality programs (QP) needs to accomplish for the plant.

5.1.1 Audits, Surveillances, and Inspections

The team's review of the audits and other QA records and discussions with licensee personnel determined that the nuclear quality assurance (QA) department was implementing a well-structured program of audits, surveillances, and inspections with qualified personnel in accordance with the policy established in the OQAP.

Audits

As demonstrated by the schedule and completed audit reports for the years 1992 and 1993, audits were appropriately scheduled, scoped, and performed. In general, the team found that the audits were of good technical quality and content, and included appropriate field observations and examinations of the areas audited. The audit reports contained valid findings and appropriate observations in the area of program performance, and provided evaluations and assessments. The audit reports generally emphasized fixing of identified deficiencies, and gave appropriate recommendations.

The NQA performs an extensive and in-depth audit of refueling outages. The team observed a line/QA interface meeting on April 28, 1994, that discussed the status of the findings and issues of importance. The team observed good communications, teamwork, and effective discussions of the status of critical measures of program performance. The slides and trend charts presented by QA were very good and informative.

There were many examples of substantive findings in the audits; Audit No. 92-A05-02 identified weaknesses in the corrective action program. Audit No. 92-A09-01 was a very comprehensive audit of the second refueling outage of the plant. To broaden the scope and enhance the technical depth of the audit, the audit team included technical and QA specialist

personnel from the Stone and Webster, Maine Yankee, Yankee Atomic, and Vermont Yankee organizations. This audit resulted in 15 findings and 11 observations. These concerns were communicated to the executive and line management through a detailed and high quality, two-volume audit report.

While capable of good audits and findings, the QA organization has not been fully successful in establishing credibility of its efforts and findings. Hence, the QA organization has depended on outside independent organizations, such as JUMA, to validate and support its assessment. In 1992, JUMA validated the weaknesses in the corrective action program (CAP). It further indicated that Seabrook CAP needed an extensive review and improvement. The capability of the licensee's audit program was recognized by the 1993 JUMA audit, and it did recognize and validate the contribution of in-house QA audits.

Surveillances and Inspection

The licensee's QA program has established a program of surveillances and quality control inspections to assure and verify the effectiveness of management controls, procedure implementation, and independent verification of work. Surveillances are conducted at a frequency commensurate with the safety significance of the activity, and inspections are dependent on the nature of work and safety significance.

The team reviewed a sample of completed surveillance reports for 1992 and 1993 and found them to be adequate for the significance of the work surveyed; the surveillance personnel were qualified; and the reports were clearly written to indicate results.

However, the team had some feedback from working level plant personnel, such as mechanics, technicians, etc., that they were not familiar with the QA surveillance program, as they never had their work monitored and/or surveyed, and QA surveillance personnel were not very visible in the plant. On the other hand, the same people were very much aware of the QC inspection personnel with whom they frequently interfaced during safety-related work. The QC personnel also have begun to acquire an image of cooperative team players, and not as sole keepers of quality programs, or as an adversary who is there just to get an opportunity to "write-you-up" for some minor compliance matter.

QA management has developed and instituted, in QA/QC personnel, a good focus on the mission of the QA program. The interface between the line and QA personnel appears to be working well at all levels, and past communications problems appear to have been resolved.

5.1.2 Corrective Action Program (CAP)

The licensee's quality assurance program established a policy and program for identifying and correcting any adverse condition or trend that may affect safety or quality. The licensee's corrective action program and process have progressed through the construction, preoperational, startup, and operations phases of the plant. There is a considerable overlap

amongst these different phases, and each phase has its own special need of corrective action procedure. Due to this overlap, the corrective actions process has evolved to address different needs of each phase, which created a multitude of vehicles and sub-processes to address, resolve, and implement corrective actions at the site. Although the system worked well before the plant went into commercial operations, it became a complicated, cumbersome, and fragmented process for the operational phase of the plant.

The licensee's internal audit program (92-A05-02) recognized inadequacies in the corrective action (CA) system. It was further validated by the JUMA audit in 1992. The CA program was found to be fragmented, inconsistently applied, and ineffective. There were more than a dozen quality documents that fed into the "corrective action system," and all issues were treated with the same level of significance. Audit responses were not timely, did not always address the issue, and were too narrowly focused to fully resolve the underlying issue. The line did not always accept findings, and followup actions were not comprehensive enough to correct underlying problems. There was a demonstrated ability to implement short-term fixes successfully.

In response to the identified weakness in the CAP, the licensee established a task force to investigate the inadequacies, and recommend improvements. The team reviewed the history of this CAP task force. The team determined that the task force was proposed in October 1992, and was properly constituted and was functioning by early December 1992. By March 1993, the investigation and study was complete, and recommendations had been submitted to a steering committee for upgrading the CAP. The program improvement recommendations generally agreed with those identified by the JUMA audit and included: consolidating corrective action documents, determining the safety or programmatic significance of the finding (differentiate adverse to quality versus significant condition adverse to quality), prioritizing the corrective action resolution and implementation, and establishing an effective process for tracking and trending of the CAP commitments.

To address the above concerns and achieve the desired improvement in the CAP, NAESCO developed and implemented a new corrective action system through the revision of the procedures NAMM 12700 and OE 3.3. The revised program was implemented by the beginning of July 1993. Also, the licensee implemented a new commitment management program (CMP) through Procedure NAMM 12900 in April 1994.

Under the revised CAP, Condition Reports (CDRs), Operational Information Reports (OIRs), and Station Information Reports (SIRs) are the core of the corrective action process. By review of a sample of CDRs, OIRs, and SIRs for the period of 1992, 1993, and available reports from 1994, and discussions with the licensee's management, supervisory, and working level personnel, the team determined that the new corrective action program appears to contain major elements of an effective and successful program; however, it has not been in use for a sufficient period of time to verify and evaluate its ultimate capability to assure effective long-term corrective actions.

Problem Identification Processes

The team reviewed OIRs and SIRs for the period from 1993-1994 to identify the performance issues occurring at Seabrook and to determine the adequacy of the actions taken to address the issues. The CDRs issued in 1993 and 1994 were reviewed to assess the performance deficiencies identified by the QC organization.

The CDRs demonstrate the capability of the QC group to identify good findings indicative of discrepant conditions (reference CDRs 93-09 and 93-19), inadequate work practices (94-10, 94-21), work control (93-19, 93-23, 94-05) or program weaknesses (94-20, 94-24, 94-37). QC findings provided good development of individual discrepancies to identify generic implications (94-01), and good assessment of the adequacy of past corrective actions (93-19, 94-20, 94-21). The corrective actions were appropriate to resolve the issues and were tracked by QC to assure closure. The team identified no significant safety conditions left uncorrected awaiting action by the line organization for closure.

The team found that the root cause analyses and corrective actions for CDRs, OIRs and SIRs, once completed, were very good. However, the licensee has fallen behind in evaluating OIRs identified since late 1993. This appears to be due to an increased awareness on writing OIRs and/or a significant reduction in the resources available to respond to OIRs/SIRs as a result of the main steam isolation valve (MSIV) and refueling outages. There are many overdue items related to OIRs/SIRs, which appear to be a result of the licensee not managing the issues very well. Due dates were often not revised or renegotiated when original targets were missed. Overdue OIR/SIR corrective actions do not appear to be highly significant in that, for most OIR/SIRs, several corrective action items had been identified and usually most of the items had been implemented with just one remaining past its due date.

In summary, the CDR, OIR, and SIR processes demonstrate the depth and vigor with which the QP and line organizations identify, investigate, and analyze events and discrepancies. The OIRs, in particular, capture events at a low threshold and provide a thorough followup. The team noted that corrective actions to address significant deficiencies were appropriate and timely implemented so that significant issues were promptly addressed. Staff performance to address long-term corrective actions to prevent recurrence was generally good, but performance could be improved to address these items by the established due dates, and to renegotiate action due dates.

Commitment Management Program

The licensee's new Commitment Management Program (CMP) is described in procedure NM 12900, which became effective on March 31, 1994. The program manages and controls, from their identification to completion, issues that are necessary to comply with both outside agencies and internal requirements. The CMP is based on a hierarchical structure where important issues are identified, assigned, and managed. The category classification denotes

the source and the level of importance of issues. The CMP uses five categories: Category C for issues resulting from NRC commitments; Category X for external issues; Category M for executive management issues; Category P for issues resulting from specific programs; and Category T for other issues that do not meet the above criteria. Issues are generated through the various programs used at Seabrook. The CMP process requires these issues to be screened and validated before being included in the CMP. Issues are monitored and managed appropriately depending on their importance. Issue resolution and completion are the responsibility of the assigned managers as decided by the area sponsor that validated the issue. These issues are tracked on the CMP database. The commitment manager determines and manages all issues that are in Categories C, X, M or P. Category T issues are only tracked in the CMP database.

The CMP replaced the integrated commitment tracking system (ICTS). In the ICTS, items were entered with due dates; however, agreement between the area sponsor and the responsible manager on the need to do the issue or on the due date was not always reached. Also, the items were not well described in the system and there was no prioritization. In the middle of 1993, the number of overdue items began to increase, and the licensee determined the need for a new method of managing and controlling the issues.

The licensee has categorized the issues in the ICTS and placed them in the CMP. The status of the items in the CMP as of April 28, 1994 was:

Category	Open	Overdue	% Overdue
C	215	48	22%
M	32	8	25%
P	584	304	52%
X	57	23	40%
T	810	235	29%

The commitment manager is currently working with the responsible parties to negotiate new due dates for the overdue items. The team reviewed a sample of the overdue items in the CMP and found none that urgently required completion.

In the CMP, the commitment manager will generate reports to be used as tools to help the responsible managers manage their workloads. For example, reports for the responsible individuals are currently being generated that show the number of items due in a certain number of days. The maintenance organization has begun to use this report to schedule their work based on priorities, and then to reschedule work when higher priority items develop. If a work item is superseded by a higher priority item, the need to extend the due dates on the lower priority items will be apparent.

The team found the attributes of the commitment management program, including prioritization of items and agreement on due dates, to be very good. The station staff is presently unable to make progress to close the large number of outstanding commitments in the CMP. A large backlog (1700 items) has developed and is expected to grow because of resource limitations until the refueling outage is completed.

5.1.3 Trend Analysis

Programs to trend and analyze performance have been in place and have been revised over several years. The team reviewed reports dating from 1992 and noted that trend reports were enhanced and the trend analysis program was upgraded. The trending of QA findings was not fully effective prior to 1993 due to the lack of good communication between the line and QA. The trend reports (TRs) did not satisfy the needs of the line, and the line did not use the reports. This problem was exacerbated by the use of different TRs by both the line and QA, which showed conflicting results. The conflicts existed because the reports by the line were generated from a different data base than that used by QA. This was not addressed until mid-1993 when the PERT identified the need to improve TRs and to eliminate conflicting reports.

The team compared the 1994 reports with the "Station Operating Experience Quarterly Trend Reports" for 1992 and 1993. The team noted that better quality trend reports are now in place that simplify the vast amount of data measuring performance. The organization of data and the use of graphics vastly improved the presentation of issues and trends. The QA organization is now solely responsible for trending performance issues. The reports follow the categories in the NAESCo Plan for performance indicators. The reports provide trends in a variety of formats, include the corrective actions for the lower-tier QA documents, and provide summaries by plant department. The reports use the occurrence review committee definitions for significance factor and personnel errors. The data validation by the line organization should assure better buy-in of the trended results by the station staff.

The monthly and quarterly trend reports for 1994 focus on the significant issues, give good assessments, and make recommendations for further followup actions and corrective actions. Adverse performance trends are readily displayed, analyzed, and explained. Better acceptance of the reports by the line organization is indicated in the interaction with QA on the data and trends. Additional experience implementing the new program is needed to determine whether the reports will be fully utilized and effective for correcting deficiencies.

5.1.4 Quality Assurance Program Summary

The QA program is generally effective in providing independent oversight of quality activities. The audit, surveillance, and inspection program and processes are effective in identifying deficiencies. QA findings and observations are reported in a timely manner, and feedback is provided to management via trend reports and individual reports. The interface between the line and QA has improved, with good communication and cooperation evident;

QA can now better focus on oversight and independent verification of safety. The new commitment management program (CMP) provides prioritization of items and agreement on due dates, and is very good. The maintenance organization is beginning to use the reports from this program to manage and prioritize workload.

Better quality trend reports are now in place to measure performance. The use of the ORC to review CDRs/OIRs/SIRs to determine preliminary causes to be used in trending is a positive initiative that has improved the quality of trend reports provided to management. The reports focus on the important issues, give good assessments, and make recommendations for further followup and corrective actions.

The corrective action system has been significantly improved in the last 12 months, and it appears to contain all elements of an effective program. The CDR, OIR, and SIR processes demonstrate the effectiveness with which the line organization identifies, investigates and analyzes events. However, the NRC recently identified weaknesses in root cause evaluations and completing corrective actions for MSIV issues (see NRC Report 50-443/94-03), and the ultimate effectiveness and ability of the CAP to provide long-term improvement remains to be demonstrated. The CA and CMP processes have provided "prioritization" and differentiation of significance to quality findings. The team believes further evaluation is required after the program has been in place longer to evaluate the long-term effectiveness of the CAP.

QA management has a good focus on the mission of the QA Program and on what Quality Programs need to accomplish for the plant. The JUMA efforts (the 1992 review of the corrective action process and the 1993 focus on the independent oversight groups) were chartered by QA as part of the oversight function. QA identified the areas to be scrutinized and defined the scope of the audits. The interface between the line and QP appears to be working well at all levels, and past communication problems appear to have been resolved. The initiatives to encourage and develop formal self-assessment processes within the line organization are good. In summary, the team found that the QAP was functioning well and is improving.

5.2 Independent Safety Evaluation Group (ISEG)

Seabrook Station has an ISEG, which is required by, and meets, Section 6.2.3 of technical specifications (TS). ISEG is composed of five dedicated, full-time engineers, including the ISEG Supervisor, located on site. ISEG evaluates plant events, industry events, plant activities, programs and practices, and any other topic that may be directed to by internal or industry data or analysis, to determine if the level of nuclear safety is satisfactory and can be economically enhanced. ISEG independently evaluates activities associated with the operation and maintenance of the station to ensure that nuclear safety is maintained, and make observations and recommendations to enhance the nuclear safety.

ISEG provides a report of activities each month to the nuclear safety and assessment manager. ISEG is independent of the line organization, but does report to the QA organization. The monthly report contains a narrative summary and a statistical report. The use of "boiler plate" conclusions, in particular for ISEG evaluation of nuclear safety of station activities, is considered a weakness. There is a lack of assessment in the ISEG conclusions of their evaluations in this area. However, this practice appears to be less evident in the most recent monthly reports, which included a section called, "Noteworthy Performance," that provides assessment of some positive activities going on in the plant.

The team observed that ISEG has made positive contributions to the Seabrook organization, and does provide quality recommendations to the plant staff. Overall, the ISEG reports provided a good integration of internal and external events. Evaluations initiated in response to external events often included an attachment that addressed each recommendation or corrective action, as it applied to Seabrook. ISEG recently implemented an initiative concerning report preparation. Specifically, draft reports are now reviewed by the respective Group Managers, in order to get concurrence on any proposed recommendations prior to issuing them to the staff. This has proven to be very helpful and takes advantage of the knowledge and experience of the line organization when preparing recommendations. If a disagreement should arise with respect to the appropriateness of any recommendation, the issue would be raised to the Director of Quality Programs and to the station senior vice president, if necessary. To date, this has not occurred, with all issues being resolved at the Group Manager level. Listed below are some positive examples that illustrate ISEG's performance and contribution to safety in the last two years.

- Evaluation of NAESCO's, "Application of Information Related to Equipment Problems (ISEG #9402-I-01)," March 21, 1994. ISEG evaluated how the internal and external sources are integrated to ensure that the broad scope of information available is used appropriately. This report highlighted the recent MSIV failure.
- "ISEG Recommendations Concerning Failures of Pressurizer Spray Valves (ISEG #R9303-002)," July 15, 1993. ISEG concluded that industry failures for the pressurizer spray valves dictates that these valves should receive greater attention in operating procedures and maintenance programs, than now being provided at Seabrook; six recommendations were made.
- "ISEG Recommendations Concerning RHR Pump Cavitation During RCS Draindown (ISEG #R9201-I-04)," June 23, 1992. ISEG recommended that procedures be revised for a partially drained RCS to make the use of tygon tubing mandatory for comparison/verification of level transmitter (RC-LT-9405); the report included an example of proposed revisions that would satisfy the recommendation; six recommendations were made.

ISEG is an integral part of the total self-assessment program. The ISEG supervisor is an active member of the nuclear safety audit review committee (NSARC) and provides reports on activities to that group. ISEG members routinely participate in other quality program task teams and also participate in human performance enhancement system (HPES) evaluations on an as-needed basis. It is apparent that ISEG opinions are welcome based on station management's requests for ISEG to perform special reviews. For example, at the request of the NSARC, ISEG performed a detailed review of licensee event reports (LERs) for 1992 and 1993 to assess the accuracy of the root cause determinations in those reports (April 1994). At the request of the station senior vice president, ISEG formed a task team to examine the decay heat removal process at Seabrook Station, in view of numerous industry events (July 1992).

The TS state that ISEG shall be responsible for maintaining surveillance of station activities to provide an independent verification that these activities are performed correctly and that human errors are reduced as much as practical. While the team assessed that the TS requirement was being met, there was a clear need for ISEG to devote additional attention to monitoring in-plant activities; as identified in Nuclear Safety Assessment (NSA) Audit Report No. 93-A11-02, "Technical Specifications," December 30, 1993, and NRC Inspection Report No. 50-443/93-13. More in-plant observations would facilitate the review of the effectiveness of station programs, particularly after a recommendation has been implemented. The consensus of the interviews with ISEG members and station maintenance personnel is that ISEG is spending far less time in the plant directly observing activities, than the 20% recommended guidance stated in ISEG-01, "Guidelines for Conduct of ISEG Activities." The team observed that ISEG recognizes this problem and is implementing actions to correct it. ISEG has always concentrated its review of in-plant activities during plant outages. The participation of ISEG at the morning meetings and the operation review committee (ORC) meetings have aided the ISEG selection of in-plant activities, other than outage related, to review. A review of recent ISEG reports indicated a trend toward more of a real-time review of station activities. For example:

- "Shutdown Decisions Related to Reactor Coolant Pump "D" Seal Leakoff (ISEG #9404-I-01)," April 7, 1994. ISEG performed an independent assessment of the nuclear safety concerns associated with continued operation with elevated and erratic leakoff flow rates from reactor coolant pump "D".
- "ISEG Review of Service Air System Design and Reliability for DCR 93-16 (ISEG #9403-I-02)," March 30, 1994. ISEG performed an independent evaluation of the service air system design changes implemented under DCR 93-16 prior to establishing operability.
- "ISEG Recommendations Concerning Diagnosis and Mitigation of Reactor Coolant System Leakage Including Steam Generator Tube Ruptures (ISEG #R9309-005)," March 16, 1994. The report stated that ISEG plans to verify the effectiveness of the

associated training, including simulator scenarios and how the operators are trained in response to radiation monitors. This review will be conducted at least six months after the procedures are revised. A copy of the report will be placed in the ISEG "Future Topics File" for this purpose.

While there is no formal process/program for a self-critique of ISEG reports, the inspector noted that it does appear to be taking place. The ISEG Supervisor reviews NRC reports and looks for issues that have also been reviewed by ISEG, in order to compare findings. Following a review of NRC Inspection Report No. 50-443/93-13, mentioned above, ISEG conducted a second review of the original ISEG evaluation, regarding the effectiveness of NAESCo programs intended to reduce personnel errors (November 1993). Previous ISEG reports are routinely reviewed in response to industry events or internal operating experience, in order to validate and/or revise conclusions. This was evident in ISEG report, #R9305-006, "ISEG Recommendations Concerning Main Safety Valve Setpoints out of Tolerance," November 17, 1993, where the conclusions of a 1988 ISEG review of an external event were changed in response to internal operating experiences.

Performance indicators are used to assess ISEG's contribution to safety. By procedure, the nuclear safety and assessment manager is required to perform an annual review of the effectiveness of the ISEG function. This review is incorporated into the annual operating experience review program effectiveness review report. As stated above, an NSA Audit Report No. 93-A11-02, "Technical Specifications," was conducted in December 1993, which included ISEG in its review. Other performance indicators, which are not procedurally annotated, include: (1) assessment of the ISEG recommendations against the North Atlantic Strategic Plan; (2) feedback from group managers; (3) feedback from external members of NSARC; and (4) a review of the significance of ISEG recommendations.

There is a process for tracking ISEG recommendations to closure, with verification of implementation. ISEG recommendations are tracked in the commitment management program with completion due dates for the line organization. The operating experience review program (OERP) is used to monitor progress in resolving items, implementing recommendations and provides status reports to management. The recommendations are tracked until the lead engineer - operating experience, receives a report that ISEG is satisfied with the completed action prior to closeout. A review of the current list of open items indicated that 36 recommendations were open, as of the end of this inspection. Since 1984, when ISEG was convened, 420 out of 456 recommendations have been closed. The inspector reviewed each of the open items with the ISEG supervisor to gain an appreciation for their status. The ISEG supervisor was familiar with each of the items, and was able to provide appropriate justification for the open status of each item. ISEG periodically holds "Open ISEG Recommendations Meetings" with plant management to discuss the status of open items and highlight those items that are greater than one year old. ISEG appears to have adequate control of recommendation implementation.

There is no current plan for rotation of ISEG personnel. Any rotation that has occurred is through normal attrition. Three ISEG members have been there since at least 1986 (two are original members). The two other members have been there less than two years. There should be a clear career progression to attract new talent to the group. The line organization (engineers) should see a benefit from being assigned to ISEG for a specific period of time.

In summary, ISEG has made positive contributions to the Seabrook organization and does provide quality evaluations and recommendations to station management. While the team found problems with the time spent monitoring in-plant activities in the past, ISEG has demonstrated a track record of being able to develop substantive findings.

5.3 Nuclear Safety Audit and Review Committee (NSARC)

The Nuclear Safety Audit Review Committee provides independent review, audit, and oversight of operations and maintenance, engineering, and other support groups. NSARC reports to the senior vice president. NAESCo describes NSARC as a "backstop" in the unlikely event of a breakdown in the levels of defense. These levels are described as the worker, supervision and management, and quality programs.

Seabrook Technical Specification 6.4.2 specifies the requirements of NSARC. Areas of review and audit are defined in Paragraphs 6.4.2.7 and 6.4.2.8. NAESCo procedure NAMM 11250, "Nuclear Safety Audit Review Committee Operations," Rev. 6, provides the administrative processes to support NSARC operations. The procedure expands on the technical specifications requirements. The team verified that the requirements were met. This verification was based upon discussions with NSARC members and review of documentation. No NSARC meetings were conducted during the time of this inspection.

Procedure NAMM 11250 and subcommittee charters clearly define the responsibilities of NSARC. There are four subcommittees: engineering/licensing; radiological, environment and chemistry; maintenance and security; and operations. NSARC members are aware of the committee responsibilities. The committee is currently assessing their responsibilities to determine how they can be more effective.

The team reviewed the membership of NSARC to determine if the areas of technical knowledge required by technical specifications were adequately covered. Discussions with the NSARC chairman indicated that the average time members serve on the committee was about five years. Areas of technical knowledge were covered and no concerns were identified by the team.

Meeting minutes were reviewed by the team for the last 23 meetings. The team noted that, with the exception of the station manager, members of NSARC attend and participate in meetings. Various station personnel have substituted for the station manager at the meetings; however, this practice does not provide good continuity. The team noted that the absence of

the station manager in meetings 94-02 (special meeting to review actions taken to improve human performance and reduce plant transients), 93-10 (special meeting to review License Amendment Request 93-12, RHR Reduced Refueling Mode Flow Rates), and 94-04 (regular meeting) reduced the effectiveness of NSARC.

NSARC members are not always independent of the activity being reviewed or audited. The team could not identify any problems associated with lack of independence. Based upon review of documentation and discussions with NSARC members, the team concluded that this is not a problem.

The team reviewed NSARC assessments to determine if they were in sufficient depth to identify problems. Some of the assessments were discussed with the NSARC chairman. The team noted that NSARC assessments focused on effectiveness as well as programmatic compliance. Examples of these assessments are discussed below.

- Meetings 93-07 and 93-10 address License Amendment Request 93-12, "RHR Reduced Refueling Mode Flow Rates." NSARC raised safety significant questions associated with timeliness of establishing containment and performance of surveillance requirements, which led to dropping this amendment request.
- Meeting 93-06 discussed an NSARC review of the impact on operator performance of additional manual or administrative tasks placed upon them. The review noted that the processes used to monitor adding tasks appeared effective. NSARC concluded that there was no decrease in the quality of operator performance.
- Meeting 94-04 discusses a potential safety concern in that the station modification resource committee (SMRC) is empowered to disapprove recommendations which SORC has approved. For example, SMRC disapproved a plant modification (DCR 93-022) approved by SORC, which would have replaced the original isolated phase bus duct backdraft dampers with a sturdier damper. The phase 'B' damper failed and caused a reactor trip on January 14, 1993. Engineering determined that the original dampers were unsuitable for the air velocities and static pressures in this application and should be replaced by a sturdier damper. SMRC concluded that a temporary damper modification was satisfactory for permanent use, assuming periodic inspection.
- An NSARC assessment of technical requirement change 93-06 (DCR 93-16) dealing with the SA compressor is discussed in meeting minutes 93-17. NSARC identified problems with technical specifications testing of the diesel generator and lack of engineering input into the test planning.

- NSARC noted that there was a significant number of issues identified by NSARC, which should have been corrected before reaching the committee. The committee reviewed issues since the beginning of 1993 and identified 29 such issues. The team expressed concern with this high rate of problems getting through to NSARC.

Periodic evaluations of NSARC's effectiveness and adequacy are performed. "QA Surveillance Report 94-011," 10 CFR 50.59, reviewed the committee's evaluation process and found it to be proactive and thorough and to exhibit a healthy questioning attitude. The surveillance noted that use of subcommittees to review the voluminous quantity of material helps insure a thorough and timely review. At meeting 94-04, NSARC discussed its effectiveness and decided to perform a self-assessment. Two members submitted draft criteria to assess effectiveness at meeting 94-04. These criteria are presently being reviewed by members of NSARC.

The team assessed NSARC's ability to integrate a series of related findings. The team concluded that activities such as: (1) recognizing that too many issues are slipping through the three levels of defense; and (2) the 'channel check' problem discussed in meeting 94-04, demonstrate NSARC's ability to integrate findings. The 'channel check' issue deals with a number of reported cases where a surveillance test did not fully meet technical specification requirements. NSARC recommended that all channel check surveillance procedures be reviewed to ensure they fully meet technical specification requirements.

The committee reports are written in enough detail to provide an understanding of the issues discussed. The team reviewed all reports for 1993 and 1994 and found them to be of good quality. A sample of the reports was checked and found to be issued within 14 days of the meeting. These reports and forwarding memoranda provide management with useful and timely information.

The team reviewed selected NSARC recommendations and tracked them through the system. Based upon this review and discussions with NSARC members it was determined that, in general, recommendations are tracked to completion and are completed in a timely manner.

In the past, NSARC trended plant performance at regular meetings using status reports and audits. Unique performance issues were trended in special studies. The team noted that meeting 93-01 addressed human performance and trending human error. NSARC recently enhanced its oversight of performance by examining and trending specific performance indicators.

The team concluded that upper management supports the NSARC activities. However, the relationship between NSARC and the plant is out of balance, in that the number of issues identified by NSARC, after plant review is complete, is excessive. NSARC should not be relied upon so heavily to catch potential problems.

In summary, the nuclear safety audit and review committee (NSARC) is effective in the performance of its function to provide overview of QA audits and in the trending of plant performance deficiencies. NSARC could improve its oversight and trending of performance deficiencies through better attendance by the station manager, and better followup of performance indicators.

5.4 Independent Review Team

The independent review team (IRT) assists executive management by performing independent reviews, evaluations and assessments and by providing recommendations as requested. The IRT is also available to assist all organizations by providing reviews, evaluations, assessments, and/or short-term project management assistance.

The team reviewed two recent IRT initiatives requested by the line organization. The first involved the licensee's preparation to conduct the third refueling outage. The IRT found that the organization was less prepared to conduct the outage at that stage in the schedule than for the two previous outages. The report noted management's need to review the balance between outage objectives (PERT, scope, schedule, budget). In response to the IRT report, licensee management reduced the outage scope. Also, additional maintenance and engineering personnel were hired to support outage preparations.

The second IRT initiative involved observation of the maintenance organization. The report discussed current problems in the maintenance organization and noted that there was too much work for the available resources. It identified the need to add a support group to the maintenance organization to work on initiatives, such as PERT, the maintenance improvement plan, work package quality, and EDSFI corrective actions. A support group, consisting of six individuals from the NAESCo organization, was approved by upper management and began to function in February 1994. The group is currently working on the identified initiatives. The support group is considered temporary, and management will reevaluate the need for the group following completion of the refueling outage.

The team noted that in 1990, an IRT was used to perform a maintenance evaluation - self-assessment team (SAT). That evaluation recommended many initiatives for improvement in the maintenance organization that were supposed to be incorporated in the 1992 maintenance improvement plan (MIP). However, during the recent IRT review, it was noted that the 1992 MIP did not address many of the outstanding IRT SAT recommendations. The 1992 MIP was not implemented following the transfer of responsibility in the maintenance organization in the spring of 1992. Some outstanding issues that were original IRT recommendations include the development of a clear set of expectations for the groups involved in maintenance; the use of maintenance history for subsequent work activities; and the integration of work history, root cause analysis, preventive maintenance, performance monitoring, predictive maintenance and reliability centered maintenance. The support group discussed above has been tasked, in particular, with revising the MIP by September 1994.

Line management's recent use of the IRT to evaluate preparations for the third refueling outage and to identify the need to add a support group to the maintenance organization has been very positive. In the past, the IRT has identified good actions; however, implementation of the actions by the line in the area of maintenance either did not occur or was not effective. This is indicated by the presence of weaknesses in the maintenance area in 1994, which were in some form previously identified in the 1990 maintenance self-assessment team and the maintenance improvement plan.

6.0 CONCLUSIONS

The team concluded that the independent oversight function at Seabrook Station is generally effective and all elements of the independent oversight function are performing at various degrees of success. NAESCo management has identified the apparent performance issues; no new performance issues were identified by the team. NAESCo has identified past weaknesses in the oversight function, and initiatives in place or planned appear appropriate to resolve them.

NAESCo has recognized the need to improve station procedures and plans to initiate a Procedure Upgrade Program (PUP) in July 1994. The PUP will improve format, human factors and technical quality of the procedures. Similarly, the work control process is complex, cumbersome and can contribute to the incorrect performance of work in the absence of strict adherence to the process (i.e., in attention to detail, and response to schedule pressures). The WCIC is addressing this area.

The team reviewed nine elements of oversight and self-assessment within the line organization. Programs initiated to improve performance appear to have the right elements for success. The occurrence review committee is performing well. The STAR and supervisory walkdown programs have been (or are being) revitalized and have the potential for improving performance. The new STAR program is currently being used identify near misses and areas for improvement. However, further program development is needed to inform management of trends and to follow through with improvements. The HPES process has not been effectively used to reduce personnel error. The maintenance department is using the maintenance supervisory oversight program to identify areas for improvement. However, only electrical maintenance is following through with the observations by implementing improvements. The newly revised scope of the supervisory walkdown program is appropriate and it could be effective, but cannot be further assessed until implemented. Although the line organization has instituted several good self-assessment practices, self-assessment at the station lacked formal program guidance and was inconsistently applied. The team noted that each of the self-assessment practices was developing a backlog that could negatively impact their long-term effectiveness.

The SORC meets its license requirements. An exception occurred in April 1994 regarding quorum requirement. Initiatives to improve the procedure review process are planned to enhance the quality of SORC reviews. The SORC effectiveness could be improved as

indicated by the number of documents (licensing amendments and safety evaluations) sent to the NSARC where weaknesses are identified. The recent use of the independent review team (IRT) has been very good to elevate issues needing action (evaluate preparations for RFO3 and identify the need for additional resources in maintenance organization to implement initiatives). Implementation of IRT recommendations in the past has been incomplete or not effective. This is indicated by the presence of weaknesses in the maintenance area in 1994, which were previously identified in the 1990 maintenance self-assessment team and the maintenance improvement plan.

The CDR, OIR, and SIR processes demonstrate the vigor with which the line and QP organizations analyze events. Root cause analyses and corrective actions were very good. Corrective actions to address significant deficiencies were appropriate and implemented in a timely manner. Station staff performance to address long-term actions to prevent recurrence was generally good, but performance could be improved to address these items by the established due dates, and to renegotiate action due dates. The staff has fallen behind in evaluating OIRs since December 1993.

The quality assurance (QA) program is generally effective in providing independent oversight of Seabrook activities. The audit, surveillance and inspection program and processes are effective in identifying deficiencies. QA findings and observations are reported in a timely manner, and feedback is provided to management via trend reports and individual reports. The interface between line and QA has improved, with good communication and cooperation evident; QA can now better focus on oversight and independent verification of safety. Initiatives to improve the QAP and enhance the credibility of the audits are appropriate. QP took the initiative to focus the line on the need for improved performance and self-assessment (SA). The new commitment management program (CMP) provides better prioritization of items and agreement on due dates.

The team concluded that ISEG is effective in its oversight function and meets Section 6.2.3 of the technical specifications. ISEG evaluates plant and industry events and independently evaluates activities associated with the operation and maintenance to ensure nuclear safety is maintained. ISEG has made positive contributions to the Seabrook oversight and does provide good recommendations to the plant staff. ISEG performs well in review of industry events, but has not been well utilized for monitoring in-plant activities and performance trends. More in-plant observations will facilitate the review of the effectiveness of station programs. ISEG monthly reports are good, but the use of "boiler plate" conclusions for evaluation of station activities is a weakness. There is a lack of assessment in the ISEG conclusion of their evaluations in this area. ISEG recognizes these problems and is implementing actions to correct them. ISEG is an integral part of the total self-assessment program and makes significant contributions to the safety of operations.

The team concluded the NSARC is effective in its oversight function and meets the requirements of the technical specifications. Committee membership covers technical areas required, and most members attend and participate in meetings; however, attendance by the

station manager was poor. Assessments were in sufficient depth to identify problems and focus on effectiveness as well as programmatic compliance. Reports are timely and complete, providing management with needed information. Upper management support of committee activities is evident. NSARC recommendations are completed in a timely manner and tracked to completion. NSARC trends performance and has increased activities in this area over the last six months. NSARC could improve its oversight and trending of plant performance deficiencies through better attendance by the station manager and better followup of performance indicators.

The team observed symptoms of a common theme of organizational stress and overload within the line, such as: being overburdened with procedure reviews; poor station manager attendance at NSARC/SORC; the lack of sufficient maintenance staff to address needed actions; the excessive workload from outages in 1994 (MSIV outage, refueling outage #3 - RFO#3 preparation, and the conduct of RFO#3); the developing backlogs in the STAR and ORC; the number of deficiencies identified by NSARC; and the growing number of overdue items on in the commitment management program. The line organization is finding problems and implementing fixes, but is not always effective in completing corrective actions. NAESCo management should monitor organizational stress, which could result in lapses in implementing and monitoring planned improvements.

In summary, QP oversight at Seabrook, in a broad sense, is effective and does identify the program and process changes needed to improve safety performance. The independent oversight groups have a demonstrated track record of making good findings. Problems existed in the past on how well findings were presented to the line, and in the line's response to the issues. Corrective actions were less than fully successful in the past because line management and the independent oversight groups did not verify the effectiveness of the corrective actions put in place. Weaknesses were seen in the corrective action process based on the 1992 audits. QAP sponsored the 1992 JUMA (corrective action system) and the 1993 JUMA (independent oversight) and used JUMA to validate trends identified by the audits process, and to give impetus to needed changes. The independent oversight function can provide more timely development of performance issues, through continued efforts to enhance the credibility and acceptance of internal groups, thus lessening the need for external validation of insights. NAESCo recently improved the tools needed to effectively manage its corrective action processes, manage commitments and provide improved trending tools. It is too soon to assess whether the NAESCo initiatives and actions will work.

7.0 EXIT MEETING

The team met with those denoted in Attachment 1 on May 13, 1994, to discuss the preliminary inspection findings, which are detailed in this report. The licensee acknowledged the apparent violation regarding the site operation review committee quorum requirements. The team answered questions following the exit presentation.

ATTACHMENT 1

EXIT MEETING ATTENDEES

North Atlantic Service Company

E. W. Desmarais	Independent Review Team Manager
W. A. DiProfio	Station Manager
B. L. Drawbridge	Executive Director, Nuclear Products
T. C. Feigenbaum	Senior Vice President and Chief Nuclear Officer
J. N. Grillo	Operations Manager
T. L. Harpster	Director, Licensing
G. F. McDonald	Nuclear Quality Manager
J. M. Pechel	Regulatory Compliance Manager
J. L. Peterson	Maintenance Manager
N. A. Pillsbury	Director of Quality Programs
T. A. Schulz	ISEG Supervisor
J. M. Sobotka	NRC Coordinator
E. J. Sovktsky	Technical Projects Supervisor
P. J. Stroup	Director, Emergency Preparedness
J. J. Warnock	Nuclear Safety Assessment Manager

Northeast Utilities Service Company

W. J. Temple	Nuclear Licensing
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U.S. Nuclear Regulatory Commission

A. R. Blough	Branch Chief, DRS
A. C. Cerne	Senior Resident Inspector
S. K. Chaudhary	Senior Reactor Engineer
T. A. Easlick	Resident Inspector
M. G. Evans	Senior Resident Inspector, Assistant Team Leader
R. A. Laura	Resident Inspector
W. J. Raymond	Senior Resident Inspector, Team Leader
J. H. Williams	Senior Operations Engineer