EXECUTIVE SUMMARY

An NRC multi-disciplinary team, lead by the Special Inspection Branch of the Office of Nuclear Reactor Regulation (NRR), with the support of other branches in NRR, completed an assessment of both units of Nine Mile Point Nuclear Station. The assessment was conducted in accordance with NRC Inspection Procedure 93808 "Integrated Performance Assessment Process." The purpose of the assessment was to evaluate the licensee's performance in the areas of safety assessment/corrective action, operations, engineering, maintenance, and plant support for the period of January 1994 through December 1995. The assessment consisted of a preliminary, in-office review of documentation conducted during the period of January 16 through January 26, 1996, and an on-site assessment of performance conducted during the weeks of March 4 and March 18, 1996.

Details of the team's findings are contained in the following assessment report. The results of the assessment are reflected in the final inspection planning tree which is included as Appendix A to the report. These results will be a factor in the allocation of NRC inspection resources, with a potential for increased inspection focus in areas of weak performance and reduced inspections in areas which exhibited strong performance. The team's findings were also presented at a public exit meeting held at the Nine Mile Point site on April 11, 1996.

In the area of safety assessment and corrective actions, the licensee's performance was generally good, and the team recommends normal inspection. The deviation event report (DER) system utilized by the licensee for reporting problems at both units was a strength because of its comprehensiveness. In addition, strong performance in problem identification by safety review organizations, especially by the QA branch, contributed to an effective problem identification process at the station. However, the team concluded that the licensee's performance in problem analysis and evaluation was weak because of inconsistent DER trending by the line organizations, lack of thoroughness in some root cause evaluations and weaknesses in safety evaluations. The team recommends increased inspection focus in this area. The team identified a concern that there was no procedure for the implementation of the independent safety engineering group's (ISEG) activities at Unit 2 and the ISEG was neither systematically reviewing NRC documents, such as bulletins and information notices, nor performing technical audits of their review and implementation by line organizations.

The team recommends normal inspection in the area of operations. The performance of operations management and staff at both units was good during normal operations and during plant transients. The team noted a weakness in management safety focus in allowing temporary changes that changed the intent of procedure N1-ST-Q1B, "Core Spray Loop 12 Pumps and Valves Operability Test," Revision 4. Temporary changes that altered the intent of procedures were not permitted by Technical Specifications for Unit 1. Problem identification through the plant-wide DER system was effective in documenting operations problems because the threshold for issuance of DERs was low.

However, the team noted that the operators had not identified that incorrect lubricating oils had been added to the shutdown cooling pumps in Unit 1, or that the valve position in the Division II emergency diesel generator fuel oil duplex strainer at Unit 2 was incorrect. Although evaluation of problems, in general, was satisfactory, root cause analyses performed on several significant DERs in Unit 1 were not thorough. Programs and procedures related to operations were adequate.

The licensee's performance in engineering was good, and the team recommends normal inspection. The licensee performed thorough and technically accurate operability evaluations. The system engineers were knowledgeable of their systems and the system engineering program was effective. Problems involving engineering were properly identified through the DER process and the threshold for initiating DERs was low. The root cause and apparent cause evaluations for the DERs were adequate. The plant modifications and calculations were generally adequate. The team's review of safety evaluations of design changes identified one case where a 10 CFR 50.59 preliminary evaluation for a Unit 1 UFSAR change incorrectly concluded that a safety evaluation was not required. Engineering programs and procedures were adequate.

The licensee performance in the maintenance area at both units was good, and the team recommends normal inspection. The licensee's management provided significant attention to maintenance activities during outages, ensuring good performance. The planning and scheduling process, the process for considering risk in performing on-line maintenance, the dynamic learning activities to focus personnel awareness on human performance weaknesses, and problem identification and self-assessment contributed to the good performance by maintenance. The team noted weaknesses in work history, root cause analysis, lubrication controls in Unit 1, and control of fuses in the balance of plant systems in Unit 2.

In general, the licensee performance in the area of plant support was good, and the team recommends normal inspection in this area. The team noted superior performance in the radiological controls and security areas. Good internal and external dose control programs, reduction in contaminated areas, thorough evaluation of problems, and good corrective actions contributed to good performance in radiological controls. In the security area, well implemented physical security plans and procedures, thorough QA audits and self-assessments, and demonstration of effective contingency response were noted as strengths. Well equipped emergency response facilities and thorough audits and self-assessments were noted in the emergency preparedness area. However, significant weaknesses were identified during the last two emergency preparedness exercises, and therefore, the team recommends increased inspection in the area of quality of emergency preparedness.

ASSESSMENT OBJECTIVES, SCOPE, AND METHODOLOGY

To improve the effectiveness with which the NRC focuses its inspection resources at operating nuclear power plants, the Office of Nuclear Reactor Regulation (NRR) has developed an Integrated Performance Assessment Process (IPAP). This process, described in NRC Inspection Procedure 93808, is designed to identify programmatic and performance strengths and weaknesses in the areas of safety assessment/corrective action, operations, engineering, maintenance, and plant support.

This report documents the NRC team's performance assessment of both units of the Nine Mile Point Nuclear Station for the period from January 1994 to December of 1995. The assessment team consisted of individuals from NRR who had no normal oversight duties for the Nine Mile Point site. The assessment was conducted in two phases: a preliminary documentation review performed at NRC headquarters, and a final performance based assessment conducted at the site.

The results of the team's preliminary assessment were documented in a report issued on February 16, 1996. Subsequently a two week on-site assessment was performed. The results from the on-site assessment have been integrated with those of the preliminary assessment and are contained in this final assessment report. Also contained within this report are recommendations for future NRC inspection focus. These recommendations are also depicted on a Final Performance Assessment/Inspection Planning Tree.

In integrating results from the preliminary and on-site portions of the assessment, the team attempted to relate individual findings or issues to areas of perceived programmatic strengths or weaknesses. Also, an attempt was made to evaluate licensee performance to non-routine events such as those that might occur during postulated accident conditions. In all areas of the assessment, the team evaluated the effectiveness of the corrective action and performance assessment systems, as the effectiveness of these systems was seen as a major influence on overall organizational performance.

The team's final ratings and inspection recommendations take into account performance during the entire assessment period but are weighted towards recent performance. This approach helps in the most effective use of NRC resources by focusing on areas where performance weaknesses still exist or have not completely been resolved.

1.0 SAFETY ASSESSMENT AND CORRECTIVE ACTION

1.1 Problem Identification

The preliminary report assessed this area to be effective. The site-wide DER process was used by the licensee for reporting, documenting and evaluating problems, and specifying and tracking corrective actions. The team noted that the threshold for initiating DERs was low because 3354 DERs were written in 1995, many DERs were written to document minor issues, and the licensee's management emphasized the use of DERs for reporting plant problems and issues, however minor.

Other problem identification processes were self-assessments by line organizations, and independent audits at both units by the quality assurance (QA) branch. In addition, at Unit 2 the Independent Safety Engineering Group (ISEG) performed assessments of plant activities, and identified problems and made recommendations. A new procedure for periodic branch level self-assessments was issued in November 1995. Very few self-assessments in accordance with the new procedure had been conducted at the time of the inspection.

The audits by the QA branch were thorough, and contained many in-depth, relevant findings. On significant issues, the QA branch wrote DERs for follow-up and corrective actions by the appropriate branches. The findings from previous reports were tracked by QA in later audits to verify that the corrective actions were appropriate and the same issues did not recur. The team concluded that the QA audits strengthened the problem identification process significantly.

The team reviewed the monthly ISEG reports for the period from January 1994 through January 1996. The assessments of Unit 2 activities by the ISEG were good, and the team noted improvements in the quality of the reports during the past year. The responsibilities of the ISEG were specified in Unit 2 Technical Specifications (TS) 6.2.3.1 and procedure NEP-POL-01. The functions of ISEG were also described in Section 1.10 of the Unit 2 UFSAR in which the establishment of the ISEG in response to the requirements of NUREG-0737, "Clarification of TMI Action Plan Requirements," Item I.B.1.2 was discussed. However, the team identified that there was no procedure for implementing ISEG activities, and the licensee had not complied with TS 6.8.1.b which specified that written procedures be established, implemented, and maintained covering the activities implementing the requirements of NUREG-0737. One of the responsibilities of the ISEG was the review of NRC issuances, such as generic letters, bulletins and information notices. This ISEG function was being performed by different branches. Except for selected issues of high interest, such as the implementation of Generic Letter 89-10 for motor operated valves, the ISEG neither systematically reviewed NRC issuances nor performed technical audits of their implementation by line organizations.

Oversight of facility safety performance was provided by the Station Onsite Review Committee (SORC) and the Safety Review and Audit Board (SRAB). The team attended two SORC meetings for Unit 1 and one SORC meeting for Unit 2, and also audited the Unit 1 SORC meeting minutes for 1995. The SORC meeting attendees displayed a questioning attitude and discussed the agenda items in depth. No SRAB meetings were held while the team was onsite; however, the team reviewed the SRAB meeting minutes for 1994 and 1995. The SRAB appeared to perform comprehensive independent reviews of a variety of plant issues.

Conclusion

Overall, the team assessed this area to be a strength, and recommends reduced inspection. Future inspection activities should examine the formal self-assessments performed by line organizations using the new procedure.

1.2 Problem Analysis and Evaluation

The preliminary report concluded that the licensee performance in this area was satisfactory, though weaknesses in evaluating repetitive problems, DER evaluations, and trending of DERs were noted. The on-site inspection confirmed the conclusions in the preliminary report, and identified weaknesses in the use of DER trending information and in root cause and safety evaluations.

The team interviewed managers of operations, engineering and maintenance branches at both units to assess how line management analyzed and evaluated DER issues. Site-wide trending of DERs was performed by the QA branch in its Quarterly Trend Reports (QTR); however, the QTR did not provide sufficient details to be useful to the managers at the branch level. Instead, the managers used a wide variety of trending methods to assess the performance of their branch. The team noted that Unit 2 operations branch and Unit 2 engineering branch made better use of the DER trend information. These branches prepared a package comprised of monthly DER trend charts, a listing of applicable DERs, and most importantly, a narrative analysis and planned corrective actions for the trends. For example, Unit 2 operations was able to monitor the effect of procedural improvements and self-checking in reducing human performance errors. Also, based on a review of DER trends, the Unit 2 engineering manager re-emphasized the need for procedural adherence and the use of up-to-date documents, and specified preventive as well as corrective actions. Consequently Unit 2 engineering was able to reduce the number of DERs in the categories of Configuration/Analysis and Work Practices.

The team determined that coding of information into the DER database needed improvement. QA audits of corrective actions during the last two years and the August 1995 ISEG report had identified that accurate coding of events in DERs remained a problem. For example, QA audit report 95006 identified that approximately 20% of the trend codes on DERs were inconsistent with regard to the identified or perceived causes, the causing organization, or the activity involved. As a part of the corrective actions for the QA audit finding, a DER coordinator for each branch was appointed. In 1995, 33% of Unit 1 DERs and 28% of Unit 2 DERs were assigned the code "000" to designate that organizations other than the licensee's caused the DER issue. However, the team was able to determine that in a sample of 175 DERs written in 1995, 6% were appropriately coded "000" because they were "caused" by external organizations. The DERs coded as "000" were not trended, and therefore, potential issues and their causes were not included in any trend information and were not considered in formulating corrective actions.

The DER process did not rank issues on the basis of their safety significance, but the DERs were categorized on the basis of the schedule for completion of dispositions. Consequently, both the licensee and the team had difficulty in easily distinguishing the trends in more significant safety issues from the less safety significant issues. For example, an average of approximately seven DERs were caused by Unit 2 operations each month. The recirculation pump runback event could not be distinguished from the other events in the DER trending chart even though this event clearly was of higher significance than other events in that month.

After the DERs were closed out they were not formally and routinely communicated between units so that one unit could benefit from the solutions for problems in other unit. Although informal discussions sometimes took place between personnel from the different units and significant events in one unit got the attention of personnel in the other unit, the team noted several examples of problems in hardware, personnel errors, and errors in maintenance practices that were evaluated and resolved in one unit that could have benefitted the other unit.

QA audits and ISEG reports had identified inconsistencies in root cause evaluations and apparent cause determinations. The team's review of samples of root cause evaluations, discussed in other sections of this report, indicated that some of the evaluations were not thorough. Also, there was no requirement that those who perform root cause analyses receive formal training. Two instances were noted where operations personnel who had not been trained performed such analyses. In addition, noting recurring problems in the accuracy of apparent causes, QA audits identified that about 30% of the apparent causes described in the sampled DERs were not appropriate and preventive actions did not adequately address the causes of the problems in about 40% of the DERs sampled. Discussions in the DER disposition sections appeared to focus on what occurred instead of why the problem occurred.

The team noted that the quality of safety evaluations and applicability reviews by plant personnel needed improvement. Applicability review is a preliminary screening to determine whether 10 CFR 50.59 is applicable. The team's review of SRAB meeting minutes indicated that about 12% of the safety evaluations reviewed by SRAB in 1994 were rejected. At the SORC meetings attended by the team, SORC rejected one of three safety evaluations submitted. The SORC meeting minutes for 1994 and 1995 indicated that SORC did not approve some safety evaluations even though the technical support managers had reviewed the safety evaluations before the evaluations were sent to SORC. At both units the SORCs are currently reviewing those safety evaluations for previous years that were not documented as having been reviewed by SORC. QA audit report 95016 identified problems (such as, recurring problems of not enough details to justify conclusions, not considering impact on NRC programs and environmental programs, not adequately reviewing the documents on which the applicability review was performed, and not following procedures) in 56 out of 170 applicability reviews. The team identified an example of an incorrect applicability review which is discussed in Section 3.3, and NRC identified in inspection report 96-05 the lack of proper safety evaluation of oversized bolts in the reactor building and turbine building blowout panels in Unit 1.

Conclusion

Overall, the team concluded that increased inspection was warranted. The team recommends that future inspections focus on apparent cause determinations, root cause evaluations, applicability reviews and safety evaluations, and the use of DER trending information in formulating corrective actions for adverse trends.

1.3 Problem Resolution

The preliminary report assessed this area as indeterminate due to insufficient information, though corrective actions to resolve selected issues were effective. The on-site portion of this inspection evaluated this area as adequate.

The site-wide corrective action program was a part of the DER process. Disposition of each DER included corrective and preventive actions as applicable, and the DER was closed out by the responsible organization after verifying the completion of these actions. As part of its business plan, the licensee management focused its attention on Category 1 DERs which were required to be dispositioned within 10 working days and DERs that remained open for more than two years. The team noted that good corrective actions resulted when senior licensee management directed its attention to selected issues, such as the inadequacies identified in implementation of inservice testing (IST) and actions for NRC Generic Letter 89-10.

The team concluded that the management of the backlog of DERs was appropriate. For example, although 3354 DERs were written in 1995, the DER backlog at the end of the year was approximately the same as the backlog at the beginning of the year at both units, in spite of the increased workload due to refueling outages at both units in the same year. Generally, DERs were dispositioned in a timely manner, although the schedules for Category 1 (10 days) and Category 2 (30 days) DERs were not always met.

The preliminary report had concluded that corrective actions taken by the licensee in response to poor human performance problems did not appear to be effective as evidenced by events in early 1995. During the on-site inspection, the team noted that the recent corrective actions to resolve human performance errors were appropriate. Specifically, requirements for direct supervisory involvement in and independent re-verification of work that could potentially cause plant transients had been implemented. Also, branch-level tracking of human performance errors by managers had identified some common causes, and the implementation of corrective actions had led to a reduction in human performance errors identified in DERs.

The team observed that the methods of tracking, verification, and documentation of corrective actions and due dates in DERs varied among the branches as discussed in other sections of this report.

QA reports 95017, 95006, 94011 and 94033 related to corrective action audits and ISEG monthly reports have identified recurring problems in the accuracy of apparent causes assigned in DERs. For example, QA audit report 95006 identified that 29 of 107 DERs did not properly address the causes of the identified problems. Instead, the discussions in the DERs appeared to focus on descriptions of what occurred. Also, the audit report assessed that in 37 of 107 DERs preventive actions were either not prescribed or did not address the cause of the DERs. An examination of over 30 DERs by the team confirmed that inconsistencies existed in determining apparent causes and in prescribing preventive and corrective actions.

Conclusion

Overall, the team assessed that the licensee performance in this area was good, and recommends normal inspection be implemented. Future inspection activities should focus on the effectiveness of initiatives to reduce human performance errors and on corrective actions taken by line branches in response to DER trending as well as for specific issues in DERs.

2.0 OPERATIONS

2.1 Safety Focus

During the in-office review, the team noted that licensee management had generally made good conservative operational decisions throughout the assessment period. Inspection reports also indicated strong operator performance during plant scrams and transients. The team determined that station management's involvement in operational issues, and in direction and oversight of the operations department was good.

During the on-site phase of the assessment, the team observed numerous routine control room activities, attended some daily management meetings, and discussed past events with the operations department managers. At the Unit 1 pre-shift work scheduling meetings, which were held twice a day, the team observed good coordination and communication of planned work activities between departments. Management involvement and support in the daily operations of the facility appeared to be good as evidenced by the frequent visits by Unit 1 and Unit 2 managers to the control rooms. Operator staffing appeared to be stable at both units. Overall, the safety focus of operations organizations at both units was observed to be good.

During a review of DER 1-95-0957, the team noted that temporary changes to procedure N1-ST-Q1B, Revision 4, "Core Spray Loop 12 Pumps and Valves Operability Test," were made to test the core spray system subsequent to rework of relief valves PSV 81-243 and PSV 81-244 that were replaced as a part of modification N1-90-041 at Unit 1. These temporary changes to the procedure resulted in changes to the intent of the procedure. Because the changes made to the procedure were inadequate and did not specify closing of certain valves, unexpected water addition to the reactor vessel occurred during the performance of the test on March 3, 1995. The safety consequences of the test were minimal because Unit 1 was shutdown at that time. Section 6.8.3 of Unit 1 Technical Specifications (TS) allowed temporary changes to procedures provided the intent of the procedure was not altered. This TS requirement was not followed. Allowing such a change to the procedure was an example of weakness in the Unit 1 operations department management's safety focus.

The team observed that the operators made a timely and conservative operability determination on the Unit 1 emergency condenser when a timer circuit was found to be out of calibration during a routine surveillance test on the system. When the technicians were unable to calibrate the timer circuit, the operators declared the emergency condenser system inoperable and entered the appropriate TS action statement. The operators exited the action statement later in the day after the timer was satisfactorily calibrated.

In LER 95-06 for Unit 2 the licensee reported the inadvertent disabling of a residual heat removal (RHR) system suppression chamber spray loop due to mispositioning of a manual block valve. During the time period that the loop was disabled, two mode changes were made in violation of Technical Specification 3.0.4. The event analysis concluded that no adverse consequences resulted from one loop being inoperable because the second loop was available. Correct application of the single failure criterion would be to assume a single failure somewhere in the unaffected loop resulting in potential unavailability of both loops. The team discussed this issue with the plant management and emphasized the need to ensure that the application of single failure criterion was properly understood by licensee personnel. Because the team did not identify similar concerns in other reviewed documents, the team concluded this was an isolated case.

<u>Conclusion</u>

Overall, safety focus was determined to be good based on examples of conservative operational decisions and good management oversight of operations in both units. The team recommends that normal inspection efforts be maintained.

2.2 Problem Identification/Problem Resolution

During the in-office review, the team concluded that overall performance in this area was indeterminate. Inspection reports indicated that problem identification by operators was generally good and that they were attentive to equipment conditions and problems. However, there were instances in which operators were not aware of plant deficiencies. Also, events attributable to operators' inadequate involvement with the work control process appeared to remain uncorrected during the assessment period.

During the on-site phase of the inspection, the team focused on the licensee's process for documentation of problems at the plant, management's effectiveness in resolving these problems, and inspection of the facility to identify any plant deficiencies which had not previously been identified by operations personnel.

The team selected approximately 200 DERs issued during 1994 and 1995 which were assigned to Unit 1 or Unit 2 operations department for resolution. Review of these DERs indicated that there was a low threshold for identification of problems as evidenced by numerous examples of minor deficiencies. The team determined that problem identification through the DER process was a strength, though the team noted two instances of problems that were not identified by the operations staff.

The team inspected selected areas of the reactor and turbine buildings and concluded that the overall material condition of the equipment in the reactor and turbine buildings of both units was very good. Housekeeping was also very good in the reactor and turbine buildings.

The shutdown cooling (SDC) heat exchanger room in Unit 1 was an exception to the otherwise very good material condition found in most of the rooms in the reactor building. The SDC room contained numerous catch containments (some which were several years old and a few with no hoses attached to the containment device to direct water to the floor drain), SDC pumps appeared to be in poor material condition, and the area was contaminated. The team identified by visual inspection that there were differences in color of the lubricating oils between shutdown cooling pumps #13 and #12. In response to the team's concerns, the licensee sampled the lubricating oil from all three SDC pumps and found that incorrect oil had been added to pumps #13 and #11. This deficiency could have easily been detected by the licensee during normal operator rounds. The licensee wrote DER 1-96-0739 to document this deficiency.

Another instance of a problem in Unit 2 that should have been identified by operators on rounds was noted by the team. During walkdown of the Unit 2 EDGs, the team noted that the division II EDG fuel supply duplex strainer selection lever was selected to the mid or "both" position, negating the capability to select the standby strainer element in the event of clogging. This problem is discussed further in Section 2.4.

The following three of the nine Unit 1 DER root cause analyses or dispositions reviewed by the team were not satisfactory:

DER 1-95-2181: This DER documented an event in which the operator added the wrong oil to the control rod drive (CRD) pump. The root cause was stated as inadequate training of operators, but failed to adequately address the leakage problem with the CRD pump oiler which caused the operator to add oil and the lack of oil bottles with the correct oils available nearby for operator use.

DER 1-95-0957: This DER documented an event in which the operator had made a temporary change to the core spray pump surveillance procedure which resulted in unexpected water addition to the reactor vessel. The DER did not identify that the operators had changed the intent of the surveillance procedure through the use of the temporary change process.

DER 1-95-1945: This DER documented the inclusion of an incorrect procedure for post-maintenance test (PMT) for reactor building track bay door after work was performed on the door seal during the last outage. After the work package was issued, the referenced procedure was revised and certain past testing requirements for the door were deleted. The operations personnel were not aware of this revision. The DER did not address other barriers that would have prevented this problem such as, instituting a requirement to determine the impact of making changes to PMT procedures for work packages already planned or issued and the appropriateness of issuing changes to the PMT procedure during the refueling outage period.

The team reviewed the training records of those individuals who had performed root cause evaluations for DERs for Unit 1. The review indicated that most individuals had only 5 to 9 hours of training, and no record of root cause evaluation training could be found for two individuals in the operations branch who were performing root cause analyses.

Unit 2 operations personnel who performed root cause analyses that were reviewed by the team had received appropriate training, and root cause analyses performed by the Unit 2 operations staff were thorough.

Conclusion

For both units, the team recommends reduced inspection in the area of problem identification and normal inspection in the area of problem resolution. Inspection activities in the problem resolution area should focus on ensuring that the root cause evaluations are thorough and corrective actions adequately address problems to minimize their recurrence.

2.3 Quality of Operations

The preliminary report indicated that operator responses to reactor scrams and other transients were good. Also, the operators generally demonstrated good adherence to procedures, displayed proper communication, and demonstrated a good questioning attitude. However, there were periods of less than adequate operator performance and focus which contributed to plant transients and events.

While on site, the team observed shift turnovers, control room and field communications, responses to annunciators, procedure usage and adherence, surveillance testing, and operator rounds. On the basis of these observations, the team concluded that the operator performance during routine operations was very good. Shift turnovers by the shift supervisors were thorough, and the team observed effective coordination between operations and other departments. The operator oversight of maintenance was good, and there were no adverse impacts on the plant as a result of maintenance evolutions during the on-site inspection.

The team observed very good communication between the reactor operator (RO) at Unit 1 and the operator in the field during a monthly surveillance test. On the other hand, there was limited communication between the chief shift operator (CSO) and the RO during observation of another surveillance. The RO cycled several valves and started a core spray pump without first informing the CSO of his actions. However, the CSO was observing the RO's activities closely and was aware of the RO's actions.

Although the team observed that Unit 1 control room operators announced several alarms received in the control room during a routine instrumentation and controls testing, they did not announce frequently received nuisance alarms such as the alarms received on the unit 1 feedwater heaters. Communication and response to annunciators in the Unit 2 control room and field operations were observed to be appropriate.

The team witnessed a monthly surveillance of the Unit 2 Division III diesel generator, and noted that verification by a second operator was performed prior to switch manipulation and personnel involved with the test communicated effectively.

The team's review of Unit 2 DERs indicated that there were a few work control problems involving restoration of systems and components following maintenance or testing. For example: an RHR pump minimum flow valve was inadvertently left shut following a surveillance (DER 2-94-1612); an isolation cooling system steamline drain pot level switch variable leg isolation valve was incorrectly left shut following repacking (DER 2-95-0237); and one train of suppression chamber spray was disabled due to failure to properly restore the correct valve line up following a leakage test (DER 2-95-1854). The root cause analysis for each case was reasonable and included the expected event specific contributing causes. Some of the corrective actions for these work control problems were still in progress.

Conclusion

Overall performance in this area at both units was good. The team recommends normal inspection with focus on operator activities during infrequently performed evolutions and during outages.

2.4 Programs and Procedures

The preliminary report concluded that the performance in this area was considered indeterminate. Inspection reports had indicated that operator training programs were effective. Some concerns were also discussed in these reports regarding inadequate procedures or inadequate use of procedures which had led to errors and operational events.

The team's review of selected routine operations procedures, and observations of routine surveillances performed by the operators indicated that the quality of procedures was generally good. Review of the 1995 DERs at Unit 1 indicated that procedural related problems appeared to be minimal. Procedure revision backlog at Unit 1 was reasonable, and the team noted few temporary changes for procedures selected for review.

During a review of the Unit 1 EDG operating procedure, N1-OP-45, Revision 22, the team noticed that following a loss of offsite power (LOOP) and after a successful EDG operation, the procedure directed the operators to perform a dead bus transfer to the offsite power source when available. The transfer, which had been successfully performed several times during actual LOOP situations, was accomplished by tripping the EDG output breaker, holding the control switch in the tripped position (over-riding its safety function to reclose due to bus undervoltage), and closing the normal supply breaker after waiting 3 to 5 seconds. This method, instead of paralleling the EDG to the incoming offsite source, results in an intentional blackout on the emergency bus for a short duration. The running loads are stripped off the emergency bus and then reloaded after the bus is re-energized. Because the emergency bus synchroscope is connected across the EDG output breaker, it is not able to detect the voltage phase difference between the EDG and the offsite power source to accomplish paralleling with the EDG initially supplying the emergency bus. The UFSAR does not mention that there are system limitations in paralleling the offsite power source to the EDG when the EDG is already providing power to the emergency bus, but does contain a description of the capability to parallel the EDG to the bus for testing purposes. The team noted that the system design at Unit 1 does not provide the flexibility for operators to perform a parallel transfer of loads from the EDG to the offsite power source. At Unit 2, the EDG system is designed for parallel operation, and the dead bus transfer scheme is not applicable.

The licensee's corrective actions to resolve the problems in the catch containment program appeared adequate. The NRC resident inspectors had found that a catch containment device for one of the core spray containment isolation valves lacked a maintenance work order to repair the leak (NRC inspection report 50-220/95-24;50-410/95-24). Subsequent licensee investigation into the resident inspectors' observation on catch containment resulted in generation of DERs 1-95-2566 and 1-95-3116. These DERs were written to address licensee's failure to perform semi-annual review of installed catch containments and for not generating a maintenance work order to repair leaking equipment. Interviews with the operations staff indicated that the licensee's control of the catch containment program as stated in procedure GAP-OPS-04, "Control of Catch Containment," needed to be improved in identifying the ownership and responsibility for the program. The licensee's investigation into DER 1-95-3116 also indicated that there had been an upward trend over the past three years in the number of catch containments in the field. There were 79 catch containments in Unit 1 at the end of the IPAP inspection. There were approximately 20 catch containments installed in Unit 2 and several of these were approved for removal. The licensee was in the process of correcting the identified deficiencies in the catch containment program.

A significant procedure upgrade program at Unit 2 was in progress to address problems identified in operations procedures. The team did not identify any incorrect procedure usage by operators but noted the following discrepancies in some procedures:

- After discovering that the division II EDG fuel oil duplex strainer was aligned to keep both strainer elements in service, the team noted that the required position for the selector lever in Operating Procedure N2-OP-100A, Revision 5, "Standby Diesel Generators," was "as selected." A "left or right" position of the lever would have ensured that one element was in service and the other was in standby. Any valve line-up verification performed using the "as selected" position would not reveal the problem of potential clogging of both strainer elements due to being in continuous service. However, the text of N2-OP-100A stated that operation with the selector lever in the "MID" or "BOTH" position should only be considered if the EDG would otherwise be declared inoperable. The licensee issued a DER to document the discovery of the selector lever being positioned to "BOTH" and a Procedure Change Evaluation (PCE) to recommend the required position for the lever in N2-OP-100A be revised to "left or right".

- In contrast, the division I and II EDG turbo lube oil duplex filter was intentionally aligned to the "BOTH" position based on vendor technical manual guidance. This was stated as such in procedure N2-OP-100A, Revision 5. However, the team identified that the alarm response procedure (N2-OP-100A) for annunciator "LUBE OIL LOW PRESSURE TURBO" directed the operator to swap over to the standby filter. With the filter aligned to "BOTH", there would be no standby filter available, thus, the alarm response procedure action cannot be performed. The licensee issued a PCE to correct this problem.

The team reviewed operator "work-around" lists at both units. The term "work-around" refers to non-routine actions taken by the operators to compensate for equipment not functioning as designed. The lists included 10 items for Unit 1 and 25 items for Unit 2, and tracked the duration of the "work-around" items and the status of activities needed to close out these items. The team discussed the lists with operators who indicated that they were satisfied with the responsiveness of engineering and maintenance.

The Unit 2 operator "work-around" program was reviewed and considered to be effective in resolving identified deficiencies that impose an unnecessary burden on operators. However, the program was focused on deficiencies, thus, burdensome operator contingency actions resulting from other unique conditions were unlikely to be identified in the program. For example, the team observed that high pressure was trapped between the low pressure coolant injection valves and the residual heat removal system pump discharge check valves after either loop of the system was run in the suppression pool cooling mode. Operator action was required to vent the high pressure via manual valves. Once vented, the pressure remained steady at the expected keep-fill pressure, suggesting that the elevated pressure was not due to in-leakage from the reactor side of the system. The operations representative with oversight of the operator work-around program agreed that this issue reasonably should be dispositioned within the program given that the cause for the trapped pressure had not been conclusively determined.

<u>Conclusion</u>

Overall, the team recommends normal inspection effort be implemented in the area of programs and procedures. Future inspections should focus on the Unit 1 catch containment program, lack of flexibility in parallel transfer of operating Unit 1 EDG loads to the offsite power source, and the Unit 2 procedure upgrade program.

3.0 ENGINEERING

3.1 Safety Focus

The preliminary report identified good performance in the area of safety focus. The licensee performed technically accurate operability evaluations of plant issues. The licensee management's involvement in engineering activities was evident in the successful implementation of several projects. Although engineering activities were performed well, the team identified a few programmatic weaknesses.

During the on-site inspection, the team reviewed operability evaluations and engineering performance indicators, attended plant meetings, and interviewed plant staff and management.

The team reviewed samples of DERs and LERs and determined that the licensee performed adequate operability determinations for the identified problems. The operability determinations appeared to have sound bases for considering the affected systems operable, and were consistent with the guidance given in Generic Letter 91-18.

The team interviewed design engineers, system engineers, managers and supervisors and concluded that within the engineering and technical support groups, management expectations and goals were communicated well. A review of the backlog of engineering work activities and the licensee's engineering performance monitoring reports showed that the licensee management was monitoring performance adequately and the backlogs were effectively managed. The establishment of business plan goals, monthly performance reports, monthly performance window reports and DER trend data provided management with an effective tool to monitor the engineering performance. The managers were reviewing performance information for both units and taking appropriate actions for improving the weak areas. The team concluded that the licensee management's oversight of engineering activities was good.

Conclusion

Overall, based on the in-office review and the subsequent on-site review, the licensee's performance in the area of safety focus was good. The team recommends normal inspection in this area.

3.2 Problem Identification / Problem Resolution

The preliminary report identified good performance in the area of problem identification and problem resolution. Problems, such as operating the plant above the rated core thermal power limits, were identified promptly at Units 1 and 2. However, inadequate design of the governor cooling water system for Unit 2 emergency diesel generators, and the inadequate flow to the stator cooling heat exchanger were not proactively identified by the engineering staff. In general, the licensee's engineering staff provided adequate technical support for resolving problems.

During the on-site assessment, the team reviewed samples of DERs and determined that the DERs characterized and dispositioned the identified issues appropriately. In most cases, the corrective and preventive actions were implemented within the required completion dates. In some cases (e.g., DERs 2-95-3455, 2-94-1408, and 1-94-0691) the completion dates were revised without providing any justification as required by the DER procedure. The root cause and apparent cause evaluations and corrective actions for the reviewed DERs and LERs appeared to be reasonable.

In 1995, engineering and technical support divisions issued 634 DERs for Unit 1 and 844 DERs for Unit 2. The licensee had emphasized that the staff write DERs for any deficiency identified at the station. This policy, combined with the large number of DERs issued during the last year, indicated that the threshold for issuing DERs was low.

Problems in engineering activities were identified in audits by QA and ISEG and in engineering self-assessments. The engineering assessment of the modifications implemented during the last Unit 1 outage was thorough and identified common root causes, issues, and contributors for weak performance in the development and implementation of plant modifications. The corrective actions were being addressed through DER 1-95-0799. In addition, feedback and necessary training to correct the identified weaknesses was also provided to the Unit 2 staff. The six QA audits of engineering reviewed by the team were thorough in identifying strengths and weaknesses in the engineering activities. The team verified that the corrective actions were either implemented or scheduled for completion. The four ISEG reports reviewed by the team were adequate in identifying strengths and weaknesses in Unit 2 engineering activities. DERs were issued for significant weaknesses.

Backlog of temporary modifications (T-mods) was low. Only 12 T-mods in Unit 1 and 17 T-mods in Unit 2 remained open at the time of this inspection. Most of them could only be cleared during a plant outage. However, the team noted that the temporary modification for the microbiologically induced corrosion control system for service water system installed 4 years ago was still in service because the schedule to install a permanent plant modification was not met. Review of the backlog of other engineering documents such as simple design changes, modifications, DERs, drawings and vendor manuals indicated that, in most cases, the licensee met the established goals.

The team reviewed DERs 1-95-2051 and 1-95-1075 that identified configuration control concerns in electrical drawings because design change requests (DCRs) initiated some years ago were not entered in the configuration control database. The team noted after further discussions with the engineering staff that drawings in other disciplines were also affected. A total of 1242 drawings either did not incorporate the DCRs or did not have the DCRs posted against them. The licensee's preliminary review indicated that 165 drawings were critical drawings that were used by plant operations and others. The licensee stated that a preliminary evaluation of the affected design change requests indicated that these configuration control problems did not result in any safety concerns. However, the team was concerned that these drawings which may not reflect the as-built plant conditions could have been used for designing plant modifications or for preparing procedures, because no written communication was issued to all personnel to alert them to the condition of the specific drawings. The licensee's corrective actions were neither timely nor thorough.

The team noted that long-standing hardware problems in Unit 2 systems, such as the loose parts monitoring system, emergency diesel generator air start system, and standby gas treatment system had not been resolved in a timely fashion. The licensee stated that in some cases the option of increased maintenance to keep the systems operable was chosen instead of making permanent design changes to resolve hardware problems.

Conclusion

Overall, the licensee's performance in the area of problem identification and problem resolution was good. The team recommends normal inspection in this area. Future inspections should focus on licensee's corrective actions for configuration control of drawings and resolution of long-standing hardware problems.

3.3 Quality of Engineering Work

The preliminary report identified good performance in the area of quality of engineering work. Both the engineering and technical support personnel generally performed their functions well and adequately resolved plant problems. Plant modifications and calculations were technically sound and properly documented. Examples of good performance included calculations and safety evaluations for Unit 2 station blackout (SBO) implementation, and average power range monitor (APRM) alarm and rod block modification and post-modification testing for Unit 2. However, a few examples of less than adequate engineering support were noted in plant modifications, such as the ineffective coordination for Unit 1 hydrogen and oxygen monitoring system and inadequate evaluation of pressure locking and thermal binding of MOVs in Unit 2.

During the on-site inspection, the team reviewed design change packages, temporary modifications, calculations, drawing updates, and interviewed plant staff and engineering managers.

The team reviewed eight design changes and concluded that, in general, the modifications were implemented in accordance with design procedures. The design engineers were trained appropriately for performing design tasks. The drawings and procedures affected by the DERs were properly revised in accordance with licensee's procedure. The design verification and independent reviews were adequate. The post-modification tests verified the design change and operability of the system adequately. The 10 CFR 50.59 safety evaluations were generally adequate. The team noted that the required 10 CFR 50.59 safety evaluation was not performed for the Unit 1 design change (SC1-0056-91). This design change required a revision to UFSAR Figure X-6 to change the position of the service water system screen wash pump header inter-tie valves from normally open to normally closed and to delete an incorrectly shown valve. No safety evaluation was performed because in the 10 CFR 50.59 preliminary evaluation (No. D93-113) the responsible engineer incorrectly documented that the UFSAR was not affected because descriptions in the UFSAR were not changed. The team learned from discussions with the licensee staff that the responsible engineer incorrectly characterized this as an editorial change to the UFSAR figure. The team concluded that the preliminary evaluation was not in compliance with licensee's procedure NIP-SEV-01, "Applicability Reviews and Safety Evaluations" which did not allow minor configuration changes to UFSAR figures to be considered as editorial corrections, and that no safety evaluation as required by 10 CFR 50.59 was performed for the changes in the facility as described in the UFSAR.

The team reviewed 10 temporary modifications for Units 1 and 2. The 10 CFR 50.59 safety evaluations, technical reviews, periodic reviews, and verification and approval activities were adequately performed in accordance with administrative procedure GAP-DES-03, "Control of Temporary Modification."

In the sample of 10 DERs reviewed by the team, in general, the quality of engineering dispositions was adequate. A review of the licensee's monthly performance report for February 1996 indicated that all the design changes had no errors and were accepted by operations at both units.

The team reviewed two set point calculations for Units 1 & 2. The calculations were consistent with the guidance provided in ISA standard S67.04 and Regulatory Guide 1.105.

Conclusion

Overall, the licensee's performance in the area of quality of engineering was good. The team recommends normal inspection in this area. Future inspections should focus on 10 CFR 50.59 applicability reviews and safety evaluations.

3.4 Programs and Procedures

In the preliminary report, the area of programs and procedures was characterized as indeterminate. The licensee effectively implemented several engineering programs at both units, such as a program to monitor the corrosion of the Unit 1 torus and the corrosion residue on containment and core spray components, an acceptable program for implementing the SBO rule at Unit 2, and a program to simplify and upgrade engineering procedures at both units. However, programmatic weaknesses were identified in the GL 89-10 motor operated valve (MOV) program at both units and in the 10 CFR 50 Appendix J and the inservice testing (IST) programs at Unit 2.

During the on-site inspection, the team reviewed the system engineering program, reviewed procedures for design changes and temporary modifications, and obtained the status of corrective actions for the identified program weaknesses.

The system engineering program was described adequately in licensee's procedures N1-TDI-4, Revision 2 and N2-TSI-1.0, Revision 4 for Units 1 and 2 respectively. The team interviewed system engineers for emergency diesel generator, DC power supply, service water and standby liquid control systems, and walked down these systems with the system engineers. The system engineers were knowledgeable of their assigned systems, and had completed the required training in accordance with the qualification manual. They were maintaining the system files in accordance with procedures, performing routine walkdown of the systems, tracking DERs, work requests and design changes, and trending system performance. The system engineers were effectively utilizing the performance monitoring programs such as vibration monitoring, heat exchanger performance monitoring and thermography. They were performing their assigned duties well, and had maintained good communication with maintenance, design engineering and operations. During the resolution of problems associated with emergency condenser timer and battery corrosion issues at Unit 1 and problems due to main condenser air in-leakage at Unit 2, the team noted that system engineers had maintained good communications with operations, maintenance and design engineering.

The licensee had completed design basis documentation for 21 systems for Unit 1 and 25 systems for Unit 2. The team observed that these documents provided useful design and licensing basis information, and the engineers utilized the information when performing technical evaluations and operability evaluations.

The licensee had issued DERs and scheduled corrective actions for the GL 89-10 MOV program, the IST program and the 10 CFR 50 Appendix J program deficiencies identified in the preliminary report. The licensee had either completed or was in the process of implementing the corrective actions for the identified deficiencies. The team did not review the completed corrective actions.

<u>Conclusion</u>

Overall, the licensee's performance in the area of programs and procedures was good. The team recommends normal inspection in this area.

4.0 MAINTENANCE

4.1 Safety Focus

The preliminary report recommended normal inspection for this area. The performance of maintenance during outages at both units was good, and was indicative of effective management oversight of refueling and outage planning. The report included examples of repetitive equipment problems that were not aggressively pursued or resolved, and root cause determinations and long-term solutions that were not implemented until numerous failures had occurred.

During the on-site assessment, the team observed maintenance activities that were in progress. The team reviewed the following: the process for evaluating root causes by the maintenance branch; samples of root cause analyses and their associated corrective actions; planning and scheduling of work; prioritization of risk significant equipment scheduled to be removed from service; and post-job critiques attached to work order packages.

The team concluded that the 13-week planning and scheduling process conducted by operations and maintenance personnel was a good means of prioritizing and scheduling work. Combined with the requirements of procedure N1-ODP-PSH-0101, Revision 3, "Voluntary Entry into an LCO" and procedure GAP-PSH-03, Revision 0, "Control of On-line Work Activities", the process provided a method for considering risk in performing on-line maintenance.

The team discussed maintenance controls with several craft personnel. The discussions indicated that the extent and quality of pre-job briefings were commensurate with the complexity of the work. The maintenance supervisors informed the team that the plant management emphasized the importance of pre-job briefings and required the use of pre-job brief check sheets to assist the supervisors in briefing craft personnel.

Post-job critique forms which contain suggestions for improvement of work packages were attached to work order packages and forwarded to the maintenance planners. This is the primary method of capturing work history for incorporation into future work packages. Planners are responsible for incorporating post-job critique information into the Work Control Maintenance, Operations, Stores, Spares, and Engineering (WC MOSSE) database. The team reviewed samples of several post-job critique forms and noted that only about 25% of the forms had useful information for improving the work package preparation process. This information was not being consistently entered into the WC MOSSE database, and therefore, was not available during work package planning and preparation.

Because the licensee had identified human error as the predominant cause of repetitive deficiencies, the licensee had developed a training program called "Dynamic Learning Activities" which focused on work practices to improve craft awareness of human performance issues. This program trained personnel to be critical self evaluators. The team observed training sessions and concluded that this program was a good initiative.

The maintenance branch tracked maintenance issues, open DERs and repetitive DERs, and assigned personnel to pursue long-term solutions. Among the selected samples of maintenance DERs, the team noted several DERs that were good examples of tracking and resolving repetitive deficiencies in a timely manner. Other than the examples in the preliminary report of repetitive equipment problems that were not resolved in a timely manner, the team did not note similar problems during the on-site review.

<u>Conclusion</u>

The team concluded that the maintenance branch demonstrated good focus on safety, and recommends that the current level of inspection be maintained.

4.2 Problem Identification/Problem Resolution

The overall performance in this area was identified as indeterminate in the preliminary report. Though maintenance problems were identified during audits by QA and ISEG and during self-assessments, resolution of long standing and repetitive problems was less than adequate and the resolution of problems and tracking of corrective actions required further review.

The team reviewed eight DERs related to maintenance that included root cause evaluations. In general, the DERs properly documented and evaluated the identified problems. For example, DER 2-95-3274 was thorough and comprehensive. Corrective actions were broad based and focused on worker awareness, work practices, supervisor's effectiveness, and assessment. However, the root cause determinations in DER 2-95-1850 merely re-stated the problem, and the associated corrective actions narrowly addressed the condition and did not address the cause.

The responsible branch manager closed out DERs after checking the status of corrective actions with the personnel assigned for completion of corrective actions. The team observed that tracking and reporting of status of corrective actions was not thorough, and verification of implementation of maintenance corrective actions associated with DERs, self-assessments, ISEG, and QA recommendations were not sufficient to assure that the required actions were effectively implemented. For example, revising the non-licensed operator training lesson plan and providing a methodology for filling Adams Oilers listed as corrective actions in DER 1-95-2181 were to be complete by December 31, 1995. The team determined that these corrective actions had not been completed, the delay in completion of these actions had not been identified, and actions were not taken to justify and reschedule the completion date. In another example, the first quarter self-assessment audit in 1995 at Unit 2 established corrective actions for configuration control of mechanical maintenance procedures. The maintenance planning guide was revised to incorporate the addition of a verification sign-off step in each work package to assure that configuration control was maintained, and to require that work order restoration be documented in the text and verified. The team reviewed 87 recent work packages, and noted that no mechanical work package included a sign-off step at the end of the package to confirm that configuration control was maintained and work order restoration was not clearly documented and signed off in the text. The team discussed these issues with the maintenance supervisor and determined that there was no system to track accountability, responsibility, or verification of completion and effectiveness of corrective actions. Tracking of corrective actions was limited to verification that assigned dates in the DER were met.

Conclusion

The identification and documentation of plant problems were comprehensive and effective, and performance in problem resolution was generally acceptable. The team recommends normal inspection in this area. The team also recommends that future inspections focus on problem evaluation and corrective actions in the maintenance area, because of examples of lack of thoroughness in problem evaluation and poor tracking of implementation of corrective actions.

4.3 Equipment Performance/Material Condition

The preliminary report evaluated this area as indeterminate and noted equipment performance and condition that caused forced shut downs, scrams and transients at both units. During the on-site assessment, the team reviewed the corrective maintenance (CM) backlog, and inspected equipment condition and performance.

The team noted a relatively low level of corrective maintenance backlog. The corrective maintenance (CM) backlog as of January 1996 at Unit 1 was approximately 400. The Unit-2 CM backlog had been reduced from approximately 2000 to 500 during the last two years. The "Fix it Now" team appeared to be a significant factor in reducing the Unit-2 maintenance backlogs. Predictive maintenance activities made extensive use of infrared thermography, temperature analysis and vibration analysis.

The team examined selected equipment for bearing temperatures, vibration, oil leaks, water or packing leakage, corrosion, excessive wear, lubrication (grease and oil levels), and cleanliness. The team observed that both units were generally well maintained, and the plant equipment was performing well. However, in the emergency diesel generator (EDG) area in Unit 2, the team noted several fuel oil leaks at the motor driven fuel pump discharge flange and fuel filter strainers, and multiple lubricating oil leaks on various EDG parts. Additionally, loose fittings were noted on the starting air cross-over piping. In the Unit-2 chilled water pump room significant corrosion was noted on the chilled water system pipe support fittings. A few clevis pins in the overhead pipe struts on the chilled water piping were also severely corroded. The team informed the licensee staff of the observed material conditions.

Lubrication program problems, such as incorrect use of motor bearing and pump bearing lubricating oils, and inadequate preventive maintenance lubrication activities, continued to occur. In July 1995, an error was made in adding oil to Unit 1 CRD pump #12 bearing, and the licensee documented this error in DER 1-95-2181. Several instances of delays in preventive maintenance lubrication of pumps and motors at Unit 2 were identified in DER 2-95-2848. During a walkdown of the Unit 1 shutdown cooling pump room, the team identified by visual inspection that there were differences in color of the lubricating oils between shutdown cooling pumps #13 and #12. The licensee investigated the problem, initiated DER 1-96-0739, and identified that pumps #11 and #13 had the motor bearing oil added to the pump bearing and vice versa. As a part of the corrective actions, the licensee replaced lubricating oils in all the three pumps. The licensee informed the team that additional evaluations and investigations were in progress.

<u>Conclusion</u>

The team concluded that equipment and material conditions at both units were satisfactory, and recommends normal inspection in this area. Future inspections should focus on the effectiveness of licensee's correction actions for the lubrication program.

4.4 Quality of Maintenance Work

The preliminary report recommended normal inspection in this area. Examples of well planned and executed maintenance activities were discussed in the report along with a few examples of poor work practices and inadequate self-checking and peer verification.

During the on-site inspection, the team observed the following ongoing maintenance work: replacement of isolation condenser timer relay at Unit 1;

replacement of reactor building closed cooling water pump bearing at Unit 2; and welding of a stanchion on the standby liquid control tank platform at Unit 2. These activities were well controlled, procedures were followed, independent verifications were performed, and supervisors were present during the work.

The team reviewed fuse control issues at both units. At Unit 2, the licensee had identified problems with fuse failures in the balance of plant systems, and had written 37 DERs in three years and 122 work orders in 5 years. The licensee established a team of engineering, maintenance, operations and technical support personnel to evaluate the problems. The fuse failures were due to errors in engineering, vendor supplied equipment, human performance, and other reasons. Human errors were the predominant cause of fuse failures. This was not a significant problem in the safety-related systems because only one fuse failure was identified due to human error.

Conclusion

The team concluded that the quality of maintenance work at both units was good, and recommends normal inspection in this area.

4.5 Programs and Procedures

The preliminary report indicated examples of weaknesses in procedure quality and in the work order development process, and concluded that the licensee performance in this area was indeterminate. The licensee's maintenance programs and procedures were to be further examined during the on-site assessment.

During the on-site inspection, the team reviewed the programs and procedures for: maintenance standards and practices; pre-job briefings and post-job critiques; procedure adherence; self, peer and independent verification; and self-assessment. The team concluded these were good initiatives, and were being adequately implemented.

The team also examined samples of work order packages including many preventive maintenance work order packages and procedures from both units. The quality of work order packages were generally good, and varied with the risk significance and complexity of the job. Most of the text descriptions in the work packages were adequate and appropriately referenced the applicable procedures for the work. However, in the mechanical maintenance area, the team observed that the descriptions of the work to be performed were very brief and referenced other work procedures in their entirety instead of referencing the specific portions of the applicable procedures required for the work.

The team noted that mechanical seal replacement for feedwater pump at Unit 2, which is a complex task, was performed without a procedure. The work order did not provide instructions for the work to be performed, and did not reference specific portions of the vendor manual or procedure. However, this work was done by a specially trained maintenance crew.

Conclusion

The team concluded that programs and procedures for maintenance at both units were good, and recommends normal inspection in this area.

5.0 PLANT SUPPORT

5.1 Safety Focus

5.1.1 Radiological Controls

During the in-office review the team noted that the licensee performance in the radiological controls area was generally strong. Licensee management consistently placed strong emphasis on improving the material condition of the plant by actively reducing contaminated areas. Comprehensive site radiation goals had been set, and each unit had met or exceeded its goal.

During the on-site assessment, the team noted good housekeeping in general plant areas. Contaminated areas were minimized where possible. At the end of 1995, contaminated floor space was estimated at approximately 4% at Unit 1, and 3% at Unit 2. Step off pad areas were found to be clearly marked, well organized and neatly kept.

In an effort to improve awareness of as low as reasonably achievable (ALARA) principles among all personnel the licensee had integrated radiation work permit (RWP) information into maintenance work control documents maintained on the work control data base. Work packages included budgeting of resources needed for radiological controls which helped to foster ALARA practices.

Conclusion

Overall performance in this area was considered to be superior. The team recommends reduced inspection in this area.

5.1.2 Security

The preliminary report concluded that the physical security program was well implemented and that the licensee management provided strong support to the physical security program at the site. A Commitment to Excellence Program (CEP) was implemented by the licensee to enhance security performance. Since February 1994, monthly management CEP audits were performed in which different aspects of the overall security program were evaluated and analyzed as to the adequacy of the program. During the on-site inspection, the team reviewed samples of CEP audits of the security program and noted that observations and recommendations were tracked and resolved. The licensee management had assigned priority for improving security system hardware and personnel training.

Conclusion

The licensee performance in this area was superior, and therefore, the team recommends reduced inspection in this area.

5.1.3 Emergency Preparedness

The preliminary report concluded that the licensee performed the required emergency preparedness (EP) drills and exercises to demonstrate the ability to protect the health and safety of the public by taking appropriate actions to mitigate the effects of postulated emergency events on the surrounding population. The licensee management involvement and proper safety focus were observed as evidenced by management's involvement in EP drill critiques.

Problems in classification of emergency events were identified in the previous two emergency exercises. During the on-site assessment, the team verified that the licensee took immediate corrective actions to provide remedial training for those directly involved in these events. Also, the licensee management had increased the overall frequency of drill participation for all personnel involved in event classifications.

The team toured the licensee's emergency response facilities and found them to be well equipped and consistent with facility descriptions in the site emergency plan, and the facilities were in good operational condition.

Conclusion

Overall performance in this area was good, and therefore, the team recommends normal inspection in this area.

5.2 Problem Identification / Problem Resolution

5.2.1 Radiological Controls

The team determined in its in-office review that QA audits of all areas of the radiological controls program and the licensee self-assessments were thorough, and incorporated proper technical focus and level of detail. The refueling outage reports were thorough, and the self-critical assessments noted successes and areas needing improvement in a comprehensive and detailed manner.

During the on-site assessment, the team noted that the licensee management was committed to ensuring continued implementation of audits, self-assessments, and peer evaluations. The licensee conducted a total of eleven audits and assessments of this area in 1994 and 1995. Independent specialists from outside the company were included as part of the team in nine of these assessments. Additionally, each unit performed quarterly self-assessments which reported on the comparison of the radiological performance results and goals, summary of findings in NRC inspections and QA audits, and DERs related to radiological controls issued for the unit. These assessments did not provide analysis of trends or in-depth reviews.

The findings from QA audits and peer reviews were documented in DERs. Generally the actions taken by the licensee to resolve DERs were appropriate to address the identified issues and prevent recurrences. For example, an event which involved the failure to conduct an incoming survey on a radioactive material shipment was determined to be due to inadequate supervisory oversight of contract personnel and unfamiliarity of contract personnel with site requirements. Resolution of this issue included establishing a site contact for any radioactive shipment and briefing contractors as well as site personnel on shipping and receiving requirements.

Conclusion

Overall performance in this area was superior. Reduced inspection in this area is recommended.

5.2.2 Security

The team's in-office review identified good performance with regard to problem identification and problem resolution. The licensee QA audits and self-assessments of the security program were conducted within the required time frame, and covered the security program, fitness-for-duty program, and safeguards information controls. No programmatic weaknesses were noted in the observations made in these audits.

During the on-site inspection the team selected and reviewed licensee's self-assessment and QA audit reports. The team noted that previously identified concerns, such as keys left in unattended vehicles, were followed up regularly during each month. The team also noted that recommendations and observations from each audit were tracked, and the resolution and closure of issues were noted in the subsequent audits. An NRC inspection conducted in February 1996 concluded that the corrective actions for self-assessments, DERs, and NRC inspection findings, were technically sound and timely. The team noted that in addition to the monthly audits, the licensee had scheduled self-assessments in the areas of badging and operations to be conducted this year. QA audit 95005 stated that many modifications to the security systems were made some years ago, but aggressive actions were not taken to update plant drawings to reflect these changes. The licensee stated that personnel had been assigned on a full-time basis to revise the affected drawings, and it was expected that this work would be completed by the end of this year.

Conclusion

Overall, the licensee performance in this area was superior. The team recommends reduced inspection in this area.

5.2.3 Emergency Preparedness

During the in-office review, the licensee's critique process for the observation and evaluation of performance during EP drills and exercises was determined to be thorough and critical. The licensee's quality assurance audits of the emergency preparedness program were thorough and identified such concerns as weaknesses in the training program, failure to follow administrative procedure guidance, out of date procedures, and missed or incomplete documentation of surveillance.

The team noted that for findings from QA audits, self-assessments, EP drill and exercise critiques, the licensee issued DERs to document, track, and resolve these findings. Generally, the actions implemented by the licensee to resolve DERs were appropriate to address the identified issues and prevent recurrences. For example, to resolve a finding regarding the failure to conduct EP refresher training the licensee revised the procedural requirements for EP training. EP personnel now attend training advisory committee meetings to ensure that EP refresher training is addressed. These actions were adequate to resolve the identified issue and prevent recurrence.

Conclusion

Overall performance in this area was good, and therefore, the team recommends normal inspection in this area.

5.3 Quality of Plant Support

5.3.1 Radiological Controls

During the in-office review, the team concluded that radiological protection program was effective in job coverage and support during normal operation as well as during plant outages. The external and internal dose control programs were strong. The licensee supported radiation protection technician continuing training program and provided continued professional development for the health physics management staff.

During the on-site assessment, the team observed good radiological work practices during the preparation and initiation of movement of components in the Unit 1 fuel pool. A good pre-job briefing was conducted including radiological control concerns and stop work trigger points if unexpected radiological conditions were encountered. The team also observed personnel enter a potentially high radiation area in Unit 2 to perform an engineering survey in preparation for component modifications. Good preplanning, briefings, and radiological practices were observed. Appropriate health physics coverage was provided for those evolutions monitored by the team. During site tours the team observed that in Unit 2 area survey maps were posted conveniently throughout the plant at the boundaries of each radiation area. This provided clear and readily available information on hot spots, contaminated areas, and high dose rate locations in each area to personnel entering the area. However, at Unit 1 this information was available only at the radiological controlled area access point. The licensee had installed close circuit television monitors in many high radiation areas to reduce the need for personnel to enter these areas for routine observations.

The licensee's self-assessment findings documented in the DER process continued to report events where contract, craft, and operations personnel had not adhered to site radiological work control procedures and practices. Examples included failure to comply with radiation work permit (RWP) requirements and failure to communicate properly and fully with the assigned health physics technicians. In response to these repetitive personnel problems, the licensee had increased worker training, audits, and surveillance. The licensee was in the process of determining long-term corrective actions to resolve these problems.

Conclusion

Overall performance in this area was good. Normal inspection in this area is recommended. Future inspections should focus on the effectiveness of licensee corrective actions for resolving problems in personnel compliance with radiological procedures.

5.3.2 Security

The preliminary report concluded that the licensee was properly implementing the physical security plan and procedures. The protected area and vital area barriers were well maintained, access control for protected and vital areas were in accordance with procedures, security posts were adequately staffed and equipped, fitness-for-duty program was being implemented properly, intrusion detection systems were tested without deficiencies, and personnel were complying with the security plan and procedures. The NRC's Operational Safeguards Response Evaluation (OSRE) conducted during October 1995 determined that the licensee security force demonstrated effective contingency response capabilities based on observations during drills at site.

The licensee had implemented appropriate corrective actions for weaknesses in the performance of security functions, such as unintentional disclosure of safeguards information in a public document and a visitor entering the protected area without a proper escort. The team's review of equipment problems and personnel errors listed in the safeguards events log did not indicate adverse trends.

Conclusion

The overall performance of the licensee in the area of quality of security was determined to be good, and normal inspection in this area is recommended.

5.3.3 Emergency Preparedness

During the in-office review the team identified a previously documented concern with the ability of the licensee staff to properly classify emergency events during drills and exercises. The NRC issued a notice of violation for licensee's poor performance in event classification during the October 1995 exercise.

As discussed in Section 5.1.3 the team noted during the on-site assessment that the licensee had taken appropriate action to improve the performance of personnel responsible for event classification. Remedial training was provided for those personnel directly responsible for event classification. The licensee had increased the number of drills from two per year to five per year to allow for more opportunities for personnel to practice event classification under simulated emergency conditions.

Through discussions with licensee personnel and a review of DERs, the team ascertained that many of the weaknesses identified in the emergency preparedness program were related to changes made in the EP program some time ago. These changes included delegation of many function previously performed by the EP staff to other organizations on site. For example, emergency plan implementing procedures were not updated in a timely manner with changes in the emergency plan due to limited personnel resources and other higher priority program needs. In another example, inventories of emergency supplies were not properly documented due to inadequate procedural guidance and lack of adequate training for personnel responsible for conducting audits of the inventories. The licensee had initiated program changes to resolve these problems.

Conclusion

Overall performance in this area was not adequate, and therefore, the team recommends increased inspection. In addition to increased focus on EP exercises and drills, future inspections should evaluate the licensee's corrective actions for resolving EP Procedure problems.

5.4 Programs and Procedures

5.4.1 Radiological Controls

During the in-office review the team determined that the licensee had established good effluent and environmental controls programs, with detailed, well written procedures. The offsite dose calculation manual was well written and very detailed. The radwaste and transportation programs at both units were judged to be well implemented, and contained effective training programs. The licensee properly and effectively implemented and integrated the revised 10 CFR Part 20 requirements into the site health physics programs.

During the on-site assessment, the team noted that an ongoing effort was in progress to review procedures and programs to eliminate unnecessary or redundant procedural requirements. This resulted in the reduction of the overall number of procedures and procedural guidance, and instead more reliance was placed on the skill of the staff. As evidenced by the overall effectiveness of the licensee's radiological protection program, the team considered the program and procedures to be appropriate.

Conclusion

Overall performance in this area was superior, and therefore, reduced inspection in this area is recommended.

5.4.2 Security

The team's in-office review concluded that the licensee's security plan and procedures were in compliance with regulatory requirements. The licensee trained the security staff in accordance with training and qualification plans and implemented security procedures appropriately. The fitness-for-duty program met the established policies and procedures. During the on-site visit the team reviewed the procedure and guidelines for reporting and logging of safeguards events and the logged events for the past year. The team did not note any concerns.

Conclusion

The licensee's performance in this area was superior, and therefore, reduced inspection in this area is recommended.

5.4.3 Emergency Preparedness

During the in-office review, the team assessed the emergency plan and implementing procedures to be effectively implemented. Procedures had been revised to eliminate redundant or unnecessary information and steps. The licensee revised the emergency action levels (EALs) to incorporate the methodology specified in NUMARC/NESP-007, "Methodology for Development of Emergency Action Levels." Training on the new EALs including table top exercises was considered useful.

During the on-site assessment the team did not specifically focus on procedure and program changes other than those already noted in other sections of this report. The team noted that many EP implementing procedures had recently been revised.

Conclusion

Overall performance in this area was good. Normal inspection in this area is recommended.

6.0 REVIEW OF UFSAR COMMITMENTS

The team reviewed the applicable portions of the UFSAR for both units relating to the selected portions of the systems that were walked down and the design change packages that were reviewed. The team did not identify any inconsistencies between the UFSAR descriptions and the observed plant conditions. As noted in Section 2.4, the Unit 1 UFSAR did not mention the system limitations in paralleling the offsite power source to the EDG.

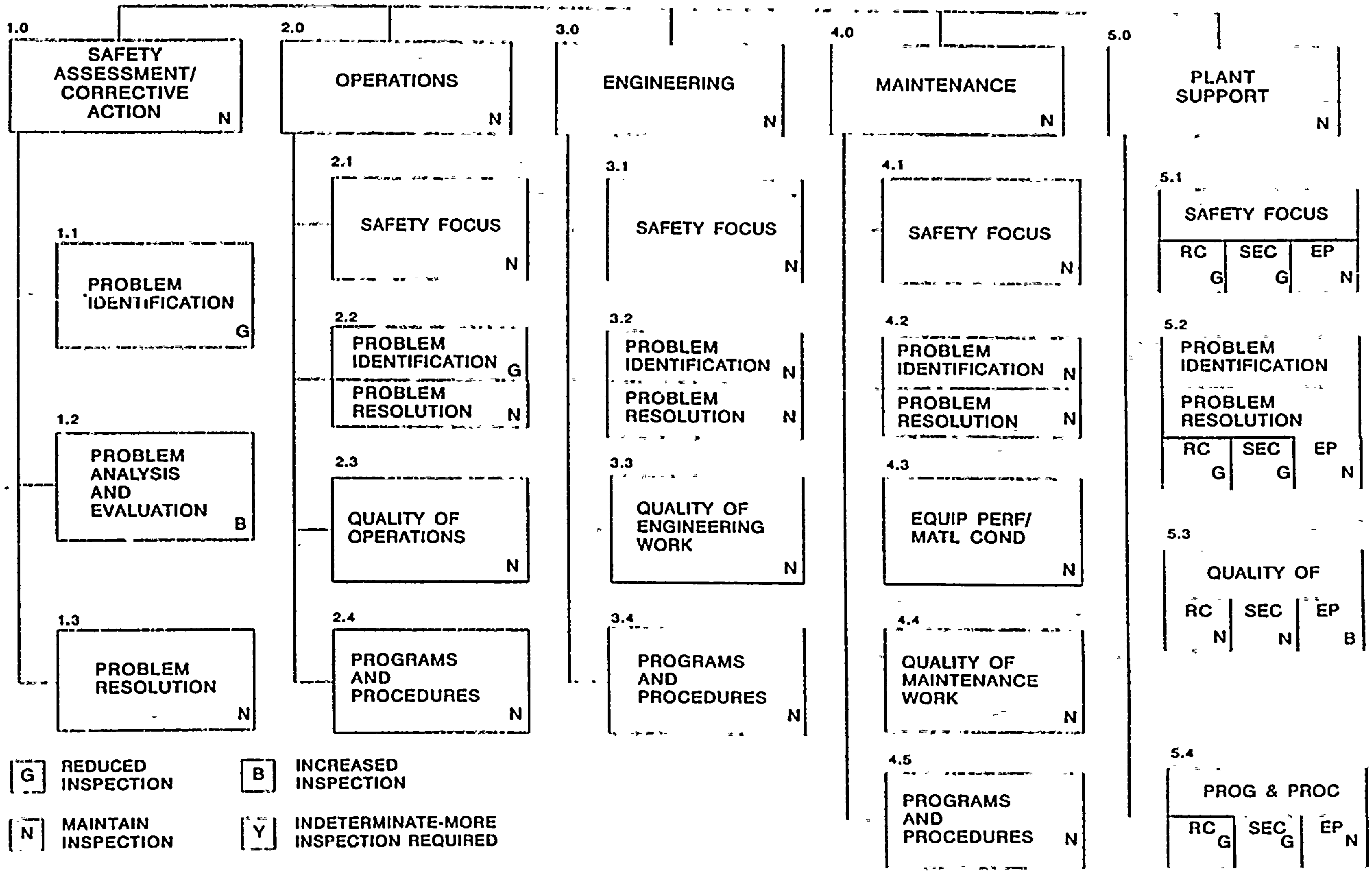
7.0 EXIT MEETING

After completing the on-site inspection and developing the recommendations for future inspections, the team conducted an exit meeting on April 11, 1996, that was open for public attendance. During the exit meeting, the results of the inspection were presented. A list of persons who attended the exit meeting is contained in Appendix B.

APPENDIX A

NINE MILE POINT UNITS 1 AND 2

FINAL PERFORMANCE ASSESSMENT/INSPECTION PLANNING TREE



APPENDIX B

EXIT MEETING ATTENDEES

NAME	ORGANIZATION
R.B. Abbot	NMPC, V.P. and General Manager - Nuclear
J.T. Conway	NMPC, Plant Manager - Unit 2
M.J. Mc Cormick Jr.	NMPC, V.P., NSAS
N.L. Rademacher	NMPC, Plant Manager - Unit 1
B.R. Sylvia	NMPC, Exec. V. P., Chief Nuclear Officer
C.D. Terry	NMPC, V.P., Engineering
W.D. Baker	NMPC, Supervisor Licensing
M.A. Balduzzi	NMPC, Manager Operations - Unit 1
C.G. Beckham	NMPC, Manager QA
K.R. Rowe	NMPC, Supervisor ALARA
R.B. Burtch	NMPC, Public Affairs
J.G. Burton	NMPC, Director ISEG
H.G. Christensen	NMPC, Manager Security
G.A. Corell	NMPC, Manager Chemistry Unit 1
A. DeGarcia	NMPC, Manager Work Control Unit 1
R. Hall	NMPC, Executive Assistant
J.B. Helker	NMPC, Manager Work Control Unit 2
G.J. Gresock	NMPC, Mech. Maintenance Unit 2
P. Smalley	NMPC, Manager Radiation Protection Unit 1
D. Newman	NMPC, Operations Unit 2
K.J. Sweet	NMPC, Manager Tech. Support Unit 1
R.L. Tessier	NMPC, Manager Training
K. Ward	NMPC, Manager Tech. Support Unit 2
T. Roman	NMPC, Licensing
A. Bianchetti	NMPC, Public Affairs
S. Barber	NMPC, Maintenance Unit 1
D.G. Lundeen	NMPC, Maintenance Unit 1
P.A. Mazzaferro	NMPC, Maintenance Unit 1
J. Vinquist	MATS Inc.
T.T. Martin	NRC, Regional Administrator
D.P. Norkin	NRC, Acting Branch Chief NRR/PSIB
S.K. Malur	NRC, Team Leader NRR/PSIB
D.S. Hood	NRC, Project Manager NRR/PD1-1
R. Skokowski	NRC, Resident Inspector