SALP REPORT - NINE MILE POINT

50-220/92-99 & 50-410/92-99

I. BACKGROUND

The SALP Board convened on August 30, 1993, to assess the nuclear safety performance of Nine Mile Point (NMP) Units 1 and 2 for the period of May 24, 1992 to August 14, 1993. The Board was conducted pursuant to NRC Management Directive (MD) 8.6 (see NRC Administrative Letter 93-02). Board members were Charles W. Hehl (Board Chairman), Director, Division of Radiation Safety and Safeguards, NRC Region I (RI); Wayne D. Lanning, Deputy Director, Division of Reactor Projects, NRC RI; Charles L. Miller, Acting Deputy Director, Division of Reactor Safety, NRC RI; and Robert A. Capra, Director, Project Directorate I-1, NRC Office of Nuclear Reactor Regulation. The Board developed this assessment for approval of the Region I Administrator.

The performance category ratings and the assessment functional areas used below are defined and described in NRC MD 8.6, "Systematic Assessment of Licensee Performance (SALP)."

II. PERFORMANCE ANALYSIS -- OPERATIONS

Plant Operations was rated as Category 2 in the previous SALP period. Strengths included good operator response to equipment failures, problem identification, and routine plant operations. The operating staff successfully met a number of significant challenges which were primarily caused by equipment failures. Appropriate management involvement was evident in daily plant activities. Weaknesses were observed regarding plant impact determinations and procedural adherence.

Operators continued their strong performance during this SALP period responding to routine and off-normal plant events. Early in the period, operators continued to be challenged by plant events. On three occasions, operators responded well to partial losses of off-site power despite cumbersome procedural guidance. However, an inadequate operator understanding of the feedwater system contributed to a scram on loss of feedwater flow. Subsequent corrective actions to enhance operator knowledge and implement the scram reduction program were effective at reducing the number of plant events. Additionally, operators displayed a good questioning attitude to challenge off-normal situations, such as the increased charcoal absorber temperature. Operator performance in general was indicative of a well-trained and professional staff. The interface between the Operations and Training departments was noted as a strength. Good teamwork in the simulator carried over to improved command and control during actual events.

Extensive management oversight of daily activities continued and was expanded this SALP period by the addition of a daily meeting attended by key managers from both units. The meeting provided an effective means for better coordination, communication and assistance between the units. Good management involvement in the Unit 1 refueling outage resulted in a strong understanding and control of site priorities and challenges.

Although improved over the last SALP period, instances of inattention to detail and poor understanding of the impact of actions were again noted this SALP period. The failure to maintain a proper awareness of responsibilities resulted in the Unit 1 control room being without a licensed senior reactor operator for a brief period. In another example, the effect of a relay replacement was not fully understood and controlled. More recently, problems were identified regarding improper equipment isolation for a maintenance activity and improper configuration control of containment isolation valves. Additionally, strong communication was not evident during a recent event when the appropriate licensed operators were unaware that entry into a limiting condition for operation for thermal limits was necessary. The recurrence of these problems indicates that management efforts have not been fully effective in improving communications, understanding the impact of planned actions, and attention to detail.

In summary, overall performance in Operations improved this period. Continued strong performance of operators in responding to plant events and improved management involvement were noted as strengths. Operator performance in general was very good. However, recurring problems were identified regarding inattention to detail, weak communications and poor understanding of the impact of planned actions.

The operations area is rated as a **Category 2.**

III. PERFORMANCE ANALYSIS -- ENGINEERING

In the previous SALP period, Engineering was rated a Category 2. The engineering organization provided good support to the station and took effective actions to improve management oversight, quality and timeliness of its products. Some instances of inadequate control of temporary modifications and inconsistencies in the quality of engineering submittals to the NRC were noted.

During this SALP period, strong management involvement and support were evident in engineering activities. Self-assessments by quality assurance (QA) identified strengths and areas necessitating improvement. Weaknesses were addressed by engineering management in a prompt manner. Appropriate staffing of site and system engineering groups was noted. Engineers and project team members were knowledgeable of their modifications and design changes. The broad-based technical training program which has been established for the corporate engineering staff was a positive initiative.

Daily engineering and management support of the Unit 1 outage activities was considered a strength. This interface ensured proper resolution of safety concerns as they were identified. Morning meetings involving representatives from several engineering and plant departments and management further enhanced good communications.

Outstanding progress has been made in completing evaluations of systems' design bases through the Design Basis Reconstitution Program. System Design Basis documents (DBDs)

were detailed, thorough, and of high quality. For example, DBD's included the results of failure modes and effects analysis for loss of instrument air.

Except in rare instances, modifications and design changes were of very good quality and technically accurate. Procedures and programs were well developed and followed to ensure that plant design changes were performed in a controlled manner, as evidenced by the modification package for time delay relays associated with service water pumps. Engineering analysis performed of degraded equipment efficiencies identified increased loading on the emergency diesel generators. Further analysis by Engineering of the load calculations led to resolution of the concern. However, a notable exception was the failure to consider the evolution of primary containment inerting in the modification to provide a hardened vent line to the Unit 1 primary containment, which resulted in a blown rupture disc and entry into a limiting condition for operation.

Technical analyses and engineering evaluations in support of most licensing requests were well-documented and timely. These evaluations properly addressed issues and contained sufficient information to support the proposed changes. Two instances were noted, however, where exemption requests were not of as high quality. These requests provided only minimal information regarding environmental aspects for the exemptions. Also, the resolution of the Unit 1 containment isolation valve amendment request was not timely nor originally of sufficient detail and required revisions before staff review could be completed.

In summary, the engineering organization demonstrated a strong interface with site activities and other plant departments. Management oversight was very evident in support of station activities. Engineering performance through evaluations was found to be technically accurate, thorough, and of high quality. Exceptions identified were isolated and promptly corrected.

The engineering area is rated as a Category 1.

IV. PERFORMANCE ANALYSIS -- MAINTENANCE

In the previous SALP, Maintenance was rated as Category 2 with a declining trend. While generally good performance was demonstrated, there were several instances of inattention to detail, failure to follow procedures, and maintenance-related scrams and events. These were significant enough to conclude that the overall effectiveness of the maintenance program was declining.

During this assessment period, a strong corrective maintenance program was observed. For example, the maintenance group exhibited notable expertise in its duties as they pertain to the repair of the emergency condenser valves. Preventive maintenance activities were appropriate. Maintenance personnel performed well on focused tasks and day-to-day work. Management involvement and control were excellent during the Unit 1 refueling outage. Surveillances were completed satisfactorily, including such major tests as the Unit 1

integrated leak rate test and a simultaneous loss of coolant/loss of off-site power test. The maintenance staff demonstrated excellent attention-to-detail and proper safety perspective during several planned power reductions and one unplanned plant transient. Improvement was noted in maintenance-related scrams and events. However, one reactor trip resulted from surveillance testing activities and one maintenance-related actuation of the automatic depressurization system occurred with the reactor shut down.

There were a number of examples of improved management attention demonstrating a high level of safety performance. The prompt identification, response and repair of the Unit 2 electrohydraulic control system leak, the Unit 2 scram discharge volume pilot air header leak and the Unit 1 feedwater leak are notable examples.

Several problems of minor safety significance were noted with post-maintenance testing (PMT) during the period, particularly when related to non-routine maintenance. In one situation, two Agastat relays were repositioned to assure seismic qualification; however one relay was repositioned incorrectly and another resulted in an untested configuration which existed for 29 days without recognition and entry into a limiting condition for operation. Another example was the failure to validate the pump curve for a refurbished service water pump with subsequent failure to identify a smaller impeller than original design until a later investigation into lack of pump performance improvement following refurbishment. These and other examples show a weakness in defining PMT.

Other recurring minor problems in maintenance involved some instances of inattention to detail, weaknesses in assessing plant impact of maintenance activities and non-adherence to procedures. The most notable of these resulted in a Unit 1 reactor trip while performing surveillance as noted above. Another manifestation of these weaknesses was the inadequate control of measuring and test equipment.

In summary, there has been an overall improvement in Maintenance and Surveillance this period with corrective maintenance being observed as a strength. Weaknesses in PMT and instances of inattention to detail continue to be challenges.

The maintenance area is rated as a Category 2.

V. PERFORMANCE ANALYSIS -- PLANT SUPPORT

This functional area is new, representing a significant change from previous SALPs. The Plant Support functional area covers all activities related to plant support functions, including Radiological Controls, Emergency Preparedness, Security, Chemistry, Fire Protection, and Housekeeping Controls.

In the previous SALP, Radiological Controls was rated as Category 2, Emergency Preparedness and Security were rated a Category 1. Performance in radiation controls was generally good, an effective ALARA (as low as reasonably achievable) program continued to

be maintained on Unit 1, with significant improvements in the ALARA program on Unit 2. Some weaknesses were noted in the radiological controls at both units. The radwaste, transportation and radiological environmental monitoring programs for both units continued to be strong. The liquid and gaseous effluent control programs continued to be very effective. Significantly improved effluent radiation monitoring system performance was noted. Performance in the emergency preparedness area continued to be excellent, an effective drill/exercise program and well maintained facilities and equipment were also noted. However, a declining trend was assessed in the emergency preparedness area as several recurring or long time open issues were not resolved in a timely manner. The security program continued to be a strength; that consistent performance over several periods was recognized by the SALP board.

During the current SALP period, the ALARA program at Unit 1 continued to be a strength, and the Unit 2 program continued to show improvements. The effectiveness of the Unit 1 ALARA program was evidenced by the achievement of challenging ALARA goals during the refueling outage. Radiological housekeeping improved with significant progress noted in the radwaste facilities at both units. Significant improvements were made in radwaste systems, including the installation of equipment to improve water quality coming from the floor drain processing systems. However, continuing problems in radiological area access controls were noted on both units. This was in spite of a new access control point and procedures on Unit 1. Over the assessment period several problems occurred that involved personnel being in a radiological control area (RCA) without dosimetry, workers signing out of an RCA without recording their pocket dosimeter readings, personnel entering an RCA without signing in on a radiation work permit, and personnel removing dosimetry while in an RCA. Repeated contaminations of the Unit 2 reactor building floors due to overflowing floor drains challenged radiation protection and operations personnel.

Transportation and radwaste performance remained strong; however, two events involving shipments of radwaste evidenced a slight performance decline in that function. Continued excellent implementation of the radiological effluent monitoring and control programs was noted. The reliability of the effluent radiation monitoring system equipment continued to show improvement.

The effectiveness of the emergency preparedness program was evidenced by generally good performance during the July 1993 exercise and actual events requiring implementation of the emergency plan. Several areas for improvement were identified during the 1993 exercise including: communications, as evidenced by problems in the timeliness of initial notifications to the NRC and the completeness of the turnover in functions from the control room to the Emergency Operations Facility (EOF); and licensee evaluations and conclusions on EOF habitability did not thoroughly address shielding or exposure considerations. Throughout the period, shift operating crews showed very good knowledge and teamwork in NRC-observed walk-through drills.

The overall effectiveness of the security program continued to be excellent. Maintenance support of security equipment was aggressive, resulting in timely repairs and minimal use of compensatory measures. However, several performance problems were identified by the NRC involving deficiencies in the protected area lighting, control of vehicles in the protected area, and the effectiveness of certain assessment aids. These problems indicate a decline in the security plan implementation.

Overall, the Plant Support functions continued to be effective and contributed to the safe plant performance. Although improved ALARA performance was noted, weaknesses in radiological area access controls continued. Several areas for improvement were noted in the Emergency Preparedness and Security areas.

The plant support area is rated as **Category 2.**