Enclosure 1

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE (SALP)

NINE MILE POINT NUCLEAR STATION, UNITS 1 AND 2

REPORT NOS. 50-220/97-99 AND 50-410/97-99

I. BACKGROUND

The SALP Board convened on November 25, 1997, to assess the nuclear safety performance of the Nine Mile Point Nuclear Station for the period from June 2, 1996, through November 8, 1997. The Board was conducted pursuant to NRC Management Directive (MD) 8.6 (see NRC Administrative Letter 93-20). The Board members were James T. Wigging (Board Chairman), Director, Division of Reactor Safety, Region I (RI), Richard J. Crlenjak, Deputy Director, Division of Reactor Projects, RI, and S. Singh Bajwa, Director, Project Directorate I-1, Office of Nuclear Regulation. The Board developed this assessment for the approval of the Region I Administrator.

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

II. PERFORMANCE ANALYSIS - OPERATIONS

Performance in the operations area was generally good, but declined notably from the previous assessment period. Operators performed well during plant startups and shutdowns, and responded well to most events such as the increasing drywell leakage and a reactor water cleanup system isolation on Unit 2. There were also some examples of a good questioning attitude and plant awareness such as the auxiliary operator identification of a higher than normal temperature in the high pressure core spray system switchgear room. Conservative decision making was evident as noted by the Unit 1 shutdowns in response to the indication of a leaking emergency cooling condenser tube, and when a drywell floor drain containment isolation valve failed to indicate fully shut during surveillance testing. The unit remained shutdown until the problems were fully evaluated and resolved.

There were a number of significant personnel performance errors during the period. The most noteworthy contributed to the November 1996 Unit 1 reactor vessel overfill event. The problems continued throughout the period, with two recent examples occurring during relatively routine evolutions. These were an inadvertent Unit 1 containment spray-down during a surveillance test and an automatic Unit 2 containment isolation during a reactor water cleanup filter swap. In addition to these, a Unit 1 shift supervisor implemented a procedure even though all of the prerequisites were not satisfied.

Performance during licensed operator training, both initial and requalification, was mixed. Although the programs were generally acceptable overall, written and operating examinations required extensive revisions before meeting NRC expectations. For example, the written portions for the Unit 1 requalification

examinations were minimally acceptable, and operating tests did not include any faulted-alternate path job-performance measures (JPMS). The NRC review of the Unit 1 licensed operator requalification training program identified several weaknesses that the NMPC evaluators failed to identify, including: weak communications and supervisory command and control, the Unit 1 simulator control rod position indication system degraded to such an extent that training could have been negatively affected, and a lack of procedural guidance to ensure that the reactor would remain shutdown under all conditions. Also, during initial examinations for Unit 2 operators, several procedures were identified which required changes before the operators were able to perform the task.

Procedures were generally acceptable; however, some deficiencies were noted. Procedure inadequacies contributed to the Unit 1 reactor vessel overfill event and to the overflowing of the Unit 1 reactor building equipment drain sump during the reactor cavity drain down. Additionally, NRC review of the Unit 2 shutdown cooling procedure for operation from the remote shutdown panel identified that the contingency actions were inadequate.

Problem identification was generally good; however, some root cause determinations did not go to the depth necessary, and some corrective actions were too narrowly focused, to prevent recurrence. For example, the corrective actions associated with a number of valves found out-of-position only addressed Unit 2, when the potential for similar concerns existed at Unit 1. Also, the root cause of a control room vent chiller failure was determined to be the deferral of system periodic preventive maintenance; however, the corrective actions only focused on the chiller that failed with no indication of the status of preventive maintenance for the other division chiller, or the impact of the deferred preventive maintenance on other equipment. Another weakness concerned the identification and addressing of human performance issues. For example, the deviation event report that documented the significant seal leak on a spent fuel pool cooling pump did not identify the fact that auxiliary operators failed to inform shift supervision of the leak.

Late in the period, senior management initiated significant measures aimed at strengthening staff accountability. Also, senior management took steps to clarify and emphasize its expectations to the site staff. Recently, these expectations have been effectively implemented as evidenced by the more formal control room environment at Unit 1.

The Operations area is rated **Category 2.**

III. PERFORMANCE ANALYSIS - MAINTENANCE

Management generally provided a proper safety perspective and oversight in the planning and performance of day-to-day maintenance. Management was also actively involved in outage activities; providing good coordination and in-plant

monitoring. Contractors were appropriately controlled. Operator work-arounds and long standing tagouts have been maintained low and were properly evaluated. Corrective maintenance backlog activities have been appropriately prioritized and both units established and met goals, which significantly reduced the number of long standing safety-related backlog items.

Routine maintenance and surveillance activities were generally well performed by an experienced and knowledgeable workforce. Task planning, pre-job briefings, and good coordination and communications between technicians and operators minimized the impact of these activities on plant operations. However, some procedure adherence problems occurred, resulting in an inadvertent scram of a control rod and maintenance on the wrong division of a hydrogen/oxygen monitoring system.

Significant corrective maintenance activities for emergent issues, such as emergency cooling condenser tube bundle replacement, and evaluating and correcting the cause for an inoperable drywell floor drain containment isolation valve, were also generally carried out in a controlled manner with systematic troubleshooting, close management oversight, and appropriate repairs.

Human performance errors, such as failure to self-check and inattention-to-detail, were noted throughout the period; although the frequency and safety consequence of those errors decreased later in the assessment period. Examples of human performance errors included: improperly restoring a feedwater pump following repairs, resulting in equipment damage; and incorrectly updating a preventive maintenance/surveillance test data sheet resulting in a failure to perform a control room ventilation radiation monitor channel calibration within the required frequency.

Some weaknesses in the evaluation of some past events resulted in missed opportunities to promptly establish and correct underlying causes. For example foreign material was found in the Unit 2 suppression pool and downcomers during the refueling outage because the prior inspection and cleaning were not adequate; and there was a delay in identifying a valve operability concern on a residual heat removal system test valve when an intermediate valve position indication was not fully investigated.

Deficiencies in the technical adequacy of surveillance procedures and in the scheduling of some tests were noted throughout the period. Through follow-up actions for past missed surveillance tests and review of industry information, the licensee identified additional surveillances that had not been performed. Examples included, failing to calibrate a Unit 1 containment leakage detection instrument, not testing several Unit 2 valves in the reactor core isolation cooling system, and not performing response time testing on Unit 2 channels of the high pressure core spray system. Additionally, not incorporating control rod housing support gap verifications into a procedure required a shutdown of Unit 2.

The maintenance rule program at Unit 1 was found to be poorly developed. Problems were noted in several key program elements needed to adequately implement the rule. This reflected weaknesses in management oversight and direction provided to program development that were similar to those noted with the motor operated valve program.

The Maintenance area is rated **Category 2.**

IV. PERFORMANCE ANALYSIS - ENGINEERING

The effectiveness of management oversight of engineering activities was mixed with performance early in the period being particularly problematic. Early in the period, ineffective management oversight was provided to the development of the Unit 1 maintenance rule program and to the implementation of the motor-operated valve (MOV) testing program. In addition, some problems were noted in the adequacy of the fire protection design for both units. Later in the period, the Unit 1 core shroud inspection and repair effort was managed well. Further, as a result of increased management attention to MOV activities, program performance at both units had improved sufficiently to warrant closure of Generic Letter 89-10. Also, management actions during the period, along with the efforts of the Safety Review and Audit Board, resulted in some improvements in the quality of safety evaluations and other engineering work products. Engineering issues were promptly placed in the corrective action system and properly prioritized for resolution; as a result, there were few safety-related work items in the backlog. However, the organization experienced difficulty in reducing the backlog of the lower priority open issues. In addition, the organization was impacted by turnover in the engineering area, particularly in the system engineering and environmental qualification groups, resulting in the need for contractors to address staffing needs.

The quality and effectiveness of engineering support to operations and maintenance also varied significantly. The organization conducted effective reviews in response to the issues described in NRC Generic Letters 96-01 and 96-06. Further, engineering provided very good support to the inservice inspection program. However, early in the period, engineering did not adequately evaluate and resolve feedwater control valve leakage and a water level indication discrepancy which contributed to the Unit 1 reactor vessel overfill event. Also, early in the period, NRC identified several significant technical deficiencies associated with design and analysis activities performed to address degraded equipment conditions. Further, throughout the period, both units experienced a number of equipment problems that challenged the operators and resulted in forced outages. Those problems called into question the effectiveness of activities that monitor and maintain important plant equipment and systems.

Except for the problems found in specific modifications early in the period the quality of modification activities was generally good. In particular, the modification to address a leaking flexible hose associated with the recirculation system reflected a thorough engineering approach. Further, engineering analyses in support of MOV program activities conducted recently were good. Also, recent design reviews and

other analyses conducted in the fire protection design area were effective in identifying and correcting problems in both units. In addition, the organization achieved a significant reduction in the number of temporary modifications installed in the units.

Engineering activities were effective in identifying a number of design and licensing bases issues at the facility but those issues demonstrated that further efforts in that area are warranted. For example, the licensee found issues that involved the scope and extent of logic system functional testing conducted, especially at Unit 2. Further, the licensee found that some reactor water cleanup valves in Unit 2 were vulnerable to a single fire. Also, NRC found some minor differences between the piping and instrumentation drawing and the field configuration of a system associated with the Unit 1 emergency diesel generator.

The Engineering area is rated **Category 3.**

V. PERFORMANCE ANALYSIS - PLANT SUPPORT

Radiological protection program performance was mixed. Programs to maintain radiological exposures as low as is reasonably achievable (ALARA) were effective. Radiation protection staff continued to maintain a high level of presence in the plants to assist radiation workers in observing good radiation worker practices. The radiological effluents, environmental monitoring, and chemistry programs remained strong. The new calibration laboratory for Unit 2 improved both the in-plant radiation protection and the radioactive effluent control instrumentation programs.

Some problems were noted in the licensee's radioactive waste handling and transportation programs. Several errors were made in radioactive materials shipments, including instances were either the wrong material was shipped or material was shipped to locations that were not eligible to receive it.

The licensee conduced its security and safeguards activities in a manner that protected public health and safety. Enhancements to the security program included the addition of a new photo identification and badging system. However, in several instances, designated licensee vehicles were not controlled as required.

Performance in the emergency preparedness area was good. The licensee responded well to two unusual events in August 1997 and performed well during the September 1997 full-participation exercise. However, problems existed associated with controls for emergency response organization qualifications and with the maintenance of the inventory of emergency response facility equipment and support materials.

Fire protection performance was generally good. Housekeeping in both plants was generally good, with Unit 1 being markedly better than Unit 2. Control of scaffolding improved during this period.

The Plant Support area was rated **Category 2.**

Enclosure 2

Nine Mile Planned NRC Inspections

December 1997 - December 1998

IP-Inspection Procedure
Core-minimum NRC Inspection Program (mandatory all plants)
Core Resident Activities Not Included

INSPECTION PROCEDURE	TITLE/PROGRAM AREA	PLANNED DATES	INSPECTION COMMENTS
---	Initial Licensed Operator Exams - Unit 1	1/20/98	
IP 86750	Radwaste & Transportation	4/98	Regional Initiative
IP 92903	Engineering Follow-up	6/1-5/98 6/15-19/98	Regional Initiative
IP 84750	Effluent & Environmental Monitoring	3/23/98	Core
IP 81700	Physical Security	4/13/98	Core
IP 83750	Outage Radcon - Unit 2	5/98	Core
IP 64704	Fire Protection Program	5/8/98	Core
IP 62706	Maintenance Rule - Unit 2	6/8/98	Core
IP 83750	Radiation Protection Program	10/98	Core
IP 83750	Outage Radcon - Unit 1	4/98	Core
IP 82701	Operational Status of EP Program	late 1998	Core
IP 84750	Effluent & Environmental Monitoring	late 1998	Core