U. S. NUCLEAR REGULATORY COMMISSION

REGION V

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

SALP BOARD REPORT

No. 50-397/93-04

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

WASHINGTON NUCLEAR PROJECT NO. 2

JANUARY 1, 1992 THROUGH FEBRUARY 28, 1993

TABLE OF CONTENTS

I. INTRODUCTION

The Systematic Assessment of Licensee Performance (SALP) is an integrated NRC staff effort to collect available observations and data on a periodic basis and to evaluate licensee performance based on this information. The program is supplemental to normal regulatory processes used to ensure compliance with NRC rules and regulations. It is intended to be sufficiently diagnostic to provide a rational basis for allocating NRC resources and to provide meaningful feedback to licensee management regarding the NRC's assessment of their facility's performance in each functional area.

An NRC SALP Board, composed of the members listed below, met in the Region V office on April 1, 1993, to review observations and data on the licensee's performance in accordance with NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance."

This report is the NRC's assessment of the licensee's safety performance at Washington Nuclear Project No. 2 (WNP-2) during the period January 1, 1992 through February 28, 1993.

The SALP Board meeting for WNP-2 was attended by:

Voting Board Members

K. Perkins, Director, Division of Reactor Safety and Projects, RV (SALP Board Chairman)
J. Roe, Director, Division of Reactor Projects III/IV/V, NRR
T. Quay, Director, Project Directorate V, Division of Reactor Projects, NRR
F. Wenslawski, Deputy Director, Division of Radiation Safety and Safeguards, RV
L. Miller, Chief, Reactor Safety Branch, RV
J. Clifford, NRR Project Manager
R. Barr, Senior Resident Inspector, RV

Other Attendees

S. Richards, Deputy Director, Division of Reactor Safety and Projects, RV
C. VanDenburgh, Chief, Reactor Projects Branch, RV
J. Reese, Chief, Facilities Radiological Protection Branch, RV
R. Pate, Chief, Safeguards, Emergency Preparedness and Non-Power Reactor Branch, RV
P. Johnson, Chief, Reactor Projects Section 1, RV
P. Morrill, Chief, Operations Section, RV
W. Ang, Chief, Engineering Section, RV
D. Kirsch, Technical Assistant, RV
P. Narbut, Team Leader, RV
A. McQueen, Emergency Preparedness Analyst, RV
L. Norderhaug, Safeguards Inspector, RV
L. Carson, Radiation Specialist, RV
D. Proulx, Resident Inspector, RV
D. Corporandy, Project Inspector, RV

II. SUMMARY OF RESULTS

A. Overview

In conducting this assessment, the SALP Board noted improvement in the Plant Operations functional area. However, the overall assessment reflects the licensee's failure to implement substantial improvements in areas of weakness described during the previous assessment. Long-standing problems, such as poor procedure quality and compliance, continued to exist because management had not ensured completion of effective corrective actions. Common to many of the problems this assessment period was insufficient Quality Assurance (QA) and line management tracking and followup on corrective actions; insufficient involvement by line managers and supervisors to ensure effective, complete solutions to existing problems; and ineffective senior management oversight to aggressively assure the corrective action process is successful.

In assessing the Safety Assessment/Quality Verification area as a Category 3, improving trend, the Board recognized the strength of the QA staff in the technical quality of many of the QA audit findings. QA involvement in the licensee's successful operator requalification program was also noted. However, as discussed in this report, the Board was concerned with weak root cause evaluations for events of lesser significance; poor tracking and followup on QA findings; examples of unchallenged, ineffective corrective actions by line management; and the failure of senior licensee management to recognize and aggressively address these weaknesses.

With the exception of a three-week period near the end of the assessment period, Plant Operations demonstrated an overall improvement in performance to earn a Category 2 rating. All licensed operators successfully completed their requalification exams, with notable improvement in their handling of Emergency Operating Procedures (EOPs). Operator response to non-routine events, startups, and shutdowns was, in general, considered strong. Performance of unlicensed equipment operators declined, however, indicating a need for more supervisory oversight. Overall, the Board concluded that operators needed an increased sense of plant ownership and a more questioning attitude toward anomalies in plant performance.

Performance in the Radiological Controls area remained at a Category 2 rating. A strength was noted in the successful management of several high risk jobs during the 1992 refueling outage (R-7). However, several examples of failure to follow procedures during routine activities were noted. This appeared indicative of a need to increase management's attention to routine radiological control activities. It was also noted that more management attention was needed to increase the timeliness and effectiveness of long term corrective actions and that conformance to radwaste shipping requirements needed improvement.

The Board was unanimous in their assessment of declining performance in the Maintenance/Surveillance functional area, and, after considerable discussion, rated this area a Category 2, Declining. However, the Board noted several examples of performance that fell below this SALP rating.

The Board noted increases in the number of maintenance-related plant events, instances of repeated equipment failures, continued large maintenance backlogs, and several examples of failure to follow procedures. Strengths were noted in maintenance training and in the performance and control of work during the R-7 refueling outage. Supervision of maintenance work and planning of forced outage activities were noted as areas needing improvement.

The Board observed a decline in performance in the Engineering/Technical Support functional area to a Category 3. This report notes several examples of plant performance problems, which Engineering could have prevented. Strengths were noted in the licensee's setpoint verification, erosion/corrosion, and snubber reduction programs. Overall, however, the Board recognized a need for the Engineering and Technical staffs to get in clear focus that their foremost purpose is to support improved, safe operation of the plant. To that purpose they need to better communicate with and support Plant Operations in identifying and providing effective resolutions to operational issues, including the application of industry information.

The strengths observed during the previous assessment period for the Security functional area continued. In addition, the Board noted several improvements in Security during the recent assessment period. Consequently, the Security functional area retained a Category 1 rating.

The Emergency Preparedness functional area retained a Category 2 rating. Some problems occurred with Technical Support Center emergency readiness and some weaknesses occurred during the 1992 and 1993 annual emergency exercises. Further improvement in root cause analysis and corrective actions appears warranted. Strengths were observed in the licensee's resolution of state and federal alert notification issues and the licensee's conservative approach to identifying, reporting, and analyzing unusual events.

B. Results of Board Assessment

Overall, the SALP Board found the performance of NRC licensed activities to be acceptable and directed toward safe operation of WNP-2. The SALP Board has made specific recommendations in most functional areas for licensee management consideration. The results of the Board's assessment of the licensee's performance in each functional area, along with the results from the previous period, are as follows:

	Functional Area	Rating Last Period	Trend	Rating This Period	Trend
A.	Plant Operations	3	Improving	2	
B.	Radiological Controls	2		2	
C.	Maintenance/Surveillance	2		2	Declining
D.	Emergency Preparedness	2		2	
E.	Security	1		1	
F.	Engineering/Technical Support	2		3	
G.	Safety Assessment/Quality Verification	3		3	Improving

III. PERFORMANCE ANALYSIS

The following is the Board's assessment of the licensee's performance in each of the functional areas, along with the Board's conclusion for each area and its recommendations with respect to licensee actions and management emphasis.

A. Plant Operations

1. Analysis

During this SALP period, approximately 27% of the total direct inspection effort (DIE) was expended in the Plant Operations functional area. NRC inspections in this area consisted of control room observations; inspections during routine operations, startups, shutdowns, and follow-up of events; inspection of refueling preparations and operations; two training inspections; an Augmented Inspection Team (AIT) inspection of the August 15, 1992 power oscillation event; and two operator licensing examinations.

This functional area was rated category 3, Improving, during the previous assessment period. The previous SALP Board concluded that operators approached routine operations conservatively but did not consistently follow the Emergency Operating Procedures (EOPs) during operator requalification examinations. The Board noted that the EOPs were generally poor quality procedures that contained excessive deviations from the Boiling Water Reactor Owners' Group (BWROG) guidelines. The Board also noted questionable licensee management attitudes, an isolationist posture, and ineffective use of QA and peer audit resources as related to oversight of the operator training area. The Board recommended that the licensee stay abreast of industry initiatives with respect to plant operations, continue to improve the requalification program, and increase the number of licensed operators.

Generally, performance in the Plant Operations functional area improved from the previous assessment period. Licensed operator performance in the requalification program appeared to improve significantly, and operator response to events was generally good. With a few exceptions, operators also performed well during normal startups and shutdowns. However, some operational events during this SALP cycle resulted from activities under the licensee's control. Operations personnel did not consistently take the requisite ownership and leadership in the resolution of plant problems. Several plant events resulted from insufficient understanding or evaluation of technical issues, or inadequate adherence to procedures.

Generally, however, the training and qualification program contributed to an adequate understanding of plant operations. Performance in the training and qualification area, which last SALP period was evaluated as unsatisfactory, improved from the previous assessment period. Operators were observed to perform well in the simulator, and all crews and operators examined during this

assessment period successfully passed licensing or requalification examinations. WNP-2 licensed operator training evaluators more critically assessed operator performance. In November 1992, following an NRC training inspection and administration of requalification examinations, the NRC assessed the WNP-2 requalification program as satisfactory. However, plant events indicated weakness in operator knowledge of some industry issues, including reactor vessel level indication anomalies and core power oscillations. Following the August 1992 core power oscillation, the NRC identified a failure of operating personnel to remember the associated training which had been provided. In addition, there was no followup of this training, to determine whether the associated operating procedures were adequate.

Management's overall involvement, control, and assurance of quality was mixed. Management and Quality Assurance involvement contributed to reestablishment of a satisfactory requalification program. Management's involvement significantly contributed to the successful completion of the 1992 refueling outage, which involved several significant work items requiring close control of plant conditions. Good control of plant activities also contributed to a successful period of sustained operation. However, ineffective supervision of non-licensed equipment operators (EOs) led to a decline in EO performance, and contributed to several plant problems. Missed fire tour and surveillance data, a number of fluid spills during the outage, the release of fumes during improper performance of a chemical offloading procedure, and a clearance order procedure violation are examples. In addition, management did not require full implementation of Boiling Water Reactor Owners' Group (BWROG) guidelines that could have prevented the power oscillation event.

Operator response to most plant events was effective, including two scrams when a safety/relief valve stuck open; the August 15, 1992 core power oscillation event; and a February 10, 1993 scram on failure of a feedwater pump. The performance of Operations during routine startups and shutdowns was generally effective. However, there were instances wherein operations personnel did not perform their duties with a sufficient degree of questioning, conservatism, or formality, resulting in events which could have been prevented, or should have received further review. Examples included insufficient involvement in the Shift Nuclear Engineer's establishment of excessive peaking factors, which led to the power oscillation event; early regional criticalities during two earlier startups; and excessive discharge of the high pressure core spray (HPCS) battery.

Operations management did not aggressively assert its leadership and ownership in operation of the plant and in the resolution of technical issues. Control room deficiencies were allowed to gradually increase over the SALP cycle, and the maintenance backlog remained high. Instances also occurred in which operators did not write Problem Evaluation Requests (PERs) or obtain technical support to resolve technical issues. Poor coordination between Work Control and Operations resulted in several plant events including a shutdown cooling isolation, a missed post-maintenance test for the reactor

core isolation cooling (RCIC) system, flooding of the HPCS pump room, and excessive discharge of the HPCS battery.

One non-cited, one Severity Level V, and six Severity Level IV violations were issued during this assessment period. Generally, these violations involved procedure noncompliance, failure to document deficiencies, or poor quality procedures. The licensee submitted 10 Licensee Event Reports (LERs) associated with the Plant Operations area, compared to 12 the previous SALP cycle. Five of the LERs were attributed to personnel errors and five to weak procedures. None of these LERs or violations involved a significant degradation of plant safety.

Operations staffing, which includes a five shift rotation, was satisfactory, although the Operations staff worked considerable overtime to support outages and absences. The licensee intends to implement a six crew shift rotation following the 1993 refueling outage, assuming successful completion of licensing exams scheduled after the end of the SALP period. In an effort to provide more effective management oversight, a plant staff reorganization implemented near the end of the SALP period created an additional level of management (including the Operations Division Manager) reporting directly to the Plant Manager. The effect of this organizational change has not yet been assessed.

2. Performance Rating

Performance Assessment: Category 2

3. Recommendations

The SALP Board recommends that the Operations organization more aggressively assert its ownership and leadership role in activities affecting operation of the plant, including work control. The Operations organization needs to assure that lingering equipment/ plant problems are not tolerated. Licensee management should also ensure that high expectations for the performance of licensed and non-licensed operators are established and attained.

B. Radiological Controls

1. Analysis

Eight radiological controls inspections were conducted during this SALP period, representing approximately 8 percent of the total inspection effort. The licensee's performance was generally good. Strengths were noted in management's involvement in maintaining occupational exposures ALARA during the 1992 refueling outage (R-7). Specific weaknesses observed in radioactive material disposal, shipping, and contamination control exemplified the broader weaknesses in procedural compliance and effective and timely corrective actions. Changes in the health physics (HP) and chemistry organizations and the increased oversight by offsite organizations did not appear to improve the timeliness or effectiveness of resolutions for

radiological controls issues.

The previous SALP Board rated the licensee's performance in this area Category 2, and recommended that licensee management continue efforts to minimize occupational exposure, particularly during the R-7 outage, and that appropriate attention be given to radwaste shipments. The Board also recommended that management assure that basic radiation safety practices and procedures are understood and implemented by all. The licensee was not fully successful in meeting these recommendations.

Management involvement and planning were evident in reducing exposures during a challenging R-7 outage. During the outage, the licensee successfully implemented a chemical decontamination of selected outage work areas, which saved an estimated 200 person-rem during the outage. In addition, the licensee initiated a long-term radiation source reduction program in January 1993. Just prior to starting the R-7 outage, management had to allocate additional resources to support ALARA planning. Management allocated resources well in advance of the R-8 outage to better support ALARA planning. The ALARA planning group actively established, analyzed, and revised goals throughout the R-7 outage. During 1991 the licensee expended 387 person-rem, and during 1992 the licensee expended 612 person-rem. The increase was largely due to the increased work scope of the R-7 outage. The licensee projected that the R-7 outage would expend 587 person-rem, but the actual R-7 accumulated occupational exposure was 470 person-rem.

Radwaste liquid and gaseous effluents were a fraction of Technical Specifications (TS) limits. However, weaknesses in the effluent program led to unplanned liquid releases to the storm drain pond. Additionally, the licensee later identified that contamination in the auxiliary boiler had caused an unmonitored gaseous release pathway. The volume of solid radwaste transferred for disposal was 10,722 cubic feet in 1991, and approximately 16,863 cubic feet in 1992. This increase was attributed to outage work, and in part to chemical decontamination activities.

Management's efforts to emphasize expectations regarding radiological practices and procedural adherence were marginally successful. Several examples indicated that procedures and policies were not followed. Specifically, radwaste management continued to exhibit weaknesses in providing effective quality controls, and in understanding NRC and Department of Transportation (DOT) regulations. As one example, a pre-shipment survey identified radiation levels in excess of open vehicle exposure rate limits, but the radwaste supervisor authorized making the shipment. A number of instances were also identified this SALP period involving personnel failure to adhere to good radiological control practices and procedures. Specific examples included a number of personnel contaminations, failure to have calibration procedures for contamination monitors, and instances of personnel disregarding radiation control postings.

Despite involvement by site support organizations (Quality Assur-

ance, Corporate HP, and Operational Events Assessment), oversight of plant radiological control activities was only marginally effective this SALP period. Root cause analyses and corrective actions for problems identified in 1991 and 1992 were not always undertaken in a thorough and timely manner. For example, the handling of radioactive material in the storm drain pond, cooling tower sludge, and sanitary waste pond were instances where the licensee failed to take timely and effective corrective actions.

The radiological environmental monitoring program (REMP) continued to be of high quality, as demonstrated by the identification of radioactive materials in otherwise non-radioactive systems. The dosimetry program was of high quality also, as evidenced by the dosimetry exposure comparison program. The chemistry program was adequate, but measurement capabilities for tritium were not clearly communicated to HP/Chemistry management.

The licensee was cited for one Severity Level III, one non-cited, and 12 Severity Level IV violations during this SALP period. These violations ranged from failure to implement radiological procedures to failure to adhere to NRC and DOT regulations. Immediate corrective actions were typically timely and effective, but too narrowly focused to ensure long range programmatic corrections (e.g., HP procedural compliance and radwaste management problems).

Three LERs were directly related to this functional area. Two LERs were issued for missed offgas hydrogen grab sample analyses, and one for the storm drain pond contamination. Several reports and notifications were made regarding contamination and spill incidents at the facility.

The licensee's approach to resolving technical issues was in some cases untimely, and did not on all occasions demonstrate a thorough understanding of the issues. Critical self-assessment by management was lacking; therefore, problems were at times not identified until they became matters of NRC concern. During the SALP period the licensee successfully performed a chemical decontamination which required resolution of several technical issues. However, the Board was concerned that many of the licensee's resolutions of long-standing radiological issues continued to be untimely and ineffective.

Separate Radiation Protection and Chemistry Departments were created during this SALP period, and new managers were assigned. Both departments were fully staffed with technicians; however, the level of professional support remained weak. Key radiation protection positions (e.g., HP operations, craft and ALARA supervisors) were generally filled. Two key support positions, the Corporate Radiological Health Officer position, and the Corporate Chemist position were not filled until shortly after the end of the SALP period. Radiation protection training for the work force was adequate.

2. Performance Rating

Performance Assessment: Category 2

3. Board Recommendations

The Board recommends that licensee management ensure long-term corrective actions are timely, fully implemented, and effective in correcting identified problems. The Board also encourages additional management attention to routine radiological control activities. In addition, the Board recommends that licensee management take action to improve the staff's performance regarding radwaste management and shipment activities.

C. Maintenance/Surveillance

1. Analysis

During this SALP period, approximately 24 percent of the total inspection effort was expended in the Maintenance/Surveillance functional area. NRC inspections in this area included maintenance and surveillance observations; non-destructive testing (NDT); in-service testing (IST); inservice inspection (ISI); erosion/corrosion program assessment; and team inspections of the electrical distribution system, post-maintenance testing, and the standby service water system.

The Maintenance/Surveillance functional area was rated Category 2 during the previous SALP period. The previous SALP Board recommended that licensee management improve the plant material condition and the timeliness of correcting previously identified problems. The Board also recommended that the licensee continue emphasizing full implementation of improvement efforts such as the Technical Specification (TS) surveillance, Reliability Centered Maintenance (RCM), and procedure improvement initiatives.

Performance in this functional area was adequate, but showed overall decline from the previous period. While the planning and execution of the 1992 refueling outage showed improvement over previous outages, the number of maintenance and surveillance related events that adversely impacted plant operation increased. Some events occurred because previously identified deficiencies had not been effectively resolved. Although housekeeping improved, overall plant material condition declined, as evidenced by the high maintenance backlog, repeated equipment failures, and number of control room deficiencies. Management and supervisory oversight in this functional area declined, resulting in inconsistent quality of maintenance work instructions, increased instances of poor procedure quality and adherence, and several plant events.

The Maintenance organization realized some successes during this assessment period. Management was thoroughly involved in planning and executing the 1992 refueling outage. As a result, the outage

was completed on schedule and radiation exposure goals for the outage were met. The integration of outage work was well thought out. Many first-time, high-risk jobs, such as chemical decontamination of reactor recirculation piping, were completed on time with few problems. Maintenance Department support of other outage tasks, including replacement of the three low pressure turbine rotors, inspection and cleaning of heat exchangers, and numerous other maintenance efforts was good. Effective performance of plant maintenance activities contributed to a period of sustained plant operation. The surveillance scheduling program was usually effective, and a licensee-initiated assessment of the program provided for the identification and correction of numerous weaknesses.

On other occasions, when management was less involved and performance measures were less effective, performance of maintenance and surveillance activities declined. Procedure quality and compliance problems, which were the most significant issues in this functional area during the previous SALP period, were more pervasive during this period. NRC inspections identified numerous discrepancies in the completion of local leak rate tests, surveillance tests, and maintenance work requests. Weaknesses in workmanship were noted during NRC inspections, including improper assembly of seismic restraints on the standby liquid control (SLC) system. Management involvement and oversight of the forced outages that occurred between January 21 and February 12, 1993 were less critical and intrusive, resulting in challenges to safety systems (e.g., excessive discharge of the HPCS battery).

Weaknesses were noted in the work control process and in coordination between work control and Operations, including instances where post-maintenance testing was performed inadequately or not at all. The flooding of the HPCS pump room and excessive discharge of the HPCS battery were examples where weak work coordination impacted plant operational safety. The amount of deferred and recurring corrective maintenance tasks remained high. The number of control room deficiencies increased to more than 100 at the end of the SALP period. In several instances, equipment problems recurred because previous corrective actions had not been sufficiently thorough (e.g., feedwater pump governor failure, low recirculation pump motor oil level, and continuing leakage of safety/relief valves). The outages which occurred in January and February 1993 also indicated significant weaknesses in the licensee's program for the planning and control of forced outages.

Maintenance management and supervision did not consistently provide effective in-plant oversight over work activities during this SALP period. This was partially evidenced by examples of maintenance personnel not having an adequate respect for plant equipment or conditions. A reactor scram was caused by painters stepping on a manual actuator for a deluge system. An engineered safety features (ESF) actuation occurred due to maintenance personnel bumping a safety-related inverter. Maintenance personnel also removed a radiation area boundary to support installation of a door but did not contact HP or restore the posting. In addition, the NRC noted

several instances of safety related instrument tubing and cabling that had been stepped on or bent. The widespread procedure compliance problems, mentioned earlier, also indicated inadequate in-plant oversight. Although the RCM program was undertaken as a licensee initiative, the lack of Supply System oversight of this program for a nine-month period contributed to a failure to fully implement RCM within the intended 30-month time period. As a result, the preventive maintenance program continued to exhibit weaknesses, as evidenced by lubricating oil problems associated with the RCIC, SLC, and recirculation systems.

Management did not place consistent reliance on self-assessment resources to ensure quality in Maintenance/Surveillance activities. The licensee's Quality Assurance organization audited the Maintenance Department in July through August of 1992 and concluded that long-standing issues, including procedure compliance, had not been effectively resolved. However, the issues identified by the audit were not tracked or effectively addressed.

During this SALP period, 11 Severity Level IV, 1 non-cited, and 2 Severity Level V violations were identified, along with 2 deviations. These compared with six Severity Level IV violations during the previous period. The violations principally involved noncompliance with maintenance and surveillance procedures, indicating a continuing weakness in maintaining rigorous attention to procedures. Also, three were violations of Technical Specifications surveillance requirements. The licensee reported 11 LERs, compared to 22 during the previous period. Most of these LERs involved TS surveillance requirements or maintenance performance weaknesses, although a few resulted from the licensee's surveillance program improvement initiative.

The licensee maintained a strong commitment to training and qualification of maintenance craftsmen and technicians. The training facility was well staffed (14 full-time instructors) and well equipped. During this SALP period the licensee fully implemented the Maintenance Personnel Qualifications System that established a three-phase approach to craft and technician qualification. The licensee also maintained a computer database to track maintenance personnel qualifications.

With regard to staffing, the Maintenance Department had a sufficient number of qualified personnel to safely maintain the facility. Expertise was usually available within the staff, and consultants were appropriately used. A plant staff reorganization implemented near the end of the SALP period created an additional level of managers reporting directly to the Plant Manager, including the Maintenance Division Manager. A new Maintenance Production Manager was also hired. The effectiveness of these organizational changes has yet to be assessed.

2. Performance Rating

Performance Assessment: Category 2, Declining.

3. Recommendations

The Board recommends that management and supervision provide consistent, effective in-plant oversight of maintenance and surveillance activities. Management is strongly encouraged to demand improvement in procedure quality and adherence and in individual care for plant equipment. Management should ensure that prompt and thorough corrective actions are taken for known plant deficiencies. Efforts to improve forced outage planning and work control are clearly warranted.

D. Emergency Preparedness

1. Analysis

Three routine emergency preparedness (EP) inspections and two annual emergency exercise team inspections were conducted during the assessment period. Review of the EP program accounted for approximately 6 percent of the WNP-2 inspection effort. A weakness was noted during the 1992 annual emergency exercise, and two weaknesses were noted during the 1993 exercise. Generally, licensee performance in the EP area was maintained over the assessment period, with improvement noted in some areas.

EP performance in the last SALP cycle was rated Category 2. The SALP Board recommended that the licensee continue to work on resolution of the outstanding offsite emergency planning issues involving participation of the State of Oregon and qualification of the Alert and Notification system. The board also recommended management attention to the resolution of or improvement in onsite aspects of the EP program (e.g., Emergency Plan and procedures discrepancies, a critical approach to root cause analysis and corrective action, and more aggressive problem-solving efforts during exercises). The recommendations were addressed by the licensee to varying degrees during the assessment period, and improvement was noted in some areas. The licensee reached agreement with the State of Oregon on participation in the WNP-2 emergency preparedness program. Although Federal Emergency Management Agency (FEMA) certification has not been formally issued, the most recent review of the alert notification system was considered satisfactory and certification was requested. Further improvement appears needed in root cause analysis and corrective action. The two annual emergency exercises also indicated a need for improvement in scenario development and in validating the scenarios prior to execution.

Licensee management was usually involved in EP activities. Management responded to NRC findings indicating a need for corrective action. For example, in response to an NRC concern regarding insufficient knowledge by Operations Support Center (OSC) leadership designees of OSC functions, a Quality Action Team (QAT) was estab-

lished to study the OSC in full and recommend appropriate improvements. QAT recommendations were implemented prior to the 1992 annual emergency exercise resulting in significant OSC improvements being noted during the 1992 and 1993 annual exercises. Concerns regarding Technical Support Center readiness were raised twice during the assessment period for recurring conditions. The licensee worked closely and frequently with states, local county governments and FEMA in resolving offsite preparedness planning issues.

Licensee management's approach to the resolution of technical issues appeared generally appropriate. The emergency warning siren system along the Columbia River was significantly upgraded by replacing some older sirens and by adding new ones. This was necessitated in 1992 when the U.S. Department of Energy notified the licensee that the DOE helicopters being relied upon for emergency notifications along the Columbia River were being withdrawn. The new system was coordinated with FEMA, completed, tested and turned over to the counties. The licensee also developed and implemented a "plant specific exercise scenario radiological data generation computer program" to allow development of more realistic radiological conditions in plant EP exercises and to more credibly model the plant source terms and plant systems.

An EP exercise weakness was identified during the 1992 annual emergency exercise when the Control Room (Simulator) crew failed to properly identify and classify a General Emergency. Immediate remedial actions were taken to retrain that crew, and emergency preparedness training exercises were developed for all control room crews. Two weaknesses were identified in the 1993 annual exercise. Emergency response facilities were declared activated prior to being fully staffed with the essential personnel specified in the emergency plan. Also, administration of KI to emergency response personnel was not authorized prior to their entry into a radiation area where iodine concentrations should have been known or suspected to be high. There were no enforcement actions in the EP area during the assessment period.

The licensee reported eight unusual events during the assessment period. The events were identified, analyzed and reported properly.

EP staff members appeared conscientious toward accomplishment of their assigned duties. Adequate staff was provided to implement the programs and to interact appropriately with offsite agencies. Emergency response organization (ERO) positions were identified; responsibilities and authorities appeared clearly defined; and key positions were filled as appropriate. Decision-making authority appeared properly delegated.

While the licensee's system of EP training appeared adequate, some difficulties were noted with timely requalification training for some ERO personnel. To supplement and reinforce routine annual training, two site EP drills have been scheduled annually in addition to the annual emergency exercise.

2. Conclusion

Performance Assessment: Category 2

3. Board Recommendations

The board encourages increased management attention to improve performance during exercises. Licensee management should also seek to improve the EP training program to insure that ERO personnel are requalified before training expiration dates.

E. Security

1. Analysis

Two routine physical security inspections were conducted during this SALP period. Approximately 2 percent of the total WNP-2 inspection effort was directed to the licensee's physical security and fitness for duty programs. In addition to region-based inspections, the resident inspectors also monitored implementation of this program as part of their routine inspection activities.

The NRC rated the licensee's security (and fitness for duty) performance Category 1 during the previous SALP cycle. Strengths were noted in protected area barriers and access control and in the licensee's employee assistance program. At that time, the Board encouraged the licensee to pay particular attention to problem areas related to fitness-for-duty management and security training. A primary weakness identified in that report focused on the high turnover of program coordinators and procedural inconsistencies in the fitness for duty program. This weakness appears to have been largely corrected. The security training weakness previously identified was eliminated with the completion of remedial security training in the implementation of the "Denial Team Response Plan."

The licensee's performance during this SALP period in the areas of physical security and fitness for duty appeared, on the basis of inspections conducted, safeguards event logs, and other observations and analysis, to be superior in nearly all assessment areas.

Principal strengths identified previously have continued. Further, the licensee implemented use of interchangeable ammunition for the security force weapons, which simplified training and increased the amount of ammunition available for armed response. Also, the fitness for duty program was expanded to include tests for barbiturates and benzodiazepines as well as to require a special analytical process to resolve poppy seed interference in the analysis for cocaine metabolites.

Corporate management continued to be frequently and effectively involved in site activities, reviewing the implementation and operation of the security program. Tracking and trending of intrusion alarms utilized new software and simplified alarm point definition, recently incorporated into the security computer. The

licensee's Quality Assurance program was particularly effective in identifying remaining program deficiencies in the fitness for duty program. Resolution of technical issues was technically sound and thorough in all cases.

No violations and no safeguards events (requiring prompt reporting pursuant to 10 CFR 73.71) were identified during the SALP period. The licensee's safeguards event logs were promptly and completely reviewed, with events reported as required. The licensee's root cause and trend analyses of these events determined that most were related to major hardware upgrades then underway. The number of logged events, although initially high, exhibited a decreasing trend as those projects were completed. Specific analysis of repeat events to identify further equipment or procedural improvements was receiving increased attention.

Licensee staffing remained effective during this assessment period. Several security management changes for training and career development were implemented smoothly; security guard turnover was extremely low. Key positions were identified and responsibilities were well defined. Decision-making authority appeared properly assigned to insure prompt identification and response to program challenges. Recent management initiatives to improve organizational stability for the fitness for duty program appear appropriate to provide increased management attention, better communication between the fitness for duty and plant security programs, continuity of program direction, and assurance of procedure consistency.

The licensee's guard training and qualification program was well defined and was implemented with dedicated resources. Specific licensee efforts to further strengthen training in both security and fitness for duty concepts were initiated. These included expanded security drills and formalized task analysis for improved security course development.

2. Performance Rating

Performance assessment - Category 1

3. Recommendation

None

F. Engineering/Technical Support

1. Analysis

During the assessment period, three special team inspections, an Augmented Inspection Team (AIT) inspection, and six routine Engineering Section inspections were conducted. In addition, the resident inspectors regularly monitored the performance of the licensee's engineering organizations. Two of the team inspections, the Electrical Distribution Safety Inspection and the Service Water System inspection, emphasized review of engineering support for

plant design and operation. Engineering inspections constituted 18 percent of the total inspection effort during this SALP period. Ongoing assessment was also provided by NRR during review of licensing submittals.

The previous SALP Board rated this area Category 2 and recommended that management ensure that previously established programs receive continued attention. The Board characterized management as mixed between good initiatives for improvement and indications of weak oversight. Weak oversight was noted in technical errors and omissions in licensing submittals, weak followup of technical problems, and MOV technical and program problems.

During the present SALP period, the staff noted that engineering support for plant design and operation was of variable quality. The licensee was continuing with a program to review and update design basis documentation (DBD) that could provide a foundation for evaluating the safety significance of future modifications. Engineering quality was reflected in several thorough reviews by system engineers, which identified numerous design deficiencies, and by the setpoint validation program. In addition, the licensee completed its Individual Plant Examination (IPE). However, the DBD and IPE programs were found to be less sophisticated than those of other sites. Although the IPE was completed during this SALP cycle, the results, including several recommendations to reduce risk, were not communicated to affected plant organizations or senior management until after the IPE was completed. At the end of the SALP cycle, the licensee had begun to consider how the IPE results could best be utilized to reduce risk exposure.

Continued weakness in management oversight of technical activities was evidenced by programmatic breakdowns and operational events. Lack of management technical oversight and failure to perform independent verification of analyses were determined to be primary causes of a core power oscillation event, and were contributing factors in a number of the weaknesses and problems discussed in the following paragraphs.

The electrical distribution functional inspection team noted several engineering weaknesses and problems, including failure to keep electrical load calculations up to date, plant design changes which had not been included in appropriate surveillance procedures, use of out-of-date calculation revisions to perform new calculations, and failure to incorporate generic switchyard information into WNP-2 procedures.

The AIT for the core power oscillation event noted that a BWR Owners' Group (BWROG) advisory letter of March 18, 1992, had addressed concerns for core instability. Although the Supply System had leading nuclear engineering personnel assigned as representatives to the BWROG, the team determined that the licensee did not formally review this generic information, and concluded that the licensee did not perform an adequate technical review of this advisory and did not take appropriate followup corrective action.

Inadequate licensee review of the mixed core design (for core power instability) and non-conservative recommendations regarding control rod patterns were also root causes of the core power oscillations. Failure to effectively incorporate generic information into the design and operation of WNP-2 is a significant recurrent finding from the previous SALP period.

Engineering strengths were noted in the licensee's comprehensive "Piping Design Guide," up-to-date maintenance of important drawings, and an improved drawing tracking system.

The licensee's resolution of technical issues from a safety standpoint reflected examples of both strong and weak performance. Strengths included self-identification of design problems, service water system design review and performance monitoring, resolution of switchyard problems, a comprehensive erosion/corrosion program, snubber design calculations, full implementation of system engineering walkdowns, engineering rigor in preparation of design changes, and a comprehensive setpoint program. System engineer walkdowns of automatic depressurization and containment atmospheric control systems identified problems for which corrections resulted in improved plant safety.

Weaknesses in the resolution of technical issues included technical errors in the licensee's station blackout proposal, a poorly coordinated internal review of reactor water level inaccuracies while shut down, missing or incomplete 10 CFR 50.59 reviews, non-conservative diesel fuel oil storage calculations, and failure to resolve calculations which yielded results outside Technical Specifications or design bases limits. Shallow assessments of appropriate corrective actions from system engineers caused recurrence of significant operational problems, including several plant startup/shutdown cycles in a three-week period late in the SALP cycle. These problems included failures of a safety/relief valve, a diesel generator voltage regulator, and a feedwater pump governor. Especially troubling was the ultimate determination that failure of the voltage regulator was the result of a recent modification, a fact which was not fully researched by the root cause investigation following the initial failure.

The SALP Board concluded that these weaknesses were due, in part, to management's failure to adequately prioritize engineering activities to improve plant performance and safety by supporting Plant Operations. The weak performance by system engineers on some problems indicated to the Board that the technical efforts of these personnel were not consistently effective. In particular, the core design and rod pattern control issues, failure of the flow control valve runback circuitry, late repair of a containment purge valve, discharge of the HPCS battery, and offgassing in the reactor vessel level indication system reflected a need for the Engineering and Plant Technical staffs, including system engineers, to be more proactive in their support of Plant Operations.

Six violations, three non-cited violations, and two deviations were attributed to this functional area during the assessment period. One Severity Level III violation documented engineering failure to ensure safe control rod patterns, failure to adequately review core design, and failure to adequately review industry information associated with the core power oscillation event. A civil penalty was assessed for this event. The five Severity Level IV and V violations involved failure to follow gage testing requirements, failure to submit a required Technical Specifications amendment, failure to update information in the FSAR, and two examples of drawing control failures.

The licensee issued 19 licensee event reports (LERs) during the assessment period concerning engineering issues. One of the reports discussed the core power oscillation event. A significant strength was noted in the licensee's efforts to identify design safety issues. Thirteen of the LERs were initiated because of findings resulting from design and setpoint reviews, and reflected errors in initial plant design; three reported errors in the selection of motor thermal overload devices. The licensee's setpoint review program identified errors in high and low pressure core spray setpoints, containment instrument air setpoints, and vacuum breaker setpoints. Most of the errors occurred prior to the assessment period.

Staffing strengths were reflected in the technical expertise involved in the generation and modification of design calculations (particularly in the electrical area), in the continuity of personnel involved in the erosion/corrosion program, and in the expertise evident in calculations to support snubber reduction. Overall engineering staffing was considered adequate. Organizational changes appeared to allow system engineers more time to focus on plant issues. At the end of the SALP cycle, the Engineering Director's position was vacant, with the licensee seeking a replacement.

Training strengths were noted in the erosion/corrosion program and in the performance of system engineers. Weaknesses were noted in shift nuclear engineer training, as evidenced by the improper recommendations made to operators prior to the core oscillation event.

2. <u>Performance Rating</u>

Performance Assessment: Category 3

3. <u>Board Recommendation</u>

The Board recommends that the engineering and technical support organizations set their priority on improving plant performance and safety by supporting Plant Operations. The Board recommends that emerging technical issues receive a more thorough evaluation. The licensee is encouraged to continue with improvement initiatives which have been undertaken in the engineering area. To implement an

Engineering organization that is more supportive of plant operations, the Board recommends that the Engineering Director position be expeditiously filled, that the Supply System's expectations in this area be clearly established with the new Engineering Director, and that senior management assure the expectations are met.

G. Safety Assessment/Quality Verification

1. Analysis

During this SALP period approximately 15 percent of the total WNP-2 inspection effort was expended in the Safety Assessment/Quality Verification (SA/QV) functional area. NRC inspections in this area consisted of evaluating the licensee's self assessment capability, the quality assurance (QA) and quality control (QC) programs, and the corrective action tracking and evaluation system. In addition, ongoing assessment of licensing topics was provided by the NRC Office of Nuclear Reactor Regulation.

The Safety Assessment/Quality Verification area was rated Category 3 during the previous SALP cycle. The previous SALP Board concluded that licensee management did not ensure timely resolution of known problems. The Board also noted that QA programs were capable of identifying issues, but did not consistently prioritize and focus on issues that could significantly impact plant performance. Additionally, the QA organization did not aggressively pursue timely corrective actions for issues they identified. With respect to addressing generic industry issues, the Board concluded that the licensee was excessively isolated from general information available to the nuclear industry.

During the majority of the SALP cycle, the licensee's overall performance in the Safety Assessment/Quality Verification area showed only slight improvement. The Board did note an improving performance trend during the last months of the period. The QA organization identified issues, but did not always effectively prioritize, track, and follow these issues to determine whether the corrective actions were being effective. Line management did not consistently implement corrective actions for known problems or consistently respond in an effective manner to QA audit findings. Additionally, senior management, by themselves or with the assistance of independent oversight groups, did not exercise sufficient oversight to ensure that previously identified problems were being effectively resolved. As these observations would indicate, the SALP Board concluded that the licensee had made only limited progress in correcting weaknesses highlighted by the previous SALP Board.

Generally, the quality and depth of the QA organization's audits, surveillances and technical assessments improved during this SALP period. Consequently, the QA organization's general effectiveness in identifying programmatic weaknesses and significant performance issues remained good. However, as in the previous SALP period, the

QA organization did not always effectively prioritize, track and follow up issues they identified. Examples include the audits of the electrical distribution system and the maintenance program. Additionally, the QA organization was not persistent or aggressive in evaluating areas that had been previously recognized as weak. For example, procedure compliance and formal documentation of problems (PERs) have been long standing issues at the Supply System, but the QA organization did not adequately follow up on the effectiveness of the corrective actions associated with these issues. On occasion, QA management did not notify senior management of significant audit findings or the lack of timely resolution of problems.

Line management was not consistent in the implementation of corrective actions for known problems and did not consistently respond in an effective way to QA audit findings. On occasion a PER was not initiated to document and track the resolution of a problem. Examples of not generating a PER included regional reactor core criticalities and abnormal reactor vessel level indication while shifting to shutdown cooling. Both of these problems were recognized, but were not effectively communicated among responsible Supply System groups to ensure timely evaluation and resolution. An NRC inspection near the end of the SALP period found that the line organization did not effectively respond to some QA audit findings in the areas of health physics, maintenance and procedure compliance.

Senior management, by themselves or with the assistance of independent oversight groups, demonstrated mixed performance. Senior management fully participated in the upgrading of the requalification training program, and the planning and execution of the R-7 outage. As a result, these efforts were successful. However, on several occasions they did not challenge information presented to them and did not exercise sufficient oversight to ensure that previously identified problems were effectively resolved. For example, weaknesses involving procedure adherence, corrective action followup, and disposition of significant industry issues, which were identified in the previous SALP Report, persisted because senior management did not take sufficient actions to assess and redirect actions to correct these weaknesses. The power oscillation event, a significant industry issue, was an example of an event that could have been avoided had senior management or oversight group involvement been more challenging and provided a more critical evaluation. In addition, ineffective management communication of expectations to and supervision of equipment operators contributed to missed fire tours and surveillance data.

Weak performance of management oversight groups was evidenced in approval by the Plant Operations Committee (POC) of a containment atmosphere control (CAC) system special test that, if performed, would have violated the Technical Specifications. The POC also approved a design change to the reactor building ventilation system that did not have a safety evaluation, and a reactor restart was approved by the Management Review Committee and the POC before a

leaking containment exhaust purge valve was repaired as required by the Technical Specifications.

The licensee's approach to the resolution of technical problems showed need for improvement during this assessment period, owed largely to inconsistencies in the quality of root cause determinations, lack of aggressive corrective action implementation, failure to assure corrective action effectiveness, and less than critical evaluations by management oversight committees. Formal root cause evaluations for major events were generally adequate. The management "time out" called during the forced outages of January and February 1993 was a positive step by management to focus on root cause and effective corrective action rather than settle for a quick solution without considering long range implications. However, some root cause evaluations for less significant events were informal and untimely and, on occasion, resulted in recurrence of the event. Examples of recurring plant events caused by ineffective corrective actions and inadequate root cause determinations were: repeat failures of a safety/relief valve (SRV) to reseat, radwaste management problems, and failure of an emergency diesel generator (EDG) voltage regulator.

Generally, Supply System performance regarding licensing activities (e.g., proposed amendments and safety issues) was observed to need strengthening. Licensing submittals generally provided arguments to support only the positive side of the proposed change, rather than a full discussion of the positive and negative consequences with the final proposal based on the balance of safety concerns. In addition, the submittals tended to state conclusions without written, quantitative justification. LER quality was inconsistent. Eight of forty-six LERs required revision because of incomplete root cause analysis or weak event descriptions. As was the case in the previous SALP cycle, events required to be reported by 10 CFR 50.72 were not always reported promptly.

One Severity Level III violation, partly attributed to the Engineering/Technical Support functional area, and one Severity Level IV violation were identified this SALP cycle. The SA/QV portion of the Severity Level III violation involved failure of the Nuclear Safety Assurance Group (NSAG) to review and provide recommendations regarding a BWROG advisory on core power instability. The Severity Level IV violation involved not initiating prompt corrective action to correct an identified programmatic issue of not writing PERs. While these were the only two violations attributed to this functional area, a number of findings, such as failure to assess or track corrective actions for an audit of the Maintenance Program, indicated insufficient aggressiveness and involvement by the various oversight organizations. No LERs were attributed to this functional area during this assessment period.

Staffing of the QA organization and line organizations improved from the previous SALP cycle. The hiring of a new Assistant Managing Director for Operations (AMDO) early in the SALP cycle had a positive impact on licensee performance. The new AMDO brought a fresh

perspective to problem accountability and event reviews. The licensee also hired a new Quality Assurance Director at the midpoint of the SALP cycle. However, by the end of the SALP period there was not yet a demonstrated positive result. The QA Director has proposed restructuring the QA organization at the end of the 1993 refueling outage and consolidating problem tracking data bases. In an effort to provide additional management oversight, a plant staff reorganization implemented near the end of the SALP period created an additional level of managers reporting directly to the Plant Manager. These positions include new Division Manager positions for Operations, Maintenance, and Technical Services. The effect of this organizational change has not yet been assessed. In February 1993 the Supply System Executive Board also announced the hiring of a new Managing Director.

2. Performance Rating

Performance Assessment: Category 3, Improving

3. Recommendations

The Board recommends that the QA organization substantially improve the prioritization, tracking, and followup of their findings. Line management needs to consistently implement and complete corrective actions for known problems and effectively respond to QA audit findings. Where this does not occur, QA needs to aggressively involve Senior Management. Senior licensee management needs to provide effective oversight of the QA organization and line management in these areas. The Corporate Nuclear Safety Review Board, the Plant Operating Committee, and the Management Review Committee need to become more effective and involved in the resolution of safety concerns.

IV. SUPPORTING DATA AND SUMMARIES

A. Licensee Activities

WNP-2 entered the assessment period with the plant at full power. The plant operated nominally at full power during the SALP period, with occasional brief power curtailments for maintenance and testing activities, except as follows:

On February 21, 1992, due to a 1.5 GPM unidentified leak, power was curtailed to identify and isolate a leak in the drive mechanism for control rod 42-59. During the following power ascension, the licensee declared both trains of the containment atmosphere control (CAC) system inoperable due to a system design deficiency identified during a licensee design review (the CAC could not be operated concurrently with suppression pool cooling). Technical Specification 3.0.3 was entered and an Unusual Event was declared. The plant was shut down and remained in cold shutdown until modifications to correct CAC design deficiencies were completed. The plant returned to full power on March 21, 1992.

On April 17 the reactor was shut down for the 1992 refueling outage

(R-7). The reactor was defueled on May 8, 1992 to support chemical decontamination of the recirculation loops and repair of the recirculation system isolation valves. The licensee commenced core reload on May 30, 1992 after completion of work on the recirculation system.

On July 6, 1992, during startup testing following the refueling outage, safety-relief valve (SRV) MS-RV-3B stuck in the open position during surveillance testing. The SRV remained stuck open for greater than two minutes, and the reactor was manually scrammed as required. The licensee declared an Unusual Event. The SRV was repaired, but stuck open again during startup testing on July 11. The reactor was again manually scrammed, and the licensee initiated a comprehensive investigation. This determined the cause to be a nonconforming bellows assembly, installed during the 1992 refueling outage, which was inadvertently omitted by the vendor from a parts recall before WNP-2's initial startup. A correct replacement was procured and installed, and the plant subsequently achieved full power on July 27.

On July 31, during a scheduled downpower to repair steam leaks and the dump valve for the #1 feedwater heater, operators found that phase-to-phase fault protection had failed on the "B" main transformer. Power was reduced to 15%, the main generator was removed from the grid, the "B" phase was connected to the spare transformer, and the generator was reconnected to the grid. The reactor achieved 100% power again on August 4.

On August 13, 1992, due to an unidentified leakage of 5 GPM, the licensee declared an Unusual Event and reduced power to 5% to attempt to identify the leakage. After identification and repair of the leakage, from valve RWCU-V-130, the licensee commenced power ascension on August 14. On August 15, with the reactor at 36% power, the reactor experienced power oscillations from 23% to 47% power peak-to-peak every two seconds. Operators manually scrammed the reactor and declared an Unusual Event. An NRC Augmented Inspection Team (AIT) was assigned to assess the power oscillation event.

On August, 30, 1992, after satisfying the provisions of an NRC Confirmatory Action Letter associated with the power oscillation event, the reactor was restarted. Full power was achieved on September 3.

On September 8, 1992, feedwater heater 6B tripped, resulting in a momentary power excursion to 103.5% power. Control room operators reduced power to 80% to troubleshoot and repair the 6B heater. After repairing the 6B heater and performing a safety evaluation on the effect of reduced feedwater temperature at full power, the reactor was returned to full power on September 11, 1992.

On September 20, 1992 emergency diesel generator (EDG) #1 failed to load during its monthly Technical Specification surveillance test. The cause was traced to a faulty governor. The licensee requested and received a temporary waiver of compliance from the 72-hour Technical Specification action statement in order to repair and test EDG-1. EDG-1 was declared operable on September 24 upon successful testing of the new governor. On September 27, 1992 the high pressure core spray (HPCS) diesel generator,

DG-3, failed to load during its monthly operability surveillance. DG-3 was repaired and declared operable on September 29.

On October 13, 1992 an Unusual Event was declared due to potentially hazardous fumes caused when an equipment operator mistakenly loaded sodium hypochlorite into a Calgon storage tank near the cooling towers. No serious hazard resulted.

On November 2, 1992 the licensee identified the presence of tritium in the storm drains. This occurrence was the first of several findings of activity in undesired locations. Some of this activity was traced to leakage through a backup sewage connection from the nearby Fast Flux Test Facility.

On November 30, 1992, during a monthly surveillance, EDG-2 failed to achieve rated voltage within the required time and was declared inoperable. The NRC issued a Temporary Waiver of Compliance on December 2 to extend the 72-hour Technical Specification action statement an additional 48 hours to permit troubleshooting, replacement, and repair of the voltage regulator. Operators declared EDG-2 operable on December 3.

On January 21, 1993 a feedwater pump trip occurred when a painter inadvertently stepped on a manual actuator for the deluge system which protects the reactor feedwater pump rooms. One feedwater pump tripped, and the reactor tripped on low reactor vessel level because the recirculation flow control valves were set incorrectly and did not perform properly. Also on January 21 (unrelated to the reactor trip), a licensee design review identified a trip coordination problem with offsite power supplies. One of the temporary compensatory actions for this deficiency involved testing of the EDGs every 8 hours. During its first test, EDG-2 again failed to achieve rated voltage within the required time and was declared inoperable.

On January 25, 1993, as the licensee was preparing for restart following resolution of the above problems, it was discovered that the HPCS battery had been excessively discharged. The battery was recharged and restart was commenced on January 28, 1993. However, the reactor was shut down after reaching 15% power, when a steam leak was observed in the turbine building.

The reactor was again restarted on January 31, 1993 after necessary repairs were made. During the restart, the licensee observed excessive turbine vibration and the reactor was shut down on February 1 to rebalance the turbine shaft. A containment entry was also made to assess a low oil level indication on a recirculation pump motor. After containment was reclosed, a drywell exhaust purge valve failed its local leak rate test. The 24-inch butterfly valve was disassembled and repaired. It was noted that this had been a recurring problem with this type of valve at WNP-2.

On February 4, 1993, after necessary repairs were completed, the plant was restarted. On February 6, 1993, during power ascension, the reactor was manually scrammed from 31% power, when the "A" recirculation pump failed to start on fast speed. Subsequent investigation by the licensee

showed that the failure had resulted from a low feedwater interlock circuit, which had been installed by General Electric (GE) to permit feedwater pump testing prior to fuel load. Since the interlock circuit served no current function, the feature was bypassed with GE's concurrence.

The reactor was restarted again on February 7. On February 10, 1993, when the plant was at 92% power, the reactor automatically scrammed due to failure of a reactor feed pump governor electrical connector. The transient also caused a feedwater pump suction relief valve to open, discharging steam to that portion of the turbine building. Operators closed the main steam isolation valves and declared a Unusual Event because of concern for a possible steam line break. After this event, in response to the several events of the prior three weeks, licensee management called a "time out" and suspended all maintenance and restart activities to review the numerous events for root and common causes.

The plant was restarted on February 16, 1993 after management reviews, system walkdowns, and necessary repairs were completed. The plant remained at full power until the end of the SALP period.

B. Inspection Activities

Forty-seven routine and special inspections were conducted during this assessment period (January 1992 through February 28, 1993) as listed below.

1. Inspection Data

Inspection reports: 91-46, 92-01, 92-03 through 92-05, 92-07 through 92-11, 92-13 through 92-38, 92-40 through 92-43, 93-01 through 93-03, 93-05 through 93-08, and 93-201. Three of these reports documented management meetings, three documented enforcement conferences, and one documented an augmented team inspection.

2. Special Inspection Summary

Special inspections included the following:

92-01	February 1992: Electrical Distribution System Functional Inspection
92-10	March 1992: Erosion/Corrosion Program Inspection
92-25	August 1992: Inspection of Licensee Testing Programs
92-30	August 1992: Augmented Inspection Team to Investigate Power Oscillation Event
93-201	February 1993: Service Water Inspection

C. Enforcement Activity

Inspections during this period identified 39 cited violations and 4 deviations. Of the violations, 2 were a Severity Level III, 33 were Severity Level IV, and 4 were Severity Level V.

D. Confirmatory Action Letters

A CAL was issued on August 15, 1992 to confirm the NRC's understanding of the licensee's intended actions in response to the Unusual Event on that date, involving reactor power oscillations.

E. Licensee Event Reports

WNP-2 issued 53 LERs during this assessment period. The LERs were: 92-01 through 92-46 and 93-01 through 93-07.