SALP BOARD REPORT

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

NRC Inspection Report 50-298/89-12

Nebraska Public Power District

Cooper Nuclear Station

February 1, 1988, through April 15, 1989

I. INTRODUCTION

The Systematic Assessment of Licensee Performance (SALP) program is an integrated NRC staff effort to collect available observations and data on a periodic basis and to evaluate licensee performance based upon 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 the licensee's management regarding the NRC's assessment of their facility's performance in each functional area.

An NRC SALP Board, composed of the staff members listed below, met on May 25, 1989, to review the observations and data on performance, and to assess licensee performance in accordance with NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance." The guidance and evaluation criteria are summarized in Section III of this report. The Board's findings and recommendations were forwarded to the NRC Regional Administrator for approval and issuance.

This report is the NRC's assessment of the licensee's safety performance at Cooper Nuclear Station (CNS) for the period February 1, 1988, through April 15, 1989.

The SALP Board for CNS was composed of:

L. J. Callan, Director, Division of Reactor Projects
A. B. Beach, Director, Division of Radiological Safety and Safeguards
F. J. Hebdon, Director, Project Directorate IV
G. L. Constable, Chief, Reactor Project Section C
P. O'Connor, Project Manager, Project Directorate IV
*J. L. Milhoan, Director, Division of Reactor Safety
*J. P. Jaudon, Deputy Director, Division of Reactor Safety
W. R. Bennett, Senior Resident Inspector
G. L. Madsen, Project Engineer

*Part-time

The following personnel also participated in the SALP Board meeting:

E. Baker, Acting Deputy Director, Division of Reactor Projects
B. Murray, Chief, Reactor Programs Branch
R. J. Everett, Chief, Security and Emergency Preparedness Section
W. C. Seidle, Chief, Test Programs Section
T. F. Stetka, Chief, Plant Systems Section
G. A. Pick, Resident Inspector
L. D. Gilbert, Reactor Inspector

A. Licensee Activities

1. Major Outages

- The plant was in the End-of-Cycle (EOC) 11 refueling and maintenance outage from March 4, 1988, through June 18, 1988.

- The plant was shut down on April 7, 1989, for the EOC 12 refueling and maintenance outage.

2. License Amendments

During the assessment period, there were 14 operating license amendments. Some of the more significant amendments were:

- Modification of the reactor coolant system pressure/temperature curves and surveillance capsule withdrawal schedule.

- Replacement of existing 125 Vdc station lead-acid batteries with lead-calcium batteries having a higher ampere-hour rating and replacement of the 150 ampere-hour battery chargers with higher capacity 200 ampere-hour battery chargers.

- Changes to the Technical Specifications related to the fire protection program. Because of the licensee's unwillingness to accept the staff's position regarding fire barrier surveillance, a significant amount of staff effort was expended only to see the issue withdrawn.

- Following the issuance of a waiver of compliance, the licensee requested that the Commission grant an emergency amendment to the operating license delaying their implementation of a portion of Amendment No. 115 that had been issued to NPPD on February 11, 1988. Amendment No. 115 had required the licensee to add negative voltage sensing relays to the source range and intermediate range monitoring channels by February 11, 1989. In January 1989, the licensee decided to defer the modification until defueling of the reactor in May 1989 but were initially unaware that their license required implementation by February 11, 1989. Because of this oversight, the licensee was required to request an emergency Technical Specification change from the staff to avoid a reactor shutdown.

3. Major Modifications

- ATWS modifications to increase flow in the standby liquid control system.

- Upgrade of control room panels.

- Upgrade of motor control centers.

- Replacement of batteries and battery chargers in the 125 Vdc system with components of greater ampere capacity.

- Upgrade of security equipment and physical barriers.

B. Direct Inspection and Review Activities

NRC inspection activity during this SALP evaluation period included 43 inspections performed with approximately 4,546 direct inspection hours expended. The inspections included team inspections of emergency operating procedures, engineering, and safety system functional inspection followup.

II. SUMMARY OF RESULTS

During this SALP period the licensee implemented improvements in the physical plant condition and procedural controls at CNS. Only the highlights of these are addressed in this report. The high level of competence in the areas of operation and radiological control; improvements in the areas of engineering and security; and management's involvement in nuclear operations are indicators that CNS is striving to improve its performance.

The SALP Board concluded, however, that there were areas where improvements were needed. The licensee needs an aggressive corrective actions program and an effective predictive maintenance program. Engineering reviews of safety issues should be more timely.

In addition, the licensee should work to aggressively complete the ongoing programs to reestablish accurate design basis documentation and drawings, and to improve maintenance procedures. Managers in the corporate office, whose organizations support site activities, should endeavor to be more responsive to identified problems including training deficiencies, potentially reportable issues, and plant outage support.

The licensee's performance is summarized in the table below, along with the performance categories from the previous SALP evaluation period.

Functional Area	Previous Performance Category (08/01/86 to 01/31/88)	Present Performance Category (02/01/88 to 04/15/89)
1. Plant Operations	1	1
2. Radiological Controls	1	1
3. Maintenance	2*	N/A**
4. Surveillance	2	N/A**
5. Maintenance/Surveillance	N/A**	2

6.	Fire Protection	1	N/A**
7.	Emergency Preparedness	2	2
8.	Security	3*	2
9.	Outages	2	N/A**
10.	Engineering/Technical Support	N/A**	2
11.	Safety Assessment/ Quality Verification	N/A**	3
12.	Quality Programs and Administrative Controls Affecting Quality	2	N/A**
13.	Licensing Activities	1	N/A**
14.	Training and Qualification Effectiveness	2	N/A**

*Positive trend noted by SALP Board.

**NRC Manual Chapter 0516 was revised on June 6, 1988. This evaluation was performed in accordance with the revised manual chapter. The major change involved restructuring of the functional areas.

III. CRITERIA

Licensee performance was assessed in seven selected functional areas. Functional areas normally represent areas significant to nuclear safety and the environment. Special areas may be added to highlight significant observations. The following evaluation criteria were used, as applicable, to assess each functional area:

A. Assurance of quality including management involvement and control;

B. Approach to resolution of technical issues from a safety standpoint;

C. Responsiveness to NRC initiatives;

D. Enforcement history;

E. Operational events (including response to, analyses of, reporting of, and corrective actions for);

F. Staffing (including management); and

G. Effectiveness of training and qualification program.

However, the NRC is not limited to these criteria and others may have been used where appropriate.

Based on the NRC assessment, each functional area evaluated is rated according to three performance categories. The definitions of these performance categories are as follows:

1. Category 1. Licensee management attention and involvement are readily evident and place emphasis on superior performance of nuclear safety or safeguards activities, with the resulting performance substantially exceeding regulatory requirements. Licensee resources are ample and effectively used so that a high level of plant and personnel performance is being achieved. Reduced NRC attention may be appropriate.

2. Category 2. Licensee management attention to and involvement in the performance of nuclear safety or safeguards activities is good. The licensee has attained a level of performance above that needed to meet regulatory requirements. Licensee resources are adequate and reasonably allocated so that good plant and personnel performance is being achieved. NRC attention may be maintained at normal levels.

3. Category 3. Licensee management attention to and involvement in the performance of nuclear safety or safeguards activities are not sufficient. The licensee's performance does not significantly exceed that needed to meet minimal regulatory requirements. Licensee resources appear to be strained or not effectively used. NRC attention should be increased above normal levels.

IV. PERFORMANCE ANALYSIS

A. Plant Operations

1. Analysis

The assessment of this area consists chiefly of the control and execution of activities directly related to operating Cooper Nuclear Station (CNS). It is intended to include activities such as plant startup, power operation, plant shutdown, and system lineups. Thus it includes activities such as monitoring and logging plant conditions, normal operations, responding to transient and off-normal conditions, manipulating the reactor and auxiliary controls, plant-wide housekeeping, control room professionalism, and interface with activities that support operations.

This area has been inspected on a continuous basis by the NRC resident inspectors and on several occasions by NRC regional inspectors. Specific areas inspected included operational

safety verifications, safety system walkdowns, followup on significant events/problems, and review of licensee event reports (LERs).

The licensee presently has 35 licensed senior reactor operators and 16 licensed reactor operators. The licensee maintains a six-shift operating crew rotation and utilizes additional personnel as replacements during expected and unexpected absences. There are enough licensed senior reactor operators that they, at times, perform reactor operator functions and nonlicensed operator functions, which is beneficial in maintaining proficiency and operator knowledge of plant systems and system status. Several senior reactor operators were taken off shift to perform other duties to support the operations staff and assist in development of a plant specific simulator.

The plant operations staff operated the plant in a competent, professional manner throughout this assessment period. Radios and reading material which might divert the operators' attention are prohibited in the main control room. The operators have been proficient at limiting the number of people in the control room which might divert their attention. This has been especially apparent during transient conditions. During the refueling outage, congestion was limited in the control room, in part, due to setting up a work control area, for tag-outs, outside the control room. Plant management makes frequent tours of the control room and the rest of the plant, including tours on back shift and on weekends. A code of conduct for reactor operators has been documented.

Early in the assessment period, there were some communication problems between the operations department and other departments. This was evidenced by a failure to station a fire watch and repositioning of valves during the containment integrated leak rate test. These communication problems appear to have been corrected and the control room staff was aware of evolutions in progress in the plant.

Several plant transients were observed including five plant startups, two responses to reactor scrams, and two plant shutdowns. The licensee routinely demonstrated conservatism when a potential for safety significance existed. This was noticeably evident when arcing was discovered in the "A" Phase Isolated Phase Bus Duct Outlet. Although a shutdown was not required, the licensee took immediate actions to reduce power and manually shut down the reactor.

The operators exhibited an excellent knowledge of plant systems and procedures during all transients. Prior to planned transients, discussions were held among all affected personnel to review the transient, the expected plant response, and

actions to be taken if there were an unexpected occurrence. There were a few instances when newer operators, performing evolutions which they had not done before, were tentative in their actions. In instances where this tentativeness occurred, more experienced operators provided one-on-one guidance, until the less experienced operator was comfortable performing the evolution. A plant simulator would provide more opportunities to perform these unusual evolutions and would reduce the tentativeness of less experienced operators.

There were two automatic scrams during the assessment period. One was caused by an anomalous radiation spike on a main steam line radiation monitor and the other by the separation of the main disk from the valve stem on a main steam isolation valve at power. In addition to the automatic scrams, there was one unplanned manual scram, discussed above, in response to a grounded isolated bus duct and subsequent fire. The licensee's response to the scrams was effective in determining the root cause underlying the event and involved a significant technical review to determine the required corrective actions needed to prevent recurrence. This was particularly true for the scram caused by the MSIV disk separation for which the causes were not immediately evident. The licensee established a task force to review the available information regarding the scram and pressed on with the investigation of the cause until the valve separation was detected.

Several LERs were issued by the licensee in this functional area. The majority of the events were due to equipment failures during operations. The LERs adequately described the major aspects of each event, including component or system failures that contributed to the event and the significant corrective actions taken or planned to prevent recurrence. The reports were thorough, detailed, well written, and easy to understand.

During the refueling outage, in the early portion of the assessment period, there was a large backlog of drawing changes which had not been incorporated into the control room drawings. The licensee took action to reduce the backlog of drawings, revising the program for implementing drawing changes. The backlog was significantly reduced by the end of the assessment period.

Management continues to be aggressive in maintaining plant cleanliness. Plant-wide housekeeping has been consistently very good throughout the assessment period. The consistently good housekeeping practices demonstrates the pride that both management and staff take in the plant.

The operating staff exhibited a high level of competence and conservatism in operating the plant safely throughout this assessment period. Transients were handled in a manner that ensured maintenance of plant safety and integrity. A high degree of professionalism and knowledge was evident.

2. Performance Ratings

The licensee is considered to be in performance Category 1 in this area.

3. Recommendations

a. NRC Actions

NRC inspection effort in this area should be consistent with the Fundamental Inspection Program.

b. Licensee Actions

The licensee should actively continue the effort to complete the plant specific simulator as soon as possible. Emphasis should continue to be placed in maintaining a strong operations program.

B. Radiological Controls

1. Analysis

The assessment of this functional area consists of activities directly related to radiological controls, including occupational radiation safety (e.g., occupational radiation protection, radioactive materials and contamination controls, radiation field controls, radiological surveys and monitoring, and as low as is reasonable achievable programs), radioactive waste management (i.e., processing and onsite storage of gaseous, liquid, and solid waste), radiological effluent control and monitoring (including gaseous and liquid effluents, offsite dose calculations, radiological environmental monitoring, and confirmatory measurements), and transportation of radioactive materials (e.g., procurement of packages, preparation for shipments, periodic maintenance of packagings, and point-of-origin safeguards activities).

Management involvement and control of assurance of quality has been demonstrated by the consistent evidence of prior planning and assignment of priorities. Procedures for control of activities are well written, controlled, and explicit. Decisionmaking is consistently at a level that ensures adequate management review. Although management overview of the radiation protection program is strong, management quality

assurance (QA) audits in the radiological controls area have not included a team member with technical expertise in the areas being reviewed.

The licensee's approach to the resolution of technical issues from a radiological safety standpoint, routinely exhibits conservatism when the potential for radiological safety significance exists. The licensee's response to identified radiological safety issues is aggressive and prompt, and issues are effectively resolved. For example, the licensee implemented a special program to vacuum sludge and sediment from the torus to reduce radiation levels prior to conducting inspection activities of this area, a new hydrolyzing system was used to remove radioactive hot spots from inside certain drain lines, and a new hot particle control program was implemented.

The licensee is usually responsive to NRC initiatives. When issues are identified or questions raised by the NRC in the Radiation Protection Program, actions are taken and implemented to address the issues raised. For example, the NRC staff has discussed a concern on several occasions in the past, including the last SALP assessment, involving the need to strengthen the technical expertise in the radiation protection staff by the addition of a person with strong academic background in health physics. This was a concern because the onsite RP staff is responsible for the implementation of all aspects of the radiation protection program without technical support from the corporate office. In response, the licensee approved two new positions.

The licensee's person-rem levels continue to be below the national BWR average. The low person-rem values are in part due to good ALARA considerations associated with the fuel maintenance and reactor coolant chemistry programs. The radiation protection manager has provided strong management oversight of the radiation protection activities that has resulted in a well coordinated radiation protection program. Good working relationships exist between the radiation protection department and other departments, such as maintenance and operations.

Licensee management has provided good support for the radiation protection program. Management has provided budget support to allow the purchase of new equipment such as six state-of-the-art portal monitors, a survey meter calibration system, a low-level dry active waste monitoring system, an automated laundry hot particle monitor, and two GeLi analyzers for the health physics laboratory. The number of health physics instructors in the training department has been increased in order to improve the training program for the radiation protection staff. But, additional staffing is necessary in the chemistry/radiochemistry

area. The licensee has received accreditation of both the chemistry/radiochemistry and health physics technician training programs. A plant systems training program is in the developmental stage.

The licensee's radiochemistry and water chemistry programs were inspected once during the assessment period. One violation in the radiochemistry training area was identified involving the failure to provide requalification training for the postaccident sampling system operator. The results of confirmatory measurements on water chemistry samples indicate a decrease in the performance in this area. This was attributed to the aging instability of some equipment used in analyses. The licensee's proposed resolution was to obtain new instrumentation. The radiological confirmatory measurement results remained above average.

The licensee's transportation program was inspected once during the assessment period. One deviation from commitments made in response to Inspection and Enforcement Bulletin 79-19 in the area of radioactive material transportation training was identified where some maintenance personnel involved with the packaging of radioactive material had not received training of NRC regulatory requirements and plant specific procedures. The corrective action taken by the licensee was timely and effective.

The radiological waste management area was inspected once during the assessment period. No significant problems were identified concerning radioactive waste activities. The licensee had upgraded the training program for operations personnel responsible for equipment operation.

The radiological environmental monitoring program was not inspected during this assessment period.

The licensee has maintained a stable, well experienced staff. The turn-over rates among the radiological control staff have been less than 15 percent. Authorities and responsibilities for radiological control personnel are well defined. However, the NRC staff does note that although the outstanding capabilities of the radiation protection manager provides stability to this program, it is important that other individuals be trained as a replacement to ensure continued high performance during any potential absence.

The licensee's performance in the radiological controls area has been maintained at a high level. Problems usually involve minor violations and are not indicative of programmatic breakdowns.

2. Performance Ratings

The licensee is considered to be in performance Category 1 in this area.

3. Recommendations

a. NRC Actions

NRC inspection effort in this area should be consistent with the Fundamental Inspection Program.

b. Licensee Actions

Licensee management action is needed to ensure that training programs are properly implemented in this area.

C. Maintenance/Surveillance

1. Analysis

The assessment of this area includes all activities associated with either diagnostic, predictive, preventive, or corrective maintenance of plant structures, systems, and components; procurement, control, and storage of components, including qualification controls and installation of plant modifications; and maintenance of the plant physical condition. It includes conduct of all surveillance (diagnostic) testing activities as well as inservice testing and inspection activities. Examples of activities included are instrument calibrations; equipment operability tests; postmaintenance, postmodification, and postoutage testing; containment leak rate tests; water chemistry controls; special tests; inservice inspection and performance tests of pumps and valves; and all other inservice inspection activities.

This area was inspected on a continuous basis by the NRC resident inspectors and periodically by NRC regional inspectors.

Improvements in the maintenance and surveillance programs have been made in this assessment period. The programs are now better defined, procedure improvements have been accomplished, procedure compliance has improved, and the maintenance backlog has been reduced.

Management involvement in this functional area was evident. The licensee is very aggressive in identification and performance of required corrective maintenance. An unscheduled shutdown maintenance and surveillance list is continually upgraded, prioritizing necessary maintenance.

The licensee has a preventive maintenance program for both safety-related and balance of plant systems which is revised when new requirements are identified. The licensee does not have an effective predictive maintenance program where parameters are monitored and trended over time as a means of predicting end-of-service life. The licensee is in the process of implementing a pilot Plant Performance Monitoring Program for the residual heat removal system.

While improvements have been made in maintenance procedures, including approval of a postmaintenance testing requirements procedure, much maintenance activity is still performed utilizing "skill-of-the-craft." The presence of knowledgeable maintenance personnel has prevented major problems with this program, however, more guidance should be provided to maintenance personnel in the performance of some tasks.

Six violations and one deviation were identified in this functional area. In addition, several LERs were issued by the licensee in this area. The violations and events indicated minor programmatic inadequacies. Corrective actions including responses to NRC initiatives were generally timely, comprehensive, and technically sound. The licensee has implemented a new computer scheduling system which appears to have corrected a problem involving missed surveillance requirements.

The licensee is still implementing a procedure rewrite program to improve the quality of surveillance procedures. This program has been very effective. Ninety-six percent of the procedures have been rewritten, utilizing an improved format. This has resulted in a decrease in personnel errors associated with the performance of surveillance procedures.

The licensee has established ISI and IST programs which are in their second 10-year period. The ISI and IST programs are overseen and monitored by a single engineer with no concurrent responsibilities.

CNS has had a history of unsatisfactory local leak rate test results. During this assessment period, local leak rates and containment integrated leak rate test (CILRT) results were satisfactory. The licensee appears to have made improvements in the trending of test failures and repair or refurbishment of these valves before they become a problem. The procedure, calculations, and results of the CILRT performed during this assessment period were verified to be adequate. One violation was identified during the performance of the CILRT due to inadequate communication/training.

NRR personnel inspected the diesel generator maintenance and surveillance program and reviewed diesel generator operational events and procedures. The licensee's root cause analysis of failures/maintenance requirements was poor and valuable data which could be used to modify maintenance programs and enhance diesel generator reliability was lost. The licensee should establish a formal program for incorporating lessons learned from maintenance into the maintenance procedures and vendor technical manuals to assure that these lessons learned are not lost because of future personnel changes.

Key staff positions are identified and well defined. The licensee is attempting to increase staffing in this area to improve performance, and to meet the needs of growing maintenance and surveillance requirements.

Surveillance test personnel are knowledgeable of the surveillances they perform and of their test equipment. One-on-one training of less experienced personnel, by experienced personnel, appears to be a major reason for the improved knowledge and performance of this group.

2. Performance Rating

The licensee is considered to be in performance Category 2 in this area.

3. Recommendations

a. NRC Actions

NRC inspection in this area should be consistent with the Fundamental Inspection Program. Additional inspection effort should be directed toward the overall maintenance program.

b. Licensee Actions

Licensee management should take actions as necessary to continue improvement in this functional area. Included in these actions are:

- Development of an effective predictive maintenance program
- Consideration of the development of more specific maintenance procedures and relying less on "skill-of-the-craft"
- Completion of the procedure rewrite program

- Incorporation of lessons learned from maintenance into maintenance procedures.

D. Emergency Preparedness

1. Analysis

This functional area includes activities related to the establishment and implementation of the emergency plan and implementing procedures, such as onsite and offsite plan development and coordination, support and training of onsite and offsite emergency response organizations, licensee performance during exercises and actual events that test emergency plans, administration and implementation of the plan (both during drills and actual events), notification, radiological exposure control, recovery, protective actions, and interactions with onsite and offsite emergency response organizations during exercises.

Three emergency preparedness inspections were conducted by NRC region-based inspectors and contractors during the assessment period. One inspection involved the observation of the annual emergency exercise. The other two inspections involved a review of the operational status of the emergency preparedness program.

The licensee has demonstrated a strong commitment to provide management support to the development of a quality emergency preparedness program. This is shown by the corrective actions taken to incorporate an emergency preparedness module in the training of operations personnel, implementation of a new dose assessment computer and associated software, and management participation in the management meeting held in the regional office on December 13, 1988. The meeting was held to discuss the 11 weaknesses identified during the October 1988 exercise.

The licensee has promptly submitted changes to the emergency plan and implementing procedures to the NRC and has maintained working contact with offsite support agencies. The emergency facilities are well equipped, and interviews conducted during the last inspection with the operations staff indicated that emergency response personnel have adequate knowledge of their duties and responsibilities. The licensee has maintained an adequate emergency preparedness staff.

The licensee's positive response to NRC initiatives is evident in their commitment to improve their audit program in the emergency preparedness area. However, significant weaknesses were identified during the 1988 exercise and discussed on December, 13, 1988, which indicated that the licensee needs to improve their performance. During the exercise, several instances of failure to establish and maintain adequate

information flow, failure to establish proper priorities, lack of adequate control and coordination, and failure to follow procedures indicated that the licensee needs to make improvements in their emergency response program.

2. Performance Rating

The licensee is considered to be in performance Category 2 in this area.

3. Recommendations

a. NRC Actions

NRC inspection effort should be consistent with the Fundamental Inspection Program. Additional inspection should be conducted to followup on the licensee's corrective actions on the identified weaknesses.

b. Licensee Actions

Licensee management should continue to provide strong support for the emergency preparedness program and should continue to monitor performance in this area to ensure that program improvements are appropriately implemented. The licensee should closely monitor remedial actions for weaknesses identified during the 1988 exercise.

E. Security

1. Analysis

This functional area includes all activities that ensure the security of the plant, including all aspects of access control, security background checks, safeguards information protection, and fitness-for-duty activities and controls.

During this SALP period, the resident inspectors observed security activities on a daily basis. In addition, region-based physical security inspectors conducted five security inspections. Seven violations of the Physical Security Plan (PSP) were identified. The seven violations concerned the reporting of security events, access control, compensatory measures, key control, classification of safeguards information, control of licensee designated vehicles, and records and reports.

Licensee management has demonstrated support for the security program. Management has committed the necessary resources to ensure that proper facilities, equipment, and staff are

available. The licensee's QA program is well organized and appears to be thorough. However, it was noted that the quality assurance audit team did not include a team member with a nuclear security background. Security procedures are adequate to enable staff to ensure the provisions of the PSP are met. The licensee's engineering, licensing, and security staffs work closely together to ensure that technical issues are quickly resolved. NRC initiatives usually receive prompt attention. The training and qualifications of the security staff appear to be adequate.

The licensee is in the final stages of completing a significant upgrade of the security systems. Recent testing indicated that some programmatic problems still exist because of the integrated design of the perimeter systems. The licensee is aware of the problems and appears to be resolving them. The licensee appears to have made significant progress in improving the security program based on a reduction in the number of violations and the progress made on security system upgrades during the SALP period.

2. Performance Rating

The licensee is considered to be in performance Category 2 in this area.

3. Recommendations

a. NRC Actions

The NRC inspection effort should be consistent with the Fundamental Inspection Program. Additional inspections should be conducted to track the progress of the current security upgrade effort.

b. Licensee Actions

Licensee management should continue to provide a strong support to the security program emphasizing and completing the corrective actions proposed for the reporting of security events. Management should continue to monitor the progress of the security upgrade efforts and ensure that schedules for implementation are met.

F. Engineering/Technical Support

1. Analysis

The assessment of this area includes all licensee activities associated with the design of plant modifications; engineering and technical support for operations, outages, maintenance,

testing, surveillance, and procurement activities; training; configuration management; and fire protection/prevention.

This area was inspected on a continuing basis by the NRC resident inspectors and on several occasions by NRC regional inspectors and headquarters staff. Included were an inspection of the corporate engineering department and a followup to the 1987 Safety System Functional Inspection (SSFI).

All major design changes are performed by the General Office engineering staff. The nuclear engineering division in the GO consists of 67 NPPD employees with an average of 12 years of engineering experience. Plant specific training for these individuals has been weak and slow to evolve; however, an improved program was implemented during this appraisal period that appears to be satisfactory. NPPD routinely uses contracted engineering services to supplement their in-house engineering organization. Contracted services are usually rigorously managed by NPPD personnel. Exceptions included the use of consultants for environmental qualification and pipe support analysis.

NRC inspectors observed that engineering packages were generally thorough and complete; however, engineering evaluation of potentially reportable issues was not always timely. The GO engineering organization did not appear sufficiently sensitive to the need to promptly evaluate operability issues. Management initiatives were in place at the end of the appraisal period that should resolve these concerns. A major effort is currently underway to reestablish plant design basis and verify the accuracy and completeness of drawings.

One major refueling outage was completed during this assessment period, March 5 through June 17, 1988, and another commenced on April 8, 1989. The outage preplanning improved during the assessment period. During the 1988 refueling outage, numerous work items and design changes were not approved by the onsite review committee prior to the outage. Only 13 packages were not approved prior to the 1989 outage. While this is an improvement, it is still considered desirable that all design packages be approved prior to the outage to ensure that the onsite committee has enough time to properly review all design changes.

The onsite engineering staff increased to 48 personnel during this assessment period. The addition of 7 personnel has been approved. The onsite engineering staff is responsible for normal day-to-day support of plant operations. The system engineers each have several systems for which they are responsible. Some individual engineers did not appear to be knowledgeable of their systems. This may be due to the effort

needed to become knowledgeable on the details of multiple complex systems and the difficulty of getting access to system details and history because of hardware and software limitations. In addition, there is no specific welding engineer available to assist in development of welding programs. A single engineer has responsibility for the ISI and IST programs.

Communications between General Office (GO) engineering and onsite engineering appeared to improve throughout the assessment period. Design engineers were frequently onsite during outages, monitoring the progress of design changes.

Fire protection continues to be a strong point at CNS. Fire brigade training and drills were found to be effective. CNS personnel traveled to other facilities to observe methods of fire fighting to improve training. A fire protection training pad was completed during this assessment period to allow for onsite training on more realistic and difficult types of fires. Fire brigade members continued to attend the City of Omaha Fire Fighting School during this assessment period.

Three violations and one deviation were issued during this assessment period which were directly related to training and training records. In addition, one violation was issued for failure to provide a timely response to a violation related to training. These violations and deviations are indicative of a programmatic weakness and demonstrate a lack of management attention to training; however, the content of material presented during training and the quality of the presentations were found to be adequate.

The licensee has improved the engineering function during this appraisal period through improved programs and techniques. Much work remains before all needed engineering data and working relationships are established and functioning in an efficient manner; however, management commitment to continued improvement is evident.

2. Performance Rating

The licensee is considered to be in performance Category 2 in this area.

3. Recommendations

a. NRC Actions

NRC inspection effort in this area should be consistent with the Fundamental Inspection Program. Additional followup should be conducted in the areas of the design criteria reconstitution program and training.

b. Licensee Action

Efforts to improve and prioritize engineering evaluations in support of operability decisions should continue. The licensee should consider acquiring the services of a welding engineer. Previously identified weaknesses in the training programs should be resolved in a timely manner. Additional system engineers should be assigned to limit the number of systems assigned to each engineer.

G. Safety Assessment/Quality Verification

1. Analysis

The assessment of this functional area included all licensee review activities associated with the implementation of licensee safety policies; licensee activities related to amendment, exemption, and relief requests; response to generic letters, bulletins, and information notices, and resolution of TMI items and other regulatory initiatives. It also included activities related to the resolution of safety issues, 10 CFR 50.59 reviews, 10 CFR 21 assessments, safety committee and self-assessment activities, analyses of industry's operational experience, root cause analyses of plant events, use of feedback from plant QA/quality control (QC) reviews, and participation in self-improvement programs. It included the effectiveness of the licensee's quality verification function in identifying and correcting substandard or anomalous performance, in identifying precursors of potential problems, and in monitoring the overall performance of the plant.

This area has been inspected on a continuous basis by the NRC resident inspectors and on several occasions by NRC regional inspectors. Specific areas inspected included audit program, audit implementation, bulletin and information notice followup, and corrective action system.

Permanent plant staffing has increased from approximately 350 to greater than 400 during this assessment period. Quality Assurance staffing has remained at 12. Line management is visible onsite and involved in day-to-day issues. NPPD personnel have a strong work ethic and take pride in doing a good job. Corporate managers are usually involved in site activities; however, there still appears to be some communications problems between the site and the GO.

The licensee does not always respond to NRC concerns in a timely manner. For example, the resolution of SSFI findings and training violations were not timely. In general, site personnel appear to be more responsive to NRC concerns than do GO personnel.

During this assessment period four violations were identified in this functional area, including one Level III violation involving the undersized fitting installed on the diesel generator control air system. In addition, the licensee reported two LERs attributable to this functional area during the assessment period.

The Level III violation and other occurrences indicated a continued weakness in the NPPD corrective actions program. Root cause analyses are frequently ineffective; however, there has been some improvement noted involving the onsite engineering staff. The licensee provided root cause analysis training to all onsite engineers during this assessment period. A contributing factor to the weakness in the corrective action program is that it is difficult to retrieve much of the data that is available. In addition, there is no single individual who receives all applicable data for an individual component or system. There are over 200 nonconformance reports open at CNS awaiting completion of corrective action or verification of completion. A small staff also contributes to this problem.

During the assessment period, the licensee discovered that a large number of pipe supports did not conform with the requirements of the code of record for the plant. The issue was discovered when the licensee's consultant checked the structural adequacy of pipe supports in the vicinity of a piping modification that was being reviewed. Following the discovery of the under-designed pipe supports, further review identified that 1,157 other supports in 11 systems needed to be analyzed to determine their code acceptability. The licensee submitted a "Justification for Interim Operation" and undertook the review with the assistance of its consultant. It appeared that the licensee's management involvement with engineering aspects of this issue was limited and that NPPD was relying heavily on the engineering expertise of their consultant, with little control over the consultants efforts.

NRC inspectors observed several Station Operations Review Committee meetings during this assessment period. It was determined that the committee performed indepth reviews of safety concerns. An example of an indepth review was the reactor trip which occurred on January 25, 1989. The licensee demonstrated thoroughness and persistence in determining that a mainsteam isolation valve disc had separated from the valve stem, resulting in an almost undetectable pressure spike that caused the scram. The written evaluation demonstrated a prompt, thorough, and indepth evaluation of the events.

CNS does not have an independent safety engineering group (ISEG). The technical staff group that most closely parallels the activities of an ISEG was not effective. A yearly

review of industry events and reports is performed; however, implementation of recommendations was not evident. The 1987 review identified three recommendations; however, there was no followup of these recommendations in the 1988 review. In addition, this group reviewed nonconformance reports for adequacy of root cause determination; however, in some instances this review was performed by the same individual who performed the initial root cause determination.

The Safety Review and Audit Board (SRAB) lacks recent industry experience that has made it difficult to establish performance expectations for excellence that reflect current industry practice. NPPD needs to improve their ability to be self-critical and respond to identified problems.

QA audits have been effective in identifying many issues; however, the QA staff is small and in instances noted in other functional areas did not provide management with the insight needed to avoid problems.

QC was accomplished through a peer review process that appears to be effective under certain circumstances. Although peer review may work well when observing individual work activities, it does not appear to be as effective in specialized areas or where the quality activity may involve more that one organization. Peer review does not always provide the independence needed to assure that problems are highlighted for management attention.

2. Performance Rating

The licensee is considered to be in performance Category 3 in this area.

3. Recommendations

a. NRC Actions

NRC inspection effort in this area should be consistent with the Fundamental Inspection Program. Additional inspections should be conducted in the areas of corporate oversight, and review functions including QA, QC, and corrective actions.

b. Licensee Action

Licensee management should take actions to significantly improve performance in this functional area. Included in these actions should be:

- Improvement of the corrective actions program with emphasis on root cause determination.
- Improvement in communications between the site and the GO.
- Better control of consultants when they are used to address complex issues.
- Improvement in the review of industry events and implementation of lessons learned.
- Increased involvement of senior management in SRAB activities.
- More effective QA/QC function.

V. SUPPORTING DATA AND SUMMARIES

A. Enforcement Activity

The SALP Board reviewed the enforcement history for the period February 1, 1988, through April 15, 1989. The review included the deviations, violations, and emergency preparedness deficiencies tabulated by SALP category in Table I.

There were two enforcement conferences during this assessment period. The first conference held on June 20, 1988, involved the environmental qualification of 1) Kerite 600v cable, 2) Thomas and Betts STA-KON cable connectors, and 3) Scotch tape splices on Limitorque cables. The enforcement action resulted in a civil penalty in the amount of $150,000.

The second enforcement action involved the failure to take adequate corrective action following a January 17, 1989, diesel generator failure caused by a cracked fitting in the control air system. The diesel generator failed again on February 13 due to improper replacement of the failed fitting. An enforcement conference was held on March 23, 1989, and the enforcement action resulted in the assessment of a Severity Level III violation with no civil penalty.

B. Confirmation of Action Letters

A Confirmation of Action Letter was issued on March 2, 1989, relating to failure to log and report security events in accordance with 10 CFR 73.71.

C. 10 CFR Part 21 Reports Submitted by the Licensee

None.

TABLE 1

ENFORCEMENT ACTIVITY

FUNCTIONAL AREA	Weaknesses(1)	NO. OF VIOLATIONS IN SEVERITY LEVEL DEV	V	IV	III	N(2)	ENFORCEMENT ACTION NOT ISSUED
A. Plant Operations				2			
B. Radiological Controls		1	1	1			
C. Maintenance/Surveillance		1		6			
D. Emergency Preparedness	11		1				
E. Security				7			
F. Engineering/Technical Support		1	2	8		2	
G. Safety Assessment/Quality Verification				2	1	1	
TOTAL	11	3	4	26	1	3	

(1) Applies only to the emergency preparedness program
(2) Violations not cited - N