

SALP BOARD REPORT

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

NRC Inspection Report 50-482/88-14
Wolf Creek Nuclear Operating Corporation
Wolf Creek Generating Station
March 1, 1987, through March 31, 1988

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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. SALP is supplemental to normal regulatory processes used to ensure compliance with NRC rules and regulations. SALP is intended to be sufficiently diagnostic to provide a rational basis for allocating NRC resources and to provide meaningful guidance to the licensee's management to promote quality and safety of plant operation.

An NRC SALP Board, composed of the staff members listed below, met on May 17, 1988, to review the collection of performance observations and data, and to assess licensee performance in accordance with the guidance in NRC Manual Chapter 0516, "Systematic Assessment of Licensee Performance." A summary of the guidance and evaluation criteria is provided in Section II of this report.

This report is the SALP Board's assessment of the licensee's safety performance at Wolf Creek Generating Station for the period March 1, 1987, through March 31, 1988.

SALP Board for Wolf Creek Generating Station:

- L. J. Callan, Director, Division of Reactor Projects, Region IV (chairman)
- J. L. Milhoan, Director, Division of Reactor Safety, Region IV
- M. R. Knapp, Acting Director, Division of Reactor Safety and Safeguards, Region IV
- D. D. Chamberlain, Chief, Reactor Project Section A, Region IV
- B. L. Bartlett, Senior Resident Reactor Inspector, WCGS, Region IV
- P. W. O'Connor, Project Manager, Nuclear Reactor Regulation

The following personnel also participated in the SALP board meeting:

- J. M. Montgomery, Deputy Regional Administrator, Region IV
- A. B. Beach, Deputy Director, Division of Reactor Projects, Region IV
- J. P. Jaudon, Deputy Director, Division of Reactor Safety, Region IV
- R. E. Hall, Deputy Director, Division of Reactor Safety and Safeguards, Region IV
- J. B. Baird, Technical Assistant, Division of Reactor Projects, Region IV
- C. A. Hackney, Emergency Preparedness Analyst, Region IV
- J. L. Pellet, Chief, Operator Licensing Section
- R. J. Everett, Chief, Emergency Preparedness and Safeguards Programs Section, Region IV
- R. E. Baer, Chief, Facilities Radiological Protection Section, Region IV
- W. M. McNeill, Reactor Engineer, Materials and Quality Programs Section, Region IV

II. CRITERIA

Licensee performance was assessed in 11 selected functional areas. Functional areas normally represent areas significant to nuclear safety and the environment. Some functional areas may not be assessed because of

little or no licensee activities or lack of meaningful observations. Special areas may be added to highlight significant observations.

One or more of the following evaluation criteria were used to assess each functional area:

1. Management involvement and control in assuring quality.
2. Approach to the resolution of technical issues from a safety standpoint.
3. Responsiveness to NRC initiatives.
4. Enforcement history.
5. Operational events (including response to, analysis of, and corrective actions for).
6. Staffing (including management).

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

Based upon the SALP Board assessment, each functional area evaluated is classified into one of three performance categories. The definitions of these performance categories are:

Category 1. Reduced NRC attention may be appropriate. Licensee management attention and involvement are aggressive and oriented toward nuclear safety; licensee resources are ample and effectively used so that a high level of performance with respect to operational safety and construction quality is being achieved.

Category 2. NRC attention should be maintained at normal levels. Licensee management attention and involvement are evident and are concerned with nuclear safety; licensee resources are adequate and are reasonably effective so that satisfactory performance with respect to operational safety and construction quality is being achieved.

Category 3. Both NRC and licensee attention should be increased. Licensee management attention or involvement is acceptable and considers nuclear safety, but weaknesses are evident; licensee resources appear to be strained or not effectively used so that minimally satisfactory performance with respect to operational safety and construction quality is being achieved.

III. SUMMARY OF RESULTS

The SALP Board review revealed areas of strength in fire protection and security with an increase in performance from the previous SALP period. Performance in the areas of emergency preparedness and surveillance remained consistent with the previous SALP period. All other areas revealed a decline in performance or a declining trend from the previous SALP period. The overall decrease in performance is due, in part, to the failure of licensee management to maintain effective control of major outages.

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

<u>Functional</u>	<u>Previous Performance Category (02/1/86 to 02/28/87)</u>	<u>Present Performance Category (03/1/87 to 03/31/88)</u>
A. Plant Operations	2	2
B. Radiological Control	2	2
C. Maintenance	1	2
D. Surveillance	2	2
E. Fire Protection	2	1
F. Emergency Preparedness	2	2
G. Security	2	1
H. Outages	2	3
I. Quality Programs and Administrative Controls Affecting Quality	2	3
J. Licensing Activities	1	2
K. Training and Qualification Effectiveness	1	2

IV. PERFORMANCE ANALYSIS

A. Plant Operations

1. Analysis

The assessment of this area consists chiefly of the activities of the licensee's operational staff (e.g., licensed operators and nuclear station operators). It is intended to be limited to

operating activities such as: plant startup, power operation, plant shutdown, and system lineups. Thus, it includes activities such as reading and logging plant conditions, responding to off-normal conditions, manipulating the reactor and auxiliary controls, plant-wide housekeeping, and control room professionalism.

This area has been inspected on a continuing basis by the NRC resident inspectors and on several occasions by NRC regional inspectors. Specific areas inspected included operational safety verifications, safety system walkdowns, follow up on significant events/problems, and review of licensee event reports (LERs).

One violation was identified in this functional area and, while it indicated additional management controls were needed, corrective action was promptly initiated by the licensee. Also, one of the escalated enforcement violations listed in the outage functional area included three examples of problems relating to the operations functional area. Four LERs were issued by the licensee in this functional area. These four LERs had no major effect on plant safety. One of the LERs concerned the one violation that was identified in this area. The remaining three LERs were all personnel errors and were indicative of a failure to pay attention to detail.

Corrective actions initiated by licensee management included requiring the use of procedures in additional areas in operations. At the end of the SALP period the use of procedures in operations was much improved.

Operational events and NRC observations showed that operations interface with other departments is lacking. There has been an apparent failure of operations to make effective use of technical support groups. In some cases even when technical support groups became aware of problems and provided input to operations, the input was ignored or was lost. There are two examples. The first was when operations was not responsive to Nuclear Safety Engineering's information and advice concerning the essential service water (ESW) pipe-wall thinning issue. As a result, timely corrective action was needlessly delayed. The second was when engineering provided disposition to repair a section of thinwall safety-related pipe and the disposition was misplaced for approximately 3 months.

In general, operator performance, as observed by the NRC inspectors, has been good. Control room professionalism has been maintained and good operator morale exhibited. At times, however, the operators failed to pay attention to detail. Two examples of this are given below:

- The first example occurred when vital batteries were allowed to be depleted over a 30-hour time span without a procedure being available to provide alternate AC power to the battery chargers, and without bus voltage being observed carefully or without periodically observing current readings and comparing them to expected values.
- The second example was the uncontrolled use of operator aids. When ESF actuations occurred as a result of the degraded batteries, the operators relied on the uncontrolled aids in determining that certain manual isolation valves were shut. The valves were, in fact, open. When the valves had been opened, the uncontrolled aid had been forgotten. This resulted in the undesirable placing of lake water in each of the steam generators.

The licensee continues to give strong management support to the college degree program for operations personnel. The number of operators with engineering degrees or working toward degrees is considered to be a plus.

The number of operators with senior reactor operator licenses exceed the number of operators with reactor operator licenses by more than 2 to 1. This allows the licensee more versatility in the use of the operators, while at the same time giving operators additional training and mobility.

In general, the licensee maintains a 6-shift rotation of their operating crews. This allows for a better utilization of the crews, less overtime, and increased training.

2. Conclusions

The overall assessment of this area indicates that improvements need to be made. As stated in the previous SALP report, licensee attention to detail in this area can be improved. The use of procedures in operations was noted to improve; however, this occurred only after the situation had been allowed to deteriorate to an unacceptable level.

The examples of inattention to detail and the lack of effective operations interface with other departments reflects an ineffective management oversight in this functional area.

Staffing in this area is considered a strength, along with good control room professionalism during power operations.

The licensee is considered to be in Performance Category 2 in this area, with a declining trend.

3. Board Recommendations

a. Recommended NRC Actions

The level of NRC inspection in this functional area should be consistent with the basic inspection program. Supplemental inspections should be performed to focus on operations interface with other departments.

b. Recommended Licensee Actions

Licensee management should ensure that there is an adequate and prompt QA, NSE, and engineering involvement in operational events and in the technical resolution to safety issues.

B. Radiological Controls

1. Analysis

The assessment of this functional area includes the following areas of activity which are evaluated as separate subareas to arrive at a consensus rating for this functional area: (a) occupational radiation safety, which includes controls by licensees and contractors for occupational radiation protection, radioactive materials and contamination controls, radiological surveys and monitoring, and ALARA programs; (b) radioactive waste management, which includes processing and onsite storage of gaseous, liquid, and solid waste; (c) radiological effluent controls, which includes gaseous and liquid effluent controls and monitoring, offsite dose calculations and dose limits, radiological environmental monitoring, and the results of the NRC's confirmatory measurements program; (d) transportation of radioactive materials, which includes procurement and selection of packages, preparation for shipment, selection and control of shippers, delivery to carriers, receipt/acceptance of shipments by receiving facility, periodic maintenance of packagings and, for shipment of spent fuel, point of origin of safeguards activities; and (e) water chemistry controls, which includes primary and secondary systems affecting plant water chemistry, water chemistry control program and program implementation, chemistry facilities, equipment and procedures, and chemical analysis quality assurance.

Nine inspections were performed in the area of radiological controls during the assessment period by Region-based radiation specialist inspectors.

There were five violations and one deviation identified in this functional area.

a. Occupational Radiation Safety

The licensee's programs for occupational radiation protection, radioactive material and contamination controls, radiological surveys and monitoring, and ALARA programs were inspected four times during the assessment period. Two inspections were conducted during normal plant operations, one inspection during a scheduled refueling outage, and one special inspection after the release of radioactive material to the local county landfill.

The licensee's exposure for 1986 was 142 person-rem compared to the national PWR average of 392 person-rem. During 1987, the licensee's person-rem exposure was 124 compared to a national PWR of 376 person-rem.

The size of the radiation protection staff was adequate to support plant operations. A low personnel turnover rate within the radiation protection group was experienced during the assessment period. The licensee's approach concerning the resolution of technical issues indicated their understanding of issues was generally apparent. Acceptable resolutions were generally proposed in response to NRC initiatives.

Those violations identified in the radiation protection program were an indication of a lack of management involvement in assuring quality and worker training. The two concerns noted during the previous assessment period which included: (1) lack of steam generator mockup training and (2) lack of health physics supervisory personnel presence in the plant to oversee and evaluate ongoing radiation protection activities, had not been fully resolved.

The licensee had made changes in the position of radiation protection manager, an individual with limited experience and not qualified in accordance with Regulatory Guide 1.8 was appointed to the position. The licensee recently contracted a qualified individual to oversee and provide direction to the radiation protection program.

b. Radioactive Waste Management

The licensee's program involving processing and onsite storage of solid waste was inspected twice during the assessment period. One violation was identified. The licensee released radioactive material as trash which was found and recovered from the local county sanitary landfill. The licensee had reduced the volume of solidified waste generated by use of a portable

demineralizer skid for liquids and processing spent resins by dewatering methods. The licensee had identified key positions and defined their responsibilities.

c. Radiological Effluent Control and Monitoring

This area includes gaseous and liquid effluent controls and monitoring, offsite dose calculations and dose limits, radiological environmental monitoring, radiochemistry program, and radiochemistry confirmatory measurement results. Three inspections were conducted during the assessment period, together they encompassed the complete program area.

The licensee has established a program concerning the control and release of gaseous and liquid effluents. Liquid and gaseous effluent release permit procedures have been developed to assure that planned releases receive proper review and approval prior to releases. A review of gaseous and liquid releases indicates that offsite doses were well below Technical Specification limits. Three concerns were identified relating to: (1) liquid effluent monitor setpoints, (2) condensate storage tank analyses, and (3) radiation monitor calibration data.

The offsite radiological environmental monitoring program was inspected once during the assessment period. No violations were identified. The radiological environmental monitoring program is effectively managed from the licensee's corporate office and implemented by station personnel. The working relationship between the two groups has been excellent.

The radiochemistry and water chemistry program which included onsite confirmatory measurements with the NRC Region IV mobile laboratory was inspected once during the assessment period. No violations or deviations were identified. The results of the confirmatory measurements indicated 97 percent agreement, a slightly higher value from the previous assessment period.

d. Transportation of Radioactive Materials

This area was inspected twice during the assessment period in conjunction with the solid radioactive waste management program. Two violations were identified; one violation involved the lack of proper storage and control of quality assurance records of radioactive material shipments, and the second related to the lack of training provided to the health physics supervisor - radwaste. Corrective action

taken by the licensee has generally been timely and effective in this area.

Transportation activities at the site usually involve the support and guidance from the corporate offices. The licensee has established an adequate quality control/quality assurance program for low-level radioactive material shipments. Transportation activity records are complete.

e. Water Chemistry Controls

This area was inspected once during the assessment period. The inspection involved the initial use of prepared water chemistry standards for confirmatory measurement evaluations. The results of the water chemistry confirmatory measurements indicated 84 percent agreement between the licensee and the NRC's reference laboratory. These results are considered within expected industry performance levels. The inspection also identified four concerns involving instrument calibration and the quality control aspect of the water chemistry analysis program.

2. Conclusions

The licensee's overall performance indicated a decrease in effectiveness over the previous assessment period. Seven violations and one deviation were identified during this assessment period, as compared to no violations or deviations being identified during the previous assessment period. Inadequate management attention to NRC concerns is demonstrated by the lack of resolution to the concerns noted during the previous assessment period, which were: (1) lack of steam generator mockup training and (2) lack of health/physics supervisory personnel presence in the plant to oversee and evaluate ongoing radiation protection activities. Improvements were noted regarding the implementation of the ALARA program.

The licensee's personnel radiation exposure history has been better than (less than one half) the national average for PWRs.

No significant problems were identified in the functional areas of transportation of radioactive material, and radiological effluent control and monitoring. The licensee's program for these areas appeared adequate regarding management oversight, resolution of technical issues, training, procedures, and staffing.

The licensee is considered to be in Performance Category 2 in this area. However, during the SALP period, performance was

decreasing. Recent changes in management have not yet had time to be effective.

3. Board Recommendations

a. Recommended NRC Actions

The NRC inspection effort in this area should be consistent with the basic inspection program with increased emphasis on management involvement to assure quality.

b. Recommended Licensee Actions

Health physics supervisory personnel should spend more time in the radiologically controlled areas evaluating and observing ongoing radiation protection work activities to ensure compliance with station procedures. Management should take action to provide training to technicians to enhance procedural compliance.

C. Maintenance

1. Analysis

The assessment of this area includes all licensee and contractor activities associated with preventive or corrective maintenance of instrumentation and control equipment and mechanical and electrical systems.

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

There were two violations identified in this area. These violations involved the failure of the licensee to request a code exemption when required and three examples of a failure to follow procedures. There were 11 LERs issued by the licensee in this functional area. One LER was due to inadequate post-maintenance testing on a containment isolation valve, another LER was due to an accidental mispositioning of a breaker switch.

The escalated enforcement action that was taken due to the problems which occurred during the fall refueling outage revealed significant problems within the maintenance organization. These problems consisted of workers failing to follow procedures, inadequate procedures, inadequate control over special processes, and an overall breakdown of management oversight of maintenance activities during the refueling outage. One of the major causes for the problems which occurred this SALP period was workers failing to follow procedures.

Three of the findings in the escalated enforcement package were workers failing to follow procedures. These included issuance of the wrong weld rod material, use of the wrong weld rod material, and failure to check for an energized circuit. There have been multiple occurrences of Wolf Creek event reports written for failure to follow procedures. The failure to follow procedures was pervasive at the Wolf Creek site. This could only exist if it was allowed to slowly build up over a period of months or years. Licensee management was not effective in correcting the problem.

During the last quarter of the SALP period, the maintenance management organization underwent significant changes. Maintenance was combined with facilities and modifications to form maintenance and modifications. This change combines all maintenance activities under a single manager. The superintendent of maintenance transferred to the outage planning group and the manager of facilities modifications became the manager of maintenance and modifications. In addition, some lower level managers were transferred and some positions were eliminated. These changes appear to have significantly strengthened the maintenance area.

2. Conclusions

The NRC found evidence of upper management support for a strong maintenance program. However, the implementation of this program was not adequately carried out. Management oversight of the day-to-day activities in the area of maintenance declined significantly during the assessment period. Several examples of the results of this decline were identified. Towards the end of the SALP period, major management changes were implemented. These changes appear to have significantly strengthened management oversight of maintenance activities.

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

3. Board Recommendations

a. Recommended NRC Actions

The NRC inspection effort in this area should be consistent with the basic inspection program. The resident inspectors should increase their inspection activities in this area.

b. Recommended Licensee Actions

The licensee should follow through and assess the effectiveness of their corrective actions. The licensee

should continue the increased emphasis on procedural compliance.

D. Surveillance

1. Analysis

The assessment of this functional area includes all surveillance testing and inservice inspections and testing activities. Examples of activities included are: instrument calibrations, equipment operability tests, special tests, inservice inspection and performance tests of pumps and valves, and all other inservice inspection activities.

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

The enforcement history in this functional area identified two violations during this assessment period. Also, several LERs were issued by the licensee during this assessment period. Personnel errors and inadequate procedures were the predominant causes of the violations and reportable events during this assessment period. This resulted in examples of missed surveillances, late performance of surveillances, inadequate post-test review, and undesirable engineered safety feature actuations which are similar to problems which occurred during the previous SALP period.

During the previous SALP period, the licensee was rated a SALP Category 2 in this functional area with a decreasing trend. Although the enforcement and reporting history indicate improvement, as noted above, similar procedural and personnel errors are being repeated during this SALP period.

2. Conclusions

The overall assessment for this functional area indicates a program for scheduling and tracking of surveillance activities that appears adequate. Procedures in some cases did not address all Technical Specification surveillance requirements adequately. The repeat procedural and personnel errors indicate that additional management involvement is needed.

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

3. Board Recommendations

a. Recommended NRC Actions

The level of NRC inspection in this functional area should be consistent with the basic inspection program.

b. Recommended Licensee Actions

The licensee is encouraged to perform an indepth review of the Technical Specification surveillance requirements and ensure that the surveillance procedures address these requirements. Also, additional management involvement with surveillance activities is encouraged.

E. Fire Protection

1. Analysis

The assessment of this area includes routine housekeeping (combustibles, etc.) and fire protection/prevention program activities. Thus, it includes the storage of combustible material; fire brigade staffing and training; fire suppression system maintenance and operation; and those fire protection features provided for structures, systems, and components important to safe shutdown.

This area was inspected by a Region-based inspector and on a continuing basis by the NRC resident inspectors. During this assessment period the fire protection group went through some organizational changes. One change was the transfer of the fire protection training duties from the supervision of the fire protection engineer to the training department. The other change was the transfer of the fire protection group from the plant support organization to the operations organization.

The following observations were made:

- . The licensee has made significant improvement in the area of administrative controls for fire barrier penetrations and openings. Especially significant has been the reduction of missed fire watch patrols.
- . Control of transient combustibles has been effective. However, housekeeping could be improved in the area where trash is being deposited in other than approved containers (example: openings in tube steel).
- . Fire brigade/watch training continued to be outstanding. The transfer of the fire training group to the training department has shown no adverse effects.

The licensee instituted a program to identify all fire barrier penetration seals that were either never sealed or removed and not resealed. This was an extensive program which the licensee aggressively pursued and completed.

2. Conclusions

The licensee has shown significant improvement in their fire protection/prevention program. Management involvement, both in the program as well as training, was evident. The major reason for the improvement in this area has been the continuing dedication and hard work of the well qualified fire protection engineer and training instructor.

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

3. Board Recommendations

a. Recommended NRC Actions

The level of NRC inspection in this functional area should be consistent with the minimum inspection program.

b. Recommended Licensee Actions

The licensee should assure that the recent organizational changes that have the fire protection engineer reporting to a different group and at a lower management level does not result in a reduction of management support.

F. Emergency Preparedness

1. Analysis

The assessment of this area includes the licensee's preparation for radiological emergencies and response to simulated emergencies (exercises). Thus, it includes emergency plan and implementing procedures; emergency facilities, equipment, instrumentation, and supplies; organization and management control; training; independent reviews/audits; and the licensee's ability to implement the emergency plan.

During the assessment period, four emergency preparedness inspections were conducted by Region-based and NRC contractor inspectors. One of these inspections was the observation and evaluation of an annual emergency response exercise by a team of NRC and contractor inspectors. During the exercise, four deficiencies from a previous exercise were closed and one new deficiency was identified. The deficiency identified during the exercise involved incorrect classification of the emergency as

an unusual event rather than an alert. The licensee's overall performance during the exercise was evaluated as good. The NRC staff concluded that licensee emergency response personnel demonstrated their ability to protect the health and safety of the public.

Three routine inspections resulted in identification of three violations. One violation involved failure to document required communication tests of the emergency response facilities. The other two violations, one of which was a repeat violation, involved failure to determine availability of required emergency preparedness personnel in the event of an accident. Training was identified during the previous SALP period report as an area needing management attention. The licensee has developed lesson plans, revised training requirements, and implemented a more efficient record management system.

The 1987 SALP report stated, "However, several changes were made to the onsite emergency planning administrator (EPA) position, and the replacement EPAs have had little previous experience in this area." Due to attrition, new inexperienced personnel have been assigned the onsite emergency planning and preparedness responsibilities. Discussions held with onsite management revealed a difference of opinion as to what the functions of the onsite emergency preparedness coordinator were and would be in the future. The offsite emergency preparedness administrator is located in Wichita, Kansas. The licensee has recently added another level of supervision above the EPA, removing the EPA further away from plant management. (This reorganization presently is awaiting NRR approval.) The emergency preparedness program appears to be in a transition phase with the shift in lead responsibility for emergency program to the corporate office.

2. Conclusions

The violations issued in shift staffing and augmentation indicate that the personnel notification method and procedure requires additional improvement. Management attention should be devoted to meeting regulatory requirements and licensee commitments.

Licensee management attention and involvement are evident; licensee resources are adequate and reasonably effective so that satisfactory performance with respect to operational safety and construction quality is being achieved.

The inspection findings for this evaluation period indicate, overall, that the licensee's emergency preparedness program is adequate to protect the health and safety of the public.

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

3. Board Recommendations

a. Recommended NRC Actions

NRC attention should be maintained at normal levels. Attention should be directed to licensee action taken toward correcting the call-out drill response and shift augmentation response times.

b. Recommended Licensee Actions

The level of management attention to the implementation of the emergency preparedness program should be increased to ensure proper response to NRC identified concerns relating to call-out drill response and shift augmentation response times. The licensee should expedite correction of the call-out drill response and shift augmentation concern. Management should review the distribution of onsite and offsite emergency program areas of authority and responsibilities.

G. Security

1. Analysis

The category of security relates to all activities whose purpose it is to ensure the protection of the plant. Specifically, it covers all aspects of the security program including ancillary efforts such as fitness for duty and access authorization programs. Examples are: the licensee's overall management involvement in establishing protective policies; designing physical security systems; submitting the security plan and implementing associated procedures; selecting, training, equipping, and supervising personnel; maintaining the hardware that supports the program; and auditing and measuring the performance of the security program.

This area was inspected on a continuing basis by the NRC resident inspectors and on a periodic basis by the NRC Region-based inspectors. Four inspections were conducted by Region-based NRC physical security inspectors during the assessment period. Four violations were identified, two by the licensee.

There was evidence of prior planning and assignment of priorities. Policies and procedures are well stated, appropriately disseminated, and understandable. Decisionmaking was usually at a level that ensured adequate management review. The new corporate structure, which includes a repositioning of the Quality Assurance Department, is committed to continuing an independent and effective oversight of security-related matters. Management reviews of identified security matters were timely, thorough, and technically sound. The initial review of security incidents has improved and further examination for generic significance has been enhanced. Records were generally complete, well maintained, and available. Rarely were procedures and policies violated. However, some cases of personnel failure have occurred and these appear to be associated with temporary employee hiring practices. Corrective action on licensee identified violations was generally effective.

A clear understanding of security issues was demonstrated and subsequent decisions reflected reasonable and prudent judgement on the part of management. These kinds of judgements were also demonstrated in the Training and Human Relations Departments where security's ancillary efforts, such as fitness for duty, continual observation of employee's behavior, and the access authorization programs were managed.

There has been a major organizational restructuring of the Quality Assurance (QA) Department. The changes have been too recent to evaluate their impact on the heretofore strong security oversight effort. There is some concern that these changes will not provide the level of audit expertise previously provided. A review of these changes and the quality of the audits performed will be necessary in the future.

The licensee has been usually responsive to NRC initiatives, but there continues to be two long standing regulatory issues attributable to the licensee. These are control room access and alarm assessment capability. Technically sound and acceptable resolutions were proposed initially in most cases, but timeliness of resolution for these outstanding issues is slow. After considerable discussion, the licensee agreed that their CCTV system had degraded and proposed proper corrective actions.

One major violation concerning security personnel attentiveness was directly attributable to a member of the security organization. It was promptly and effectively corrected. A few minor procedural mistakes by security personnel have occurred, but were not repetitive. These mistakes appear to be indicative of a need to enhance the selection process for temporary security personnel and to be persistent in programmatic training.

Occasional computer outage related events, construction/outage worker misunderstandings of security requirements, and maintenance related activities were attributable causes to violations. These events were identified and reported in a timely manner.

Security organization positions were clearly identified. Authority and responsibility was clearly defined. This included the relationship with the rest of the corporate organization. A new squad manning structure has allowed for training and practice in squad response tactics. Temporary contract personnel, while not meeting anticipated standards, have been utilized to staff appropriate watchperson billets. However, the employment practices used for these temporary watchpersons, combined with their lower experience levels and abbreviated training, appear to have had some adverse impact on the security operation. It did accomplish the overall goal of providing relief for the more experienced officers and to make them available for more critical tasks.

2. Conclusions

The licensee appears to have an ample number of supervisors, fully qualified security officers, and support personnel assigned to the security department to comply with the several security plans. With the exception of a few minor procedural errors, the security force had operated at a high level of performance. The licensee management's attention and involvement with nuclear security is evident. Licensee resources were appropriate and effective so that there was very good performance with respect to site physical and personnel security.

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

3. Board Recommendations

a. Recommended NRC Actions

The NRC inspection level of the security program should be consistent with the minimum inspection program, with some exceptions. Exceptions where a more expanded inspection effort is recommended include: licensee measures to enhance and maintain physical security systems; methods for selecting, training, equipping, posting and supervising security personnel; and changes to the QA function where audits are performed to measure the performance of the security program and its ancillary efforts.

b. Recommended Licensee Actions

The licensee should continue to probe the causative factors of security events for broader implications and adjust programs, training, disciplinary actions, maintenance, and engineering responses appropriately. The organizational adjustments made in the QA area should be closely monitored to ensure that the high quality of the security oversight program continues.

H. Outage

1. Analysis

The assessment of this area includes all licensee and contractor activities associated with major outages. It includes refueling, outage management, major plant modifications, repairs or restoration to major components and all post-outage startup testing of systems prior to return to service.

This area was inspected on a continuing basis by the NRC resident inspectors, and periodically by NRC regional inspectors. In addition, an inspection was performed by a safety system outage modification inspection (SSOMI) team. The inspections included refueling activities, outage management, planning and scheduling, staffing, major components/systems repairs and modification, and startup testing.

The licensee had two major outages during this SALP period. There was a refueling outage which lasted approximately 101 days and an outage to replace leaking reactor vessel O-rings which lasted approximately 16 days. Refueling outage activities included replacement of Raychem splices, replacement of eroded essential service water pipe, annual inspection of the diesel generators, removal of heaters from Limitorque valve operators, replacement of reactor coolant pump "B" number one seal, replacement of the trip mechanism shafts on the reactor trip breakers, replacement of the tube bundle in the jacket water heat exchanger for diesel generator "A", rework of Valcor valve operators, cleaning of condenser tubes and inspections for thin wall pipes. There were numerous significant operational events which were attributable to causes under the licensee's control in this functional area.

There were four violations identified in this functional area. Two of the violations involved escalated enforcement action and a proposed imposition of Civil Penalty. There were two LERs issued by the licensee in this functional area. The two LERs were on events that resulted in violations being issued.

The two violations that resulted in escalated enforcement involved examples of procedural control weaknesses that the NRC considered significant. These weaknesses indicate management failed to provide an appropriate level of management oversight of safety-related activities. This is evidenced by the examples cited below as well as other areas in this report. Management oversight of outage activities was less than adequate as pointed out by the six examples of failure to follow procedures and four examples of inadequate procedures listed in the escalated enforcement package. The NRC staff was concerned with the licensee's lack of indepth analysis of these events. The licensee's ability to perform root cause analysis and implement timely and appropriate corrective actions was a noted weakness.

During repair efforts on thin wall pipe due to erosion/corrosion the licensee experienced some difficulty. The licensee had on site a contractor workforce knowledgeable and experienced in the forming, fitting, rigging, and aligning of heavy pipe. The licensee decided to repair the thin wall pipe with their permanent maintenance workforce. The maintenance workforce was not as experienced in this area as the contractor workforce. This resulted in significant problems due to failure to follow procedures, failure to follow work instructions, and failure to accomplish work activities by appropriately qualified personnel. Maintenance management failed to realize the scope of work was beyond their expertise.

The licensee was generally responsive to NRC concerns, however, there was a lack of aggressive response to identified problems prior to NRC involvement. The licensee's investigation of outage related events indicated a less than aggressive approach to the resolution of technical issues. The O-ring outage, which was the second major outage of the year, indicated that the licensee failed to control the O-ring cleanliness. The licensee decided to restart the plant after the first outage with known inner O-ring leakage.

2. Conclusions

The licensee's ability to plan, manage, and maintain control over complex outage evolutions was inadequate and resulted in escalated enforcement action. The licensee apparently failed to believe in and enforce strict procedural compliance. Aggressive management involvement to address problems that occurred during the outage was lacking.

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

3. Board Recommendations

a. Recommended NRC Actions

Supplemental NRC inspections should be performed prior to and during the next major outage.

b. Recommended Licensee Actions

The licensee should ensure that lessons learned from the previous outages are identified and reviewed for program improvements. The results of this review should be incorporated into outage planning and control.

I. Quality Programs and Administrative Controls Affecting Quality

1. Analysis

The assessment of this area includes all management control, verification and oversight activities which affect or assure the quality of plant activities, structures, systems, and components. This area may be viewed as a comprehensive management system for controlling the quality of verification activities that confirm that the work was performed correctly. The evaluation of the effectiveness of the quality assurance system is based on the results of management actions to ensure that necessary people, procedures, facilities, and materials are provided and used during the operation of the nuclear power plant. Principal emphasis is given to evaluation of the effectiveness and involvement of management in establishing and assuring the effective implementation of the quality assurance program along with evaluation of the history of licensee performance in the key areas of: committee activities, design and procurement control, control of design change processes, inspections, audits, corrective action systems, and records.

In order to more clearly define the specific strengths and weaknesses noted in this functional area, the analysis is divided into three areas, as discussed below:

a. Engineering

This area has been inspected on a routine basis by the NRC resident inspectors and by a SSOMI team inspection during the assessment period.

The staffing in the engineering area is generally adequate in terms of numbers, but it is weak in experience and training. Further, the weaknesses identified by the SSOMI inspection are indications that the communications between the plant operating staff and the engineering organizations

were poor. In one case, engineering made a change to the cooling system for an electrical equipment room, which required manual adjustment of a flow control valve to adjust the temperature. Since the temperature in this room was required to be maintained within a relatively narrow range, a surveillance program to verify the temperature should have been instituted but was not. As a consequence, the qualified life or performance of the equipment may have been affected.

In another instance, it appeared that the operating staff failed to ask for engineering guidance when performing a maintenance activity that resulted in a deep discharge of the safety-related station batteries and disablement of the vital AC buses at the same time. This in turn led to the introduction of lake water into the secondary side of the steam generators.

The SSOMI report includes a concern that appears to be largely attributable to engineering since it involved a failure to properly evaluate the effect of a temporary modification. The modification involved application of a clamp to keep a safety-related damper in the control room emergency ventilation system open. Had actuation of the damper been required, an operator would have had to remove the clamp. The application of the clamp in such a manner violated the intent of the Technical Specification for system operability. There were also three LERs that were at least in part attributable to engineering activities. In each case, the LERs became necessary because there were errors in design documents such as drawings, specifications, and instrument set-point data.

b. Quality Assurance

This area has been inspected by both the NRC resident inspectors and regional inspectors. In addition, the SSOMI team inspected the areas of procurement, material storage, and audit activities.

There were two violations in the areas of procurement and of material receipt. Additionally, some of the problems in the management of the outage were related to QA.

The licensee had received, accepted, and installed a noncode part which formed a portion of the reactor coolant system boundary. An audit after the plant restarted disclosed this, and subsequent waiver to the code was granted.

The reactor vessel head O-ring seals were not correctly inspected prior to installation. Although this was not the major contributor to the O-ring leak, it showed a tendency for quality performance to be at pro forma level.

During the outage, there were problems with the weld repairs to the essential service water systems. These problems included the issue of inappropriate welding materials and welders making welds for which they were not qualified. These problems were uncovered by quality checks, but the investigation revealed that QA had missed several opportunities to identify the problems earlier.

The licensee's vendor audit program did identify a problem with the certification of fuses purchased from a supplier. The licensee reported the facts to the NRC. Follow up action by the NRC resulted in the issue of an Information Notice.

The licensee had not conducted training in root cause determination. Corrective actions tended to be focused on specific events and did not often probe for the underlying causes. For example, when a four-way valve on the MSIV actuator failed, the original root cause determination was not correct. The redesigned valve subsequently failed. When incorrect fasteners were found in the charging pump check valve, they were replaced. No determination was made as to whether the problem was the fault of the fastener or the valve manufacturer.

c. Management and Administrative Controls

This area has been inspected on a routine basis by NRC resident inspectors and regional inspectors.

During this SALP period, the licensee realized the existence of problems with safety-related pipe wall thinning. NRC had two basic concerns with this issue. The first concern was that the short term operability determination of the thin wall pipe was not technically sound in that it was made by plant management without input from engineering. Management did not reassess system operability even after engineering made the determination that the pipe did not meet code requirements. Plant management communications with engineering was not adequate. The second concern was with long term corrective actions. Plant management's narrow focus on the issue of short-term operability showed that their understanding of the issue was lacking. The question of generic application of one thin wall pipe to other areas in the plant was not addressed in a timely manner. It was not until these

issues were raised by Nuclear Safety Engineering and the Nuclear Safety Review Committee that appropriate corrective actions were begun. The operational response to this problem was not timely and lacked thoroughness. The above is one example of a lack of management involvement in assuring quality. Other examples have been cited in other SALP areas.

The enforcement history in the area includes seven violations and no deviations. Four violations were related to the environmental qualification of equipment. Ten LERs were issued by the licensee in this area. Eight of these LERs were related to control room ventilation isolation system (CRVIS) actuations. Six of these were due to problems with the chlorine monitors. The licensee has made great strides in reducing the number of reportable events due to CRVIS actuations; however, the reliability of the chlorine monitors is still low. The improvement effort in this area has been protracted. This has resulted in the control room operators no longer trusting their chlorine monitors.

2. Conclusions

The assessment of this functional area indicates that management has not been effective in timely resolution of important issues. Corporate management oversight of plant activities does not always ensure adequate involvement of the quality and engineering organizations in plant operations. When problems are identified by the quality and engineering organizations they are not always acted upon in a timely manner.

The licensee is considered to be in Performance Category 3 for an overall rating of the SALP area of quality programs and administrative controls affecting quality.

3. Board Recommendations

a. Recommended NRC Actions

Supplemental inspection effort should be devoted to this area.

b. Recommended Licensee Actions

Increased corporate management involvement in site activities is recommended. In particular, additional corporate management involvement is needed to ensure that proper engineering and QA involvement is maintained in all activities.

J. Licensing Activities

1. Analysis

During the present rating period, the licensee's management participated effectively in assuring the quality of submittals for licensing actions and in responses to NRC staff requests. The licensee's reviews were generally timely, thorough, and technically sound. The licensee's participation was evident in the ATWS Rule (10 CFR 50.62) submittal which demonstrated that the licensee appeared to adequately understand staff policies and be able to make decisions based on adequate management involvement. The licensee's submittal contained all of the information that the staff requested for its review. An appropriate level of management was present and significantly involved at the review meeting held with the licensee, and the licensee's technical presentations were technically sound.

The licensee management was involved and responsive during the staff's review of WCNOG's request to remove the fire protection program from the Technical Specifications. This licensing action was the lead cause for generic technical specification improvements and involved rapidly evolving staff requirements. Because WCNOG involved its management in this review, they were able to respond promptly to staff concerns to bring the review to completion.

The WCNOG management has generally exhibited an adequate understanding of the approach needed to resolve complex technical issues involved in licensing activities. WCNOG's June 16, 1987, submittal supporting analysis related to relaxed outage time and increased surveillance intervals demonstrated a clear understanding of the licensing issues involved and followed the staff's guidance exactly as provided in the related generic documentation.

The quality and level of detail of the licensee's safety evaluation summaries submitted pursuant to 10 CFR 50.59(b)(2) are not always adequate to permit the staff to conclude their acceptability. In some cases these summaries only provide a brief description of the change followed by a conclusive statement that the change does not generate an unreviewed safety or environmental question; they do not provide a summary of the WCNOG safety evaluation that was prepared to support the change.

In review of WCNOG's submittal related to their inservice testing program for pumps and valves, the staff met with the licensee on September 8 and 9. During the meetings the licensee agreed to revise their IST program in specific areas. However, WCNOG did not make a number of revisions in their March 2, 1987, Revision 6 resubmittal, as agreed to in the earlier meeting.

The failure to follow up on the agreed upon technical resolution delayed the completion of the licensing action on the inservice testing program.

The licensee had been generally responsive to NRC initiative during this rating period, with few longstanding regulatory issues being attributable to the licensee.

On occasion, the licensee's response had not been adequate to permit the staff to resolve the technical issue without the need for additional interaction with the licensee. The staff's review of WCNO's submittal related to the main steam line break outside of containment issue required multiple requests for additional information, and the licensee's responses to these requests were not expeditious.

The licensee reported 53 nonsecurity events to the NRC operations center pursuant to 10 CFR 50.72. These events were almost always reported in a timely manner.

The licensee also submitted 49 nonsecurity Licensee Event Reports (LERs) during the reporting period. The LERs were well written and almost always timely.

There have been 8 LERs during this reporting period that have been caused by malfunctions or spurious actuations of the chlorine monitors. These LERs follow up on 18 previous LERs that have occurred since Wolf Creek was initially licensed. This continuing series of LERs is indicative of a failure to identify the root cause of these failures and an ineffectual corrective action program for the chlorine monitor problems.

The plant has experienced seven unplanned scrams during this rating period. All of the scrams occurred during Cycle 2 which ended in September 1987. There were three Safety System Actuations, no Significant Events and five Safety System Failures during this rating period.

2. Conclusion

The licensee continues to maintain a competent, knowledgeable licensing staff; however, during this rating period there were occasional instances of lack of timely response to staff requests and a decline in content of summaries of safety evaluations submitted by the licensee in response to 10 CFR 50.59. The licensee is considered to be in Performance Category 2 in this area.

3. Board Recommendation

a. Recommended NRC Actions

None

b. Recommended Licensee Actions

The licensee should improve the quality of the safety evaluation summaries submitted pursuant to 10 CFR 50.59 and should improve the content of licensing submittals to preclude the need for staff requests for additional information that could have been foreseen by the licensee.

K. Training and Qualification Effectiveness

1. Analysis

The assessment of this functional area includes all activities relating to the effectiveness of the training/retraining and qualifications program conducted by the licensee's staff. This area was inspected on a continuing basis by the resident inspectors. This area was also the subject of an inspection which was performed during the appraisal period to look into the training of both the licensed and nonlicensed staff. During the appraisal period, licensing examinations were administered by the NRC to seven (7) reactor operator (RO) candidates and to seven (7) senior reactor operator candidates. Five (5) of the RO candidates and six (6) of the SRO candidates passed the examinations and were subsequently issued licenses. The licensee currently has 36 individuals who hold an SRO license and 15 individuals who have an RO license. During the administration of the above examinations, the examiners found that the trainees had been adequately informed of the significant events that had occurred during the week of October 18, 1987. The trainees had also been schooled on the lessons learned from these events.

The inspections in the operator requalification training area indicate that the management oversight in this area has not been sufficiently thorough. This is evidenced by:

- ° The section of the procedure (ADM 06-224) on licensed operator requalification training which relaxed a requirement of 10 CFR 55 without Commission approval.
- ° An operator who had failed the annual requalification examination and was therefore required to enter into an accelerated requalification program was allowed to continue to stand watch and perform watch standing duties prior to his completion of the accelerated training.

- ° The required reactivity manipulations had not been completed in the 1985-1986 requalification cycle for at least six licensed individuals. The correction of this problem had not been formally addressed, but an informal effort by the simulator instructors is to track the performance of the manipulations by each licensed individual.
- ° During 1986, at least nine licensed individuals had failed to review all of the emergency and off-normal procedures as required by the requalification program. The licensee revised the appropriate procedure to specify the off-normal and emergency procedures to be reviewed. The procedures requested after the revision were also incomplete and the procedure had to be further revised at the prompting of the NRC inspector.
- ° The licensee had not provided procedures for implementing the 10 CFR 55 rule change issued by the NRC on May 27, 1987.

The above examples are indicators that the training department arrangement had not provided the attention to detail necessary to assure adequate oversight of this area.

There has also been evidence of inattention to detail on the part of the training staff. Examples of this are:

- ° minor uncorrected errors in the lesson plans that were reviewed;
- ° failure to have lectures scheduled for 10 CFR Parts 2, 21, 50, and 55 in the operator requalification program;
- ° failure to revise a procedure to reflect a new requirement instituted by a rule change; and
- ° failure to delete a procedure requirement which was dropped by a rule change.

No deficiencies were identified in the area of training of the nonlicensed staff. The procedures and policies in this area were adequately stated and understood. Training records in this area were generally complete and well maintained.

2. Conclusions

The initial training of licensed operators and the training of the nonlicensed staff is effectively controlled and the licensee's performance in licensing examinations has been good. The area of requalification training for licensed operators has

suffered from an apparent lack of management oversight and inattention to detail on the part of the training staff. The licensee is considered to be in Performance Category 2 in this area.

3. Board Recommendations

a. Recommended NRC Actions

The NRC inspection effort in this area should continue at the level prescribed by the basic inspection program.

b. Recommended Licensee Action

The licensee should further emphasize the need for oversight of operator requalification training and the need for the training staff to be more attentive to details in the performance of their activities. Licensee management should continue their oversight and support of the training of the nonlicensed staff.

V. Supporting Data and Summaries

A. Licensee Activities

Major Outages

The unit was shut down on April 19, 1987. The cause was an inadvertent trip due to control rod logic card failures. The outage duration was 13.1 hours.

The unit was shut down on April 23, 1987. The cause was an inadvertent trip due to control rod logic card failures. The outage duration was 33 hours.

The unit was shut down on May 28, 1987. The cause was an inadvertent trip due to a loss of power to the main turbine electro-hydraulic control system. The outage duration was 22.3 hours.

The unit was shut down on June 29, 1987. The cause was an inadvertent trip due to a loss of a main feedwater pump. The outage duration was 38 hours.

The unit was shut down from July 20, 1987, to July 26, 1987. The cause was an inadvertent trip due to a loss of a main feedwater pump. The outage was extended to repair a containment cooling fan. The outage duration was 129.3 hours.

The unit was shut down on September 10, 1987. The cause was an inadvertent trip due to a failure of a main transmission line. The outage duration was 33.7 hours.

The unit was shut down on September 27, 1987. The cause was an inadvertent trip due to a mispositioned rod control switch. The licensee decided to remain down and enter refueling outage II early. The outage duration due to the inadvertent trip was 93.5 hours. The refueling outage duration was 2,418.7 hours.

The unit was shut down on January 21, 1988. The cause was a manual shutdown to replace failed reactor vessel O-rings. The outage duration was 379.2 hours. During startup following this outage, two turbine trips without reactor trips occurred. The duration of each of these two outages was 9.5 hours.

B. Inspection Activities

NRC inspection activity during this SALP evaluation period included 49 inspections performed with 6031 direct inspection manhours expended. These inspections included team inspections of the equipment qualification program and a SSOMI. This inspection effort represents an approximate 50 percent increase over the previous SALP period.

Table 1 provides a tabulation of NRC enforcement activity for each functional area evaluated. Table 2 provides a listing of inspection findings in each SALP category.

C. Investigations and Allegations Review

There was one investigative activity conducted during this assessment period. The results have not been formally issued yet.

D. Escalated Enforcement Actions

1. Civil Penalties

A Notice of Violation and Proposed Imposition of Civil Penalty was issued on March 17, 1988. A \$100,000 civil penalty was proposed for two Severity III violations involving a failure to follow procedure and a failure to have appropriate procedures.

2. Enforcement Orders

None

E. Management Conferences Held During Assessment Period1. Conferences

A management meeting was held on October 21, 1987, to discuss the events which occurred during the refueling outage. An enforcement conference was held on January 11, 1988, to discuss violations which had occurred during the refueling outage.

2. Confirmation of Action Letters

None

F. Review of Licensee Event Reports and 10 CFR Part 21 Reports Submitted By the Licensee1. Licensee Event Reports

The SALP Board reviewed the LERs for the period March 1, 1987, through March 31, 1988. This review included the LERs listed by SALP category in Table 3.

2. Part 21 Reports

There were no 10 CFR Part 21 reports submitted by the licensee during this SALP assessment period.

Table 1

Enforcement Activity

FUNCTIONAL AREAS	DEFICIENCIES/DEVIATIONS	NUMBER OF VIOLATIONS IN EACH LEVEL		
		V	IV	III
A. Plant Operations			1	
B. Radiological Controls	0/1	1	4	
C. Maintenance			2	
D. Surveillance			2	
E. Fire Protection			1	
F. Emergency Preparedness	1/0	2	1	
G. Security			4	
H. Outages		1	1	2
I. Quality Programs and Administrative Controls Affecting Quality		1	9	
J. Licensing Activities				
K. Training and Qualification Effectiveness		2		
Total	1/1	7	25	2

Table 2

ENFORCEMENT ACTIVITY

TABULATION OF VIOLATIONS, DEVIATIONS, AND
EMERGENCY PREPAREDNESS DEFICIENCIES
by
PERFORMANCE CATEGORY

A. Plant Operations

Violations

- . Failure to enter Technical Specification 3.0.3 when both trains of CRVIS were inoperable. (Severity Level IV, 8720-01)

Deviations

- . None

B. Radiological Controls

Violations

- . Failure to properly control, store and protect quality records. (Severity Level V, 8708-01)
- . Radiation Protection Manager not fully qualified. (Severity Level IV, 8712-01)
- . Failure to properly evaluate radiological surveys of two contaminated persons. (Severity Level IV, 8728-01)
- . Unauthorized disposal of contaminated material. (Severity Level IV, 8736-01)
- . Failure to lock high radiation door. (Severity Level IV, 8809-01)

Deviations

- . Repeated failure to implement a continuous airborne monitoring program. (8712-02)

C. Maintenance

Violations

- . Failure to comply with TS 4.0.5 by not obtaining a relief request from NRC. (Severity Level IV, 8715-01)
- . Three examples of failure to follow procedure. (Severity Level IV, 8807-38)

Deviations

- . None

D. SurveillanceViolations

- . Failure to demonstrate automatic isolation of the containment purge pathway. (Severity Level IV, 8715-02)
- . Failure to alternate starting locations for the motor driven fire pump. (Severity Level IV, 8722-01)

Deviations

- . None

E. Fire ProtectionViolations

- . Fire door inoperable by being blocked open. (Severity Level IV, 8706-01)
- .

Deviations

- . None

F. Emergency PreparednessViolations

- . Failure to document a communication test. (Severity Level V, 8714-01)
- . During an unannounced call-out drill, the communicators could not be reached. (Severity Level IV, 8714-02)
- . Repeat violation of a failure to meet call-out time limits. (Severity Level V, 8812-01)

Deviations

- . None

Deficiencies

- . During an emergency plan exercise, an incorrect classification was made. (8721-01)

G. SecurityViolations

- . Failure to follow compensatory procedures. (Severity Level IV, 8716-01)
- . Inadequate compensatory measures. (Severity Level IV, 8723-01)
- . Failure to maintain assessment aids. (Severity Level IV, 8734-01)
- . Failure to maintain control of security badge. (Severity Level IV, 8805-01)

Deviations

- . None

H. OutagesViolations

- . Six examples of failure to follow procedures. (Severity Level III, 8731-A)
- . Four examples of failure to have appropriate procedures. (Severity Level III, 8731-B)
- . Two examples of inadequate procedures. (Severity Level IV, 8806-01)
- . Failure to make inservice test log entries. (Severity Level V, 8811-02)

Deviations

- . None

I. Quality ProgramsViolations

- . Failure to have qualified electrical splices. (Severity Level IV, 8724-01)

- . Connection boxes mounted below post-accident containment water level. (Severity Level IV, 8724-02)
- . Space heaters operating in motor operated valves. (Severity Level IV, 8724-03)
- . Use of unqualified terminal blocks. (Severity Level IV, 8724-04)
- . Failure to evaluate temporary modification. (Severity Level V, 8801-01)
- . Inadequate acceptance criteria for reactor vessel O-rings. (Severity Level IV, 8804-01)
- . Purchase order failed to specify code requirements. (Severity Level IV, 8815-01)
- . Purchase request did not document Spec levels. (Severity Level IV, 8815-02)
- . Unqualified code boundary part. (Severity Level IV, 8815-03)

Deviations

- . None

J. Licensing Activities

Violations

- . None

Deviations

- . None

K. Training and Qualification Effectiveness

Violation

- . Failure to provide health physics retraining. (Severity Level V, 8717-01)
- . Failure to maintain health physics training records. (Severity Level V, 8717-02)

Deviations

- . None

Table 3

OPERATIONAL EVENTS
TABULATION OF LICENSEE EVENT REPORTS
BY
PERFORMANCE CATEGORY

A. Plant Operations

- . Error while placing block switch in 'permit' results in aux. feedwater actuation. (87-013)
- . Failure to communicate allowed an open door creating a pressure boundary breach (87-034)
- . Errors result in loss of power to control rod moveable gripper coils which causes a reactor trip. (87-041)
- . Error leads to Hi-Hi S/G level resulting in feed isolation signal. (87-042)

B. Radiological Controls

- . Inadvertent release of secondary liquid waste monitor tank without prior sampling. (87-036)
- . Inadequate control results in loss of licensed material. (87-056)

C. Maintenance

- . Logic cabinet cards overheated causing reactor trip. (87-017)
- . Containment purge isolation due to signal spike on radiation monitor. (87-019)
- . Reactor trip caused by loss of power to main turbine electro-hydraulic control system. (87-022)
- . Reactor trip resulting from personnel error in not correctly tightening instrument sensing lines. (87-027)
- . Potential transformer failure causes partial loss of offsite power and reactor trip. (87-030)
- . Inoperable containment isolation valve due to incomplete retesting following maintenance. (87-033)
- . High Voltage transmission line failure causes generator trip/reactor trip. (87-037)
- . Accidental mispositioning of breaker switch causes inoperability of one power operated relief valve. (87-039)

- . Omission of snubber from inspection procedure. (87-044)
- . Inadequate hydrostatic pressure tests due to procedural inadequacy. (87-045)
- . Containment purge isolation caused by moisture induced corrosion of an electrical connector. (87-054)

D. Surveillance

- . TS violation caused by missed surveillance procedure. (87-014)
- . Shaft seal on containment air lock failed during testing causing total leakage above allowable. (87-023)
- . Containment purge isolation due to personnel error during radiation monitor testing. (87-025)
- . Late performance of spent fuel building vent tritium analysis. (87-026)
- . Inoperable Class 1E batteries due to inadequate post-test review of surveillance test. (87-028)
- . Required testing deleted from surveillance procedures. (87-029)
- . Failure to properly verify operability of fire pumps due to procedural inadequacy. (87-038)
- . Nonconservative error in containment purge radiation monitoring setpoint. (87-040)
- . Surveillance power range low setpoint & P-8, P-9, and P-10 interlocks not performed properly. (87-043)
- . Containment isolation valve failed during testing causing total path leakage to be above allowable. (87-050)
- . Procedural deficiency causes two feedwater isolations & an an aux feed actuation. (87-051)
- . Procedural inadequacy resulting in TS violation. (87-060)

E. Fire Protection

- . Four fire dampers not actuated due to drawing error. (87-013)
- . Failure to maintain fire watch as required by TS. (87-016)
- . Hourly fire watch performed late due to personnel error/individual overlooked one impairment. (87-021)

- . Spent fuel pool heat exchanger room doors not 3-hour fire rated. (87-031)
- . Failure to fully understand the requirements causes TS violation for hourly rather than continuous fire watches. (87-057)
- . Wired glass insert discovered in fire door causes loss of 3-hour fire rating. (87-059)

F. Emergency Preparedness

- . None

G. Security

- . Unauthorized vital area entry. (87-046)
- . Vital door unsecured. (87-047)
- . Security officer inattentive to duty. (87-055)

H. Outages

- . Improper maintenance causes fatality. (87-048)
- . Low battery bus voltage. (87-049)

I. Quality Programs and Administrative Controls Affecting Quality

- . CRVIS caused by chlorine monitor spike. (87-012)
- . CRVIS caused by paper tape bunching up on chlorine monitor. (87-015)
- . CRVIS caused by paper tape breaking on chlorine monitor. (87-020)
- . FA-CRVIS caused by loss of power to chlorine monitor because of faulty sample pump. (87-024)
- . CRVIS caused by paper tape breaking on chlorine monitor. (87-032)
- . CRVIS - two events caused by malfunctions of the chlorine monitors. (87-035)
- . Instrument termination splices installed which fail to meet environmental qualification requirements. (87-052)
- . CRVIS caused by paper tape bunching up on chlorine monitor. (87-053)

- . TS Violation, due to error in design document. (87-058)
- . Radiation monitor spike causes fuel building ventilation isolation. (88-001)
- . Probable transient in power supply for radiation monitor causes containment purge isolation. (88-002)
- . CRVIS from chlorine monitor spike. (88-003)
- . CRVIS from chlorine monitor spike. (88-005)