SALP BOARD REPORT

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

50-313/87-41
50-368/87-41

Arkansas Power & Light Company

Arkansas Nuclear One
Units 1 and 2

January 1, 1987, through June 30, 1988

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 on the basis of 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 August 16, 1988, 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 Arkansas Nuclear One for the period January 1, 1987, through June 30, 1988.

The SALP Board for Arkansas Nuclear One was composed of:

L. J. Callan, Director, Division of Reactor Projects
R. L. Bangart, Director, Division of Radiological Safety and Safeguards
J. A. Calvo, Director, Project Directorate IV
D. D. Chamberlain, Chief, Reactor Project Section A
J. E. Gagliardo, Chief, Operational Programs Section
W. D. Johnson, Senior Resident Inspector
C. C. Harbuck, NRR Project Manager

The following personnel also participated in the SALP Board meeting:

A. T. Howell, Project Engineer
L. Rubenstein, NRR Assistant Director, Region IV and Special Projects
R. E. Farrell, Senior Resident Inspector
V. Miller, Acting Deputy Director, Division of Radiological Safety and Safeguards
R. C. Haag, Resident Inspector
T. R. Staker, Resident Inspector
R. E. Baer, Chief, Facilities Radiological Protection Section
J. A. Kelly, Security Inspector
R. J. Everett, Chief, Security and Emergency Preparedness Section
W. C. Seidle, Chief, Test Programs Section
J. L. Milhoan, Director, Division of Reactor Safety

A. Licensee Activities

1. Major Outages

- Unit 1 was shut down from January 9-19, 1987, to repair a steam generator tube leak.
- Unit 1 was shutdown from October 16, 1987, until November 14, 1987, for a scheduled mid-cycle outage for maintenance and surveillance tests.
- Unit 2 was shut down from April 24, 1987, until May 27, 1987, to repair a pressurizer heater penetration leak caused by a failed pressurizer heater.
- Unit 2 was shut down from July 7-16, 1987, to repair a leaking pressurizer heater dummy plug seal weld.
- Unit 2 was shut down for refueling outage 2R6 from February 12, 1988, until May 23, 1988.

2. License Amendments

- Unit 1 Amendment 107 - Use of auxiliary building crane to move DOE cask containing six fuel rods.
- Unit 1 Amendment 108 - Change RCS pressure setpoint for HPI and LPI initiation
- Unit 1 Amendment 109 - Reorganization of Nuclear Operations Department
- Unit 2 Amendment 82 - Change boron concentration in storage tanks and safety injection tank
- Unit 2 Amendment 83 - Main steam safety valve testing
- Unit 2 Amendment 84 - Change maximum control element assembly drop time
- Unit 2 Amendment 85 - Reorganization of Nuclear Operations Department

3. Major Modifications

a. Unit 1

- Installation of seismic condensate storage tank
- Installation of security turnstiles

b. Unit 2

- Installation of pressurizer spray valve isolation valves
- Replacement of Potter Brumfield MDR relays
- Installation of RCS refueling level indications
- Replacement of segments of carbon steel service water piping and valves with stainless steel
- Replacement of a station battery
- Control room panel surface enhancement
- Installation of security turnstiles
- Replacement of two battery chargers
- Pressurizer heater penetration permanent repair.

B. Direct Inspection and Review Activities

NRC inspection activity during this SALP evaluation period included 56 inspections performed with approximately 7567 direct inspection man-hours expended. The inspections included a quality verification functional team inspection and an emergency operating procedure team inspection.

II. SUMMARY OF RESULTS

A. Overview

Licensee management attention and involvement have been evident and emphasis has been placed on superior performance in the areas of plant operations, radiological controls, and emergency preparedness. Continued improvement was noted in the area of plant operations and it is evident that the licensee is striving for excellence in this area. Significant improvement was noted in the licensee's performance in the areas of emergency preparedness, and security.

While performance in the training and fire protection areas were considered to be excellent, the area of engineering and technical support was judged to have weaknesses in root cause evaluations, corrective actions, and in communications between maintenance and engineering. Recent changes in the design change process and in the condition reporting and corrective action programs remain to be evaluated for long term effectiveness.

The licensee's performance in the area of responses to NRC initiated safety and regulatory issues and licensee submittals for license amendments declined during this evaluation period. Many of these responses and submittals were deficient in technical content, completeness, and/or timeliness. Significant improvement is needed in this area.

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 (07/01/85 to 12/31/86)	Present Performance Category (01/01/87 to 06/30/88)
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	1
8. Security	3	2
9. Engineering/Technical Support	N/A*	2
10. Outages	1	N/A*
11. Safety Assessment/ Quality Verification	N/A*	2
12. Quality Programs and Administrative Controls Affecting Quality	2	N/A*
13. Licensing Activities	1	N/A*
14. Training and Qualification Effectiveness	1	N/A*

*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. 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.

The following evaluation criteria were used, as applicable, to access each functional area:

A. Assurance of quality including management involvement and control.

B. Approach to the 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).

G. Effectiveness of training and qualification program.

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

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

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.

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.

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 a plant. 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 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, followup on significant events/problems, and review of Licensee Event Reports (LERs). In addition, a special team reviewed the Unit 1 emergency operating procedures. While the operating procedures were of generally good quality, procedure deficiencies were a root cause or contributing cause for most of the violations and LERs in the plant operations area. These violations and events are considered to be isolated cases of inattention to detail by operators or support staff personnel. The violations identified in this functional area involved failure to perform a safety evaluation prior to operating systems in temporarily modified configurations, inadequate locking of manual valves or inconsistent procedures relating to locking manual valves, failure of operators to follow procedures, inadequate procedures for testing high/low pressure interface check valves, and missing plugs from emergency diesel generator coolant drain lines. Two LERs addressed subcritical reactor trips on Unit 2 due to inadequate procedures and operator errors. Another LER discussed failure to maintain a manual containment isolation valve shut as required.

In 1987, the licensee developed a procedure writer's guide for the operations department and initiated a project to rewrite the emergency, abnormal, and system operating procedures. At the end of this assessment period, the emergency operating

procedures (EOPs) for each unit had been rewritten. The special team inspection of Unit 1 EOPs concluded that they were adequate for continued operation of the facility. Of the 140-150 other procedures per unit, 17 for ANO-1 and 43 for ANO-2 had been rewritten. The licensee has assigned additional staff, supplemented by contract personnel, in order to complete rewriting the procedures by mid-1990.

No significant system misalignments were identified during system walkdowns performed by the resident inspectors. However, a misalignment of a valve associated with the Unit 2 containment integrated leak rate test was identified as discussed in the Maintenance/Surveillance section of this report. During this assessment period, the licensee essentially completed the plant relabeling project. The major effort not yet completed was the independent verification of proper tagging on Unit 2. However, at the end of the assessment period, some cases of errors on component labels or component identification in system lineup procedures were identified by resident inspectors. System lineup procedures are being revised to include a check of proper component labeling during system lineups. This should help maintain proper component tagging in the future.

At the end of the assessment period, the licensee had a total of 62 personnel licensed as reactor operator or senior reactor operator for ANO-1 and 54 for ANO-2. Having this large number of licensed personnel has allowed the use of licensed personnel in non-watchstanding roles such as special projects or transfer to departments other than operations.

Plant operations personnel were on a six-shift rotation. Their morale and professionalism both appeared to be high. They were careful in the conduct of their duties, including proper use of plant procedures. Within the control rooms, restricted areas have been marked and personnel requiring access to these areas must first obtain the permission of the plant operator. No distractions such as music or extraneous reading material have been observed in the control rooms. A standardized dress policy for licensed operators on shift was implemented in early 1987. This has enhanced the operators' professional appearance. A program of observation of operations watchstanders by senior operations department personnel has been continued. This program has resulted in comments and suggestions leading to improved procedures and standardized watchstanding practices.

The number of annunciator alarms which are illuminated in the control rooms due to improper logic, instrumentation calibration, or abnormal equipment conditions continues to be excessive. Licensee representative have stated a goal of power operations with a "black board," but progress toward this goal has been slow. These illuminated annunciator alarms make an

additional alarm condition more difficult to identify and place an extra burden on the operators. An additional complicating factor for operators to overcome is the excessive number of minor equipment problems represented by deficiency tags in the control rooms. Most of the equipment problems are not significant and many are associated with nonsafety-related equipment, but an undesirable backlog has been allowed to accumulate. Licensee management is aware of this problem and is addressing it through a special tracking system for control room deficiencies and by giving increased visibility and priority to repair of control room deficiencies. These efforts have not been fully effective as evidenced by the excessive number of deficiencies represented by deficiency tags remaining in the Unit 2 control room at the end of its refueling outage.

During refueling outage 2R6, the Unit 2 control room control panels were enhanced for human factors using improved labels, color coding, and system boundary lines. A similar effort had previously been completed on Unit 1. The safety parameter display systems and the inadequate core cooling monitoring systems have been well-received by the operators. These systems should enhance operator effectiveness in both routine and abnormal conditions.

The licensee initiated a Transient Reduction Program in 1985 in an aggressive attempt to reduce the number of plant trips and transients. The following table indicates an improving trend in the number of reactor trips from power.

	1985	1986	1987	1988 (1st half)
Unit 1	6	2	2	1
Unit 2	10	5	2	0

Each ANO unit has a plant specific simulator located at the training facility near the plant. These have been used extensively for operator requalification training and for training of operator license candidates. Plant design changes have been incorporated into the simulators in a timely manner.

The licensee's shift technical advisor (STA) program was strengthened during this assessment period. Seven of the twelve STAs received operating licenses for their assigned units. The STAs are on watch for 12-hour shifts. Their assigned duties include performance of plant tours and system walkdowns. One walkdown per unit per week was being performed by STAs at the end of the assessment period. Discrepancies identified during these walkdowns have been documented in job orders and/or condition reports.

Early in this assessment period the licensee implemented a college degree program for shift supervisors and control room supervisors. Twenty-five personnel have been attending Arkansas Tech University on a 6-month rotating basis. Each of these participants is expected to have earned a degree by 1990. The degree to be earned is a Bachelor of Science in Physical Science (Nuclear). This degree was developed by the licensee and Arkansas Tech University and is oriented toward nuclear plant operations and engineering. The licensee has efforts underway to allow other plant operators to gain college degree credits. In addition, the licensee is attempting to recruit degreed personnel for entry level operator positions.

Other positive developments in the plant operations area included:

- Establishment of written Control Room Standards to supplement procedural guidance. These standards are used both in the control rooms and during simulator evaluations and are intended to standardize operations for all shifts and for both units. The standards address such topics as professional appearance, conduct, attentiveness, division of responsibilities, teamwork, and communications.

- Development of a Professional Nuclear Operator Code by a committee of operators. This code is displayed in the control rooms and in the simulators.

- Establishment of the operations support facility. This structure is located on the main turbine deck across from the control rooms. It has served to reduce congestion in the control rooms by providing a working space for auxiliary operators, support crew operators, operators with special tasks during outages, and operators providing interface with the work control center.

- Upgrading of plant-wide housekeeping. During this assessment period, most of the entire plant, including equipment, floors, and walls, was repainted.

2. Performance Rating

The overall assessment of this area indicates an improvement in performance. While there have been instances of personnel error and procedural inadequacies, these have been isolated and have been resolved appropriately. There are many indications that the licensee is striving for excellence in this functional area.

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

3. Recommendations

a. NRC Actions

The NRC inspection of this functional area should remain consistent with the fundamental inspection program with emphasis on technical support for operations.

b. Licensee Actions

Licensee management is encouraged to continue improvement efforts in this functional area, including:

- Reduction of nuisance alarms.
- Revision and improvements of plant and system operating procedures.
- Reduction of the backlog of deficiencies indicated by the high number of deficiency tags in the control rooms.
- Aggressive pursuit of resolution of deficiencies identified by operators.

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 control, radiological surveys and monitoring, and as low as is reasonably 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 shipment, selection and control of shippers, receipt/acceptance of shipments, periodic maintenance of packagings, and point-of-origin safeguards activities.)

Eight inspections in the general functional area of radiological controls were performed during this assessment period by regional radiation specialist inspectors in addition to the resident inspectors' routine inspections. There were seven violations and one deviation identified in this functional area. The violations and

deviation reflect minor problems and are not an indication of major breakdowns within the radiological controls area, but rather the occasional lack of attention to detail in implementation of the program.

Management involvement within the radiological controls area was evident by the performance of comprehensive audits/reviews by both corporate and onsite groups. The audit/review teams usually included a team member with expertise in the assigned speciality area being reviewed which contributed to the quality of the evaluations. Management support was also evident by the issuance of policies and directives requiring worker adherence to radiological control procedures. The licensee assigned a health physics supervisor to the radioactive waste group to enhance radiological controls in this area.

The licensee has maintained a stable, experienced staff. The personnel turnover rate within the radiological controls area during this assessment period was below 10 percent. Vacancies were filled in a timely manner with qualified personnel. The resolutions of technical issues were almost always accomplished on the basis of sound technical judgement.

The collective radiation exposures, per reactor, for 1986 and 1987 were 571 and 191 person-rem, respectively, which compares to the national average of 390 and 371 person-rem, respectively. The higher person-rem values for 1986 appear to be the result of two refueling and one major maintenance outage and was not an indication of poor occupational radiation safety practice.

The licensee has taken aggressive action to reduce the square footage of contaminated areas within the radiologically controlled area. The licensee is maintaining contaminated areas where protective clothing is required to less than 10 percent of the total area outside of the reactor containment.

The licensee ALARA program includes a Program Management Review Committee which provides for program oversight, review of radiological events, and development of solutions to programmatic problems.

The radioactive waste reduction program has resulted in a substantial reduction in the volume of waste generated. The volume generated in 1987 was approximately one-fifth of the 1985 level.

No significant problems were identified in the radiological controls area. The increased number of violations indicate a decrease of licensee attention to the detailed conduct of day-to-day operation. The licensee continues to maintain effective programs in the area of

management oversight, resolution of technical issues, responsiveness to NRC initiatives, personnel training and qualifications, procedures, and staffing.

2. Performance Rating

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

3. Recommendations

a. NRC Actions

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

b. Licensee Actions

The licensee should continue to make improvements in the existing program. Supervisory attention should be increased in the detailed conduct of day-to-day operation of the occupational radiation safety program.

C. Maintenance/Surveillance

1. Analysis

This functional 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; installation of plant modifications; and maintenance of the plant physical condition. It includes conduct of all surveillance (diagnostic) testing activities as well as all inservice inspection and testing 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 routine basis by the NRC resident inspectors and periodically by NRC regional inspectors.

It is evident that licensee management has given additional attention to the maintenance/surveillance area during this assessment period. Several long term improvement projects were either completed or were nearing completion at the end of the period. Other programs initiated during this assessment period indicate management support for program improvement and for upgrading the overall material condition of the plant. The licensee has maintained a satisfactory

level of performance in this area. The licensee's program for scheduling, tracking, and performing surveillance tests has been adequate, with a low error rate.

Several cases of missing or deficient seismic supports were identified by NRC inspectors during the assessment period. Two of these were cited as violations and the other two were considered additional examples of the violations. In addition, one LER discussed an improperly installed seismic support. The cause of these seismic support deficiencies could not always be determined, but in some cases it was the failure to properly reinstall a seismic support after removal for maintenance. One violation involved work being performed without an approved job order. One violation identified inadequate preventive maintenance program coverage of pump coupling lubrication. Four LERs reported reactor trips or safety system actuations in which improperly performed maintenance or inadequate preventive maintenance was a factor.

The licensee discovered a primary system safety valve with an elevated lift setpoint in December 1986. This issue was mentioned in the previous SALP report. During this assessment period a Notice of Violation was issued and a civil penalty was imposed for this violation. It was determined that personnel errors and/or procedural inadequacies during pressurizer code safety valve maintenance and testing in September 1986 contributed to plant operation for about one year with an inoperable pressurizer code safety valve.

Two other violations were identified during this assessment period, one involving failure to sign a calibration sheet during a nondestructive examination and one involving valve lineup errors during preparation for a containment integrated leak rate test (CILRT). The valve lineup errors were caused by operators failing to properly verify the lineup and by the failure of the controlling procedure to adequately address the requirements of the ANO independent verification policy.

One LER reported the failure to perform a surveillance test on the standby penetration room ventilation system as required prior to a Unit 1 startup because of personnel error.

During this assessment period the licensee has made significant improvements in its maintenance/surveillance program. Some of these were:

- The corrective maintenance and surveillance procedure upgrading project was continued with the rewriting of procedures in accordance with a writer's guide. Most procedures which are used frequently, and those expected to be used during the next refueling outage, have been completed. Project completion is expected by the end of 1989.

- The preventive maintenance program overhaul was continued. Most engineering evaluations have been completed, all required preventive maintenance procedures have been drafted, and about half have been approved. Project completion is expected in December 1988. A new section in the plant engineering department is being organized to provide continuing technical support for preventive maintenance.

- The project of updating and cataloging vendor technical information was recently completed. Plant engineering will provide continuing support to maintain this information in a current status.

- Use of the station information management system (SIMS) was expanded to track preventive maintenance. Development work is underway to better use this system to coordinate corrective maintenance, preventive maintenance, and surveillance testing.

- Maintenance training has been improved and oral boards have been established to verify a craftsman's competence and readiness to be promoted to the level of journeyman.

- Planning and coordination of maintenance and surveillance has improved. The work control center started publishing a 5-day rolling maintenance schedule. The work control center also started providing evening coverage.

Management involvement has been more evident than in the past. Planning meetings are held each morning. In these meetings, department managers discuss plant status and ongoing and upcoming maintenance activities and coordinate the required support. Maintenance supervisors and superintendents have been observed in the field at job locations more than in the past. Quality control coverage of maintenance and surveillance has also been observed at an increased level compared to past SALP cycles. A maintenance oversight team has been established. This group meets regularly to review maintenance performance indicators and goals. The team consists of maintenance department, work control center, and corporate personnel.

A material deficiency identification program was initiated and was nearing completion at the end of this assessment period. Two teams of four persons each have been systematically walking down the plant, room by room, identifying material deficiencies and housekeeping problems.

The NRC inspector's continuing review of the ANO surveillance program indicated that the components and systems reviewed had been tested in accordance with controlled procedures and that testing had been completed on schedule, with the exception discussed in one LER mentioned above. Numerous surveillance tests were witnessed during

this assessment period. The tests observed were completed properly using adequate and controlled procedures, within the required interval, by qualified personnel.

Two cases were identified in which surveillance testing did not adequately demonstrate that the system met its technical specification requirements or design basis. A Unit 2 LER discussed one case involving control element assembly drop times. Another case was identified as an unresolved item. In this case, the penetration room ventilation system surveillance testing was considered inadequate to demonstrate that the systems were capable of drawing flow from and producing a vacuum in each of the Unit 1 penetration rooms, although the testing met the technical specification requirements. The licensee handled the control element assembly drop time issue responsibly, providing timely analysis, applying it in a conservative manner, and keeping the NRC fully informed. Progress toward resolution of the penetration room ventilation system functional capability issue has been slow.

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 in this area should be consistent with the fundamental inspection program, augmented by a maintenance team inspection, while monitoring the progress of the licensee's improvement programs.

b. Licensee Actions

Licensee management should continue its emphasis on upgrading performance in the maintenance and surveillance areas. The licensee should continue upgrading maintenance and surveillance procedures to a standardized format including appropriate human factor considerations. During this process, consideration should be given to system testing to prove functional capability in addition to meeting technical specification requirements.

D. Emergency Preparedness

1. Analysis

The assessment of this area included the licensee's preparation for radiological emergencies and response to simulated emergencies (exercises). This assessment encompassed: 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 their emergency plan.

During the assessment period, region-based and NRC contractor inspectors conducted six emergency preparedness inspections. Two of these inspections consisted of the observation and evaluation of annual emergency response exercises. During the March 18, 1987, exercise, the inspectors identified two deficiencies, and closed five deficiencies from a previous exercise. During the 1988 exercise, the inspectors identified two additional deficiencies and closed one from the previous (1987) exercise. Four routine inspections resulted in the closure of three violations, one deviation, and 17 deficiencies.

In summary, the inspectors identified four deficiencies during this SALP period. The two deficiencies identified during the 1987 exercise concerned Emergency Action Level procedures. The two deficiencies occurring during the 1988 exercise involved human errors and weak performance of some emergency responders during the exercise. However, these deficiencies are not indicative of programmatic breakdown.

Management involvement has increased in this area as noted by the licensee's complete review and revision of Emergency Action Levels. Another example of positive management action resulted in an excellent self-critique of their performance during the 1988 exercise. The absence of violations, the small number of deficiencies observed during the inspections denote a responsive posture to NRC findings. Clear understanding of issues and technically sound resolution of technical issues was evidenced by the corrective actions taken by the licensee (e.g., complete review and revision of the Emergency Action Levels). These factors indicate that the licensee has achieved considerable improvement in their emergency preparedness program.

2. Performance Rating

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

3. Recommendations

a. NRC Actions

The NRC inspection effort in this area should be consistent with the fundamental inspection program.

b. Licensee Actions

The present level of management attention to the implementation of the emergency preparedness program should be maintained.

E. Security

1. Analysis

The category of security includes all activities whose purpose is to ensure the security of the plant. Specifically, it includes all aspects of the security program including ancillary efforts such as fitness for duty, fingerprint background investigations, and the QA audit program. The category also includes management effectiveness in developing, implementing, and supporting security programs.

This area was inspected on a continuing basis by the NRC resident inspectors and six inspections were conducted by region-based security inspectors. The licensee had previously identified one of the seven violations identified during these inspections. Between January and June 1987, a consolidated violation identified by the NRC security inspectors resulted in an escalated enforcement action. A civil monetary penalty was assessed. Although four of the seven violations were identified since June of 1987, these four are considered minor isolated problems.

The licensee restructured the security management organization and elevated the level of senior security manager and added additional security management positions at the site and corporate level. These initiatives have resulted in a positive enhancement to the ANO security program.

The licensee's fitness-for-duty and employee-assistance-program appears to be effective and consistent with the NRC Policy Statement. The licensee has significantly reduced the number of personnel who are granted unrestricted access to vital areas.

The licensee budgeted for new security equipment in 1988 and has been systematically upgrading the security system. The licensee is currently improving the protected area perimeter detection aids and closed circuit television system. A new perimeter security system is being constructed and installed.

The licensee has had programmatic difficulties with [illegible] and physical controls of the lock and key program as demonstrated by two separate violations. These events were unrelated but were within the same program area. This continuing problem with the lock and key program may indicate a need for more rigorous root cause determinations for security violations.

2. Performance Rating

The licensee appears to have an adequate staff and fully qualified security personnel to support the commitments of the security plan.

Since June of 1987, the licensee's management attention, initiatives and involvement with security matters has improved and perfo.mance was observed to begin an improving trend.

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. That effort should be supplemented by regional initiatives and reactive inspections that will review and evaluate the security program changes to determine if real improvement has been accomplished.

b. Licensee Actions

The licensee should probe the root causes of security viola ions and audit findings for broad implications. Determinations should provide guidance to adjust security policy and procedures. Corporate and high level site management oversight should continue until a high level of security awareness is pervasive throughout the ANO facility.

F. Engineering and 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.

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

a. Engineering and Technical Support for Outages

This area includes engineering and technical support for major outages. This area was inspected on a continuing basis by the NRC resident inspectors during the outages which were conducted during this assessment period. NRC regional inspectors also conducted inspections during the outages.

Three violations were identified in this area during the appraisal period. One violation involved excessive debris and loose tools on the fuel handling bridge during the Unit 2 refueling outage. Two

other violations in this area identified inadequate material control and drawing control in the modification process. An LER was submitted for each unit which reported design deficiencies resulting in incorrect installation of solenoid valves and the degradation of containment isolation capability. Another LER reported the inoperability of a Unit 1 reactor building hydrogen monitor due to a drawing error and inadequate testing after a modification was completed in December 1986.

Extensive planning and preparation for outages by the licensee were evident. The licensee has formed an outage planning and control group in the work control center, consisting of five full-time employees. There was a well organized outage management system, using temporary assignments of personnel to key positions such as outage coordinator, reactor building coordinator, and various project coordinators. An outage handbook was published prior to the Unit 2 refueling outage. This handbook established the outage organization, identified personnel responsibilities for various tasks and projects, described various outage projects, and established lines of communications. Maintenance and design change activities were planned in advance, prioritized, and coordinated with each other and with plant system conditions. Licensee personnel resources were supplemented with contractor personnel as needed during the outages. Although most of the available management attention and licensee resources were directed to the unit which was in an outage, required surveillance tests and priority maintenance activities were performed on the operating unit.

The post modification testing program and the process for turning over modified systems to operations were significantly improved during this assessment period. New procedures required preparation of an installation plan for each modification. The plan identified required post modification testing and required system walkdowns by engineering and operations prior to system turnover. Any minor open items existing at the time of system turnover were tracked on a punch list.

The licensee's performance in the area of outages could be improved by significantly reducing the number of minor equipment deficiencies which continue to exist when a unit starts up after a major outage. The number of outstanding deficiencies indicated by deficiency tags on the main control panels of the Unit 2 control room was excessive following the Unit 2 refueling outage. Since some of these items require plant shutdown conditions or procurement of parts for correction, it appeared that they would continue until at least the next major outage.

b. Engineering and Technical Support for Operation, Maintenance, Testing, Surveillance, and Procurement Activities

This area includes the engineering and technical support related to the day-to-day operation, maintenance, surveillance and testing. The findings from the continuing inspection efforts of the resident inspectors and periodic region-based inspections provided insights into this aspect of the licensee's support programs. The SALP Board's review of these inspection findings indicate weaknesses in the engineering/technical support function.

The corrective actions taken to fix the specific problems identified by the LERs that were reviewed for this area were generally sound and thorough. However, the licensee's stated corrective action often concentrated on the specific event being reported, with inconsistent root cause determinations.

There were indications of a lack of effective communication between engineering and the maintenance staffs. Examples of these indicators were:

- The fact that the replacement keys for Limitorque valve operators which were procured in response to Inspection and Enforcement Notice 81-07 had not been installed.

- The maintenance practice of removing one of the shields from double shielded bearings qualified for use in the containment cooling fan motors.

- The practice of repairing stator insulation with Glyptol in lieu of the varnish qualified for the containment cooling fan motors.

- The failure to incorporate vendor recommendations into the repair procedures for the containment cooling fan motors.

These practices suggest that the maintenance staff may be assuming an engineering function in their attempt to solve operational problems.

There were also indications of inattention to detail on the part of the engineering/technical support staffs. Examples of this inattention to detail were:

- The failure to adequately document the evaluation of the laminar indications on the Unit 1 reactor coolant system hot leg.

- The initial errors in the calculations for the fasteners used on the support brackets for the high pressure injection recirculation valve and the subsequent use of inappropriate fasteners for the application.

- The failure of the licensee to effectively address diesel generator fuel oil issues following the event reported in LER 86-014 (Unit 2). After the issue was raised in NRC Inspection Report 87-23, the licensee began to effectively review this issue.

- The failure to have analyzed the adequacy of the body-to-body bolted joint for the Unit 1 pressurizer code safety valves until the question was raised in NRC Inspection Report 87-23.

- The failure to evaluate the adequacy of the Combustion Engineering repair of the Unit 2 pressurizer heater dummy plug welds which led to a subsequent seal weld failure.

The inattention to detail on the part of the engineering and technical support staffs was a concern raised during the previous SALP period. The licensee has not been fully effective in correcting the problem.

During this assessment period, a special team inspection was conducted to examine the implementation of and compliance with the safe shutdown requirements of 10 CFR 50, Appendix R. Although one violation was identified, the overall results of this inspection were positive.

c. Configuration Management/Design Change Process

During the last SALP period, it was noted that improved performance was needed in the areas of design change control, configuration control, accuracy of drawings, quality of safety evaluations, and reduction of backlog in closing out outstanding items. During this reporting period, a civil penalty was imposed for operating Unit 1 for 13 years with temperatures in some parts of the Unit 1 containment building higher than specified in the plant's Safety Analysis Report. In response to the civil penalty, the licensee noted the principle deficiency in this matter resulted from a weakness in its design process and that previously existing administrative programs governing design interfaces was the root cause which resulted in failure to integrate the containment building temperature anomaly into all phases of the design control program.

To improve the efficiency of interfaces, the majority of corporate engineering has been reassigned to Nuclear Operations, reporting directly to the Vice President, Nuclear; engineering disciplines have undergone some consolidation to reduce the number of interfaces required; and nuclear engineering has been relocated into the design engineering organization in order to ensure that safety analyses are in the mainstream of design engineering efforts. The engineering organization located onsite has been restructured as a major department in an effort to maximize the efficiency of that interface

into the design engineering organization. These efforts have been aimed at correcting those weaknesses which were attributed to poor intraorganizational communications and interfaces.

Building upon the organization realignment, programmatic changes in the design process have been initiated concerning the development of design change packages (DCP).

Supporting these improvements to the design process are efforts to develop individual design engineering personnel via a customized training program utilizing INPO criteria for job task analysis based training.

As integral to those efforts in improving the design process, AP&L has evaluated the plant modification process to determine where improvements can be made to this function. Stemming from this effort, and in conjunction with organizational changes made to the design engineering organization, a reorganization of Nuclear Operations resources created an onsite Plant Modifications Department. As with the other changes to the nuclear organization, these realignments were aimed at resolving past concerns related to effective interface and communications. In this case, the objective was to improve this aspect where it involved design development and installation of a design into the plant.

The major programmatic improvements which have accompanied the organizational realignment include the development of a Plant Modification Manual, the development and approval of a Plant Modification Process Implementation Plan and the development of implementing procedures.

To address concerns relating to internal as well as external reporting of significant items, AP&L has implemented a central corrective action system called the Condition Reporting System. This system fosters an integrated approach to reporting deficiencies at ANO. The Condition Reporting System specifically provides for the identification and disposition of deviations from design documentation.

As part of the Condition Reporting System project, a control system for Condition Reports has been developed to provide further assurance that corrective actions are tracked until closeout, and that historical documentation is properly retained.

A number of other programs related to this area have also been initiated:

- Safety System Functional Inspection Self-Assessment
- Design Bases Documentation Consolidation
- Computer-Aided Drafting

- Industry Experience Feedback Program for Design Engineering
- Isometric Update Project
- Redrawing of Piping and Instrumentation Drawings

d. Training and Qualification Effectiveness

The assessment of this area includes all activities of the initial training and the requalification training programs 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 two inspections which were 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 for both units. For Unit 1, six senior reactor operators (SRO) were given the written examinations, and only one applicant failed. At the close of the evaluation period, he had not been retested. For Unit 2, thirteen SRO license examinations were administered with all applicants passing the written and operating examinations. Six reactor operator (RO) written and operating examinations were administered to applicants from Unit 2. One applicant had to retake the written examination. After the retake all ROs had passed the examination.

At the end of the appraisal period, the licensee had 47 SRO and 15 RO licensees for Unit 1 and 40 SRO and 14 RO licensees for Unit 2. The training inspection early in the appraisal period identified several weaknesses, some of which were created in the implementation of the revision to 10 CFR Part 55. The weaknesses were promptly corrected and resolved as determined by the training inspection conducted at the end of the appraisal period.

The licensee has maintained a well qualified training staff. A majority of the licensed operator instructors had been previously licensed or currently maintained a license at ANO.

Inspections into nonlicensed staff training indicated excellent coordination between the plant organizations and the training department.

Excellent use was made of on-the-job training to provide experience and familiarity to employees.

Overall, the training program was well defined and implemented. Means had been established to provide for feedback of experience from both within and outside the utility. The training department had an attitude for self-improvement, and had implemented lessons learned from the feedback mechanism.

2. Performance Rating

The licensee is considered to be in Performance Category 2 in this area. The licensee has demonstrated significant improvement in the area of licensed operator training, and the area of design of plant modifications has shown indications of improving. The area of engineering and technical support is in need of further improvement.

3. Recommendations

a. NRC Actions

The NRC inspection effort in this area should be consistent with the fundamental inspection program, augmented by a special team inspection devoted to the areas of engineering and technical support.

b. Licensee Actions

Licensee management is encouraged to continue the improvements evidenced in the design of plant modifications areas. Management needs to review the engineering and technical support areas to determine the root cause for the weaknesses in these areas and whether recent improvements will correct identified problems.

G. Safety Assessment/Quality Verification

1. Analysis

This functional area includes 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. Also included are licensee activities related to resolution of safety issues, 10 CFR 50.59 reviews, 10 CFR 21 assessments, safety committee and self-assessment activities, analysis of industry's experience, root cause analyses of plant events, use of feedback from plant quality assurance/quality control (QA/QC) reviews, and participation in self-improvement programs. It includes the effectiveness of the licensee 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.

During this rating period, the licensee has demonstrated the capability to respond to significant safety and regulatory issues with adequate management involvement, sound technical analysis, and responsiveness to NRC concerns. This capability was evident in the actions taken to resolve the ANO-2 pressurizer heater penetration leak repair and in the ANO-1 reactor building high temperature

justification for continued operation (JCO) submittal and the associated followup on actions.

The initiative demonstrated by the licensee to resolve these issues was understandably driven by their impact on plant operation. However, the licensee did not always demonstrate such initiative for safety and regulatory issues which had no short term impact on plant operation. The licensee's initial response to NRC concerns about the reactor building temperature issue was untimely and superficial. When it became clear that continued plant operation was being challenged, the licensee responded rapidly with a massive effort that enabled resolution of the issue in a short time. The JCO walkdown effort conducted during the ANO-1 midcycle outage was outstanding. Additionally, the licensee was responsive to subsequent staff questions concerning the surveillance and maintenance of the containment building tendons. The licensee should adjust their priority to resolve outstanding safety and regulatory issues in the same expeditious manner demonstrated during the resolution of issues that challenged continued plant operations.

The overall quality of licensee responses to NRC initiated safety and regulatory issues and licensee submittals for license amendments has declined during this rating period. The technical content and completeness of many licensee submittals were inadequate and the resultant requests for additional information (RAIs) were rarely responded to on time. Some responses were received over a year after the date requested by the staff. Examples of issues where the licensee's submittals were either late and/or inadequate follow:

- Safety Parameter Display System. An RAI response was received after 18 months; additional information was still needed.

- Generic Letter 83-28 Item 2.2, "Equipment Classification and Vendor Interface for Safety Related Components." RAIs sent in March and July 1987 were not responded to by the end of the rating period.

- Generic Letter 83-28 Item 4.3, "Automatic Actuation of Shunt Trip on Reactor Trip Breakers." This item applied to Unit 1 and required submission of a license amendment to revise the Technical Specifications. The submittal was received 22 months after it was requested.

- Relief Valve and Safety Valve Testing. The staff learned of licensee identified pipe support deficiencies which impacted the accuracy of the information contained in their submittal. An RAI was necessary to prompt the licensee to revise their previous submittal. The RAI response was late.

- Seismic design of the seismic condensate storage tank. An RAI sent in June of 1987 was not responded to until the end of the rating period.

- Technical Specifications one-time exemption to allow spent fuel cask handling with the auxiliary building crane. The licensee's safety evaluation was incomplete and cursory. The supplemental submittal allowed barely sufficient time for staff review.

- Technical Specification change submittals to revise the membership of the Safety Review Committee and the duties of the Plant Safety Committee were largely unacceptable to the staff.

- License amendment required by the 10 CFR 73.55 rule change dealing with the physical security plan. The licensee's submittal evidenced little management involvement, and was not technically sound, thorough, or consistent. Several RAIs and extensions of time were needed to resolve staff concerns.

- Technical Specifications change to reflect the Unit 2 battery upgrade. The licensee took 6 months to respond to an RAI.

- Technical Specification changes to increase the boric acid concentration in the Refueling Water Storage Tank and the Safety Injection Tanks. Enclosed data tables discussed in the licensee's safety evaluation were not directly comparable; discussions with the licensee were needed to allow completion of staff review.

- Emergency Technical Specifications change to increase the control rod drop time limit. Subsequent to issuance of the license amendment, the licensee reported a nonconservative error in their safety analysis. (However, it had no impact on the conclusion of the safety evaluation.)

- Generic Letter 87-12, "Loss of Residual Heat Removal (RHR) While the Reactor Coolant System (RCS) is Partially Filled." Although the response was relatively good compared to other licensees, many technical concerns were raised by the senior resident inspector and by the staff.

These examples indicate that licensee procedures and policies governing licensing activities were either inadequate or were not consistently followed. As noted earlier, the licensee's policies for prioritizing efforts to respond to safety and regulatory issues should be addressed by management. Additionally, the quality and timeliness of submittals needs improvement. Management should review the adequacy of the current level of staffing and the assignment of technical resources in the licensing area, as they may impact the assignment of priorities for responding to safety and regulatory issues and the quality and timeliness of associated submittals.

Not all licensee responses to safety issues during this rating period were deficient. Responses to NRC Bulletins and to most Generic Letters (GLs) were usually timely and complete. When a due date could not be met, the licensee initiated negotiation of a later date with the staff.

During this rating period, three NRC Bulletins were issued which were applicable to ANO. The licensee's response to Bulletin 87-01, "Erosion/Corrosion Pipe Wall Thinning," was followed up by an onsite audit by the staff; no significant concerns were identified. Fastener sampling required by Bulletin 87-02, "Fastener Testing," was monitored by an NRC inspector who verified the requirements of the Bulletin were met; the sampling and test report in response to the Bulletin was adequate and timely. The licensee's timely response to Bulletin 88-01, "Defects in Westinghouse Circuit Breakers," was reviewed onsite by the staff. A comprehensive search had been done in response to the bulletin, which concluded that ANO had none of the breakers of concern installed or in storage. The licensee's responsiveness to NRC Bulletins was a strong point during the rating period.

Seven Generic Letters were issued which were applicable to ANO, and when required, had response dates requested which were within the present rating period. Except for the GL 87-12 submittal noted earlier, the licensee's responses to Generic Letters were adequate.

The licensee's reviews for applicability, assignment, and completion of responsive actions for NRC Information Notices were generally timely and comprehensive. For some Information Notices, the documentation of the review and actions taken could have been more descriptive.

The Plant Safety Committee (PSC) was evaluated during this rating period. A comment was made that the effectiveness of the PSC was hindered by the review of a significant number of documents which had not been properly screened and contained numerous minor technical and editorial errors. Consequently, these documents had to be returned for correction and subsequent re-review by the PSC. This consumed an appreciable amount of PSC discussion time better spent on more safety significant issues.

In the area of 10 CFR 50.59 reviews, the licensee has revised and upgraded his program. This program now includes special training and certification of reviewers. The quality of 10 CFR 50.59 reviews has noticeably been improved since implementation of the revised program.

The NRC Office for Analysis and Evaluation of Operational Data (AEOD) conducted an evaluation of Licensee Event Reports (LERs) submitted by the licensee during the SALP assessment period. The LER quality was described as thorough, detailed, organized, and comprehensive. The narrative sections were exceptionally complete and included specific

details of the event such as valve identification numbers, number of operable redundant systems, the date of completion of repairs, etc. Many of the LERs included diagrams or sketches which enhanced the readers' understanding of the event. The licensee's safety analyses were detailed, relevant, and meaningful.

In the area of assessment of reportable events, the licensee has experienced excessive tardiness in arriving at a determination of reportability of some abnormal events. In one identified case, several months elapsed from the time of the occurrence of the event and the determination that it was reportable. It was also identified that supplemental reports related to previously submitted Licensee Event Reports were long overdue in some cases.

Inspection of the quality verification function, was included in many of the NRC inspections conducted during the assessment period. Three of the inspections were entirely dedicated to performance of the quality verification function. These inspections indicate that the licensee has implemented an audit program covering nearly all operational activities that is detailed and comprehensive and has identified significant issues. It also appears that, in some cases, corrective actions on the part of the groups being audited have not met the established response due dates. The lack of response on occasion has been excessively long, in one identified case, more than 3 months had elapsed at the time of the NRC observation and final corrective action still had not been determined. The corrective actions, when taken, have been generally effective in resolving the original issue. During the NRC quality verification inspection, the team found that the licensee had accomplished performance oriented surveillance type audits of most operational areas that are considered effective in identifying operational problems. It was noted, however, that surveillances during the latter part of 1987 were scheduled only about one-third as frequently as they previously had been and that nearly all were accomplished on the day shift. The reduction in scheduled activities in the QA surveillance of operational activities may be indicative of some understaffing within the QA group. It is understood that the QA group has been authorized to employ an additional nine inspectors as part of the licensee's permanent organization. These additional personnel, however, are also understood to be replacements for an equal number of contract employees who previously were accomplishing QA functions.

The NRC quality verification inspection team found examples which indicated that thorough root cause analysis and corrective actions to ensure that affected equipment would perform their safety-related functions were not performed in some instances. Improvement may be expected in this area due to the recent implementation of a new condition reporting and corrective action procedure. This procedure requires a formal root cause analysis of significant events and independent reviews of other root cause analyses.

The NRC quality verification team also noted that while the licensee has established a mechanism for identifying quality trends, no mechanism was apparent for analyzing the root cause of adverse trends and effecting corrective actions. The above mentioned revised condition reporting procedure also addresses actions to be taken in regard to identified trends adverse to quality.

In the area of QA/QC verification of the design change/modification process, it appears that the licensee's QA engineering staff has the necessary expertise to effectively evaluate the technical adequacy of proposed changes prior to issuance of the change packages. There is evidence that this level of review has prevented later operational problems from occurring and is, therefore, a substantial strength. During installation and testing of an approved change/modification, the licensee's QC organization has been observed or otherwise verified to have performed detailed inspections of craft activities. It was also noted that the licensee has established a small, but knowledgeable, group of QC inspectors substantially dedicated to following modification activities. The group is augmented during major outages when the modification workload generally becomes more intensive.

In summary, the licensee's quality verification function is, in general, staffed with well qualified personnel and in sufficient quantity except possibly in the surveillance of day-to-day operational activities. The lack of timely response to QA/QC findings in some instances does indicate a lack of management attention but, overall, it appears that licensee management has been effective and responsive to both self-identified problems and problems identified during NRC inspections.

In the area of 10 CFR 21 assessments, one NRC inspection identified that a number of assessments had not been done in a timely manner. It appears that the reason for the lack of timeliness was that reports had not been entered into a computerized data base system used by licensee management to assign work priorities and track completion thereof. The NRC inspector also noted that there was no clear assignment of responsibility for assessing Part 21 reports to determine applicability to the ANO facilities.

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 maintained consistent with the fundamental inspection program. An additional inspection should be conducted in the area of corrective actions.

b. Licensee Actions

Licensee management should assess the effectiveness of the newly issued condition report program.

Management should evaluate increasing the level of QA surveillance activity.

Management involvement in licensing activities should be increased to insure adequate levels of staffing and technical resources are assigned to assure high quality responses to NRC initiatives.

The licensee should evaluate the policies for prioritizing regulatory and safety issues to avoid unjustified delays in responding to longer term issues.

V. SUPPORTING DATA AND SUMMARIES

A. Enforcement Activity

The SALP Board reviewed the enforcement history for the period January 1, 1987, through June 30, 1988. This review included the deviations, violations, and emergency preparedness deficiencies tabulated by SALP Category in Table 1. Footnotes are provided to identify any functional areas associated with civil penalties or orders.

B. Confirmation of Action Letters

None

TABLE 1

ENFORCEMENT ACTIVITY

(INCLUDES BOTH ANO 1 AND ANO 2)

FUNCTIONAL AREA	DEFICIENCIES	DEVIATIONS	Number of Violations In Each Level V	IV	III
A. Plant Operations			1	9	
B. Radiological Controls		1	2	5	
C. Maintenance/Surveillance		1	1	7	1(1)
D. Emergency Preparedness	5				
E. Security				6	1(2)
F. Engineering/Technical Support		1		7	1(3)
G. Safety Assessment/Quality Verification		2		2	
TOTALS	5	5	4	36	3

Footnotes:

(1) A civil penalty of $25,000 was paid on February 25, 1988, in a Notice of Violation dated June 25, 1987, dealing with an inoperable Unit 1 pressurizer safety valve.

(2) A civil penalty of $100,000 was paid on April 28, 1988, in response to a Notice of Violation dated July 2, 1987, dealing with security violations.

(3) A civil penalty of $100,000 was paid on April 28, 1988, in response to a Notice of Violation dated March 14, 1988, dealing with failure to correct a condition adverse to quality (Unit 1 elevated reactor building temperature).