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SCE&G

April 14, 1986

Dr. J. Nelson Grace
Regional Administrator
U. S. Nuclear Regulatory Commission
Region II, Suite 2900
101 Marietta Street, N.W.
Atlanta, Georgia 30323

SUBJECT: Virgil C. Summer Nuclear Station
Docket No. 50/395
Operating License No. NPF-12
Comments on SALP Report

Dear Dr. Grace:

On March 18, 1986 a meeting between South Carolina Electric and Gas Company (SCE&G) management and members of the NRC Region II Staff was held at SCE&G's corporate offices. The purpose of this meeting was to discuss the Systematic Assessment of Licensee Performance (SALP) Board Report transmitted to SCE&G by letter dated March 12, 1986. As discussed in the March 18, 1986 meeting and the March 12, 1986 letter, certain weaknesses in fire protection and plant operations were identified and Category 3 ratings were assigned to these areas. However, SCE&G and the SALP Board noted that the perceived weaknesses in the area of fire protection were identified before SCE&G had completed the review for the correction of the program, and that the implementation of aggressive corrective actions demonstrated a positive management attitude toward nuclear safety. Furthermore, both groups noted that the trend of performance in the areas of operations and outages was improving and that no instances of declining trend were identified. This letter is hereby provided to address the Category 3 ratings and inform the NRC Staff of actions which SCE&G has pursued to improve performance in these areas.

Fire Protection

As discussed in the March 12, 1986 letter, SCE&G attended the NRC Region II Appendix R Workshop on May 4, 1984. At that time SCE&G recognized a divergence between its pre-license (1980-1982) interpretations of Appendix R and those considered standard by the NRC in May of 1984. Therefore, in July 1984, SCE&G appointed a special project manager for fire protection and initiated a two million dollar reanalysis of the plant for compliance with current Appendix R interpretations. In a letter from Mr. O. W. Dixon, Jr., to Mr. H. R. Denton dated May 29, 1985, SCE&G submitted an initial listing of modifications and deviation requests identified from the in-progress reanalysis.

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On June 3-7, 1985, an audit was performed by Region II on SCE&G's implementation of 10CFR50, Appendix R, Section III.G, III.J, III.L, and III.O. At the time of this audit the issues involved were well understood by SCE&G and the reanalysis was underway; however, the reanalysis was incomplete. The items identified on page 13 of the March 12, 1986 SALP Board letter were being addressed by SCE&G at the time of the NRC audit, but the desired data were not in a form or degree of completion that the inspection team considered suitable for audit purposes. Subsequent to the June 3-7, 1985 audit, an Enforcement Conference was held between Region II and SCE&G on August 9, 1985 at which potential violations resulting from the audit were addressed in detail by SCE&G.

In a letter dated June 21, 1985, SCE&G committed to voluntarily establish a special two hour roving fire watch as an interim measure until the Appendix R modifications were completed or until interim procedures were reviewed and approved by the Office of Nuclear Reactor Regulation (NRR). Efforts continued to complete the original work scope of the reanalysis, and in a meeting between SCE&G, NRR, and Region II held on July 24 and 25, 1985, an agreement was reached on the information which SCE&G needed to provide to the NRC to address open technical issues. By letters from SCE&G to the NRC dated September 4, 1985, September 16, 1985, September 20, 1985, November 1, 1985, December 30, 1985, February 27, 1986, and April 1, 1986, SCE&G provided supplemental, clarifying information and current status of the Appendix R reanalysis effort. These letters were made available to the NRC as soon as practical in accordance with the completion of corresponding portions of the reanalysis effort.

On April 2, 1986, a meeting was held in Bethesda, Maryland between SCE&G and NRC representatives to discuss outstanding issues and the current status of the Appendix R effort. In this meeting, SCE&G agreed to provide two additional clarifying letters to support NRR's review of the technical Appendix R issues. SCE&G expects, following the submittal of this portion of information to NRR, that Safety Evaluation Reports can be written which will close the final technical issues under review. As discussed in that meeting, SCE&G's updated Fire Protection Evaluation Report summarizing the new analysis is on schedule to be completed by July 1986. Furthermore, final plant modifications are scheduled for completion and full compliance with the Appendix R regulations is expected by startup after third refueling (scheduled for the second quarter of 1987).

SCE&G has devoted extraordinary resources in what it believes is an effective manner in order to reach compliance with the current interpretations of 10CFR50, Appendix R. From the time SCE&G initiated the reanalysis effort in mid-1984 to the present, a great deal of attention has been focused on adhering to the original schedule and work effort. SCE&G is confident that completion of the reanalysis effort and implementation of the resulting modifications will address the requirements of 10CFR50, Appendix R and provide adequate fire protection design at the Virgil C. Summer Nuclear Station for the health and safety of the public.

Plant Operations

SCE&G has implemented both short term and long term programmatic changes to provide improved control over plant operations. In 1985, SCE&G conducted a management evaluation of operating trends which resulted in the identification of possible problem areas. The evaluation indicated that the majority of negative operating performances could be attributed to personnel errors and the fact that some secondary plant systems were at times difficult to manipulate. As a result of these findings, the following actions were initiated:

1. Plant systems were evaluated for reliability improvements;

2. Meetings were held with all personnel;

3. A personnel error root cause determination plan was formed;

4. The training program effectiveness was evaluated;

5. A Pursuit of Excellence Program (PEP) was devised; and

6. A stress survey was conducted.

These actions have led to a variety of new and improved programs and procedures designed to increase personnel awareness and improve plant operating performance.

The review of plant systems identified several areas in which improvements could be made to allow for more "user friendly" plant operation. The steam generator level trip margin was increased to allow for more flexibility in plant transients. The turbine trip setpoint was raised to 50% to prevent reactor trips on turbine trips when the plant is being started up. Furthermore, the Deaerator Control System, the Condensate System, and the Feedwater System were modified to make the systems more reliable.

Meetings with all the plant employees have been held with emphasis placed on NRC violations, personnel errors, and feedback from the employees on how to improve performance. The meetings increased employee awareness of performance and educated them on the necessity of positive performance. Employees stressed that they should be held accountable for their actions and thus make them more conscious of their activities. Employees also recommended that management allow everyone to benefit from mistakes made by educating them on the events surrounding the errors.

A study was undertaken to determine the root causes of personnel errors which occurred at the plant. The causes were placed into classifications such as individual mistakes, procedure/program compliance, procedure/program adequacy, repetitive errors, lack of understanding/training, or human performance factors. In order to address these root causes, and in an attempt to decrease overall personnel errors, several corrective actions have

been initiated. Individual and group counseling has been held with personnel to stress the importance of adhering to procedures and competently performing jobs. Increased awareness of how certain actions can impact plant operation has also been stressed to personnel. Procedures which have been determined to be inadequate have been revised and upgraded along with programs in which specific enhancements have been determined to be beneficial.

Where necessary, training programs have been revised and new programs added in an effort to reduce personnel errors which have been caused by a lack of understanding or possible incomplete training. The organization and staffing of the training department have been improved to provide for more efficient training. An upgrade of system descriptions and design basis documents has been initiated in an effort to assure accurate and precise information is made available to personnel. Training has also established stronger interfaces with the plant in order to be more attuned to the normal day-to-day activities associated with plant operations.

Simulator training has been improved to provide for new training techniques and increased emphasis on problem areas. Non-traditional training exercises have been introduced to improve operators' control board familiarity and basic communications skills. Exercises have been formulated to help operators improve their ability to recognize and analyze transient plant conditions. An increased emphasis has been placed on the understanding of information and data which are observed, and the results and consequences of actions which are taken. In addition, annual simulator requalification training hours have been increased significantly, and additional time is spent on the simulator practicing infrequently performed activities.

A "Pursuit of Excellence Program" (PEP) has been organized and is underway. PEP is composed of several sub-programs all aimed at improving plant operations at the Virgil C. Summer Nuclear Station. These sub-programs address team building, professional improvement, the necessities of different programs, industrial safety awareness and human performance error correction. Although PEP has only recently been formally organized, many of the programs are well underway with improvements already being realized.

The Team Building Program is in progress and the Operations Group is the pilot organization. The objective of this program is to enhance plant safety and operating efficiency by encouraging input and shared decision making among the employees on topics that may impact their specific jobs. The success of the program is based on the premise that employees within organizations have some of the best ideas for working more efficiently and productively. Preliminary results as observed from the pilot group indicate that the team building concept is perceived by participating members as a positive concept. The program is currently in the process of expanding to incorporate other groups at the plant.

A Control Room Enhancement Program has been developed to help improve operator professionalism. Several modifications have been made to the Control Room in order to provide an improved work area for the operators

including adding carpet, repainting the area, and organizing materials needed for reference. Modifications required as a result of SCE&G's Control Room Design Review are also being implemented. In addition, a plant-wide effort is in effect to improve personal appearance and establish a more professional atmosphere.

Program "Content and Criteria" Overview training is being planned to inform personnel of the various administrative control systems that exist and the reasons for the existence of these programs. In addition, the training will identify how and why certain programs interface with each other and the regulatory requirements that serve as the basis for the programs. This training is hoped to educate personnel on the necessity and usefulness of many of the programs which govern much of their work activities.

An Increased Awareness Program has been initiated to improve communications to plant personnel as related to SCE&G's Nuclear Operations goals. The objective is to increase the awareness of plant personnel of the importance of their efforts on the overall goals and objectives of the Company. The tool for accomplishing this objective is to display graphs and charts, in areas visible to all personnel, showing goals and current status in achieving these goals. This action enables personnel to readily keep abreast of present attainment relative to Company objectives.

An Industrial Safety Improvement Program has also been formed to help increase the involvement of supervisors and managers in the enforcement of industrial safety requirements. This increased managerial attention is expected to help decrease injuries and provide a more safety conscious working environment for all the employees.

The final element of the PEP involves an evaluation of INPO's Human Performance Evaluation System Pilot Program (Near Miss Evaluation). The objective of this evaluation is to develop a program which will reduce human error related occurrences by emphasizing the recognition and correction of "set-ups" which lead to such errors. This plan is hoped to encourage personnel to remain attentive to their duties and to increase their awareness of the surroundings.

Many of the programs and activities which have been initiated were done so to address the findings of a stress survey conducted to help identify areas in which the employees were experiencing stress related problems. Other findings from the survey, which include difficulties associated with rotating shifts, excessive paperwork burdens, and limited progression opportunities, are being studied to determine if more acceptable alternatives are available. Furthermore, in an attempt to help relieve operators of some of the excessive burdens experienced during plant startups, additional support has been provided to assist this group. Operations management, a Reactor Engineering representative, and a Shift Technical Advisor are now present during startup to support the shift supervisor.

Overall, increased management attention to the operational aspects of the plant have been initiated to help improve operational performance. Leadership changes made in the plant organization combined with an increased dedication of all management and personnel to plant performance excellence is expected to further improve operation of the Virgil C. Summer Nuclear Station.

In the review of the March 12, 1986 SALP Board letter, SCE&G identified certain portions of the letter which deserved specific comments. In the Plant Operations portion of the Performance Analysis section on page 4, the following statement is made: "This inspection revealed degradation of management control in areas that included the lack of attention to nuclear system operating conditions, outdated and poorly controlled procedures, inadequate methods of tracking equipment status involving limiting conditions of operation, and a generally relaxed attitude toward procedure compliance." By letter dated October 23, 1985, SCE&G received Audit Report 50-395/85-36 which is a summary of the inspection (referenced above) conducted by the NRC on September 3-6, 1985. This audit report identified a deficiency in the methods for tracking equipment status involving limiting conditions for operations; however, it did not indicate that the inspection revealed the other issues mentioned in the preceding quote.

Additionally, in the Outage Section on page 17, it was stated that 100 percent eddy current testing of the steam generator tubes was accomplished during both the first and second refueling outages. As noted in Special Report 85-12, submitted by letter dated September 20, 1985 from Mr. O. W. Dixon, Jr., to Dr. J. Nelson Grace, the following tubes were inspected in each steam generator during the first refueling outage: 100 percent of rows 44, 45, 46, 47, 48 and 49, a 7x4 matrix of the remainder of the tubes, all peripheral tubes (including row 1) and 10 percent of row 2. During the second refueling outage, eddy current testing of the steam generators included the Technical Specification required sample of tubes plus a 100 percent inspection of the hot leg tube sheet area of all three steam generators. These data were initially supplied by SCE&G in LER 85-31 dated November 13, 1985 and LER 85-31, Revision 1, dated December 4, 1985.

If you snould have any questions, please advise.

Very truly yours,

D. A. Nauman

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