UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

MAR 25 1993

MEMORANDUM FOR: Suzanne C. Black, Project Director
Project Directorate IV-2
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

FROM: Gary G. Zech, Chief
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SUBJECT: SOUTH TEXAS PERFORMANCE EVALUATION TREE

The Performance and Quality Evaluation Branch (RPEB) has completed a performance evaluation tree for the South Texas nuclear plant using NRC inspection reports and licensee event reports (LERs) from January 1, 1992, through February 26, 1993. This evaluation was conducted to gain further understanding regarding the performance level of the South Texas Project for the upcoming Senior Management Meeting (SMM) and the Diagnostic Evaluation Team (DET) inspection.

The overall performance of the project was rated low adequate. The results of the evaluation are illustrated on the colored tree of Enclosure 1. The areas of concern were in equipment performance, maintenance, and procedure quality. Performance weaknesses were identified in equipment performance because of electrical component and balance of plant component failures, instances of repeat failures of equipment after corrective maintenance, and examples where the preventive maintenance program was not fully effective in maintaining reliable equipment performance. Another area of concern was maintenance where weaknesses were identified in work instruction content and adherence to procedures. Licensee performance was strongest in the area of radiological controls. The details of the evaluation are contained in the narrative of Enclosure 2.

The assessment was presented to the members of the DET for South Texas on March 11, 1993, as requested by AEOD. The performance evaluation tree process has subjective elements, although it is based on factual information. Because of the subjective nature of the evaluation, the evaluation is marked as "pre-decisional."

The RPEB staff is prepared to discuss the performance evaluation tree process or to answer any question on the South Texas tree.

Original signed by

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Enclosures:
As stated

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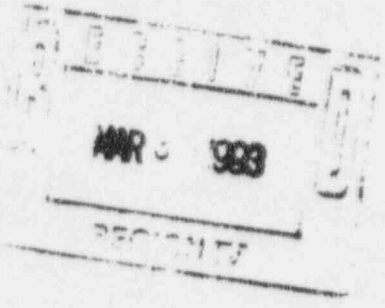

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Performance Evaluation Tree

South Texas

I. INTRODUCTION

This tree was developed for South Texas Project to evaluate the performance of a plant suspected of declining performance and to develop conclusions concerning that level of performance. In addition, the tree should point out areas in which more attention may be required during the Diagnostic Evaluation Team inspection, which starts March 29, 1993.

In the current approach, the performance evaluation tree process has three Performance Evaluation Branch (RPEB) evaluators serve as the evaluation panel. The lead evaluator for Region IV was the panel chairman; the other members were evaluators for Regions I and II. The panel evaluated findings from NRC inspection reports, licensee event reports, and followup information on violations and findings. The information examined for the evaluation covered the previous 14 months (January 1, 1992, through February 26, 1993). The tree was color coded green for good, yellow for adequate, red for poor, and blue for insufficient information to evaluate the performance.

The rating assigned to each performance element is the relative measure of strength or weakness of the licensee's performance in that specific category as perceived by the team of evaluators from their review of the available written materials. That perception is founded on the collective experienced safety judgement of the evaluator team. Performance is considered good when the licensee's workers have demonstrated an understanding of the technical area under consideration and have appropriate procedures; tools to perform their tasks; attention focused on safety; and actions that are technically sound, comprehensive, and timely, resulting in desirable performance. Performance is rated adequate when the performance has all the attributes of good performance, but the resulting performance is not consistent because of inappropriate implementation. Performance is rated poor when it lacks the necessary attributes for good performance in certain areas and improvements should be made to achieve acceptable performance.

The highlights of the evaluations are discussed in the paragraphs that follow.

II. OPERATIONS PERFORMANCE

The rating for operations performance was determined to be on the low side of adequate. This rating was assigned because of the poor rating in two categories and adequate ratings in five categories. Weaknesses were noticed in the training category related to mispositioned valves in system lineups and attention to detail. In the documentation category,

weaknesses in procedures and adherence to procedures were noted. Procedures used by operations personnel have been deficient and caused many engineered safety feature (ESF) actuations, Technical Specification violations, and a reactor trip. Some good performance was noted in the procedures upgrade program, but problems still exist. Operations performance has adequate ratings in the categories of corrective actions, staffing, communications, immediate supervision, and events assessment: these categories showed neither major strengths nor weaknesses. Staffing was adequate for normal operations and the performance of the support staff portion was good. The non-licensed operator overtime was not properly controlled. Communication in operations has been inconsistent in command and control functions. Immediate supervision had some examples of negative performance, but none of safety significance. Operations performed well in the events assessment category. The post-trip reports were adequate, and operator classifications during drills were good. The categories of self-assessment and goals and objectives were not rated because there was not enough information on which to rate them.

III. MAINTENANCE PERFORMANCE

The maintenance organization performed on the high side of poor. The overall poor rating was due to poor performance in each of the major categories of corrective actions, documentation, and equipment problems. In some cases, effective corrective actions were not implemented on a timely basis. The documentation category was deficient because of maintenance personnel's use of procedures with incomplete instructions, and adherence to procedure problems contributed to undesirable personnel performance. The category of equipment problems was rated poor in response to a series of emergency diesel generator (EDG) problems, chiller failures caused by the lack of preventive maintenance, and many problems with the material condition of the balance of plant (BOP). The category of self-assessment was rated adequate. The organization showed signs of aggressive problem identification involving procedures. Some goals and objectives were identified but not fully attained; the category had no real strengths. The panel rated goals and objectives as adequate. Some instances of insufficient supervision attention that led to Technical Specifications violations and wrong train/wrong component events caused the category of immediate supervision to be rated adequate. Staffing and communications were not rated because sufficient information was not available.

IV. TECHNICAL SUPPORT PERFORMANCE

The performance of the technical support organizations was rated adequate. The categories of self-assessment, goals and objectives, corrective actions, staffing, events assessment, design, and modification were rated adequate. The organization assessment capability was adequate and produced critical self-assessment. The system engineer's input to the maintenance prioritization process was weak, but motor operated valves (MOVs) were tested aggressively and proactively. In general, the corrective actions were good, although several cases were identified that were poor. Thus, the corrective action category averaged out adequate. The category of staffing was

rated adequate; staffing showed no major strengths or weaknesses. Deficient procedures contributed to operational problems and the design control process did not preclude configuration control problems. These issues were of limited safety significance and the panel rated the category adequate. An adequate rating was given to the events assessment category due to ineffectiveness in addressing long-term EDG, equipment cooling water (ECW), and other equipment operability problems, though immediate actions were effective. In general, design engineers produce products that support the plant, but no significant strengths were noted. The category of modifications was rated adequate. Modifications packages and implementation were generally of high quality and well documented, but weaknesses were found in updating procedures and adherence to configuration control procedures. The categories of training, communications, immediate supervision, and probabilistic risk assessment (PRA) did not have enough information for the panel to evaluate them. No category received a rating of poor.

V. SAFETY AND QUALITY PERFORMANCE

Overall, performance in the area of safety and quality was not rated because of insufficient information. The category of self-assessment was rated good. The QA audit program and findings were a strength, and the QA organization provided significant oversight of plant activities. The category of corrective actions was rated adequate in that effective corrective actions were identified on in-service inspection (ISI) findings and LERs were accurate and appropriately detailed. However, corrective actions for the material condition and procedure deficiencies were not effective. The category of documentation was rated adequate with no major weaknesses identified. All other categories — goals and objectives, staffing, training, communications, and immediate supervision — were not rated due to insufficient information.

VI. RADIOLOGICAL CONTROLS PERFORMANCE

Performance in the area of radiological controls was rated on the high side of adequate primarily because of effective radiological control and radiological environmental monitoring programs. The category of self-assessment was rated good because of the audit program and self-critical organization. The goals and objectives category was rated good because of an effective ALARA program with low personnel exposure for outages. The corrective action category was rated adequate; it showed no major strengths. The radiological control staff had a very low turnover rate, was adequately qualified, and met the Technical Specifications requirements; therefore, the staffing category was rated adequate. The category of training was rated adequate. The program for chemical and radwaste training was excellent, and overall training for general employees was adequate. The documentation category was rated good with timely reports, proper documentation, and good procedures. The immediate supervision category was adequate with good program support, although some exceptions were noted in overtime control. The category of communications was not evaluated due to insufficient information.

VII. MANAGEMENT ORGANIZATION PERFORMANCE

Performance in the overall area of management organization, as indicated by the information evaluated by the panel, was on the low side of adequate. This rating was determined by combining the five evaluations of the individual organizational areas. This rating is an extrapolation based on employees' actions, as identified in inspections and LERs, and is a reflection of management performance.

VIII. EQUIPMENT PERFORMANCE

Equipment performance was rated on the high side of poor. This was determined mainly from the high random failure rates and the reliability problems with plant components. Numerous random failures of electrical components caused ESF actuations and were included in the basis for the poor rating. The design category was adequate; some minor deficiencies were noted. Challenges to the operators came from the unreliability of feedwater; this was a major factor in rating the category of reliability as poor. Other BOP systems also unnecessarily challenged the operators. The category of surveillance was rated as adequate; although there was no negative impact on the operation of equipment, some deficiencies in procedures were identified.

IX. CORPORATE MANAGEMENT PERFORMANCE

The information used in the development of this tree had very little hard data for evaluating corporate management. Therefore, the panel evaluated the organizational categories indirectly and extrapolated the ratings from the like categories in management/organization performance. Using this method, the panel determined that the self-assessment, goals and objectives, staffing, training, documentation, immediate supervision, events assessment, and planning and scheduling categories were adequate. The other category, communications, was not rated because of insufficient information.

X. LICENSEE PERFORMANCE

Overall licensee performance was developed from the combination of the three main areas evaluated: corporate management performance, management/organization performance, and equipment performance. Those ratings were adequate, low adequate, and on the high side of poor, respectively. Therefore, the panel determined that the licensee's overall performance was low adequate.

This evaluation tree presents in blue the areas in which intensified inspection could give better insight into the performance of the licensee. Additional information in these areas could impact the performance evaluation. The major problems found during this process involved examples of lack of procedural detail, procedure adherence, electrical equipment failures, and corrective actions for equipment failures.