

SALP BOARD REPORT

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

NRC Inspection Report 50-267/87-35

Public Service Company of Colorado

Fort St. Vrain Nuclear Generating Station

May 1, 1987, through August 31, 1988

I. INTRODUCTION

The Systematic Assessment of Licensee Performance (SALP) program is an integrated Nuclear Regulatory Commission (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 the facility's performance in each functional area.

An NRC SALP Board, composed of the staff members listed below, met on October 20, 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 Fort St. Vrain Nuclear Generating Station for the period May 1, 1987, through August 31, 1988.

The SALP Board for Fort St. Vrain was composed of:

- A. B. Beach, Deputy Director, Division of Reactor Projects
- J. L. Milhoan, Director, Division of Reactor Safety (DRS)
- R. L. Bangart, Director, Division of Radiation Safety and Safeguards (DRSS)
- J. A. Calvo, Director, Project Directorate IV, NRR
- T. F. Westerman, Chief, Reactor Projects Section B
- R. E. Farrell, Senior Resident Inspector
- K. L. Heitner, NRR Project Manager

The following personnel also participated in the SALP Board meeting:

- C. M. Abbate, Project Engineer
- R. E. Baer, Chief, Facilities Radiological Protection Section, DRSS
- I. Barnes, Chief, Materials and Quality Programs Section, DRS
- J. E. Cummins, NRR Team Leader
- R. J. Everett, Chief, Security and Emergency Preparedness Section, DRSS
- P. W. Michaud, Resident Inspector
- R. P. Mullikin, Project Engineer, DRP
- B. Murray, Chief, Reactor Programs Branch, DRSS
- W. C. Seidle, Chief, Test Programs Section, DRS

A. Licensee Activities

During this assessment period the licensee experienced the two best months of electrical production in the plant's history. A new plant record for electrical production for a single calendar month was set in March 1988. This record was surpassed in June 1988 with net electrical production of 167,699 megawatt hours.

The plant operation during March, May, and June 1988 demonstrated the licensee's capability to operate the plant continuously with a high capacity factor. Additionally, the October 1987 fire, the western states electrical grid instability in April 1988, and the loss of main condenser in April 1988, all demonstrated the operating staff's ability to respond promptly and appropriately to complex operating events.

There was no refueling outage during this assessment period. The licensee planned to operate the plant steadily until the fourth refueling outage projected for 1989. However, failure of the "C" Helium Circulator in July 1987 caused the plant to be shut down until early October 1987. As the plant was restarting on October 2, 1987, failure of a thermal relief valve on the plant's hydraulic system led to a fire in the turbine building. Although the plant was shut down safely, significant fire damage required another forced outage. The plant restarted from this outage in December 1987.

Plant operation continued until April 4, 1988, when the plant was manually scrammed due to electrical grid instability.

The plant was restarted but, on April 7, 1988, a circulating water system expansion joint failed, flooding the circulating water pumps. The plant was manually scrammed and cooled utilizing the decay heat exchanger.

The plant restarted on April 21, 1988, but scrammed following a helium circulator trip on April 29, 1988.

The plant was subsequently restarted and operated until July 6, 1988, when it entered a planned maintenance outage to replace helium circulator bolts. The plant continued in this maintenance outage through the end of the assessment period.

B. Inspection Activities

NRC inspection activity during this assessment period included 41 NRC inspections performed with 5,305 direct inspection hours expended. These inspections included an Operational Safety Team Inspection (OSTI) led by NRC Headquarters personnel and an open items team inspection led by Region IV personnel. Additionally, an Augmented Inspection Team (AIT) followed up on the October 2, 1987, turbine building fire immediately after the event.

II. SUMMARY OF RESULTS

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

<u>Functional Areas</u>	<u>Rating Last Period (05/07/86 to 04/30/87)</u>	<u>Rating This Period (05/01/87 to 08/31/88)</u>	<u>Performance Trend</u>
1. Plant Operations	2	2	Improving
2. Radiological Controls	1	2	Declining
3. Maintenance/Surveillance	N/A*	3	
4. Emergency Preparedness	3	2	Improving
5. Security	2	1	Improving
6. Engineering/Technical	N/A*	2	Declining
7. Safety Assessment/ Quality Verification	N/A*	2	
8. Maintenance	2	N/A*	
9. Surveillance	1	N/A*	
10. Fire Protection Support	1	N/A*	
11. Outages	2	N/A*	
12. Quality Programs and Administrative Controls Affecting Quality	2	N/A*	
13. Licensing Activities	2	N/A*	
14. Training and Qualification Effectiveness	2	N/A*	

*The notation "N/A" represents that the functional area was not assessed during the period indicated. In comparison with previous SALP Reports, it should be noted that functional areas have been redefined pursuant to NRC Manual Chapter NRC-0510, revised June 6, 1988, titled, "Systematic Assessment of Licensee Performance." Consequently, many of the ratings

tabulated above do not correlate directly between the last period (May 7, 1986, through April 30, 1987), and this period (May 1, 1987, through August 31, 1988).

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 assess 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); and
- G. Effectiveness of training and qualification program.

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

Based upon the 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 functional area encompassed the control and execution of activities directly related to operating the plant. It was intended to include activities such as plant startup, power operation, plant shutdown, and system lineups. Thus, it included activities such as monitoring and logging plant conditions, normal operations, response 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 functional area has been inspected on a continuing basis by the NRC resident inspectors, the headquarters Operational Safety Team Inspection (OSTI), and on several occasions by NRC regional inspectors. The results of these inspections indicated that plant operations appeared to be well managed during this period. The operations staff appeared knowledgeable and capable, and demonstrated a positive attitude for safe plant operations.

Routine startups and normal shutdowns were performed safely and professionally. Although plant operation was limited because of equipment outages, control room operators displayed a high degree of professionalism during normal activities and in response to complex challenges. Three events occurred during this assessment period that demonstrated the ability of control room operators to respond to complex system challenges.

The first event, a fire which occurred on Friday, October 2, 1987, occurred just before 12 midnight. The plant had just returned to power from a 2-month equipment outage. The plant's main phone lines were among the first cables to burn, thus hampering the licensee's response capability. The operations crew on duty used alternative phone lines still intact to alert an off-duty shift supervisor at his home who actuated the emergency response notification system.

The plant operators shut down the plant using normal systems, and operations management was able, within six hours after the fire, to verify the availability of both trains of safe shutdown

cooling required by Appendix R to 10 CFR 50 requirements. However, this method of cooling was not needed because the plant was cooled using normal system configurations.

The second event occurred when a load swing of more than 200 megawatts on the grid due to an event outside of the licensee's system caused a manual reactor scram. This load swing also caused several plants throughout the western United States to trip. The operators manually scrambled the plant a fraction of a second prior to an automatic scram as result of an equipment protection turbine trip.

The third event, a loss of the main condenser with the plant at 72 percent power, required the use of a shutdown cooling flow path which had not been used for several years. During this event the flexible coupling from the circulating water pump failed and flooded the circulating water pit. All circulating pumps were tripped as a result of the flooded condition. The operators followed their procedures and successfully shut down the plant.

During this assessment period, the station manager and operations manager demonstrated a high level of involvement in all aspects of operations; they were frequently observed in the control room by the NRC inspectors. Corporate management, usually the Vice President, Nuclear Operations, was frequently and effectively involved in site activities. Operations staff positions were identified, and authority and responsibilities were well defined.

The licensee has five operations crews. However, there are only enough licensed reactor operators for four crews. This situation has resulted in excessive overtime by the operators. Although operator morale and professionalism appeared high, the licensee does need more licensed operators. A current licensed operator class should relieve current overtime pressure in this area.

The licensee, in all cases, was very responsive to NRC concerns. The licensee took prompt corrective actions and usually took effective action to prevent recurrence. However, several procedural weaknesses were identified during the assessment period that resulted in eight violations of NRC requirements in this functional area. It appears that the licensee's procedures assumed substantial operator experience and were not always adequately detailed and thorough. Further, this less reliance on procedures, caused by the assumption of substantial operator experience, resulted in additional violations for failure to follow procedures.

In addition, a walk-through of emergency operating procedures conducted by the NRC exposed weaknesses in the identification and classification of emergency response plan conditions. Many procedures noted during this walk-through did not contain adequate specific information and relied on the experience of the personnel to not only perform the activity correctly, but also to ensure the activity was adequately controlled. To correct these weaknesses, the licensee has initiated a long-term procedure enhancement program.

There were eight reportable events during the assessment period in the functional area. Two of these events were scram actuations as the result of electronic noise while the reactor was shut down. This type of actuation has only occurred when the reactor was shut down and the signal on the nuclear channels was very small. The licensee has a continuing program to reduce electronic noise problems. However, NRC attention may be warranted since electronic noise continues to be a problem.

Four reportable events during this assessment period were attributed to operator error which occurred during the first half of the assessment period. Each of these events received strong management attention and, apparently, effective corrective actions were taken.

Previous SALP reports have recommended reduction of the large number of deficiency report tags (DRTs) throughout the plant with special attention to the DRTs directly affecting the control room. The licensee has been concentrating on the DRTs in the control room, and by bringing management attention to this problem, achieved limited success during this assessment period.

The previous SALP reports have also recommended that the licensee pursue a "black board concept" (all annunciators dark when plant conditions are all normal). Included in this recommendation was the elimination of nuisance alarms which divert operator attention from things requiring attention. The licensee has expended engineering effort toward this concept and has planned several modifications scheduled toward achieving this concept.

Another ongoing program, the plant signage program, has contributed to the licensee's recent operational success during this assessment period. New large, easy to read signs have made maintenance, operation, and testing easier and more error free.

The licensee's fire protection program implementation was inspected by region-based inspectors and on continuing basis by the NRC resident inspectors. During this assessment period no violations were identified in fire protection.

The following observations were made:

- Combustible materials, flammable and combustible liquid, and gas usage were restricted or properly controlled in areas containing safety-related equipment and components in accordance with the approved procedures.
- Two fire doors were not closing completely because of the air pressure differential. An hourly fire watch was established in accordance with the Technical Specifications.
- The required fire brigade complement was maintained independent of other duties. The training records for fire brigade and the fire drills were up to date and the fire drills were conducted at the specified intervals.
- Management involvement in assuring quality in this area has improved during this SALP period. The licensee did not have a dedicated fire protection engineer for this area during the previous assessment period. Since the licensee hired a dedicated fire protection engineer, the fire protection program at FSV has improved. The licensee has a very extensive fire protection program, which the licensee aggressively pursued, with good progress in this area.

Much of the licensee's effort during this assessment period has been directed to the Technical Specification Upgrade Program. The licensee has expended substantial resources in preparation to implement upgraded Technical Specifications. This effort has contributed to a heightened awareness of current Technical Specification requirements and interpretations.

2. Performance Rating

The overall assessment of this area indicates an improvement in performance. While there have been instances of personnel error, they have been isolated and have been resolved appropriately.

The licensee is aware of procedure deficiencies and is working to correct them. Operations procedures often require extensive experience to be used. Emergency procedures classify emergency response plan conditions from lowest to highest rather than from highest to lowest and are not easily used.

Overall, the licensee is improving in this functional area. Management is strong and involved in daily plant activities.

Control room operators are professional in conduct and very capable.

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

3. Recommendations

a. NRC Actions

- . NRC inspection effort in this area should be consistent with the Fundamental Inspection Program.
- . The licensee's ongoing electronic noise reduction program should be reviewed for effectiveness.

b. Licensee Actions

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

- . Revision and improvement of plant operating procedures
- . Improved operator training on emergency operating procedures with special attention to emergency condition identification and classification
- . Reduction of nuisance alarms by working toward a black board concept
- . Reduction of the backlog of deficiencies indicated by the high number of deficiency report tags in the control room
- . Increase number of licensed reactor operators to fully man all crews

B. Radiological Controls

1. Analysis

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 wastes), 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 shipment, periodic maintenance of packagings, and point-of-origin safeguards activities).

The occupational radiation safety program was inspected once during the assessment period by region-based radiation specialist inspectors in addition to the resident inspector's routine inspections. Five violations were identified during the assessment period, and all five involved the occupational radiation protection program.

The licensee has implemented an adequate ALARA program. The licensee has experienced a high turnover rate in the radiation protection section; however, the licensee has maintained an adequate staff. The experience level within the radiation protection section is low, but appears adequate. The number and type of violations identified indicated that the licensee's radiation protection program has experienced some programmatic weaknesses in the respiratory protection program. There is a need to improve the technical content of the radiation protection training provided to plant workers. Training/lesson plans have not been reviewed to ensure that regulatory requirements are adequately addressed. Inadequate training can be traced as a root cause of problems identified in this area. Quality control audits are extensive, but lack a team member with technical expertise that could identify technical or performance problems. There is no technical qualified oversight group within the licensee's organization that performs routine performance based assessments of the radiological control programs.

The radioactive waste management area was inspected once during the assessment period. Operational events have been reduced in this area over the previous assessment periods.

The radiological environmental monitoring program was inspected once during the assessment period. This program was well documented and staffed. The licensee has been responsive to NRC issues in this area. The licensee has expended adequate resources to ensure that this program maintains high standards and performance.

The licensee's radiochemistry program was inspected once during the assessment period. The licensee has continued to maintain a high performance level in this area with only minor problems being identified. The licensee's continuing training program for radiochemistry technicians has fallen behind schedule and is in need of attention. Again, as with the radiation protection section, the staffing in this section has experienced a high

turnover rate, but staffing requirements are being met. The licensee's approach to resolution of technical issues was technically sound and thorough in almost all cases. The licensee's performance in this area has been good as evidenced by the lack of problems and violations involving radioactive effluent releases. The licensee demonstrated 100 percent agreement during radiochemistry confirmatory measurement tests.

The licensee's transportation program was inspected once during the assessment period. The licensee continues to maintain a high level of performance in this area.

No problems were identified in the radiological controls area regarding resolution of technical issues and responsiveness to NRC initiatives.

2. Performance Rating

The licensee's performance in the radiological controls area was classified as a Category 1 during the last assessment period. However, performance during the latter part of this assessment period has been less effective in the radiological controls area. Staffing in this area is marginal in technical expertise. The number of violations identified is viewed as a programmatic weakness in the radiation protection program.

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

3. Board Recommendations

a. Recommended NRC Actions

- . The NRC inspection effort in the radiation protection area should be consistent with the Fundamental Inspection Program.
- . Inspections in other radiological controls areas should be at a reduced level.

b. Recommended Licensee Actions

- . Provide increased technical oversight of radiological protection training programs.
- . Increase the experience level of personnel assigned to the radiation protection and radiochemistry sections.
- . Improve the technical oversight and assessment of the audit team.

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. Also included was procurement, control, and storage of components, including qualification controls, installation of plant modifications, and maintenance of the 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; reactor vessel penetration interspace leak rate tests; water chemistry controls; and special tests.

This area was inspected on a routine basis by the NRC resident inspectors, periodically by NRC regional inspectors, and by the NRC Operational Safety Team Inspection (OSTI).

The maintenance program in past assessments was found to be very informal with virtually no preventative maintenance program. The most recent assessment noted significant improvement and credited the licensee for the efforts to improve in this functional area. During this assessment period, the licensee continued to work at implementing the formal maintenance program.

The licensee's efforts to implement the maintenance program and improve maintenance procedures were impeded by the series of major maintenance outages experienced during this assessment period. The licensee resources required to improve the maintenance program were utilized to perform major outage activities. Consequently, only minimal improvement was noted during the assessment period in maintenance.

The OSTI addressed maintenance from the standpoint of the support provided to operations. Problems were identified with the quality of maintenance instructions and with maintenance personnel working outside of instructions. Many procedures did not contain adequate information for performance. Craftsmen did not stop work when instructions were found to be inadequate and often performed work outside the original scope of the work authorized.

Several aspects of maintenance administrative control contributed to the problems.

- ° The station service request system (system used to authorize and document maintenance) provided the potential for field-made changes to be omitted from postmaintenance testing and engineering reviews.
- ° Documentation of maintenance activities was poor with a number of significant maintenance problems not documented in work packages.
- ° The maintenance department did not always involve engineering and quality support groups in the development or solution of problem maintenance tasks. This resulted in maintenance personnel either compounding the problem or working outside of the bounds permitted by the plant design and codes.
- ° Of the 6 violations and 17 reportable events in this functional area, most were due to inadequate procedures or personnel error.

Although there are problems in maintenance, the experience and ability of the maintenance personnel is a strength. The licensee is improving the preventative maintenance program and maintenance procedures are being modified as problems are identified. The NRC has recognized that maintenance management is working to improve the program of formal controls. However, a sustained period of operation without a major maintenance outage is needed to free the licensee's limited resources to improve the formal program in this functional area.

The management and conduct of the Technical Specification surveillance program was strong. The extension of surveillance testing to determine operability of components and subsystems not explicitly listed in the Technical Specifications was considered to be an enhancement to safety. The licensee's methods for scheduling and accounting for test completion and problems were particularly effective.

Several problems were identified regarding secondary water chemistry confirmatory measurements. The licensee's analytical results for comparative measurements performed on prepared water chemistry standard indicated only 64 percent agreement between the licensee's results and the known values; expected industry

results would be about 80 percent agreement. Several NRC inspector observations concerning program improvement items were made in this area during the assessment period.

One violation concerning use of quality control measures in secondary water chemistry was identified. Due to the nature and length of time this violation was in existence, there is reason to question the quality assurance and management oversight applied to this area.

In the overall surveillance program there are weaknesses resulting partly from the uniqueness of the facility. The licensee in the absence of an approved ASME code for gas cooled reactors, is working to develop a formal inservice inspection program. Some aspects of inservice testing have been incorporated in the facility Technical Specifications.

The licensee does take exception to valve stroking normally operated valves as part of an inservice test. However, this licensee had not instituted a followup tracking and logging program to verify that valves excepted from valve stroke tests are indeed exercised during the test interval.

The licensee has a program for reviewing safety-related applications of test and measuring equipment found out of tolerance. The licensee has not always documented these reviews sufficiently.

The licensee has reorganized these functional areas during the assessment period. Some new managers and supervisors have been assigned to assist in this functional area. The program developed in the previous assessment period is being implemented but was not fully implemented during this assessment period.

2. Performance Rating

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

The licensee has assigned additional management to this functional area. The basis of a good program is in place and craftsmen are talented and dedicated. Administrative controls and task procedures are not yet sufficient to support the quality of work required from this organization.

The licensee has a strong surveillance program with some problems. Conversely, the maintenance program is weak and needs increased formality and procedure enhancement. Workers need to adopt a philosophy of not working outside procedures even when the worker knows how to proceed without the procedure.

Engineering review and documentation requirements dictate that the procedure must be correct before the work is done.

3. Recommendations

a. Recommended NRC Actions

- . Inspection of the surveillance program should be maintained consistent with the Fundamental Inspection Program.
- . Increased NRC attention should be focused on the maintenance program with attention to the developing preventative maintenance program.
- . A maintenance team inspection in the next assessment period would be a good measure of licensee progress since the Operational Safety Team Inspection conducted late in this assessment period.

b. Recommended Licensee Actions

- . Conduct comprehensive performance based quality assurance audits.
- . Increase management oversight and technical assessments.
- . Increase management support for development of a comprehensive preventative maintenance program.
- . Increase quality of maintenance procedures.
- . Require compliance with approved procedures.
- . Stop unauthorized or out of scope maintenance work.
- . Provide better review of station service requests to assure identification of plant modifications performed as maintenance activities.

D. Emergency Preparedness

1. Analysis

This functional area includes activities related to the establishment and implementation of the emergency plan and implementing procedures, such as onsite and offsite plan development and coordination; support and training of onsite and offsite emergency response organizations; licensee performance during exercises and actual events that test emergency plans;

administration and implementation of the plan (both during drills and actual events); notification; radiological exposure control; recovery; protective actions; and interactions with onsite emergency response organizations during exercises and actual events.

During the assessment period, region-based NRC inspectors and contractor personnel conducted five routine emergency preparedness inspections and one reactive inspection. The reactive inspection examined the implementation of the emergency plan and procedures in response to the October 2, 1987, fire. One of the inspections consisted of the evaluation of the annual emergency response exercise.

The licensee performance since the last SALP has been considered to be in a continual positive trend in the emergency preparedness area. During this assessment period, a management reorganization was implemented that increased involvement and attention by corporate and onsite organizations in the emergency preparedness area. A strong management commitment and involvement in program improvement has been demonstrated by the completion of all short-term improvements. Prior to the annual emergency preparedness exercise on August 5, 1987, the licensee revised about half of their emergency plan implementing procedures, improved training, implemented a radiopager system, and made facility improvements to the forward command post.

The effectiveness of improvements was observed during the August 5, 1987, emergency preparedness exercise, which demonstrated a better capability for responding to emergency events and corrected previously identified deficiencies. The stronger management attention to emergency preparedness during this period was also evidenced by the creation of an emergency preparedness coordinator position in the plant organization. After the violation in the onsite training area identified in the April 25-29, 1988, inspection, the licensee committed to a more comprehensive training program, retrain key emergency response personnel, review and revise emergency implementing procedures, and maintain a continuous effort to requalify their staff through classroom training and drills.

During the reactive inspection, one deviation was identified. This resulted from a fire in the turbine building on October 2, 1987, in which the licensee failed to staff and activate the forward command post (emergency operations facility) within 90 minutes. During an actual airborne release that occurred on April 4, 1988, from the core support area, operations and health physics personnel were unable to calculate the proper released airborne concentrations. The emergency exercise identified four deficiencies. One violation identified was due to weaknesses in personnel proficiency during the April 25-27, 1988, inspection.

Another violation was due to the delayed notification occurring during an actual radiological release on April 4, 1988. These violations indicated a weakness in the licensee's training program.

2. Performance Rating

The nature of the violations, the number of deficiencies, and the deviation identified during the inspections, along with problems occurring during actual events, are indicative that improvement is needed in this area. However, the inspection findings for this evaluation period indicate that the licensee's emergency preparedness program meets basic requirements to protect the health and safety of the public.

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

3. Board Recommendations

a. Recommended NRC Action

The NRC inspection effort in this area should be consistent with the Fundamental Inspection Program focusing on areas where specific weaknesses were identified.

b. Recommended Licensee Action

Licensee management should continue the present level of attention to the correction of identified weaknesses; and ensure that problem root causes are identified and corrected.

E. Security

1. Analysis

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

During the assessment period, region-based inspectors conducted four security inspections. Six violations of the physical security plan (PSP) were identified. Four of the violations were Security Level IV violations and two were Security Level V violations.

Licensee management has demonstrated a strong commitment to the implementation of an excellent security program. Management has committed the necessary resources to ensure that an adequate

staff is available and that security equipment is as close to state-of-the-art as possible. The licensee has increased the numbers of security management personnel from one to six during the assessment period. Additionally, the number of security officers per shift has increased by approximately 25 percent.

The perimeter security upgrade was completed during this assessment period. The licensee's perimeter security system has been recommended by NRC security inspectors to other licensee's within Region IV as a model perimeter security system. Security management personnel have excellent backgrounds and experience. The licensee is continuously evaluating emerging security technology as a method to improve their program. The licensee has received approval by NRC Headquarters for the upgrade of the security systems backup power supply and are well advanced toward meeting their May 1989 completion of this program. The licensee's security plan changes have been submitted and are awaiting NRC approval. The licensee's response to NRC initiatives has been outstanding during the assessment period as evidenced by the security force increases and the backup power supply initiatives. Their review and submission of security plans and procedures is excellent. One violation was identified involving compensatory measures; the licensee's followup corrective action significantly changed their PSP and enhanced their capabilities in this area.

While the licensee's security audit plan appeared to be comprehensive, it did not appear that the audit team included members with sufficient expertise to identify technical or programmatic problems in the security area. The licensee has increased emphasis on the training and qualification program and improvements in this area are evident. The licensee is in the process of expanding the training program and apparently will continue to improve the program.

2. Performance Rating

The licensee has made considerable improvement in this area since the previous assessment period. Licensee management has demonstrated excellent support for the security program to ensure the plant has a high quality program.

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

3. Board Recommendations

a. Recommended NRC Actions

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

b. Recommended Licensee Actions

Licensee management should continue to provide strong support for the security program. Licensee management should ensure that audits are conducted by personnel with security expertise. Continued emphasis should be placed on training and qualifications of the security force.

F. Engineering/Technical Support

1. Analysis

The purpose of this functional area is to address the adequacy of the technical and engineering support for all plant activities. It 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; and configuration management.

a. Plant Modifications and Outages

The NRC has conducted several inspections in the area of engineering activities in support of design changes and modifications to the plant during this assessment. In one of the inspections, it appeared that all engineering requirements involving new installations, related to the facility fire protection system, had not been fully accomplished. It was found that fire detectors had not been installed in some areas as committed and that the spacing of the detectors in other areas was not in accordance with the manufacturer's recommendations.

In another inspection conducted early in the assessment period, it was found that over one hundred temporary facility modifications done under the licensee's temporary configuration report program had in fact remained in place for several years without conversion to permanent design changes. Therefore, the appropriate design reviews had not been performed and the changes had not been incorporated into facility drawings.

The findings of this inspection involving the temporary configuration report program resulted in the only enforcement conference conducted during this assessment period. As a result of these findings, the NRC resident inspectors following the Temporary Configuration reports have observed extensive licensee action to eliminate existing temporary changes by converting long standing changes to permanent changes with appropriate evaluations and physical changes when required.

Another inspection identified that batteries in the emergency lighting system had been effectively destroyed by a test that was not properly conducted because of inadequacies in the related controlled work package, which, in turn, was based on information supplied by the engineering organization.

An NRC inspector observed that the design change process, as documented, was very complex and that it appeared that the various groups involved had little awareness of what the other groups did.

During a review of change notices, an NRC inspector noted that the engineering evaluation of a change in the steam leak rupture detection and isolation system (SLRDIS) was less than thorough in that the change provided additional load on one of the uninterruptible power supply systems (UPS) that took the UPS to an overload condition.

During recent inspections of the design change process, there has been some improvement in the thoroughness of the engineering data provided and the reviews appear to have also been more thorough. One inspection involving the refurbishment of the reactor helium circulators noted that change notices issued by the engineering organization to document design changes complied with NRC requirements in that all applicable reviews had been accomplished properly. Change notices were well detailed and contained necessary information for making the changes.

The licensee also has made revisions in the procedures governing the change process in an effort to make the process better able to function properly, and to decrease the response time of engineering to perceived plant needs. However, the procedures remain complex.

b. Procurement Activities

In the area of engineering and technical support for procurement activities, two inspections identified that purchase orders placed for fasteners to be used as an essential element of the helium recirculator refurbishment were not current in their references to engineered drawings and, further, the orders did not require appropriate quality documentation. Although not firmly established, it appears that the purchase requisitions prepared by the engineering organization, upon which the purchase orders were based, were inadequate in that they did not consider prior commitments made in correspondence to the NRC.

There were indications in this area that the licensee's engineering group was dependent on receiving current engineering information from the NSSS vendor from whom they were purchasing the material before the procurement documents could be updated properly. It appeared that the vendor was determining the technical requirements for what he was to furnish rather than the licensee making the determination and insisting on compliance.

It appears that the procurement process was hampered by the lack of well defined engineering requirements for plant components. Successful procurement at FSV requires significant engineering input and evaluation.

It was also noted that the procedures governing procurement activities, particularly in the engineering area, were not clear relative to the dedication process by which commercial grade components could be used in safety-related applications. It was also noted that the procurement specification requirements for replacement components were vague.

In one noted instance, the licensee ordered a valve and required that the valve be tested hydrostatically for seat leakage, but did not specify any licensee QC acceptance values. When the valve was received, the receiving QC inspector had to find a vendor catalog which provided the advertised values of pressure rating and seat leakage in order to determine the acceptability of the valve.

In another instance, the receiving inspectors had placed a receiving inspection hold tag on a major component that was too large and too inconvenient from a handling standpoint to place in the receiving inspection area. The purpose of the hold tag was to identify to others that component had not been receipt inspected and that no work was to be done on the component until the inspection had been done. Plant personnel, nonetheless, proceeded to install the component without exercising a method of allowing the action with engineering and quality assurance groups' consent.

Inspection of the receiving inspection process and the storage of components indicated that both functions were generally satisfactory. In the storage area in particular, stocked item identification was considered to be very satisfactory.

c. Operations, Maintenance, Testing, Surveillance

The engineering and technical support of active plant functions has improved during the assessment period. The

licensee has attempted a reorganization to concentrate inplant engineering into one organization. Engineering support now comes from two organizations, the nuclear engineering division outside the plant, and the plant systems engineering department inside the plant.

Though performance has improved, there are still obvious weaknesses in this functional area. In addition to these weaknesses discussed in the maintenance section of this report, there have been seven violations in this functional area during the assessment period that were due to personnel error or inadequate procedures. There were also four LERs during the assessment period that were due to personnel error.

While engineering and technical support has become more involved in day-to-day functions, more diligence is required to assure a high quality of support to operators and technicians, and to assure that personnel errors and the effect of inadequate procedures are minimized. In addition, there were two instances during this assessment period which indicated the need for closer engineering and technical support. In the first instance, information concerning battery capacity was prematurely reported to the NRC resident inspector without proper involvement of the licensee engineering organization. The batteries were subsequently shown by engineering to meet criteria previously accepted by the NRC. In the second instance the procedure for evaluation of reactor penetration leakage had not been maintained current or properly reviewed, this resulted in the reporting of inaccurate leakage rates to the resident inspectors which initially appeared to exceed Technical Specification (TS) limits. Subsequent correction of the leakage calculation indicated the leakage rate to be within TS.

Clearly more attention to detail is required to support facility operations and to verify proper facility operation to the NRC.

d. Training

The assessment of this area includes all activities of the training programs conducted by the licensee's staff. This area was inspected on a continuing basis by the NRC resident inspectors. This area was also the subject of two inspections conducted by NRC region based inspectors in late 1987 and late 1988. During the assessment period, licensing examinations were administered by the NRC to six

reactor operator (RO) candidates and three senior reactor operator (SRO) candidates. Two of the RO candidates failed the examination.

As a result, FSV has 10 reactor operators, 19 senior reactor operators, and 8 senior reactor operators (limited to fuel handling) licenses.

A pilot requalification program evaluation was performed at FSV during the weeks of May 11 and 18, 1987. The evaluation consisted of: (1) a detailed review of the facility developed written requalification examinations, (2) observation of facility administered operating examinations, (3) observation of facility administration of the written examinations, and (4) co-grading of several written and operating examinations. Significant problems were encountered during review of the facility written examinations that threatened examination validity. These problems were in the areas of examination construction and examination security. Additionally, minor problems in coverage and evaluation were observed on the operating examinations. As a result of this evaluation, the FSV requalification program was evaluated as marginal.

The licensee achieved full INPO accreditation for the licensed training program in the previous assessment period. The nonlicensed training program was accredited in 1988.

The NRC inspections identified that the licensee has a system in place to modify training programs based on significant plant events, the result of annual requalification examinations, and training development requests (TDRs), which were submitted by licensee personnel.

The training request process was also utilized to incorporate into the training program industry operating experience and plant modification packages. Incoming documents were assigned a TDR. The first inspection identified a severe backlog of TDRs which had not been dispositioned and needed to be incorporated into the training program. The second inspection verified that the backlog of TDRs has been reduced from approximately 600 in March 1988 to 58 in August 1988. However, the second inspection revealed that approximately 49 TDRs, some dating from 1985 and all older than 90 days, had not been assigned to a lesson plan.

The training request program would be more effective if better administrative controls and required corrective actions identified by the QA Division were implemented.

As previously described, reviews of TDRs were not timely. The licensee was in the process of upgrading and updating the training records management system. The QA Division had identified in March 1987 that the training department could not provide records nor did they have a method of controlling procedures to certify that personnel met the requirements of ANSI N18.1-1976.

The second inspection determined that after 18 months the QA department concerns still had not been addressed. The resolution of these issues had been delayed and only the minimum requirements were met.

All training programs were defined by training procedures in which key requirements were identified. Responsibilities for the implementation of training programs were specified in the training administrative manual. Sufficient expertise was usually available within the staff, but staffing was marginal as indicated by the backlog of TDRs.

The training manager reports directly to the Vice President Nuclear Operations, which indicated corporate management's involvement in site training activities. Training policies were well stated and understandable. The inspections verified training department personnel strictly adhered to policies and procedures.

Overall the training program was well defined and in the process of being upgraded to implement the INPO accredited programs. Means had been established to provide for feedback of operating experience from both within and outside the utility.

e. Configuration Management

Although engineering and technical support of configuration management was found to be acceptable during this assessment period, examples were found where piping and instrument drawing (P&IDs) were not consistently and correctly updated to reflect the existence of engineering change notices and temporary configuration reports. Also, examples were found which indicate that engineering personnel preparing or reviewing new changes did not always consider the effect of other changes on their current

effort. These examples are considered to indicate weaknesses in the licensee's configuration management program where licensee attention is needed.

2. Performance Rating

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

3. Recommendations

a. Recommended NRC Actions

- . The NRC inspection effort in this area be consistent with the Fundamental Inspection Program.
- . The NRC should selectively review significant changes or modifications that licensee might propose, particularly if the change or modification directly affects the reactor or its operating auxiliaries.
- . A Region IV team inspection of engineering and technical support should be conducted in the next assessment period.

b. Recommended Licensee Actions

The Board recommends that licensee management focus attention and resources to:

- . Assure thorough complete technical detail in change notice packages
- . Assure change notice packages include all required reviews and that these reviews are completely documented
- . Assure that controlled work packages include all requirements of the associated change notice
- . Significantly increase design engineering involvement in procurement activities
- . Assure that procurement documents contain sufficient detail to adequately require those actions contemplated by the licensee's engineers
- . Assure the issuance of correct, current design documents to the users of such documents

G. Safety Assessment/Quality Verification

1. Analysis

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

a. Licensing Activities and Safety Assessments

During the assessment period there were nine license amendments granted. These are summarized in Table II of Section V (Supporting Data and Summaries). The submittals have been timely and are considered to be of average quality.

The licensee has undertaken several initiatives in this period which have resulted in improved performance in this functional area. The licensee has been steadily increasing and improving the use of industry operating experience. A reorganization in this period has clearly defined organizational responsibility for industry operating experience evaluation. In addition, the licensee has continued to make progress in the Technical Specification upgrade program. The program is now at the point of implementation and the licensee has indicated a desire to phase the implementation. This is currently being discussed between the NRC staff and the licensee. The NRC staff has also noted that licensee responsiveness to NRC initiatives is greatly improved.

Two inspections were made in the area of the effectiveness of the licensee's conduct of 10 CFR 50.59 assessments. During the first inspection, five engineering change notices were reviewed for the purpose of determining the thoroughness of the licensee's design review process in terms of whether a contemplated change would generate an unreviewed safety question or would require a change to the

Technical Specifications. The NRC inspectors found that none of the changes required that the licensee gain NRC acceptance of the change, but in three cases the overall design reviews were less than thorough. Upon further inspection, it was determined that the actual safety evaluation was correct but was incompletely documented. That is, the licensee did not list all references and supporting documents in the written safety evaluation. Some of these supporting documents were necessary for the NRC inspectors to reach the same conclusion as the licensee.

The second inspection reviewed four change notices and the related controlled work packages for each. In addition, four temporary configuration reports were examined. The required reviews were done in an acceptable manner.

These inspections indicated that the performance of 10 CFR 50.59 reviews by the licensee were satisfactory. However, the licensee should improve the thoroughness of safety evaluation documentation in support of modifications.

In the area of the licensee's conduct of 10 CFR 21 assessments, the NRC conducted one inspection directed toward reviewing the licensee's program. The NRC inspector noted that the licensee's procedures were fully satisfactory in terms of the posting, evaluation, and reporting requirements of the regulation, but were weak in the area of the development and maintenance of records. It was also found that the licensee's engineering function was, on occasion, excessively slow in performing requested evaluations. Several other inspections of the licensee's evaluation process have generally indicated that the process has functioned satisfactorily.

In addition to evaluating Part 21 reports received from outside sources, the licensee filed two Part 21 reports during the assessment period. Both of these reports were filed on June 5, 1987. The first report identified potential defects in certain Limitorque valve operators. The second identified potential defects in Wolf and Swichard air start motors for emergency diesel generators.

The Part 21 reports were technically adequate and filed in accordance with NRC requirements. The NRC staff also noted that on February 2, 1988, the licensee's reactor vendor, GA Technologies, filed a Part 21 report identifying quality assurance deficiencies concerning replacement parts for the helium circulators.

NRC regional inspectors conducted two inspections of the onsite plant operations review committee (PORC) and one inspection of the off-site nuclear facility safety committee (NFSC). The inspections involved attendance at one or more committee meetings and review of committee meeting minutes. In general, the NRC inspectors found that both committees accomplished the elements contemplated by the Technical Specifications and the committee charters. However, the committees do not utilize subcommittees, thus requiring substantial management time to meet Technical Specification requirements. It appears that more efficient committee process would make management time available for other matters.

Assessment of all ramifications of deviating from operations procedures and standard plant configurations should be improved to assure undesirable plant configurations are avoided. A false loss of bearing water signal emphasized the importance of such reviews. When a false loss of bearing water signal was received on Loop 1, Helium Circulator B tripped as designed, and Helium Circulator A did not. The licensee's followup revealed that the speed valve to Helium Circulator A was manually jacked open and could not close. Had bearing water actually been lost, Helium Circulator A could have been damaged.

b. Quality Verification Activities

An inspection in the design control area indicated that the licensee is slow in responding to QA/QC findings. The case in point was in the area of temporary configuration reports changes to the facility that, in effect, had become permanent changes as previously discussed in Plant Modifications and Outages. The NRC inspectors noted that the licensee's QA/QC group had developed concerns in this area prior to the NRC's inspection, but that little or no action had been taken to correct the matter.

The licensee's quality verification functions are working to identify and document problems requiring resolution. However, continuing problem in this assessment period was the backlog of problems identified that required resolution. In 1986, an NRC inspection found that the licensee had a substantial backlog of QA/QC findings for which little or no action had been taken. A recent inspection indicated that while the apparent backlog has been reduced, it still exists to a substantial degree with several old nonconformances not corrected even though some had been issued several years ago.

The QA/QC group has issued corrective action requests about every six months, since early 1987, requesting that management make improvements in the corrective action program. The NRC staff believes that part of the problem is the slow response of the licensee's engineering organization to QA/AC findings. The NRC staff recognizes the tremendous workload under which the licensee's engineering organization has labored. The engineering organization, like the maintenance organization, has had an overload of plant problems continuing over several years. This inordinate workload has prevented work on items considered less pressing by licensee management. However, this does not excuse the delays in closing audit findings.

The NRC staff notes that there are improvements in the licensee's overall performance that reflect management initiatives and involvement in this functional area. This is particularly evident in the operation of the senior planning team (SPT). The SPT serves as a forum for integration of each division's activities. Integration is also evident in the team or project approach used to address major problem areas, such as the failure of the helium circulator in 1987. These activities support quality work by assuring that all factors are carefully considered in the activities of the licensee or its contractors.

Quality organization activities were found to be in place and generally functioning adequately. However, detailed quality checks on many internal activities appear lacking. For example, there is little evidence of the QA organization reviewing internal documents, such as 50.59 reports. Problems noted in other functional areas with procedures such as maintenance and operations would benefit from quality assurance review.

2. Performance Rating

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

3. Recommendations

a. Recommended NRC Actions

NRC attention to the programmatic aspects of the licensee's quality verification functions should be increased. Specific attention should be focused on the timeliness and quality of licensee corrective actions.

b. Recommended Licensee Actions

- . The licensee should reduce the backlog of open corrective action requests.
- . The licensee should improve the timeliness of responses to corrective action requests.
- . The licensee should give greater management attention to QA/QC findings, particularly in the area of timely response on the part of the engineering organization.
- . The licensee should involve QA in the review of internal documents, such as 50.59 reports.

V. Supporting Data and Summaries

A. Meetings Held During This Assessment Period

An enforcement conference was held at the Region IV office on September 10, 1987, to discuss design control and the use of temporary change requests. Additional meetings were held at the Region IV office on March 3 and April 6, 1988, on design control and configuration management.

A management meeting was held at the Region IV office on September 11, 1987, to discuss the failure of the "D" Helium Circulator and the planned recovery.

A management meeting was held at the Region IV office on May 5, 1988, to discuss licensee proposals for compliance with the requirements of the miscellaneous amendments rule.

The licensee met with NRR ten times during the assessment period on a variety of topics.

TABLE 1
ENFORCEMENT ACTIVITY

FUNCTIONAL AREA	DEFICIENCIES	DEVIATIONS	Number of Violations In Each Level	
			V	IV
A. Plant Operations			(1) 1	7
B. Radiological Controls			2	4
C. Maintenance/Surveillance		1		(2) 3
D. Emergency Preparedness	9			
E. Security			3	3
F. Engineering/Technical Support				5
G. Safety Assessment/Quality Verification		1		
TOTALS	9	2	6	22

Footnotes:

- (1) Includes two violations with examples applicable to Maintenance/Surveillance and one violation applicable to Engineering/Technical Support.
- (2) Includes one violation with examples applicable to Engineering/Technical Support.

TABLE II
LICENSE AMENDMENTS

<u>Amendment</u>	<u>Date</u>	<u>Description</u>
54	May 20, 1987	Modified surveillance requirements for emergency diesel generators
55	June 29, 1987	Required economizer, evaporator, superheater of both steam generators to be available for decay heat removal
56	July 13, 1987	Modified administrative controls and operation of Plant Operations Review Committee
57	November 23, 1987	Revised LCO to assure sufficient flow of helium coolant in low power or shutdown mode
58	January 22, 1988	Revised surveillance and calibration requirements of plant protective system (PPS)
59	April 7, 1988	Deleted tabular listing of safety-related snubbers from Technical Specifications
60	June 20, 1988	Revised PPS setpoints to allow for instrument error
61	August 5, 1988	Deleted requirement to monitor temperature in dewpoint moisture monitor reactor vessel penetrations
62	August 5, 1988	Deleted obsolete reference in Appendix B of Technical Specifications

SALP MEETING SUMMARY

Date: January 25, 1989
Licensee: Public Service Company of Colorado (PSC)
Facility: Fort St. Vrain Nuclear Generating Station (FSV)
License: DPR-34
Docket: 50-267
Subject: SALP MEETING AT FSV VISITORS' CENTER

On January 25, 1989, the Regional Administrator, NRC, Region IV, members of the Region IV staff, and NRR representatives met with representatives of PSC in an open meeting at the Fort St. Vrain Visitors' Center to discuss the SALP Board Report covering the period May 1, 1987, through August 31, 1988.

After opening remarks by the Regional Administrator, the Director, Division of Reactor Projects, presented each of the functional areas evaluated in the SALP Board Report using Attachment 1 as an outline. The PSC President and Chief Executive Officer, and other licensee representatives presented the PSC response using Attachment 2 as an outline. The PSC response included discussion of planned actions to improve performance in functional areas judged by the SALP Board to exhibit declining performance.

Attachments:

1. NRC Material Presented at Meeting
2. PSC Material Presented at Meeting
3. Attendance List (Principal Attendees)

ATTACHMENT 1

AGENDA

INTRODUCTION

ROBERT D. MARTIN, REGIONAL
ADMINISTRATOR, NRC REGION IV

SALP PRESENTATION

L. J. CALLAN, DIRECTOR,
DIVISION OF REACTOR PROJECTS
NRC REGION IV

PUBLIC SERVICE COMPANY
OF COLORADO RESPONSE
AND COMMENTS

LICENSEE MANAGEMENT AND STAFF

CLOSING REMARKS

ROBERT D. MARTIN

UNITED STATES NUCLEAR REGULATORY COMMISSION
SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE
MEETING

PUBLIC SERVICE COMPANY OF COLORADO
FORT ST. VRAIN NUCLEAR GENERATING STATION
MAY 1, 1987-AUGUST 31, 1988

FORT ST. VRAIN NUCLEAR GENERATING STATION
JANUARY 25, 1988
2 P.M.

SALP PROGRAM OBJECTIVES

IMPROVE NRC REGULATORY PROGRAM

PROVIDE A BASIS FOR ALLOCATION OF
NRC RESOURCES

IMPROVE LICENSEE PERFORMANCE

MECHANISM TO FOCUS ATTENTION ON
OVERALL EFFECTIVENESS OF MANAGEMENT

PERFORMANCE ANALYSIS AREA FOR FORT ST. VRAIN
NUCLEAR GENERATING STATION

- A. PLANT OPERATIONS
- B. RADIOLOGICAL CONTROLS
- C. MAINTENANCE/SURVEILLANCE
- D. EMERGENCY PREPAREDNESS
- E. SECURITY
- F. ENGINEERING/TECHNICAL SUPPORT
- G. SAFETY ASSESSMENT/QUALITY
VERIFICATION

FUNCTIONAL AREA PERFORMANCE CATEGORY

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.

EVALUATION CRITERIA

1. MANAGEMENT INVOLVEMENT AND CONTROL IN ASSURING QUALITY
2. APPROACH TO TECHNICAL ISSUES FROM A SAFETY STANDPOINT
3. RESPONSIVENESS TO NRC INITIATIVES
4. ENFORCEMENT HISTORY
5. OPERATIONAL EVENTS (INCLUDING RESPONSE TO, ANALYSIS OF, AND CORRECTIVE ACTIONS FOR)
6. STAFFING (INCLUDING MANAGEMENT)
7. EFFECTIVENESS OF TRAINING CRITERIA AND QUALIFICATION PROGRAM

STRENGTHS

MANAGEMENT'S INVOLVEMENT IN PLANT OPERATIONS

PROFESSIONALISM OF CONTROL ROOM OPERATORS

MANAGEMENT'S SUPPORT OF THE SECURITY AREA

STRONG SAFETY ASSESSMENT CAPABILITY

THE OVERALL SURVEILLANCE PROGRAM

WEAKNESSES

WEAK MAINTENANCE PROCEDURES

TURNOVER OF EXPERIENCED PERSONNEL IN
THE RADIOLOGICAL CONTROL AREA

PROGRAMMATIC WEAKNESS IN THE RESPIRATORY
PROTECTION AREA

DEFICIENCIES IN THE CHANGE NOTICE PROGRAM

PLANT OPERATIONS

CATEGORY 2

THE OPERATIONS STAFF APPEARED KNOWLEDGEABLE AND CAPABLE, AND DEMONSTRATED A POSITIVE ATTITUDE TOWARD SAFE PLANT OPERATIONS

OPERATOR MORALE AND PROFESSIONALISM APPEARED HIGH

CONTROL ROOM OPERATORS DEMONSTRATED THE ABILITY TO RESPOND TO COMPLEX SYSTEM CHALLENGES

THE STATION MANAGER AND OPERATIONS MANAGER DEMONSTRATED A HIGH LEVEL OF INVOLVEMENT IN ALL ASPECTS OF OPERATIONS

LICENSED REACTOR OPERATORS HAVE HAD TO WORK EXCESSIVE OVERTIME DUE TO SHORTAGES OF PERSONNEL. THE CURRENT LICENSED OPERATOR CLASS SHOULD RELIEVE CURRENT OVERTIME PRESSURES IN THIS AREA

PROCEDURES WERE NOT ALWAYS ADEQUATELY DETAILED AND THOROUGH

SEVERAL MODIFICATIONS HAVE BEEN PLANNED TOWARD ACHIEVING A "BLACK BOARD CONCEPT" (ALL ANNUNCIATORS DARK WHEN PLANT CONDITIONS ARE ALL NORMAL)

NEW LARGE, EASY TO READ SIGNS HAVE MADE MAINTENANCE, OPERATIONS, AND TESTING EASIER AND MORE ERROR FREE

PLANT OPERATIONS

RECOMMENDED LICENSEE ACTION

LICENSEE MANAGEMENT IS ENCOURAGED TO CONTINUE IMPROVEMENT EFFORTS IN THIS FUNCTIONAL AREA, INCLUDING:

- ° REVISION AND IMPROVEMENT OF PLANT OPERATING PROCEDURES
- ° IMPROVED OPERATOR TRAINING ON EMERGENCY OPERATING PROCEDURES WITH SPECIAL ATTENTION TO EMERGENCY CONDITION IDENTIFICATION AND CLASSIFICATION
- ° REDUCTION OF THE BACKLOG OF EQUIPMENT DEFICIENCIES INDICATED BY THE HIGH NUMBER OF DEFICIENCY TAGS IN THE CONTROL ROOM
- ° INCREASE NUMBER OF LICENSED OPERATORS TO FULLY MAN ALL CREWS
- ° REDUCTION OF NUISANCE ALARMS BY WORKING TOWARD A BLACKBOARD CONCEPT

RADIOLOGICAL CONTROLS

CATEGORY 2

THE LICENSEE HAS MAINTAINED AN ADEQUATE STAFF IN THE RADIATION PROTECTION SECTION DESPITE A HIGH TURNOVER RATE

THE EXPERIENCE LEVEL IN THE RADIATION PROTECTION SECTION IS LOW, BUT APPEARS ADEQUATE

THE LICENSEE HAS EXPERIENCED SOME PROGRAMMATIC WEAKNESSES IN THE RESPIRATORY PROTECTION PROGRAM

THERE IS NO TECHNICALLY QUALIFIED OVERSIGHT GROUP TO PERFORM ROUTINE PERFORMANCE BASED ASSESSMENTS OF THE RADIOLOGICAL CONTROL PROGRAMS

RECOMMENDED LICENSEE ACTION

PROVIDE INCREASED TECHNICAL OVERSIGHT OF RADIOLOGICAL PROTECTION TRAINING PROGRAMS

INCREASE THE EXPERIENCE LEVEL OF PERSONNEL ASSIGNED TO THE RADIATION PROTECTION AND RADIOCHEMISTRY SECTIONS

IMPROVE THE TECHNICAL OVERSIGHT AND ASSESSMENT OF THE AUDIT TEAM

MAINTENANCE/SURVEILLANCE

CATEGORY 3

SIGNIFICANT IMPROVEMENT WAS NOTED IN THE PREVENTIVE MAINTENANCE PROGRAM

MAINTENANCE PERSONNEL WERE FOUND TO BE WORKING OUTSIDE OF SOME PROCEDURES DUE TO INADEQUATE WORK INSTRUCTIONS

DOCUMENTATION OF MAINTENANCE ACTIVITIES WAS POOR WITH A NUMBER OF SIGNIFICANT MAINTENANCE PROBLEMS NOT DOCUMENTED IN WORK PACKAGES

THE MAINTENANCE DEPARTMENT DID NOT ALWAYS INVOLVE ENGINEERING AND QUALITY SUPPORT GROUPS IN THE DEVELOPMENT OR SOLUTION OF PROBLEM MAINTENANCE TASKS

ALTHOUGH THERE ARE PROBLEMS IN MAINTENANCE THE EXPERIENCE OF THE MAINTENANCE PERSONNEL IS A STRENGTH

SURVEILLANCE TESTING OF COMPONENTS AND SUBSYSTEMS NOT EXPLICITLY LISTED IN THE TECHNICAL SPECIFICATIONS WAS CONSIDERED AN ENHANCEMENT TO SAFETY

THE LICENSEE'S METHODS FOR SURVEILLANCE SCHEDULING AND ACCOUNTING WERE PARTICULARLY EFFECTIVE

PROGRAMMATIC WEAKNESS IN CONTROL OF TEST AND MEASURING EQUIPMENT

MAINTENANCE/SURVEILLANCE

RECOMMENDED LICENSEE ACTION

CONDUCT COMPREHENSIVE PERFORMANCE BASED QUALITY
ASSURANCE AUDITS

INCREASE MANAGEMENT OVERSIGHT AND TECHNICAL
ASSESSMENTS

CONTINUE MANAGEMENT SUPPORT FOR DEVELOPMENT OF A
COMPREHENSIVE PREVENTIVE MAINTENANCE PROGRAM

INCREASE QUALITY OF MAINTENANCE PROCEDURES

REQUIRE COMPLIANCE WITH APPROVED PROCEDURES

EMERGENCY PREPAREDNESS

CATEGORY 2

LICENSEE PERFORMANCE SINCE THE LAST SALP HAS BEEN CONSIDERED IMPROVING

INCREASED INVOLVEMENT AND ATTENTION BY CORPORATE AND ONSITE ORGANIZATIONS WAS EVIDENT IN THE EMERGENCY PREPAREDNESS AREA

STRONG MANAGEMENT COMMITMENT AND INVOLVEMENT IN PROGRAM IMPROVEMENT HAS BEEN DEMONSTRATED BY THE COMPLETION OF ALL SHORT-TERM IMPROVEMENTS

THE AUGUST 5, 1987, EXERCISE DEMONSTRATED THE EFFECTIVENESS OF THESE IMPROVEMENTS

THE LICENSEE HAS COMMITTED TO A MORE COMPREHENSIVE TRAINING AND REQUALIFICATION PROGRAM

THE LICENSEE HAS COMMITTED TO REVIEW AND REVISE EMERGENCY IMPLEMENTING PROCEDURES

RECOMMENDED LICENSEE ACTION

LICENSEE MANAGEMENT SHOULD CONTINUE THE PRESENT LEVEL OF ATTENTION TO THE CORRECTION OF IDENTIFIED WEAKNESSES AND ENSURE THAT PROBLEM ROOT CAUSES ARE IDENTIFIED AND CORRECTED

SECURITY

CATEGORY 1

THE LICENSEE HAS DEMONSTRATED A COMMITMENT TO THE IMPLEMENTATION OF AN EXCELLENT SECURITY PROGRAM

THE LICENSEE HAS INCREASED THE OVERALL SECURITY STAFF

THE PERIMETER SECURITY SYSTEM IS CONSIDERED A MODEL SYSTEM

THE LICENSEE'S RESPONSE TO NRC INITIATIVES HAS BEEN OUTSTANDING DURING THIS ASSESSMENT PERIOD AS EVIDENCED BY THE SECURITY FORCE INCREASES AND THE BACKUP POWER SUPPLY INITIATIVES

THE SECURITY AUDIT TEAM DID NOT INCLUDE MEMBERS WITH SUFFICIENT EXPERTISE TO IDENTIFY TECHNICAL OR PROGRAMMATIC PROBLEMS IN THE SECURITY AREA

RECOMMENDED LICENSEE ACTION

LICENSEE MANAGEMENT SHOULD CONTINUE TO PROVIDE STRONG SUPPORT FOR THE SECURITY PROGRAM

MANAGEMENT SHOULD ENSURE THAT AUDITS INCLUDE PERSONNEL WITH SECURITY EXPERTISE

CONTINUED EMPHASIS SHOULD BE PLACED ON TRAINING AND QUALIFICATIONS OF THE SECURITY FORCE

ENGINEERING/TECHNICAL SUPPORT

CATEGORY 2

EARLY IN THE ASSESSMENT PERIOD IT WAS DISCOVERED THAT OVER ONE HUNDRED TEMPORARY FACILITY MODIFICATIONS HAD REMAINED IN PLACE FOR SEVERAL YEARS WITHOUT CONVERSION TO PERMANENT DESIGN CHANGES

THE DESIGN CHANGE PROCESS IS VERY COMPLEX

PURCHASE REQUISITIONS PREPARED BY THE ENGINEERING ORGANIZATION WERE IDENTIFIED THAT DID NOT CONSIDER PRIOR COMMITMENTS MADE TO THE NRC

THE PROCUREMENT PROCESS IS HAMPERED BY THE LACK OF WELL DEFINED ENGINEERING REQUIREMENTS FOR PLANT COMPONENTS

PROCEDURES GOVERNING PROCUREMENT ACTIVITIES WERE NOT CLEAR RELATIVE TO THE DEDICATION PROCESS FOR COMMERCIAL GRADE COMPONENTS

THE LICENSEE HAS REORGANIZED TO CONCENTRATE INPLANT ENGINEERING INTO ONE ORGANIZATION

P&IDS WERE IDENTIFIED THAT HAD NOT BEEN CORRECTLY UPDATED

RECOMMENDED LICENSEE ACTION

IMPROVE THE COMPLETENESS OF TECHNICAL DETAIL IN
CHANGE NOTICE PACKAGES AND ASSOCIATED CONTROL
WORK PACKAGES

ASSURE THAT CHANGE NOTICE PACKAGES INCLUDE ALL
REQUIRED REVIEWS AND PROPER DOCUMENTATION OF
REVIEWS

INCREASE DESIGN ENGINEERING'S INVOLVEMENT IN
PROCUREMENT ACTIVITIES AND THE DESIGN DETAIL
CONTAINED IN PROCUREMENT DOCUMENTS

IMPROVE THE DOCUMENT CONTROL OF DESIGN DOCUMENTS

SAFETY ASSESSMENT/QUALITY VERIFICATION

CATEGORY 2

THE LICENSEE HAS BEEN STEADILY INCREASING AND IMPROVING THE USE OF INDUSTRY OPERATING EXPERIENCE.

THE LICENSEE HAS CONTINUED TO MAKE PROGRESS IN THE TECHNICAL SPECIFICATION UPGRADE PROGRAM.

THE ONSITE PLANT OPERATIONS REVIEW COMMITTEE (PORC) AND THE OFFSITE NUCLEAR FACILITY SAFETY COMMITTEE (NFSC) DO NOT UTILIZE SUBCOMMITTEES. THIS REQUIRES SUBSTANTIAL MANAGEMENT TIME TO MEET TECHNICAL SPECIFICATION REQUIREMENTS.

THERE WAS A SUBSTANTIAL BACKLOG OF QA/QC FINDINGS THAT REQUIRED RESOLUTION, PARTICULARLY IN THE DESIGN CONTROL AREA.

MANAGEMENT INITIATIVE AND INVOLVEMENT WAS EVIDENT IN THE OPERATION OF THE SENIOR PLANNING TEAM.

DETAILED QUALITY CHECKS ON MANY INTERNAL ACTIVITIES APPEARED LACKING. FOR EXAMPLE, THERE WAS LITTLE EVIDENCE OF THE QA ORGANIZATION REVIEWING INTERNAL DOCUMENTS, SUCH AS 10 CFR 50.59 REPORTS

RECOMMENDED LICENSEE ACTION

THE LICENSEE SHOULD IMPROVE THE TIMELINESS OF RESPONSES TO CORRECTIVE ACTION REQUESTS AND REDUCE THE BACKLOG

THE LICENSEE SHOULD GIVE GREATER MANAGEMENT ATTENTION TO QA/QC FINDINGS, PARTICULARLY IN THE AREA OF TIMELY RESPONSE ON THE PART OF THE ENGINEERING ORGANIZATION

THE LICENSEE SHOULD INVOLVE QA IN THE REVIEW OF INTERNAL DOCUMENTS, SUCH AS 50.59 REPORTS

ATTACHMENT 2

2:00

SALP Meeting

NRC SALP Presentation

PSC Response

Introductory Remarks

Del Hock

Maintenance

Chuck Fuller

Engineering Support

Don Warembourg

Radiological Controls

Frank Novachek

Closing Remarks

NRC/PSC

ASSESSMENTS OF MAINTENANCE ACTIVITIES

- **SALP/OSTI**
- **INPO EVALUATION**
- **MAINTENANCE SELF ASSESSMENT (APRIL 1988)**
- **PERFORMANCE BASED QA AUDIT (OCT - DEC 1988)**
- **MONTHLY QA MONITORING**

- **MAINTENANCE STRENGTHS**

- Positive Attitude of Craft
- Talented and Qualified Individuals
- Good Foundation for Program
- Good Material/Equipment Condition
- Desire to Improve
- Common Understanding of the Need to Improve

- **MAINTENANCE WEAKNESSES**

- Work Outside the Scope of Work Packages
- Coordination of Support
- Understanding of Documentation Requirements
- Material Availability

Work Outside the Scope of Work Packages

Assessment:

- Quality of work package weak
- Inappropriate procedure detail
- Cumbersome process for revising work package
- History of inadequate maintenance support

Status:

- Planning and scheduling strengthened, up-front preparation improved
- Craft feedback established, past work packages reviewed
- Rewrite programs complete, first time use validation
- Communication of management expectations and increased supervision in the field

Staying on Track:

- Increase Central Planning and Scheduling time in field
- Incorporate/enhance craft feedback
- Real time technical writer support
- Validation efforts
- Increase understanding, streamline process
- Continue management attention

Coordination of Support

Assessment:

- Poor communications
- Inefficient organization
- Lack of centralized responsibility

Status:

- Plan of the week meetings
- Plan of the day (P.O.D.) meetings
- Reorganization
- Assigned responsibility to Central Planning and Scheduling

Staying on Track:

- Continue efforts
- Evaluate success
- Revise as necessary

Understanding Documentation Requirements

Assessment:

- "Broke/fixed" attitude
- Lack of training
- Low expectations
- Related work package/coordination weaknesses

Status:

- Increased review
- Trained all levels
- Management expectations redefined
- Work package/coordination enhancements

Staying on Track:

- Respond to feedback and review
- Maintain management attention

Material Availability

Assessment:

- Needs not identified up front
- Needs not communicated for procurement
- Organizational inefficiencies
- Lack of consistency in procurement practices

Status:

- Planning/engineering coordinated up-front
- Communications centralized through planning and scheduling process
- Material Management Unit established in reorganization
- Increased use of recurring requisitions
- Staff trained in requirements

Staying on Track:

- Increase management attention

CONCLUSION

- **Significant Progress Has Been Made**
- **Management Attention Has Been Effective**
- **Utilize Craft Feedback**
- **Self-Monitor Progress**

ENGINEERING TECHNICAL SUPPORT

OVERALL ASSESSMENT

- **LICENSEE PERFORMANCE IS CATEGORY 2 WITH A DECLINING TREND**

AREAS OF CONCERN

- PLANT MODIFICATIONS/OUTAGES
- TCR CONTROL
- PROCUREMENT/MATERIAL MANAGEMENT
- OPERATIONS/MAINTENANCE/TESTING/SURVEILLANCE
- CONFIGURATION MANAGEMENT

Plant Modifications/Outages

Assessment:

- CN review process not completely documented
- Control work packages do not include all requirements of the change notice (CN)
- Technical detail not adequate in some cases
- Modification/design process was more thorough for the recent circulator outage

Status:

- Engineering Nuclear Directive finalized and will be issued with essential elements to improve the quality of the engineering design product
 - Modification follow group
 - Engineering assurance function
 - Pre-construction walkdown
 - As built verification
 - Design/operational feedback

Staying on Track:

- Develop "G" procedure to replace Nuclear Directive
- Develop additional engineering supporting procedures
- Continue development/emphasis on engineering assurance function
- Incorporate feedback as appropriate

TCR Control

Assessment:

- Temporary modifications remained in place for several years without conversion to a permanent design status
- Appropriate design reviews not made and documents not revised
- Extensive licensee action taken

Status:

- All open TCR's evaluated for impact on continued operation and JCO's developed
- All safety related TCR's requiring permanent status rolled into CN process and closed during circulator outage
- Future control of TCR's identified by SMAP-18 which provides control and elevated management visibility of open TCR's

Staying on Track:

- Continued management attention in the implementation of SMAP-18

Procurement/Material Management

Assessment:

- Design engineering involvement in procurement activities not consistent/inadequate level of involvement
- Procurement documents do not contain sufficient detail in some cases
- Insufficient material control

Status:

- All materials management functions consolidated in the Site Engineering organization
 - Procurement review (new/replacement)
 - Material control (warehousing, issuance)
 - Material staging (coordinated with Central Planning and Scheduling)
 - Consumables
 - Spare parts (inventory/control)

Staying on Track:

- Continue development/implementation of centralized material management program

Operations/Maintenance/Testing/Surveillance

Assessment:

- Performance has improved but there are identifiable weaknesses
 - More diligence required to assure high quality technical support
 - More attention to detail

Status:

- Systems Engineering concept in place and developing
- Work priorities/systems control and consequently system design facilitated by system engineers
- Design Engineering/Systems Engineering interface facilitated by follow group concept
- Work package development/coordination facilitated by follow group concepts
- Follow-up by Engineering Assurance to provide operational/maintenance feedback

Staying on Track:

- Continued management attention in the development/implementation of Systems Engineering and Design Engineering support

Configuration Management

Assessment:

- Design documents need to reflect current design for document users

Status:

- Reorganized and defined Configuration Management program
 - Met with INPO
 - Developed draft overall design basis document (DBD)
 - Defined scope/content of design basis documents and system walkdown program
- With FSV limited future, the program has been redefined
 - Finalize overall DBD based on users needs (meeting scheduled February 8)
 - Evaluating reconstitution of safe shutdown cooling system and associated design data base
 - Program to define mechanisms of change is underway focusing primarily on the use of NCR's and SSR's
- As Built Verification (ABV) effort
 - Have launched (September 1988) a significant dedicated ABV effort to update design documents
 - Thus far the group has processed 123 ABV's, 60 CN reissues, 54 AR's and 82 NCR's

Staying on Track:

- Continue management support for redirection in the development of design basis documents
- Continue ABV effort

RADIATION PROTECTION PROGRAM

SUMMARY OF CONCERNS

- Respiratory Protection Program
 - Delineation of responsibilities (RAD vs. Non-RAD)
 - Training technical content and instructor expertise

- Radiation Protection Program Oversight
 - Inadequate performance based assessments
 - Evidence of insufficient attention to detail

- Turnover of Experienced Personnel

SUMMARY OF ACTIONS UNDERWAY TO RETURN TO "SALP 1"

- IMPROVE THE RESPIRATORY PROTECTION PROGRAM
- ENHANCE PERFORMANCE BASED ASSESSMENTS
- ADDRESS HEALTH PHYSICS TECHNICIAN EXPERIENCE LEVEL

Improve the Respiratory Protection Program

- Upgrade procedures
 - Clearly delineate responsibilities
 - Ensure that regulatory requirements are addressed
 - Address all available respiratory protection equipment at FSV

- Upgrade Training
 - Improve technical content of training
 - Ensure that regulatory requirements are addressed
 - Improve instructor technical expertise

- Provide early retraining on the enhanced program requirements

Enhance Performance Based Assessments

- Recruit technical expert to be a part of the Spring 1989 Audit
- Place emphasis on integration of Radiation Protection Program into overall organizational activities
- Improve utilization of QA Monitoring process

Address Health Physics Technician Experience Level

- Continue to staff with quality, experienced, Health Physics professionals

ATTACHMENT 3

PRINCIPAL ATTENDEES

<u>Name</u>	<u>Affiliation</u>
R. Martin	NRC - RIV
L. Rubenstein	NRC - NRR
L. Callan	NRC - RIV
R. Bangart	NRC - RIV
J. Jaudon	NRC - RIV
T. Westerman	NRC - RIV
K. Heitner	NRC - RIV
R. Farrell	NRC - RIV
J. Gilliland	NRC - RIV
D. Hock	PSC
H. Brey	PSC
C. Fuller	PSC
P. Tomlinson	PSC
D. Warembourg	PSC
R. Sargent	PSC
J. Eggebrotten	PSC
F. Borst	PSC
M. Block	PSC
M. Cappello	PSC
R. Craun	PSC
D. Goss	PSC
M. Holmes	PSC
L. McBride	PSC
M. Niehoff	PSC
F. Novachek	PSC
J. Reesy	PSC
W. Rodgers	PSC
L. Scott	PSC
N. Snyder	PSC
D. Alps	PSC
P. Anderson	PSC
P. Burok	PSC
O. Clayton	PSC
M. Deniston	PSC
P. Moore	PSC
H. O'Hagan	PSC
T. Schleiger	PSC
L. Sutton	PSC
O. Williams	PSC
W. Woodard	PSC



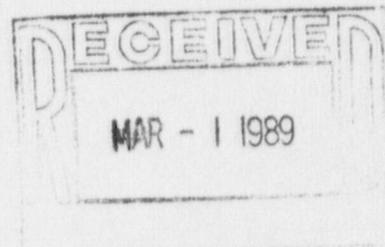
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Company of Colorado
P. O. Box 840
Denver, CO 80201-0840

February 23, 1989
Fort St. Vrain
Unit No. 1
P-89068

D. D. HOCK
PRESIDENT

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555



Docket No. 50-267

SUBJECT: Response to the Systematic
Assessment of Licensee
Performance (SALP) 87-35

REFERENCE: 1) NRC Letter, Martin
to Williams dated
December 22, 1988
(G-88509)

2) PSC Letter, Williams
to Document Control
Desk, dated
January 27, 1989
(P-89024)

Gentlemen:

This letter is in response to the Category 3 rating which was received in the functional area of Maintenance/Surveillance as a result of the Systematic Assessment of Licensee Performance (SALP) for Fort St. Vrain (FSV) Nuclear Generating Station (Reference 1). The SALP Board evaluation of performance of FSV was for the period May 1, 1987 through August 31, 1988.

A meeting was held on January 25, 1989, at FSV, to review the results of the SALP Board Report. All functional areas of the SALP Report were presented and discussed by the NRC at that meeting. PSC presented a verbal response at that meeting to the functional area of Maintenance/Surveillance and to the functional areas of Radiological Controls and Engineering/Technical which had ratings indicating declining performance trends. This letter responds only to the Category 3 Maintenance/Surveillance rating. PSC actions and programs in the other functional areas have been addressed in previous inspection report responses, at previous management meetings, and at the Performance Enhancement Program meeting also held on January 25, 1989.

IC-89/089

89030301049P

The following response to the Category 3 Maintenance/Surveillance rating is hereby submitted:

GENERAL RESPONSE

The full implementation of quality activities at FSV, particularly in the functional area of Maintenance/Surveillance, is an issue of key importance to Public Service Company of Colorado's (PSC) Nuclear Operations organization. In general, PSC has implemented Maintenance/Surveillance procedure rewrites, training, program changes, and improved communications to enhance performance of its personnel and equipment. We believe considerable progress is being achieved.

PSC is committed to using the results of the SALP Board assessment and the results of other inspections and assessments to continue improvements of Fort St. Vrain's operations. Many of the assessment issues which resulted in the Category 3 rating in the functional area of Maintenance/Surveillance were recently addressed in our response to the Operational Safety Team Inspection findings (Reference 2).

SPECIFIC RESPONSES

Based on PSC's actions recently undertaken to resolve previously identified maintenance and surveillance concerns, PSC is able to address the specific Recommended Licensee Actions of the SALP Report with programs which are, for the most part, already established and being implemented.

1. Recommended Licensee Action:

Conduct comprehensive performance based quality assurance audits.

Corrective Action To Improve Performance:

Comprehensive Quality Assurance (QA) audits of maintenance have been performed. Preventive Maintenance was audited in 1987. Corrective Maintenance was audited in 1988. The audit program is supported by QA monitoring of ongoing activities.

Quality Assurance audits, including the 1988 Corrective Maintenance audit, and monitoring activities use performance-based methods of evaluation. Emphasis will continue to be placed on these methods.

Performance-based methods include direct observation of activities or, if observation is not possible, discussions with personnel involved and review of documents for performance-based information.

Schedule For Implementation Of Corrective Action:

The Quality Assurance Operations Department conducts biennial audits of Preventive Maintenance and Corrective Maintenance. Corrective Maintenance was audited in October of 1988. Preventive Maintenance will be audited in October of 1989.

In addition, a Quality Assurance audit is scheduled to be conducted for Instrumentation and Controls Maintenance in March of 1989.

Quality Assurance monitoring will continue to place added emphasis on maintenance work activities in the future.

2. Recommended Licensee Action:

Increase management oversight and technical assessments.

Corrective Action To Improve Performance:

Efforts to enhance the communications of management expectations and improve the coordination of groups which support the functional area of Maintenance/Surveillance have been implemented. These efforts have enhanced oversight and provided assurance that the expertise needed to provide technical support for maintenance activities is available.

The Nuclear Operations organization was reorganized in mid-1988. The reorganization resulted in the redefinition of the responsibilities of the groups which perform maintenance and the groups which support maintenance activities at FSV.

New middle management and first line supervision positions were created. The positions have been filled with qualified personnel.

A Systems Engineering Department was established. System engineers have been assigned to each major system in the plant. System engineers are responsible for being aware of selected work activities underway on their respective systems and providing engineering assistance which may be required. A counterpart representative from the Operations Department has also been assigned to each major system in the plant.

The foundation for achieving the Nuclear Operations organization's goals and objectives is communication enhancements. Nuclear Operations has established communication paths for information flow both up and down organizational lines. One communications vehicle is the regularly held staff meetings for personnel at the division, department, unit, and performance levels. These meetings provide effective forums, with the appropriate personnel present, for the identification and resolution of problems associated with plant maintenance as well as other activities.

The Executive Leadership Team (ELT) was established in May 1987 to provide specific focus on strategic and broad organizational issues. ELT membership includes the Senior Vice President Nuclear Operations, Assistant to the Senior Vice President Nuclear Operations, Manager Nuclear Production Division, Manager Nuclear Licensing and Resource Management Division, Manager Quality Assurance Division, Manager Nuclear Engineering Division, Training Manager and Technical Projects Manager. The ELT meets every two weeks or more frequently as necessary.

The Senior Planning Team (SPT) meets to review plant performance, discuss progress made toward specific milestones and resolve issues that may impact future performance of the plant. The SPT is comprised of the Senior Vice President's staff, Division Managers, Department Managers and individuals responsible for key activities under way in the plant. The SPT also meets every two weeks alternating with the ELT meetings.

Two daily plant planning and scheduling meetings have been established to enhance communications and improve the coordination of groups which support maintenance at FSV.

The first daily meeting is the Plan of the Week (POW) meeting. The POW meeting is attended by Nuclear Production Division Department Managers, the Nuclear Engineering Division Site Manager, the Site Licensing Supervisor and the QA Services Manager. The meeting is chaired by the Manager, Nuclear Production Division and Station Manager. This group addresses "big picture issues," current and planned plant transitions, and major work issues. Activities of the POW meeting are immediately communicated to first line supervision at the following Plan of the Day meeting.

The prioritization of work activities occur in the Plan of the Day (POD) meeting. POD meetings are coordinated by the Central Planning and Scheduling Department. The meeting is attended by the following personnel: Central Planning and Scheduling Manager, Superintendent of Operations, Systems Engineering Supervisors, Maintenance Superintendents and Supervisors, Material Management Supervisor, Health Physics Supervisor, Chemistry Supervisor, Nuclear Engineering Supervisor, Maintenance QC Supervisor, and Site Licensing Supervisor. The objective of these meetings is to review the current work activities and those activities planned to work in a subsequent three day window, identify and coordinate support activities, and provide briefings on plant status to ensure good communications.

Issues of the POW and POD meetings are communicated to field personnel following daily sessions. First line maintenance supervisors have been directed to increase the amount of time spent in the field overseeing actual work in progress. Support developed through the series of meetings discussed above is available to first line supervisors for the resolution of any problems which occur in the field. Planning personnel are assigned the responsibility to follow up on problem areas identified at the POD meeting and coordinate the assignment of additional resources as required.

Schedule For Implementation Of Corrective Action:

Corrective actions have been fully implemented. The Maintenance quality assurance audit indicated that improved communications are helping to resolve long-standing problems. The effectiveness of the corrective actions noted above are under constant evaluation. The communications and development of support will be enhanced as necessary.

3. Recommended Licensee Action:

Increase management support for development of a comprehensive preventive maintenance program.

Corrective Action To Improve Performance:

A new Preventive Maintenance (PM) Unit was established within the Systems Engineering Department during the recent reorganization. The new unit was staffed with a supervisor and qualified performance level personnel.

Enhancements were also made to the functional structure of the Instrumentation and Controls (I&C) Department. An I&C supervisor was assigned responsibility for I&C PM activities.

New administrative procedures have been prepared to formalize the PM program. Regular preventive maintenance activities have been defined and integrated into the work schedules established for the plant.

Schedule For Implementation Of Corrective Action:

Continued development of the PM program is an ongoing process. A good foundation to support the program has been implemented.

Improvements to the PM program at FSV are currently being re-evaluated relative to the recent announcement to end nuclear operations at the plant by June, 1990. PM activities are being redefined to support the planned period of plant operation, defueling/decommissioning activities, and a possible conversion of the plant to a fossil fueled facility.

4. Recommended Licensee Action:

Increase the quality of Maintenance Procedures.

Corrective Action To Improve Performance:

The subject of procedure adequacy was addressed during the recent Maintenance Self Assessment (MSA) performed using INPO guidelines. The MSA was completed in April of 1988. Specific, ongoing actions to address this subject were developed as a result of the MSA. Actions include: ongoing reviews and procedure enhancements, verification and validation efforts for revised procedures, and development of craft ownership of procedure adequacy.

Major rewrite programs for maintenance procedures were completed in 1988. The majority of the procedures involved in those programs have received a first time use validation. Identified problems are being corrected. Technical writing resources have been redirected from the rewrite programs to "real-time" procedure support. Procedures are now being revised as soon as craft personnel identify working problems.

At the request of plant management, a review of Procedure Deviation Reports (PDR's) generated relative to maintenance procedures was performed during the recent maintenance audit. The purpose of this review was to determine if the PDR's were valid or if they were generated due to the initial issuance of inadequate procedures. The review results indicated that approximately 90% of the PDR's were due to changes in program requirements or program clarifications as opposed to being necessary to correct procedure inadequacies. This review indicates that procedure rewrite programs have been effective.

A procedure review subcommittee of the Plant Operations Review Committee (PORC) has been partially implemented. The subcommittee currently assesses the need, quality, and proper documentation of proposed procedure changes.

Schedule For Implementation Of Corrective Action:

Corrective actions have been implemented. Efforts to improve procedures are ongoing through action plans identified in the Maintenance Self Assessment.

5. Recommended Licensee Action:

Require compliance with approved procedures.

Corrective Action To Improve Performance:

Efforts implemented to improve procedure adequacy and provide support for maintenance activities, as previously discussed, will serve to make procedures more workable. Craftsmen will therefore be less likely to deviate from approved procedures.

Numerous sessions have been held with craftsmen and supervisors to sensitize them to this issue. Some disciplinary actions have been initiated in accordance with the station progressive discipline policy for cases of failure to follow procedures.

Administrative procedures which govern work activities have been revised to clarify requirements for procedure compliance. Specific training efforts have been undertaken to address this issue and provide assurance that craftsmen are aware of procedure compliance requirements.

A procedure compliance review group has been established to determine the fundamental causes of incidents involving failure to follow procedures. This group is chartered to identify and avoid situations which place craftsmen in positions where they may consider working outside of established procedures.

Critical complicated work activities are being staffed with additional personnel. These additional personnel are specifically assigned to read ahead in the procedures and coordinate with the craftsmen to prevent the inadvertent deviation from procedure steps or the misinterpretation of required actions.

Schedule For Implementation Of Corrective Action:

Corrective actions have been implemented in the area of procedural compliance. QA inspections and QA monitoring activities, specific to this issue, are conducted on an ongoing basis for key maintenance activities in the plant. The first of several maintenance work control monitoring activities was conducted for the reserve shutdown boron ball removal outage which is currently underway. Instances of failure to follow procedures identified in the course of QA inspections and QA monitoring activities are being rectified on a case by case basis.

6. Recommended Licensee Action:

Stop unauthorized or out of scope maintenance work.

Corrective Action To Improve Performance:

Efforts implemented to improve procedure adequacy, provide support for maintenance activities, and require compliance with approved procedures, as previously discussed, will also help eliminate this problem.

The cumbersome process which previously existed for revising procedures and work packages has been improved. Provisions have been made to assist the craftsman in formally revising work scope if necessary or for providing the craftsman the support needed to accomplish the defined work scope.

New work packages are now reviewed against completed packages in an effort to eliminate recurring problems. The review of completed work packages has also been enhanced.

Revisions to administrative controls which provide Quality Control and Quality Assurance (QA/QC) inspectors with "stop work" authority have been implemented. QA/QC personnel have received specific training on the revised procedures and this issue. Maintenance personnel have also been instructed with regards to the authority of QA/QC personnel to stop work when appropriate.

Management expectations regarding unauthorized or out of scope maintenance work have been reinforced to supervisors and performance level personnel.

Schedule For Implementation Of Corrective Action:

Corrective actions have been implemented to stop unauthorized or out of scope maintenance activities.

7. Recommended Licensee Action:

Provide better review of station service requests to assure identification of plant modifications performed as maintenance activities.

Corrective Action To Improve Performance:

Controls established in Administrative Procedure P-7, "Station Service Request Processing," provide multipurpose reviews of station service requests (SSR's). Included in the P-7 process are requirements for reviews of Environmental Qualification, failure trending, equipment trending, PM program modification, Nuclear Plant Reliability Data System (NPRDS) reportability, overall package requirements, and SSR tracking.

Improvements made in coordinating the activities of groups which support maintenance, as previously discussed, have made the established process more effective.

SSR's being worked each day are reviewed during the POD meeting. Personnel from Nuclear Licensing, Nuclear Engineering and Systems Engineering who attend that meeting are able to determine if the solutions to problems encountered in daily maintenance activities represent actual plant modifications.

February 23, 1989

A Technical Equivalence Assessment (TEA) process is being established at FSV. The TEA process provides a means to identify and correct those maintenance activities involving the replacement of components/parts/materials which could be considered to be plant modifications. The process also provides a means to correct disparities between field conditions and plant documentation. The process includes a series of questions, answered by appropriate engineering personnel, which determine if the required work can continue as maintenance work or whether the proposed solutions to parts replacement or plant documentation problems require a 10CFR50.59 safety evaluation and an associated design change notice.

Schedule For Implementation Of Corrective Action:

Corrective actions have been implemented. The recent maintenance quality assurance audit indicated that no unauthorized design changes were found in a sample of corrective maintenance work packages which were reviewed.

The TEA process will be formalized by the issuance of Administrative Procedure G-26, "Technical Equivalence Assessment." G-26 will be issued by April 1, 1989.

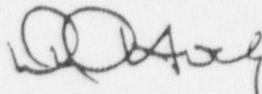
SUMMARY

PSC's approach to addressing the issues of the SALP Board Report is to coordinate the SALP assessment with other assessments to enhance and integrate corrective actions which are underway.

To further enhance these efforts, PSC intends to draw upon the identified strengths of FSV's maintenance program including: the positive attitude of craft personnel, talented and qualified individuals, the good foundation which has been established, the good material/equipment condition of the plant, a desire to improve, and a common understanding of the need to improve.

Should you have any further questions, please contact Mr. M. H. Holmes at (303) 480-6960.

Sincerely,



D. D. Hock
President and Chief
Executive Officer

DDH:DLW/djc

cc: Regional Administrator, Region IV
ATTN: Mr. T. F. Westerman, Chief
Projects Section B

Mr. Robert Farrell
Senior Resident Inspector
Fort St. Vrain