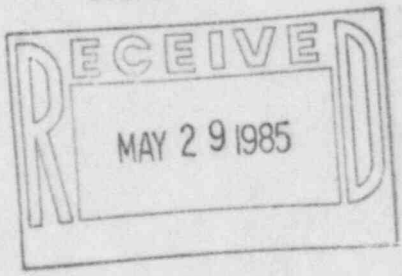
Public Service

Public Service
Company of Colorado

16805 WCR 19 1/2, Platteville, Colorado 80651

May 22, 1985
Fort St. Vrain
Unit No. 1
P-85178



Mr. R. D. Martin
Regional Administrator
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

Docket No. 50-267

SUBJECT: Response to Request for Additional Information - PSC Performance Enhancement Program

REFERENCE: 1) G-84392, NRC Evaluation of FSV, dated 10/16/84, Denton to Walker
2) P-85066, PSC Response to NUS Evaluation, dated 2/28/85, Lee to Martin
3) P-85107, PSC Performance Enhancement Program, dated 3/29/85, Lee to Martin
4) G-85143, Request for Additional Information, dated 4/19/85, Johnson to Lee

Dear Mr. Martin:

By way of Reference 4, the Nuclear Regulatory Commission requested additional information with regards to the actions undertaken and in progress by Public Service Company of Colorado to enhance the performance of Fort St. Vrain. Specifically, the Commission requested further discussion to address Sections 4.2.5 and 4.2.6 of Reference 1.

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In certain areas (e.g., planning and scheduling) there is a great deal of overlap between our own internal reviews, the findings of the NUS Corporation's evaluation, and the findings of the Commission. The Performance Enhancement Program (Reference 3) was structured to encompass the recommendations of each of these evaluations from a programmatic viewpoint, rather than a symptomatic viewpoint.

Attachment 1 is a listing which summarizes the Commission findings and a response to each of these findings In keeping with the programmatic approach and the schedules of the Performance Enhancement Program, these responses are not intended to be all inclusive. However, they should give you a more representative perspective of actions completed or expected to be undertaken to address these specific concerns.

If you have any further questions in this area, please contact Mr. Michael H. Holmes at (303) 571-7511.

Sincerely,

J. W. Gahm by C. H. Fuller

J. W. Gahm
Manager, Nuclear Production
Fort St. Vrain Nuclear
Generating Station

JWG/pb

Attachment

ATTACHMENT TO P-85178

Item 4.2.5.1--Shift Turnover Procedures

Summary of NRC Concerns--The licensee does not have a formal procedure for controlling shift turnover, nor associated shift turnover checklists.

PSC Response

A formal shift turnover procedure has been written and is in place. The procedure is based on INPO Good Practices and on other industry input. To summarize, the procedure provides a specific shift turnover checklist for each of the primary Control Room Operators (to include the Auxiliary Tenders, the Equipment Operators, the Reactor Operators, and the Senior Reactor Operators) and the Shift Supervisor. This procedure was developed in September, 1984. Subsequently, on-the-job training was provided to each of the above named personnel. A break-in period of approximately one month was utilized to familiarize personnel with the new procedure and to make final procedural adjustments. The procedure was formally issued on October 10, 1984, as Station Manager's Administrative Procedure 8 (SMAP-8).

Item 4.2.5.2--Administrative Controls

Summary of NRC Concerns--The licensee does not have a formal procedural requirement for the Shift Supervisor or Operators to review the various logs when returning from an extended absence. There is no procedural requirement to conduct periodic plant tours, although discussions indicate such tours do take place.

PSC Response

We have performed a detailed review of our Administrative Procedure P-1 which describes the administrative controls for the Operations Department functions at Fort St. Vrain. We have compared the results of this review with the high industry standards of INPO Good Practice OP-204. It is our opinion that the Fort St. Vrain Procedure P-1 is already too detailed with regards to a number of items such as the control of temporary configurations, and setpoint changes. We have concluded that a better approach would be to rewrite APM P-1, and support this document by "Level 2" procedures. These Level 2 procedures would be directed at the details of existing P-1 requirements as well as additional items such as the observation of equipment condition, personnel and equipment hazards, and so forth.

As discussed in Reference 3, our schedule for final development and approval of the procedural changes to implement the above is October 4, 1985.

With regards to the conduct of periodic plant tours, a general housekeeping procedure has been developed and is in place (SMAP-13). The requirements for tours to inspect housekeeping are incorporated in this procedure.

As discussed in Reference 3, our present schedule for incorporation of other tours is to be completed by June 28, 1985.

We are reviewing industry practices concerning the review of logs after an extended absence. It is apparent that there is considerable variation from plant-to-plant in this regard. Once this review is completed, we will revise the Shift Turnover procedure (SMAP-8) to provide formal guidance in this area. This revision is expected to be completed by June 28, 1985.

Item 4.2.5.3--Operator Aids

Summary of NRC Concerns--There are several locations throughout the plant where drawings are kept to assist the Operators during the performance of their duties. Not all drawings at these locations are controlled. Additionally, there are controlled system operating procedures at some local panels, but these procedures are not located in a proper receptacle.

PSC Response

We have completed an in-depth review of all locations throughout the plant where drawings (P&I's) are used by the staff for reference. From this review, the locations where it is necessary for controlled drawings to be present have been identified and compiled. This compilation is presently under review by the Nuclear Engineering Division to determine the most practicable means of ensuring that such drawings are controlled.

Nuclear Engineering Division has recently obtained the equipment necessary to reproduce the large drawings on-site. Upon approval of the finalized compilation, controlled drawings will be distributed and maintained in the designated locations.

The locations for which controlled sets/subsets of the System Operating Procedures are necessary have been identified. Various receptacles for these procedures have been investigated, particularly from a fire hazards perspective. We have selected the appropriate receptacles from this investigation and they are currently being manufactured. It is expected that we will receive these receptacles and have them in-place by the end of the year.

A procedure for interim use in the control of Operator aids in the Control Room has been drafted and is in the approval cycle. This procedure describes the administrative controls to be implemented for the posting of Control Room charts, graphs, tables, and so forth. This procedure will be used as the basis to describe the control of such items throughout the remainder of the plant in accordance with Reference 3.

Item 4.2.5.4--Tagging Practices

Summary of NRC Concerns--Some tags have been in place since 1982. Some tags are not legible. This is part of a larger concern in which the licensee has been using status and clearance tags in place of design modifications.

The licensee's tagging system is confusing because only one tag with appropriate information and a group of auxiliary tags with only a reference number and no explanatory data are used.

PSC Response

We have completed a review of all the Control Room tags which were in-place and replaced all old tags with new tags that are fully legible.

A detailed review of all tags associated with Temporary Configurations has been completed. From this review, all tags associated with such configurations that could be removed, have been removed. We have also ensured that all configurations which are desired to be made permanent have a formal request for a permanent design change.

In October, 1984, we reviewed all outstanding Change Notices to ensure that those which were associated with a Temporary Configuration were scheduled for completion during the outage (assuming materials and a work window were available). These design changes have been completed. Additionally, all remaining Change Notices of a similar nature have been re-prioritized to ensure that they will receive prompt attention.

Finally, a complete draft rewrite of our tagging Administrative Procedure P-2 has been completed. This new procedure is directed at utilizing a computer-based system for generation of clearance tags. The computer program has been developed and tested. Equipment necessary for Control Room personnel to use the system has been obtained and installed. Training on the new system has been completed and operator input considered. The implementation of this new system, and the issuance of the revised procedure P-2, is awaiting completion of the present outage. The Station Manager has determined that it is not desirable from either an equipment or personnel safety standpoint to convert to a new system with the large number of clearances outstanding during this outage.

Item 4.2.5.5--Shift Supervisor's Office Location

Summary of NRC Concerns--Locating the Shift Supervisor's office outside the Control Room inhibits access to the Control Room for the performance of the Shift Supervisor's duties. The Shift Supervisor does not have a key to gain access to the Control Room.

PSC Response

As indicated in Reference 3, the entire subject of office space for the staff is under review by Public Service Company and a consultant specialist. A final report of the study in progress is not yet available.

As the result of Information Notice 83-36, keys which permitted access through Security doors were issued to selected personnel at Fort St. Vrain. These keys were for emergency use only, they did not defeat existing alarms to the Security organization, and no instances of unwarranted use occurred. Unfortunately, our understanding of the generic letter was apparently beyond the scope of what was intended regarding "controlled" access. Consequently, a Notice of Violation was received and the keys were returned to the control of the Security Department until procedural requirements could be better defined.

A key control procedure, SMAP-12, was drafted and presented to the NRC for review prior to implementation. The inspector suggested some changes. We are presently in the process of revising this procedure. Additionally, we are considering revising the Shift Turnover procedure, SMAP-8, to make a specific line entry to ensure that control of the key is maintained.

Item 4.2.5.6--Double Verification

Summary of NRC Concerns--The licensee's program for the verification of correct operating activities is limited.

PSC Response

We agree that the independent verification of some activities at Fort St. Vrain is not as all-inclusive as that seen at most pressurized-water reactors. However, we believe that many of the dissimilarities are due to the design of the Fort St. Vrain HTGR as opposed to PWR's/BWR's. Almost all of the systems which are necessary for emergency use are in normal use during the routine operation of the facility, and, in general, they are not required to perform differently in an emergency. Therefore, if the system is performing as designed for routine conditions, it should perform as designed in an emergency.

This is not to say that improvements cannot be undertaken, and that is our full intent.

We have completed development of the criteria necessary for the independent verification of activities associated with Results Procedures (Instrument and Control). We are presently well into rewriting all of these procedures, and independent verification is being incorporated for safety-related systems.

The development of a listing of selected systems which will undergo an independent verification of valve lineups prior to restart is in progress. In conjunction with this effort, the required checklists are being developed.

A procedural change to APM P-2 to ensure the independent verification of critical valve positioning is in progress. This change is to address the situation in which a critical valve is repositioned as temporarily required by an Operations Deviation Report.

As previously discussed, we are rewriting the procedure which controls status tags associated with Temporary Configurations. To supplement this effort, we are using the INPO Good Practice on the control of jumpered and lifted leads. This Good Practice discusses independent verification for such situations. Guidance contained in the document will be incorporated into our procedures.

The complete rewrite of the Maintenance Procedures is scheduled to be completed by the end of 1985, as previously committed in the Performance Enhancement Program. Included as part of this rewrite, will be the criteria for the independent verification of mechanical and electrical activities.

Item 4.2.6.3(1)--Scheduling of Maintenance Work

Summary of NRC Concerns--There is only an informal understanding between the Maintenance groups and the Scheduling group concerning the priority of maintenance activities. Work assigned and the amount completed during report periods is left to the discretion of the supervisor.

PSC Response

In the latter part of 1984, Zachary Industries' consultant specialists in the area of scheduling and planning were contracted to analyze the Fort St. Vrain program and implement changes where improvements can be made. As discussed in References 2 and 3, the objective is to develop an overall nuclear projects scheduling/planning program which is supported at each nuclear division level.

In reference to the above concerns, two full-time industrial engineers are working with the Maintenance, Scheduling, and Stores Departments. These engineers have completed their initial analysis of our program, and we are implementing the suggested changes. For example, methods have been developed for controlling the issuance of work to supervisors in a manner that the work assigned to each supervisor can be monitored by himself and management more closely to ensure that priority requirements have been met.

The entire flowpath of documentation associated with corrective maintenance has been reviewed. Procedural changes to improve the efficiency of this flowpath have been drafted.

A review of the planning and scheduling practices utilized at six nuclear facilities throughout the United States has been completed. These facilities included Arizona Public Service, Arkansas Power and Light, Carolina Power and Light, Duquesne Light and two units from Duke Power. The method used for planning and scheduling, systems used, and staff organization for each utility was identified.

An in-depth review of the capabilities of the Public Service Company Power Plant Maintenance Information System (PPMIS) has been completed. From this review, various program changes have either been completed or initiated to improve the manipulation of data for the special needs of Fort St. Vrain. These changes have been directed at facilitating the control of maintenance activites.

Previously, Station Service Requests (SSR's) had been issued to the work crew responsible for the activity as the SSR was generated. This resulted in a rather long list of backlogged items for each Maintenance Supervisor. As a result, the scheduling function was essentially performed by the Maintenance Supervisor which detracted from his ability to supervise his staff. We have corrected that situation by "pulling back" all SSR's, and reissuing a limited number to the work crews. This has significantly improved the adminstrative control of the SSR's, including priority control, and resulted in a more manageable supervisory work load.

Item 4.2.6.3(2)--Preventive Maintenace

Summary of NRC Concerns--The PM program appeared to use a static, non-technical approach, rather than a dynamic, technology basis, engineered method for ensuring equipment readiness.

PSC Response

In June of 1984, Public Service Company of Colorado began the development of a more effective Preventive Maintenance program. The salient points of the program are to incorporate means for engineering analyses, evaluation of effectiveness, trending, and flexibility of use.

Since that time, we have completed a number of interim milestones. For example, some areas in which we have historically had difficulties have been specifically addressed. In particular, these include the bearing water pumps and the instrument air compressors. Plant Maintenance Engineers have successfully assisted the Maintenance staff in identifying and correcting maintenance difficulties in these areas.

We are in the final stages for the development of a Significant Component List. This is a listing of components whose failure or inoperability could result in a significant moisture ingress or a restriction of the plant capacity factor. The identification of significant equipment components has been completed; the identification of major valves, electrical relays, and instruments is in progress at this time. The Significant Component List will be used as a basis for the Preventive Maintenance program. Additional discussion of the PM program may be found in Reference 3.

Item 4.2.6.3(3)--Spare Parts Management

Summary of NRC Concerns--For most components there is no shelf-life program at Fort St. Vrain.

PSC Response

As discussed in Reference 3, Public Service Company is in the process of developing a program to review and document the need for a component shelf-life program.

Public Service Company has a contractor reviewing the aging requirements for safety-related equipment as aging is described in 10CFR50.49. This review consists of identification of components and comparison of those components to a previously established data base. Components not within the data base will require evaluation on a case-by-case basis.

The data base developed above will be evaluated and expanded as necessary to develop an overall shelf-life program.

Final completion of this program is scheduled for March 31, 1986.

Item 4.2.6.3(4)--Maintenance Procedures

Summary of NRC Concerns--Some Maintenance Procedures do not appear to be precise.

PSC Response

Selected Maintenance Procedures have been reviewed for accuracy and adequacy of detail. Changes to these procedures have been completed.

In the longer term, a complete review of all Maintenance Procedures (MP's) will be completed by January 3, 1986. This review and rewrite will be based on industry practices, and in particular, INPO Good Practices.

The responsibility for development of Maintenance Procedures has been reassigned to the plant Maintenance Engineering group. Additional staffing for this group has been requested and approved. It is expected that this transfer of responsibility will result in a more efficient procedure development process as well as a closer tie with other functions performed by the plant engineers.

Item 4.2.6.3(5)--Maintenance Testing

Summary of NRC Concerns--Procedures should include requirements that functional testing be performed upon completion of safety-related maintenance, and that these tests be independently witnessed by the Quality Control organization.

PSC Response

As part of the Maintenance Procedure (MP) upgrade discussed above, post-maintenance testing will be specifically evaluated and incorporated into the procedures.

Administratively, revisions to maintenance-related procedures (Maintenance Procedures, Electrical Maintenance Procedures, Preventive Maintenance, Electrical Preventive Maintenance, Relay Shop Procedures, Results Procedures, and Fuel Handling Work Packets) are required to be routed to the Quality Control organization for the incorporation of Hold and Witness Points. This administrative control is specifically required by Administrative Procedure G-2. We would intend on continuing this program under the rewrite program.

Item 4.2.6.3(6)--Backlog

Summary of NRC Concerns--There is no immediate means of displaying backlogged maintenance activities (SSR's) to management.

PSC Response

We have completed the transfer of manually-maintained information to the computer-based PPMIS system. We have also purged the SSR backlog to improve the accuracy of the backlog.

To summarize, all SSR's have now been identified as falling into one of the following categories:

On Hold for:
- Plant Conditions
- Materials
- Engineering Disposition Required
- Quality Control Disposition Required
- Leak Test/Operational Test Required

Executable, Awaiting Release
Work in Progress
Completed and ready for Data History

In conjunction with the above program, the Station Manager receives a report of all SSR status items. This information is presented in both tabular and graphical form.