PP&L Pennsylvania Power & Light Company
Two North Ninth Street • Allentown, PA 18101-1179 • 215/774-5151

Robert G. Byram
Senior Vice President-Nuclear
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DEC 23 1993

Mr. Lee H. Bettenhausen, Chief
Operations Branch
Division of Reactor Safety
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

SUSQUEHANNA STEAM ELECTRIC STATION
RESPONSE TO UNRESOLVED ITEM
(387/93-18-01; 388/93-18-01) **Docket Nos. 50-387**
PLA-4064 **FILE R41-2** **50-388**

Dear Mr. Bettenhausen:

This letter provides Pennsylvania Power & Light Company's response to the Unresolved Item identified in NRC Combined Inspection Report 50-387/93-18 and 50-388/93-18 dated October 22, 1993 and received on October 27, 1993.

The actions described in the response to the unresolved item will be carefully monitored, and adjustments made to our strategies as necessary, to assure that status control events are being reduced. In addition, PP&L will inform the resident inspectors of the progress being made to reduce these events at Susquehanna.

The cover letter requires a written reply within sixty (60) days. We trust that the commission will find the attached response acceptable.

Very truly yours,

R. G. Byram

Attachment

cc: NRC Document Control Desk (original)
Regional Administrator - Region I
Mr. G. S. Barber, NRC Sr. Resident Inspector
Mr. R. J. Clark, NRC Sr. Project Manager

9401030287

RESPONSE TO UNRESOLVED ITEM

A. *Unresolved Item (387/93-18-01; 388/93-18-01)*

The continuation of status control events with low safety consequences indicated that the licensee's corrective actions have been ineffective. In addition, the repetitive nature of mispositioned valves indicated that the licensee's root cause analysis of mispositioned valve(s) may not have been sufficiently independent or thorough enough to include all human performance aspects.

Response

Discussion

In August, 1992 a Status Control Review Team was formed at Susquehanna. The team reviewed the causes of status control events during the first eight (8) months of 1992, interviewed personnel, reviewed programs and procedures, and observed activities. The task team's major findings included:

1. Human performance needs to be improved.
2. Personnel awareness of status control issues needed to be raised and training conducted.
3. Existing programs and procedures were not consistently implemented.

Corrective actions to these findings were developed and implemented to improve human performance and personal accountability. These include:

- Management expectations, accountabilities, and responsibilities of first line supervisors and workers were communicated in specific status control briefings.
- A Status Control Occurrence Review Team was established per procedure OI-AD-080 to review events as they occur and obtain individual and line supervision accountability.
- Status control was included in the outage safety tailboard meeting packages, and included on control point bulletin boards.

Additionally, actions were implemented to upgrade the Human Performance Enhancement System, in the first quarter of 1993. Also, in April 1993, procedure NDAP-QA-0022, *Self Checking*, was issued and implemented. The self checking program was developed from INPO guidelines and utilizes the concept of "STAR".

S - STOP
T - THINK
A - ACT
R - REVIEW

The above corrective actions were designed to bring about improved human performance. The process is working; however, the continuing number of events has led PP&L to evaluate additional actions to improve performance in the near-term. We will continue to trend performance in this area.

Results

Based on reviews of actions taken to date, and additional information obtained from internal and external assessment organizations and industry sources in 1993, three issues were identified. The following discussion identifies the issues, and corrective action taken/to be taken.

ISSUE 1 *The current program allows work group personnel, other than plant operators, to manipulate valves.*

The 1993 investigation revealed that a number of valve mispositioning events were the result of work activities performed by personnel other than plant operators. Additionally, a substantial number of investigations of valve mispositioning could not definitively determine a cause despite detailed investigative efforts. We conclude the numbers of these events that were indeterminate were too high. In addition, analysis of causes and probable causes of 3rd quarter 1993 valve mispositioning events showed that the current program needed to be revised.

CORRECTIVE ACTION

The valve manipulation program will be revised and training of work groups will be completed by 1/01/94, to establish requirements and expectations for Operations personnel and eliminate authorization for Maintenance personnel to operate valves.

Operations personnel will operate valves in plant systems. There will be only four well defined and controlled exceptions:

1: I&C technicians will be authorized to manipulate instrument related valves using I&C plant procedures.

2. Chemistry technicians will be authorized to manipulate valves using Chemistry plant procedures.

3. Maintenance personnel will be authorized to manipulate valves using LLRT surveillance procedures.

4. Maintenance personnel will be authorized to manipulate service drop valves on service air and demineralized water.

A comprehensive review of the above procedures will be performed to ensure they meet step-by-step valve manipulation and restoration.

ISSUE 2 *Root Cause Analysis of Human Performance Errors.*

Our evaluations showed that we needed to probe further into why human errors occurred, and what the causal factors are.

CORRECTIVE ACTION

1. For those events in which human error was determined to be a root cause, the investigative process shall further determine why the human error occurred. Potential areas to be evaluated include:

   - Verbal Communication
   - Written Communication
   - Equipment Design or Degraded Condition
   - Environmental Conditions
   - Work Schedule
   - Work Practices
   - Work Organization/Planning
   - Supervisory Methods/Oversight
   - Training/Qualification
   - Change Management
   - Resource Management
   - Managerial Methods
   - Non-work Related Distractions

   In those cases where the investigative process has been exhausted and has been unsuccessful in determining why the human error occurred the responsible manager shall consult the Nuclear Regulatory Affairs (NRA) site supervisor. The NRA site supervisor will then determine which external assessment group to Susquehanna plant management (ie: NRA, Nuclear Quality Assurance, Nuclear Safety Assessment Group) is best suited to determine the contributing factors.

The results of these independent reviews shall be included in the resolution. If definitive causes can not be determined, the most probable causes shall be addressed. The program changes to implement this process were completed in November 1993.

2. Susquehanna SES policy on verification will be reviewed and revised as necessary, by 3/31/94, to strengthen requirements on how verification is performed.

ISSUE 3 *Threshold for identifying status control events.*

Our threshold for identifying status control events is low; therefore a large number of these events are reported using our deficiency management system. The training performed over the last year to heighten awareness of status control has been effective in identifying and reporting status control problems. Also, our classification of events as "status control events" is broad. Therefore, it has not been possible to benchmark the numbers of status control events with other plants in the industry. Variations in industry thresholds, definition of status control, scope, and other factors make meaningful comparisons difficult.

CORRECTIVE ACTION

Continue to maintain a low threshold for reporting of these events.

PP&L considers that the actions taken/to be taken adequately address the NRC concerns with mispositioned valves. We believe that our actions as described above will achieve positive results by:

- Establishing clear accountability for valve manipulation.
- Determining the root causes of human performance errors.
- Decreasing the number of status control and valve mispositioning events at Susquehanna SES.

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