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September 29, 1989

Mr. A. Bert Davis
Regional Administrator
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Subject: Zion Nuclear Power Station, Units 1 & 2
License Nos. DPR-39 and DPR-48
Response to Inspection Report Nos.
50-295/89013 & 50-304/89013
NRC Docket Nos. 50-295 and 50-304

Reference: May 30, 1989 letter from EG Greenman
to Cordell Reed

Dear Mr. Davis:

The letter referenced above concerns a routine safety inspection conducted by Mr. M. Holzmer and others of your staff during the period of March 18 through May 8, 1989, of activities at Zion Nuclear Power Station. No violations of NRC requirements were identified during the course of this inspection. However, a request was made to provide both long and short term corrective actions to the weaknesses identified in the "Maintenance" section of the report. The Attachment to this letter provides the information that you requested.

Please direct any questions that you may have regarding this matter to this office.

Very truly yours,

Glenn E. Trzyna

G.E. Trzyna
Nuclear Licensing Administrator

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cc: Chandu Patel-NRR
Senior Resident Inspector-Zion

ATTACHMENT

This is the Station's response to the "significant weakness" identified in the Maintenance area during the subject inspection.

The response will initially address the global issues of work package improvement and aggressive preventative maintenance. Each issue will be outlined with respect to the Station's action plans for improvement. The response will continue by addressing the specific issues identified in the subject report.

Zion Station's Response to the Global Issues

Zion Station has identified the following weaknesses in work packages:

Package Consistency
Required Detail of Work Instructions
Required Detail of Documentation of Work Completed
Coordination of Work between Departments
Identification of Root Cause
Identification of Rework
Up-Front Problem Identification i.e. Work Requested, Procedure Adequacy

These weaknesses are being addressed via the corporate Conduct Of Maintenance (COM) document. This is recognized to be a long term comprehensive program to bring Zion's Maintenance program to the standards of Excellence. With this consideration, interim actions are in place and under development to assure progress is being made in the proper direction.

Zion's "Performance Improvement Plan" (PIP) is the mechanism being used to track the progress of the action plans in place and being developed to support the COM implementation.

Internal evaluation of the effect of action plans on the performance of the maintenance activities is an ongoing process. Additionally, corporate conducts self-assessments to verify the stations progress on the implementation of the COM. The next self-assessment will be conducted November 1989.

Integrated throughout the COM is the concept of the work package preparer's involvement in the execution and documentation of the work in addition to preparation of the work package. This is the key to the success of the program. Corporate reorganization of the maintenance departments (Introspect) has increased the number of work analysts (work package preparers). The ratio of one work analyst to one foreman has been established. Based on this ratio, Zion has been authorized ten additional work analysts. Six of these positions have been filled and the remaining are in the process of being filled. Interviews of personnel are currently being conducted.

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The need for the one to one ratio is based on the responsibilities and actions detailed in the COM and summarized below:

The work analyst via the analysis of maintenance section of the COM assembles the work package while considering the following:

Nature of Problem
Description of as-found conditions with suspected cause
Review of history for rework concerns
In addition, the work analyst specifies the Post-Maintenance testing required.

The foreman on the job inputs on:

Corrective action adequacy
Concurrence of suspected cause or need for additional investigation (Root Cause Determination)
Corrective Action to prevent recurrence as well as supervising the job performance

To close the loop the work analyst and maintenance foreman reviews the completed work package as a joint responsibility for appropriate and complete information to be entered into the Work History data program.

The action plans that follow are being used to implement the programs that have been highlighted above:

The addition of Work Analysts (previously addressed)

Work Analysts Pre-Job Checklists and Guidelines have been issued to add consistency to the work packages. (Maintenance Memo #32 addresses this item).

Standard chronology log of work performed is in place in a draft format. The formal implementation of this item will be complete February 1990.

Additionally, two working committees have been formed, a Work Packages Committee and a Work Practices Committee, whose charter through the Corporate Conduct of Maintenance is to formulate additional corrective actions for problems related to their specific assigned areas. These committees are described in the Zion PIP and includes long term and interim actions, along with appropriate management monitoring and evaluation of the actions.

Since the status of these issues is continually changing, specific status for each issue is addressed in the Zion PIP manual.

The Maintenance Department has defined the scope of the Preventative Maintenance (PM) program and proceduralized it with ZAP 13-52-6, "Preventative Maintenance Program".

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Areas in the action plan for improvement include:

" Thermography program

" Lube Oil Analysis program

" Reliability centered Maintenance System Analysis program

" Warehouse PM program

" Equipment Performance Monitoring program

" Training of station personnel with respect to P.M. programs.

These programs are all in progress at this time.

Zion Station's Response to the Specific Issues

The above stated discussions demonstrate that the programmatic weaknesses in the Maintenance area are being addressed in the long and short term. The following information addresses the specific items that were highlighted in the Inspection Report that lead to the overall Maintenance area concern.

CONCERN

The 2 MOV CS0008 motor operator spring pack was replaced twice, once with and once without using a station traveller. (Note: A station traveller is a document that provides work instructions). In the case without the traveller, a mechanical maintenance (MM) person recorded the spring pack replacement using his initials in Electrical Maintenance (EM) procedure E022 in a portion of the procedure that was designated to be "omitted" before the job was begun. MM procedure P/M016-2N, "Disassembly, Inspection and Reassembly of Environmentally Qualified Limitorque Operators, SMB-00 and SMB-000" which is to be used for spring pack change out was not referenced or used in either case.

RESPONSE

Work analysts Pre-Job Checklists and Guidelines address this concern.

CONCERN

P/M016-2N and P/M016-6N, "Removal/Installation of Limitorque Operators Size SMB-000" have both had procedure change requests outstanding since November 25, 1987 and August 31, 1988, respectively. P/M016-2N has not yet been placed on the WANG work processor.

RESPONSE

These specific procedure changes have been completed. However, the enhancement of MOV procedures is on-going.

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CONCERN

P/M016-6N does not adequately address snugness of the lock nut on the end of the spring pack.

RESPONSE

The snugness of the lock nut has been addressed in all applicable MOV procedures. As Found and As Left information is required.

CONCERN

After the spring pack was changed out on March 17, EMs attempting to continue MOV troubleshooting experience problems not encountered on March 15. Causes for a MOV declutch lever deficiency and motor operator handwheel spinning off the stem are unknown.

RESPONSE

The Work Analyst and Maintenance Foreman relationship and responsibilities as previously discussed addresses this concern.

CONCERN

Work performed under direction of the March 28 traveller was documented on the WR as specified in traveller. Specifically, Step 4 called for investigation of the cause of the valve binding and required that the mechanic "document work performed on work request." The work was recorded by the valve vendor who accompanied the mechanic on the job and noted the work performed on his work document. The vendor's one page record was included in the work package; however, vendor representative assistance records are not required to be captured in work packages.

RESPONSE

The Work Analyst and Maintenance Foreman joint responsibility to review the completed package and determine appropriate Work History along with a standard chronology log of work performed addresses this concern.

CONCERN

Environmentally qualified power cables for Limitorque SMB-000 MOVs can be damaged during routine maintenance and inspections when the limit switch cover is replaced dur to the small clearances involved.

RESPONSE

A caution statement in procedure E022-1 has been included to address pinched wires in the housing.

CONCERN

Work performed on alleviating interference between piping and MOV declutch lever was not documented.

RESPONSE

The Work Analyst and Maintenance Foreman joint responsibility to review the completed package and determine appropriate Work History along with a standard chronology log of work performed addresses this concern.

CONCERN

The "work performed" section of WR Z 81308 did not record the cause of the failure. 2 SS9351A failed due to a broken packing gland stud, and not a body to bonnet leak. The person who wrote the WR was unable to accurately identify the source of the leak due to poor access and large quantities of steam blowing from the valve. The cause of the failure was recorded in the package, but the "work performed" section of the WR is used for screening purposes in pre-job planning.

RESPONSE

As previously discussed in the one to one Work Analyst to Foreman ratio section of this response, these type of items will be covered, i.e.

Nature of Problem
As Found Conditions
Work History Review
Post Maintenance Testing
Corrective Action Adequacy

CONCERN

2 SS9351A had body to bonnet leaks repaired in July 1987 and December 1988, but the valve had not been submitted for entry into the licensee's preventive maintenance (PM) program. The licensee's automated "rework" function would not identify this valve as a reliability outlier unless two or more work requests are submitted for a component in a 12-month period or less.

RESPONSE

The Problem Analysis Data Sheet (PADS) as described in Section 16 of the COM addresses this type of rework and would allow for PM consideration. Action Plans for PADS are defined in the PIP. Full implementation is scheduled for January 1990.

CONCERN

The broken stud on valve 2 SS9351A was not retained for failure analysis.

RESPONSE

The Work Analyst and Maintenance Foreman joint responsibility to review the completed package and determine appropriate Work History along with a standard chronology log of work performed addresses this concern.

CONCERN

Preventive maintenance for sample system valves needs increased attention. The only PM activities for these two valves are for the ASCO solenoid for the valve air operator and the position indication switches. The technical staff system engineer had not submitted any sample system valves for entry into the PM program during the 1 and 1/2 years that he had been the system engineer.

RESPONSE

Improvements in the PM program previously discussed in this response address mechanisms to include and identify areas for increased attention. The PM Action Plans are included in the PIP.

CONCERN

No documentation other than a signature in the "test complete" section of the WR was found for the operating department's post maintenance stroke test of 2 SS9351A. This stroke test was required prior to returning the valve to service. A stroke test was performed and documented by the maintenance crew as directed by Step 7 of the maintenance traveller.

RESPONSE

The Test Complete signature on the Work Request documents the identified testing has been satisfactorily completed.

CONCERN

The following items identified in your findings are all related to the systematic maintenance problems.

Documentation of the repair for 2 SS9356A packing leak repair was inconsistent and confusing. The "workman's job notes" on the WR stated that there was no packing leak on the valve, but that a body to bonnet leak existed. The mechanic for the job recorded only that packing rings were added in the "work performed" section of the WR.

No "workman's job notes" were recorded for the repair of 2 SS9351A, although the "work performed" section was completed.
Pre-job planning for the repair of 2 SS9356A did not include inspection of the valve while the leak was active (the leak only existed while the valve was stroked open). The work analyst for the job looked at the valve while it was closed, and stated that a packing leak existed and that a body to bonnet leak might have existed, but that it was difficult to tell because of the large amounts of boron encrusted around the valve stem and bonnet. No persons interviewed observed the valve leak before it was isolated for repair.

Repair of 2 MOV CS0008 took from March 15 through April 14, 1989. The valve was officially returned to service on April 19, 1989. the length of time required to repair the valve was due in part to work package turnovers between shop foremen and between the Mm and EM departments. Another contributor appears to be the inconsistency in documentation of work performed from crew to crew.

RESPONSE

The previous responses detailing our Action Plans are designed to address these systematic issues.