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SUBJECT: Provides Supply Sys plans re refueling outage restart issues.

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June 29, 1994
G02-94-148

Docket No. 50-397

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

Gentlemen:

Subject: **WNP-2, OPERATING LICENSE NPF-21**
1994 REFUELING OUTAGE RESTART ISSUES

Three issues were discussed with members of your staff on June 23, 1994. The attachment to this letter provides a description of these three issues and the Supply System plans to resolve these issues prior to restart from the current refueling outage. The Supply System will keep NRC management informed on the resolution status of these issues, primarily through regular interface with your Senior Resident Inspector.

Should you have any questions or desire additional information regarding this matter, please call me or P. R. Bemis, Manager, Regulatory Programs at (509) 377-4027.

Sincerely,

for J. V. Parrish.

J. V. Parrish (Mail Drop 1023)
Assistant Managing Director, Operations

DAS/bk
Attachments

cc: LJ Callan - NRC RIV
KE Perkins, Jr. - NRC RIV, Walnut Creek Field Office
NS Reynolds - Winston & Strawn
JW Clifford - NRC
DL Williams - BPA/399
NRC Sr. Resident Inspector - 927N

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Attachment

1. Fire Safe Shutdown Procedures and Training

Issue

A Quality Assurance Audit in the Spring of 1994 reviewed the fire safe shutdown program, analyses, and procedures. This was a focused effort performed in response to past plant experience in this area. This audit identified several potential concerns with the safe shutdown plant analyses and programs for this area. Many of the concerns were related to areas in the analyses where conclusions were provided without a well documented bases, or some instances where only the actual problem areas were documented while those potential problems that were subsequently evaluated as acceptable were not documented. In response to these concerns, detailed re-evaluation has been initiated to ensure that the conclusions provided within the analyses are valid. This re-evaluation effort is on-going.

Resolution

The Supply System will evaluate and resolve the issues raised during the audit and subsequent fire safe shutdown re-evaluation which could impact the ability to safely shut down WNP-2 in case of a fire. The issues being addressed include: 1) high-to-low pressure interfaces including those associated with the Reactor Water Cleanup System, the Reactor Vessel Head Vent, Main Steam Isolation Valve drains, and the Reactor Core Isolation Cooling steam trap and rupture disc; 2) spurious actuation of equipment such as High Pressure Core Spray, Reactor Core Isolation Cooling, and Feedwater and the resultant potential for reactor vessel overfill; 3) an evaluation of the consequences of Main Steam Line flooding; and 4) the potential for fire induced water hammer in safe shutdown and non-safe shutdown emergency core cooling systems. Over 200 potential issues were identified during a detailed system by system evaluation and almost all of these have been resolved. The remaining items will be evaluated prior to plant startup to ensure they will not impact safe shutdown in the event of a fire. Although each of the calculations will not be reviewed, verified and approved prior to plant startup, sufficient review will be completed prior to plant startup to ensure that the plant can be safely shut down using available procedures in the event of a fire.

In response to the evaluations performed to date, plant procedures have been revised to enhance the ability to safely shut down the plant either from the control room or from outside the control room in the event of a fire. Training of plant operations personnel, including physical walkdowns of the procedures, have been performed for several crews and will be completed for each crew prior to plant restart from the current refueling outage. Minor enhancements identified during the walkdowns will be incorporated into the procedures prior to plant startup. In addition, actions identified through the completion of evaluations described above will be included in the appropriate procedures. The plant operators will be trained on the walkdown enhancements and potential new actions prior to plant restart from the current refueling outage.

2. Diesel Generator 2 (DG2) Testing

Issue

Each of the six items identified below were discovered and corrected during testing with DG2 inoperable for routine maintenance during the current refueling outage. This testing involved multiple engine starts for air bank capacity testing, post-maintenance testing, and surveillance. The problems described below occurred randomly throughout these multiple starts.

A. During the performance of the Loss Of Power/Loss Of Coolant Accident (LOP/LOCA) testing, DG2 tripped twice on reverse power when the Operator tried to parallel it to the off-site grid. Investigation of the first trip identified a switch that was mis-positioned. After extensive investigation following the second trip it was found that one secondary stab of the Potential Transformer (PT) feeding the reverse power relay was misaligned and potentially not making good contact. The PT stabs were cleaned and realigned, and DG2 was paralleled to the grid for about 30 minutes as part of the post maintenance test. It should be noted that these PTs would not have impacted DG2 during an accident since the reverse power trip is bypassed by a LOCA signal.

B. A diesel electronic governor controller failure occurred during post-maintenance testing. This failure resulted in the as designed failure mode in that the engines went to the mechanical stop speed of approximately 945 revolutions per minute. This feature ensures that the DG remains capable of performing it's intended safety function even with an electronic governor failure.

C. A single relay in the DG2 logic caused a failure to start on a manual demand signal during air receiver capacity testing. The normally closed contacts on this relay failed to close when the relay de-energized following a manual diesel shutdown.

D. One air start motor for DG2 was found engaged to the fly wheel with no start signal present. There are four air start motors per engine, or a total of eight for DG2. This condition could have resulted in damage to the air start motor during an engine run, but would not impact the ability to start the engine.

E. When the air start system was returned to service following maintenance on the air start motor, two of the air start motors began to rotate. This was caused by a leaking air isolation valve. The redundant air header on this engine was not affected. This isolation valve had been rebuilt during the current outage.

F. A DC backup fuel oil pump motor failed during the first run after replacement. This was a new motor installed during the outage. The DC motor is a backup to the engine driven fuel oil pump and is not required for DG operability.

Resolution

A. The LOP/LOCA testing for DG2 has been satisfactorily performed.

B. An evaluation performed on the electronic governor identified an electrolytic capacitor failure as the cause. The governor controller was replaced and the governor was returned to service and satisfactorily tested. The Supply System will evaluate the need for preventive maintenance of the electronic governor.

C. The relay was replaced and satisfactorily tested. A check of similar relays in the DG2 logic identified no other problems. The DG1 relays of similar design will also be inspected prior to plant startup.

D. The air start motor was replaced. Inspection of the motor did not result in a positive determination of the root cause but did identify minor spline damage. Further evaluation will be performed. Plant procedures already provide steps to ensure that the air start motors disengage after the engine is started.

E. The air isolation valve was disassembled, inspected, and returned to service. The failure to seat occurred on the first diesel start after the valve rebuild. The valve has performed successfully during numerous starts since the second valve rebuilding.

F. The cause of this failure was wiring within the motor that was not properly restrained. The failure to properly restrain the wires within the motor appears to be a manufacturing defect. A sample of additional motors, also replaced during this outage, will be inspected prior to plant startup from the current refueling outage.

3. Containment Monitoring System (CMS) Containment Isolation Valves (CIVs)

Issue

On June 22, 1994, the Supply System made a 1-hour verbal notification regarding an unacceptable design feature of the isolation logic associated with solenoid operated CIVs in the CMS system. These valves are installed to close and thus isolate containment on either high drywell pressure or low-low reactor vessel level. The CMS provides radioactivity monitoring of the containment atmosphere during normal plant operation in accordance with the Technical Specification requirements.

In response to an INPO Nuclear Network entry describing a problem at another plant, the Supply System initiated a review of potentially similar logic at WNP-2. This review resulted in the identification of a condition within the isolation logic for CMS where a single relay failure to change state (opening of contacts) on demand could result in the redundant CIVs in each of two sample lines penetrating containment remaining open when required to be closed. The two solenoid operated CIVs on each of these two sample lines are physically located outside containment. These valves fail closed on loss of power. Redundancy is an underlying assumption for General Design Criterion 56, Primary Containment Isolation that was not met by the original design.

The specific problem identified is that the closure logic for each of the two valves in a given sample line contains normally closed contacts from the same relay. This condition occurs several times within the logic. A failure of any of these relays to de-energize on demand, or a failure to open of the redundant normally closed contacts on a given relay, could result in both valves in series to remain open.

Resolution

The final cabling to the outboard valves on the two sample lines are being swapped. This modification results in a swap of the logic from one valve to the other. Thus, a single component failure will not prevent containment isolation. This modification will be completed prior to entry into Operational Condition 3 where containment is required to be operable.