# U. S. NUCLEAR REGULATORY COMMISSION

# REGION V

- Report No. 50-397/88-07
- Docket No. 50-397
- License No. NPF-21
- Licensee: Washington Public Power Supply System P.O. Box 968 Richland, Washington 99352

Facility Name: Washington Nuclear Project No. 2 (WNP-2)

Meeting at: Region V Office

Meeting Conducted: March 1, 1988

Prepared by:

Approved by:

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<u>C. W. Caldwell</u>, Project Inspector

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# Summary:

A Management Meeting was held on March 1, 1988, to discuss the Supply System's root cause assessment and corrective actions in response to the secondary containment roof overpressurization event of February 14, 1988. Recent design control issues and the performance of safety oversight groups were also discussed.

#### DETAILS

#### 1. Management Meeting Participants

#### NRC Participants

- J. B. Martin, Regional Administrator
- B. H. Faulkenberry, Deputy Regional Administrator
- M. B. Blume, Regional Counsel
- G. W. Knighton, Director, Project Directorate V, NRR
- D. F. Kirsch, Director, Division of Reactor Safety and Projects
- R. P. Zimmerman, Chief, Reactor Projects Branch
- P. H. Johnson, Chief, Reactor Projects Section 3
- C. J. Bosted, Senior Resident Inspector
- C. W. Caldwell, Project Inspector

# WPPSS Participants

- A. L. Oxsen, Assistant Managing Director for Operations
- C. M. Powers, Plant Manager
- L. T. Harrold, Manager, Generation Engineering
- M. R. Wuestefeld, Reactor Systems Engineering Supervisor

# 2. Management Meeting

On March 1, 1988, a management meeting was held at the Region V Office, with the individuals identified in paragraph 1 in attendance. The purpose of the meeting was to discuss the Supply System's root cause analysis and corrective actions in response to the secondary containment roof overpressurization event of February 14, 1988. In addition, other items of mutual interest were discussed. The meeting convened at 1:00 p.m.

#### a. <u>Secondary Containment Overpressure Event</u>

Background. On February 14, 1988, with the plant shut down during a forced outage due to a main condenser tube leak, an event occurred in which the secondary containment (reactor building) roof was overpressurized. The event occurred upon completion of breaker inspections conducted in response to IE Bulletin 88-01, involving Westinghouse DS breakers. The breaker was racked in and the trip and close circuit fuse blocks were installed. This action was to return the breaker to normal and was executed by an equipment operator. The control room operator was then contacted and informed that the work was completed and that the breaker was in service. The overpressure event started with the effort in the control room to return the system to normal operational status. The evolution resulted in an overpressure condition of the reactor building, which was terminated by rupture of the reactor building roof. The Supply System presented their evaluation of the cause of the event and identified the short and long term corrective actions proposed, to preclude a similar occurrence.

Mr. Oxsen opened the meeting by indicating the items the Supply System was prepared to discuss with regard to the February 14, 1988 secondary containment overpressure event. He also stated that the Supply System had nearly completed repairs to the reactor building roof and that leak rate testing was about to begin.

After introductory remarks, Supply System representatives made a presentation on the following subjects to summarize their overall root cause assessment of the overpressurization event:

• Sequence of Events

- Root Causes of the Event
  - Personnel Errors
  - Equipment Wiring Errors
  - Inadequate Preoperational Testing
- Proposed Corrective Actions
- Evaluation of Generic Potential to Other Systems
- Damage Assessment and Roof Repair

Enclosure 1 provides a brief summary of the sequence of events and the associated corrective actions to prevent recurrence.

After discussion of the event, Mr. Martin acknowledged the licensee's efforts and the apparently thorough root cause assessment which had been conducted. He noted, however, that it did not appear that sufficient management attention had been given to the personnel performance aspects of the event. He stated that the NRC considered that additional licensee attention should be directed to the following areas prior to startup:

- 1. It was apparent that personnel did not fully comprehend the necessity to stop when they were faced with a situation that they did not understand. This was a non-conservative approach to fundamental plant operation. Therefore, Supply System management should reemphasize the need for personnel to stop and evaluate the situation when they do not understand events taking place.
- 2. The Supply System should ensure that the reactor building ventilation system has been returned to its original and intended configuration, that it has been fully tested, and that it will properly perform its intended functions.

Mr. Knighton further stated that the Office of Nuclear Reactor Regulation (NRR) expected to see a docketed submittal from the licensee addressing the root cause evaluation and verifying that the design bases of the system and the secondary containment are being met. Mr. Martin summarized by reiterating the NRC's concern that additional steps should be taken by the Supply System in the identified areas prior to startup of the Unit. He also stated that the licensee should assess whether other balance-of-plant system failures could adversely impact the operation of safety-related systems, and that this would be discussed in a future management meeting.

#### b. Design Control Issues

Mr. Johnson noted that the previous management meeting on February 4, 1988 had included discussion of the NRC's concerns regarding control of the plant's design basis. In particular, the Region was concerned about design deficiencies and problems with maintenance of the design basis as identified in the 1987 Safety System Functional Inspection (SSFI). He noted that since that meeting, the reactor building overpressure event and recent observations of inadequacies in the anticipated transient without scram (ATWS) design change packages had further underscored this concern.

The Supply System elaborated on the problems that were encountered with the ATWS modification package and identified several corrective actions that had been established to properly implement the proposed design change. Enclosure 2 provides a partial summary of the problems and the proposed corrective actions. It was observed, however, that the problems encountered with the ATWS modification packages were somewhat more extensive than indicated in Attachment 2.

Mr. Martin summarized the Region's concerns that the reactor building overpressure event and the ATWS modification discrepancies were current examples of design problems, indicating that all design control issues did not originate during construction or plant startup. In particular, engineering design problems and failure of the licensee's design reviews to identify these deficiencies in the ATWS modification packages question the effectiveness of the present design control program. Mr. Martin stated that the NRC will probe further into its concerns over the quality of design work and the quality of reviews, and encouraged the Supply System to do the same.

#### c. <u>Performance of Quality Oversight Groups</u>

Mr. Kirsch introduced the final topic of discussion by questioning the amount of Quality Assurance (QA) and Nuclear Safety Assurance Group (NSAG) involvement in the recent events and in the monitoring of technical work in general. The Supply System responded by specifying the QA and NSAG involvement in these activities. The licensee identified that QA did not have any formal involvement in the design change process. However, they specified that the QA organization had evaluated the design change program and the system of independent reviews for design changes.

Mr. Martin summarized by stating that discussions have taken place regarding this area in the past. The recent events were an opportunity for the NRC to evaluate how current work was being performed, evaluated, and checked. Mr. Martin encouraged the Supply System to use these events as opportunities to do the same evaluations and suggested that followup discussions would take place in a few weeks.

# 3. Summary

In closing, Mr. Martin stated that the NRC considered that the overpressure event had been dealt with by the Supply System in a serious and credible manner. He stated that the NRC would take this opportunity to evaluate the licensee's action independent of NRC involvement. Mr. Martin also reiterated that he did not believe enough licensee management emphasis was being given to the personnel performance aspects of the event. Mr. Oxsen acknowledged Mr. Martin's comments and indicated that the Supply System would evaluate the NRC's concerns.

NOTE: On March 5, prior to plant restart, the licensee provided to NRC Region V a letter addressing the NRC concerns discussed in paragraphs 2.a and 3 above. A copy (less attachment) is included herewith as enclosure 3.

The meeting adjourned at 4:50 p.m.

Enclosures: as stated

# ROOT CAUSE EVALUATION

EO Racks in ROA/REA Breakers following IEB 88-01 Inspection . Fuse block installed . ROA-FN-1A breaker status light not verified	RO Initiates Rx Bldg. HVAC Systems S/U . Breaker Status lights not verified prior to switch manipulation	ROA-FN-1A Auto Starts Errone- ously . ROA-FN-1A system wiring error . PED not fully executed	Trip Logic not energized . Prevents RO action and trip system actuation	Rx Bldg Roof Ruptures . Design basis pressure reached (.469 to .564 psid)
<u>C/A's</u> • EO/RO/Supv. Trning • Revise OPS Instr. • Prepare OPS PPM • EO "hands on" trning • HPES Review	<u>C/A's</u> Back panel annunciator verif. process review Nuisance alarm practice evaluation Hi/Low pressure inst. addition eval. Bldg pressure instr. sensitive to windy conditions eval. Nuisance alarms eval. by TER HPES Review	<u>C/A's</u> Inspect/test similar syst. & those re- lated to PED Re-iterate ex- pectation of NCR/PDR to evaluate off normal cond. Restart assess- ment reviewed all PDR, TER, open MWR's & included Dept. reviews for similar situation	<u>C/A's</u> All critical switchgear fuse holder/ block insp. PM Process, OPS instr. & PPM to insp. Evaluate circuit mod. to prevent close w/o trip energ.	EVALUATIONS Bldg. pressure response verifi- cation analysis Bldg Design Bases Review Bldg Design Change to prevent review (panel,breaker & system logic) Trip system verif. Instr.Calib.Verif. Release fastener Inspection Trip Logic Energi- zation status alarm enhancement Plant Systems response evaluation Bldg. Inspections Future Action

Enclosure 1

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# Enclosure 2

# ATWS DESIGN MODIFICATION ISSUES

#### A. PROBLEM DEFINITION

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- 1. Alternate Rod Injection (ARI)-----Two Problems
  - Cross connect between divisions
  - Issued design contained automatic reset instead manual reset.
- 2. Recirc Pump Trip (RPT) -----One Problem
  - 50.59 Safety Evaluation indicated no FSAR change was required.

#### B. CORRECTIVE ACTIONS:

- Establish checking function in drafting for informal work.--Not directly related to current problem.
- 2. Verify that all design basis requirements for ATWS have been incorporated into the design changes--Approximately 6 weeks to complete.
- Perform review of the programatic implications of these problems including:
  - Adequacy of the checking process
  - Adequacy of interdiscipline review process
  - Adequacy of the design verification process