

Washington Public Power Supply System

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March 30, 1984
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Docket No. 50-460

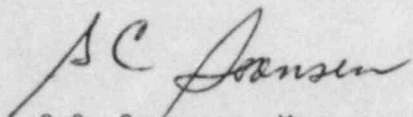
Director of Nuclear Reactor Regulation
Attention: Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: NUCLEAR PROJECT NO. 1
RESPONSE TO GENERIC LETTER 83-28
SALEM ATWS EVENTS

Reference: Letter, Elinor G. Adensam, NRC to D.W. Mazur, Supply
System, "Clarification of Required Actions Based on
Generic Implications of Salem ATWS Events (Generic
Letter 83-28)"

The reference requested that we reply to Generic Letter 83-28 by
April 1, 1984. Our reply is attached.

The attachment, in several places, provides schedule information
relative to WNP-1 fuel load. For planning purposes the NRC should
use June 1989 as the earliest date for fuel load.



G.C. Sorensen, Manager
Regulatory Programs (340)

GCS/AGH/vih

cc: NRC Document Control Desk
T. Kenyon, NRC
N.S. Reynolds, BLCP&R

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STATE OF WASHINGTON)
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County of Benton)

Subject: WNP-1 - Response to Generic
Letter 83-28 - Salem ATWS Events

I, G. C. SORENSEN, being duly sworn, subscribe to and say that I am the Manager, Regulatory Programs, for the WASHINGTON PUBLIC POWER SUPPLY SYSTEM, the applicant herein; that I have full authority to execute this oath; that I have reviewed the foregoing; and that to the best of my knowledge, information and belief the statements made in it are true.

DATE 30 MARCH, 1984

G. C. Sorensen
G. C. Sorensen, Manager
Regulatory Programs

On this day personally appeared before me G. C. SORENSEN to me known to be the individual who executed the foregoing instrument and acknowledge that he signed the same as his free act and deed for the uses and purposes therein mentioned.

GIVEN under my hand and seal this 30 day of March, 1984.

S.R. Michaels
Notary Public in and for the
State of Washington

Residing at Richland wa
Dec. 85

WNP-1 RESPONSE TO NRC GENERIC LETTER 83-28 (SALEM ATWS EVENTS)

1.1 Post-Trip Review (Program Description and Procedure)

WNP-1 Response

Due to the extended construction delay status of WNP-1, the plant procedures addressing post trip assessment have not been written. We expect these procedures will contain the elements of our WNP-2 response (Reference 1) and will consider recommendations made by the B&W Owners Group Transient Assessment Program (Reference 2) and NUREG-1000 regarding the content of a thorough post trip review program.

While WNP-1 is not currently a participating member in the B&W Transient Assessment Program, we fully expect to join this effort about one year prior to fuel load. At that time, the WNP-1 program for post trip assessment should have been drafted and scheduled for plant management review.

1.2 Post-Trip Review Data and Information Capability

WNP-1 Response

1.2.1 The Plant Monitoring and Information System (PMIS) is the term used for one of the computer systems for WNP-1.

The PMIS includes the capability for a sequential events monitor (SEM) log. The SEM provides for sequential recording of up to 128 specially selected contact or logic level inputs whose status changes are used to document causes of trips and equipment malfunctions.

Processing of the events is initiated by the change of state of an SEM input and continues until either the maximum amount of data is collected (128 collections) or the time period (20 to 120 seconds) defined for the sequence has expired. All events are recorded in correct sequence of occurrence and reported with a time resolution of 1 ms measured from the time of the beginning of the initiating event.

The initiating event will be displayed on the alarm CRT and printed on the alarm typewriter. The SEM log includes:

- Actual (wall clock) time of state change in hours, minutes, seconds, and milliseconds
- Point identifier
- Point description
- State

When the SEM log is ready for output, the operator can demand the output of the log on the high speed printer.

The PMIS is powered from a non-interruptible, non-Class 1E power source.

The FSAR will be amended two years prior to fuel load to list the SEM inputs selected.

1.2.2 Time history of analog variables is available in the control room as follows:

- Post trip review log - PMIS (computer system)
- Analog trend recorders - strip charts
- Analog trends on CRTs - EDS (computer system)

a) Post Trip Review Log

The PMIS includes the capability to store data for a total of 64 preselected input variables or calculated values at their normally assigned processing intervals or 15 seconds, whichever is longer. A maximum of 120 collections for each point are maintained in a rotating fashion with the latest data overwriting the oldest data.

When a trip occurs, the latest 15 minutes of the historical file is frozen and 15 extra minutes of data (i.e. post-trip data) are collected. Then all the data are printed on the printer/plotter with a message between the pre-trip and post-trip parts indicating the time of trip. These data are protected from being overwritten until they are completely printed or cancelled by the operator.

The PMIS is powered from a non-interruptible, non-Class 1E power source.

The FSAR will be amended two years prior to fuel load to indicate the 64 variables selected.

b) Analog Trend Recorders

Trend recorders (strip chart) for Regulatory Guide 1.97, Category 1 variables have been concentrated on one panel in the control room. This panel is termed SCI-3 (Safety Related Controls and Instrumentation Panel 3), and provides a total of 43 data trends. The parameters being trended by these pens are listed in FSAR Table 7.8-5.

The measurement channels are Class 1E, and the recorders are powered from Class 1E power sources.

c) Analog Trends on CRT's

The Emergency Data System (EDS) is a redundant, real time computer system which is capable of monitoring the essential inputs and providing the necessary displays, printouts and operator interfaces required for the assessment of plant safety status, as defined in NUREG-0696, "Functional Criteria for Emergency Response Facilities". The EDS is completely independent of any other plant computer system and has its own multiplexing devices for acquisition of data. The data base includes all variables applicable to this plant design which are listed in Regulatory Guide 1.97, Revision 2 and Regulatory Guide 1.23 plus other parameters to perform the total functional scope of the system.

One of the features provided by the EDS is the capability to display selected analog trends on its associated CRTs which are located on the Plant Control Console. The parameters for trend display are from the Category 1 variables of Regulatory Guide 1.97. These parameters are listed in FSAR Table 7.5-4 and are designated for trend capability as "CRT on demand" in the table. The latest 400 values (approximately 2 hours) are retained in a rolling buffer on disc and are available for display.

The EDS is powered from a non-interruptible, non-class 1E power source.

2.1 Equipment Classification and Vendor Interface (Reactor Trip System Components)

WNP-1 Response

As part of an effort to confirm that all components of the WNP-1 reactor trip system* whose function is required to trip the reactor have been identified as safety-related, B&W has been requested to develop a list of the safety-related components in the WNP-1 reactor trip system as it is defined today. When this list is completed, the process of confirming that documentation regarding the identified components has been properly handled will begin.

The design at the WNP-1 reactor trip system has not been completed at this time and will not be completed until after construction restart and changes required by ATWS and other issues have been defined. Statements regarding the reactor trip system components and their conformance to the equipment classification requirement of Item 2.1 will then be developed.

* The term "Reactor Trip System" is not used in the WNP-1 FSAR. Reference 2, page 13, includes a discussion of what this response assumes the term to include.

A complete response to this item will be provided two years prior to fuel load.

The WNP-1 vendor interface program is described in response to Item 2.2.2.

2.2 Equipment Classification and Vendor Interface (Programs for all Safety-Related Components)

WNP-1 Response

2.2.1.1 FSAR, Section 3.2 Classification of Structures, Components and Systems describes the criteria for the safety-related classification of structures and equipment.

WNP-1 Project documents including System Design Descriptions (SDD's), Equipment Specifications and Data Sheets, P&ID and other type drawings identify the components, systems and safety-related classifications and boundaries which follow-on from FSAR, Section 3.2. All WNP-1 equipment specification components retain a standard equipment numbering identification in accordance with project procedures. This tag number identifies the system to which the equipment component is associated. Standard System designations coincide with system designations in FSAR, Section 3.2.

For example, FSAR Table 3.2-2 classifies the Decay Heat Removal (DHR) System and pump as safety-related. Therefore, all components associated with DHR pump operation are classified safety-related and also carry the DHR system designator as part of their tag number. This includes all instrumentation and control devices required for DHR pump safety function operation including the IE power supply requirements. These identifications are carried through the SDD's drawings and equipment specifications where the safety classifications are indicated. The equipment specifications impose the equipment qualification and quality assurance requirements on the Vendor, for all safety-related equipment items.

2.2.1.2 The WNP-1 project utilizes a variety of lists during the design and construction phase that include safety-related designators. During the early stages, the PSAR is the source document for preparation of such documents as procurement specification lists, warehousing lists and installation procedures, all of which require that safety-related equipment be identified. During this period, a computerized Master Equipment List (MEL) is developed that includes

all plant equipment and includes information extracted from various sources such as the PSAR, FSAR, vendor data, qualification program, test program and calibration program, that will be useful during plant startup and operation. Included as one data field is the safety-related classification of the item. During this same period, a separate safety-related list is developed (in support of FSAR Sections 3.10 and 3.11) which includes very specific information on qualification aspects of the equipment. This list, which will include Class 1E and 1M components, will be considered the "source" document for safety-related equipment, but the MEL document will be considered the working document for routine inquiry into equipment characteristics including safety class. Both of these lists will be the "controlled" documents and their accuracy will be periodically audited as part of the on-going configuration management program.

- 2.2.1.3 Because of the delayed construction status of WNP-1, plant procedures for the handling of safety-related equipment (e.g. maintenance, surveillance and parts replacement) by station personnel and the management controls used to verify procedures are being followed have not been developed. We plan to have such procedures and controls developed one year prior to fuel load. The procedures and controls will contain the elements of the WNP-2 response to this item (Reference 1).
- 2.2.1.4 The management controls to ensure conformance to the Code of Federal Regulation and procedural requirements for preparation, validation and routine utilization of the information handling systems are periodically audited by, among others, Licensee QA, Licensee Engineering and AE QA.
- 2.2.1.5 WNP-1 equipment specifications for safety-related equipment all specify IEEE 323-1974 and 344-1975 for Balance of Plant and NSSS equipment qualification. This is in accordance with FSAR, Section 3.11 and Topical Report WPPSS-0025 "Qualification Program For Class 1E Instrumentation and Electrical Equipment", referenced in FSAR Subsection 1.6.2. Project review cycles of equipment specification demonstrate that the correct qualification and design verification requirements have been implemented by the specification preparer. Additional technical reviews during bid evaluation and contract award again verify that these requirements have been implemented into the contract documents and thereby imposed on the equipment vendor.

All vendor qualification plans submitted in accordance with specification requirements are reviewed and approved as are the results of the subsequent tests or analyses to ensure conformance to requirements.

2.2.1.6 The WNP-1 procedure for equipment classification of safety-related components will be provided three years prior to fuel load.

2.2.2 The Supply System has established, and is implementing and maintaining a Contractor/Vendor Information (CVI) file system to insure that vendor information received by WNP-1 for safety-related components is controlled and available for use throughout the life of the plant.

The CVI file is being created during the construction/procurement phase of the plant and is a file which is indexed on equipment part numbers. The CVI file contains pertinent engineering, test, or maintenance information obtained during procurement or construction. Typically, this information is contained in what is called an Operation and Maintenance Manual. These manuals and other supporting documents are filed in CVI along with any service bulletins received from the vendors. However, it is important to note that the best and most current information is attained through several sources, only one of which is the immediate vendor.

Additionally, the Equipment Qualification Program extracts pertinent information on periodic maintenance or testing requirements from the Qualification Reports and that information is merged with the basic CVI information for use in the preventive maintenance and surveillance programs.

As discussed in Reference 2, the B&W Owners have contacted INPO requesting assistance for this item which they believe could best be approached as an industry wide activity. Subsequently, a NUTAC program was developed and a report has been written to address Item 2.2.2. This program has been previously discussed with the Staff. Three years prior to fuel load we will complete a review of the NUTAC report and subsequent activities on this item for implementation on WNP-1.

3.1 Post-Maintenance Testing (Reactor Trip System Components)

WNP-1 Response

Because of the extended construction delay status of WNP-1, Test and Maintenance Procedures and Technical Specifications have not been written. We plan to have these sufficiently complete (but probably still in draft form) to allow for a reply to Items 3.1.1, 3.1.2 and 3.1.3 one year prior to fuel load. The preparation of the procedures and Technical Specifications will consider the stated Staff positions for Items 3.1.1-3.1.3.

3.2 Post-Maintenance Testing (All Other Safety-related Components)

WNP-1 Response

Because of the extended construction delay status of WNP-1, the response for Item 3.1 applies here also.

4.1 Reactor Trip System Reliability - Vendor Related Modifications

WNP-1 Response

The reactor trip breakers have not yet been procured for WNP-1 and procurement action is currently on hold pending construction restart. As a result, there are no vendor recommended modifications to verify at this time. We plan to complete this verification and provide a response to Item 4.1 one year prior to fuel load.

4.2 Reactor Trip System Reliability - Preventive Maintenance and Surveillance Program for Reactor Trip Breakers.

WNP-1 Response

As discussed in reply to Item 4.1, the reactor trip breakers for WNP-1 have not been procured. We will provide a response to this item one year prior to fuel load.

4.3 Reactor Trip System Reliability - Automatic Actuation of the Shunt Trip Attachment for B&W Plants

WNP-1 Response

As discussed in Reference 2 (p. 30), the AP&L design for incorporation of automatic shunt trip has been adopted as the generic design concept for the B&W Owners Group. An NRC Safety Evaluation has been issued on this design (Reference 3).

Should WNP-1 utilize breakers incorporating a shunt device we would expect to include automatic actuation of the device. The implementation of the trip may differ, in details, from that of ANO-1 (e.g., the shunt coil power may be taken from the CRD power supply).

We will provide the conceptual design of the reactor trip system three years prior to fuel load.

4.4 Reactor Trip System Reliability (Improvements in Maintenance and Test Procedures for B&W Plants)

WNP-1 Response

WNP-1 will provide safety related maintenance and test procedures for on-line testing of the silicon controlled rectifiers (SCR's). In addition, the B&W Owners Group has developed a generic guideline for enhanced online testing of the SCR's. This guideline will be used in the development of the SCR testing procedure for WNP-1. The draft procedures for WNP-1 will be completed one year prior to fuel load.

Actual confirmation of the stoppage of conduction through the SCR's will require minor plant modifications. These modifications will be described in the WNP-1 FSAR three years prior to fuel load.

4.5 Reactor Trip System Reliability (System Functional Testing)

WNP-1 Response

4.5.1 See response to Item 4.4

4.5.2 WNP-1 will have the capability for periodic on-line testing of the reactor trip system. As mentioned in response to Item 4.4, the FSAR will be revised to address on-line testing capability of the SCRs three years prior to fuel load.

4.5.3 As discussed in reply to Item 3.1, preparation of the WNP-1 Technical Specifications has not yet begun. When prepared, the RTS portion will consider the five items mentioned in Item 4.5.3.

Because of the uncertainty in the selection of the RTS breaker for WNP-1 (as discussed in response to Item 2.1), the Supply System is not participating in that portion of the B&W Owners Group effort described in Reference 2 that relates to the confirmation that the existing on-line test interval is adequate.

REFERENCES

1. Letter, GC Sorensen, Supply System, to A. Schwencer, NRC. "Nuclear Project No. 2 Response to Generic Letter 83-28", dated November 18, 1983
2. B&W Owners Group Response to Generic Letter 83-28 by B&W Owners Group ATWS Committee, November 4, 1983 (Submitted by Arkansas Power & Light for ANO-1, letter dated November 4, 1983-1CAN118302).
3. Letter, John F. Stolz, NRC to John M. Griffin, Arkansas Power & Light Company, no subject, dated January 24, 1984.