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Docket No. 50-397

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

Gentlemen:

Subject: NUCLEAR PLANT NO. 2
SAFETY PARAMETER DISPLAY SYSTEM

Reference: 1) Letter, GW Knighton (NRC) to GC Sorensen (SS),
same subject, dated October 3, 1987
2) Letter, G02-83-346, "Emergency Response
Capability", dated April 15, 1983
3) Letter, G02-83-596, "Safety Parameter Display
System", dated July 1, 1983

In response to Reference 1), the following information with regard to the WNP-2 SPDS is provided.

Because of the nature of Reference 1), it appears that the fundamental design philosophy of the WNP-2 SPDS should be reiterated. This design philosophy is as follows:

"As submitted by the BWR Owners Group Control Room Subcommittee the SPDS is the standard 1E seismically qualified control room instrumentation arrayed in a human factors configuration for easy appraisal and analysis combined with a Graphics Display System (GDS) providing CRT displays of specific plant parameters."

This design philosophy has been the foundation for compliance to NUREG-0737, Supplement 1 for the SPDS. The GDS is not the same as SPDS, and never was intended to be.

The reference submitted five questions. The following repeats the questions and provides the Supply System's responses.

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1. Provide information on SPDS availability.

The availability of the control panel instrumentation portion of SPDS is in accordance with the WNP-2 Technical Specification requirements for accident response instrumentation. The availability of the GDS is assessed on a daily basis by the Shift Technical Advisor (STA) by verifying its operability. The surveillance consists of checking the operability of the three GDS terminals in the control room. If any one of the three is operational, GDS is considered available. Extensive records on this surveillance have not been kept as it is a documented routine in the STA's log. However, using this method, the availability of GDS is approximately 99% as of late. It should be noted that this method does not account for every hour of down time. There are many times in the year that the various computers are taken down for maintenance or software upgrading, but in these cases the system can be put back in service in a matter of minutes, so this is not counted as a contribution to unavailability.

2. Provide information on the continuous display of information.

The GDS provides for continuous display of all parameters in two ways. Because each display has a parameter box at the bottom of each display and it changes color anytime a parameter goes out of a safe value, the operator/STA can tell at a glance the safety status of the plant. The displayed information is updated every 2 to 5 seconds with data that is valid for the time shown on the screen. Also, the operators displays have a touchpad control device that blinks anytime any parameter on any display screen is out of tolerance, and simply by touching that blinking spot, the appropriate screen will be displayed, and the real time value of the offending parameter can be observed.

3. Provide information on implementation of procedures and operator training addressing action with and without the SPDS.

Implementation of procedures which address operator action during emergency events is complete. All plant procedures covering emergency operations (EOP'S), as well as procedures which implement the emergency plan (EPIP's), have been written, approved by the Plant Operations Committee (POC), and implemented through the initial and requalification training programs at WNP-2.

Initial training for both RO and SRO candidates consists of, in part, twelve weeks on the WNP-2 simulator. Eight weeks of this program focus on abnormal/emergency event training. During this eight-week period, the following topics are discussed and/or performed, in detail:

- o Emergency Operating Procedures (entry conditions, definitions, precautions, limitations, actions, bases.

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- o Emergency Plan Implementing Procedures (purpose, precautions, limitations, use of actions)
- o Graphics Display System (use of monitored parameters, limitations/precautions, including verification of displayed data)

Requalification training for licensed RO/SRO staff includes the following:

- o Simulator training - the WNP-2 plant procedures (PPM's) are used exclusively in the conduct of simulator training. As such, the PPM's, including EOP's, and EPIP's become the criteria against which operator evaluations are judged. It is expected that operator actions in the simulator (emergency plan implementation/actions per PPM's, etc.) be carried out as they would in the actual plant control room. Each licensed operator receives approximately 50 - 60 hours of simulator training per year.
- o EOP/EPIP training - on an annual basis, each licensed operator must review the contents of all EOP's and selected EPIP's. This is similar to training conducted on EOP's/EPIP's during the initial training program.
- o Control Room Emergency Operations training - an annual refresher class on emergency event classification, protective action recommendations, control room staff responsibilities, and Graphics Display System use.

In summary, all control room personnel have completed initial training and have continual training in the use of the Graphic Display System. The use of the control panel portion of SPDS is routinely covered in the continuing training program by way of responding to the various accident scenarios in the simulator. The GDS is in the process of being installed in the simulator, and will further improve the existing training on the use of this tool.

4. Provide a commitment to add information on monitoring of containment hydrogen or justify the omission of such information.

The justification for not displaying containment hydrogen concentration on the GDS is that it does not meet the definition of a primary plant safety parameter, and as such is not displayed.

This is not to minimize its importance however, it is important, and is available for display from our companion "STAR" system which is used extensively to augment any transient analysis both real time and historically. Since the purpose of GDS is to display those key plant parameters that will provide a direct indication of the plant safety status, only those signals which meet this criteria were chosen for display. Containment hydrogen is a secondary effect that only occurs after many other parameters have already indicated a degraded plant safety status.

For example: in order to have containment hydrogen, core cooling must be lost for some length of time. If this happens, containment pressure and temperature will be the first and most important containment parameters to be used to ascertain containment integrity. Containment hydrogen is a secondary consideration used as an input on how to deal with the high containment pressure, and is also used to ascertain how much fuel damage may have occurred. Since containment hydrogen and oxygen concentrations are both available to the Shift Technical Advisor, the Technical Support Center personnel, and the Offsite Facility personnel on a real time basis, it is not imperative that they be displayed on GDS. They are already part of the control room panel display, so in that sense, they are on SPDS.

5. Provide a description of and the results of the SPDS verification and validation program.

The Verification and Validation program was successfully completed by an independent consultant (Nuclear Software Services, Inc.) November 11, 1983. The verification and validation results and report are permanent plant files and are available for on-site review. The sheer bulk and voluminous computer printout from the program prohibit ease of copying and transmittal. In summary however, this program included a comparison of the GDS design specification to the completed system in all aspects. It also included integrated tests to show that the computers could respond with timely information under a severe load such as might be the case during an accident.

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Should you have any questions, please contact Mr. P. L. Powell, Manager,
WNP-2 Licensing.

Very truly yours,



G. C. Sorensen, Manager
Regulatory Programs

DLG/bk

cc: JB Martin - NRC RV
NS Reynolds - BCP&R
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DL Willimas - BPA/399
NRC Site Inspector - 901A