

SPDS V&V TEAM REPORT ON THE HUMAN FACTORS REVIEW OF THE SAFETY

PARAMETER DISPLAY SYSTEM

8311030207 831028  
PDR ADOCK 05000461  
F PDR

SPDS V&V TEAM REPORT ON THE HUMAN FACTORS REVIEW OF THE SAFETY  
PARAMETER DISPLAY SYSTEM

The Safety Parameter Display System Validation and Verification (SPDS V&V) Team conducted a review of the Human Factors Review of the Safety Parameter Display System. The documents used for reference were NUREG-0835, "Human Factors Acceptance Criteria for the Safety Parameter Display System" (Draft Report for Comment) and NUREG-0700, "Guideline for Control Room Design Review." This report addresses only the concerns and recommendations of the Human Factors Review of SPDS and the completed checklist portion of NUREG-0700. This report does not address comments made regarding the EOP displays as they are not part of SPDS.

This report is divided into two sections.

A. CONCERNS:

Concerns involve items that are in conflict with the letter of the acceptance criteria.

B. RECOMMENDATIONS

Possible solutions offered to reduce the conflict with the acceptance criteria.

1. CONCERN (Ref NUREG-0835, Section 4.3.1)

Data Validation/Real Time Validation is not performed on all SPDS parameters. The online data validation process used in the Performance Monitoring System/Display Control System (PMS/DCS) does not rely on redundant sensors nor does it use analytical redundancy among different parameters using models or equations. The DCS CRT adjacent to the SPDS display presently cannot provide backup for all SPDS parameters using routine control room displays.

RECOMMENDATION:

Use redundant sensor inputs to the PMS/DCS computer for comparison prior to display on SPDS where such points exist. Where this comparison is not possible/practicable, identify the points on the SPDS display as unvalidated.

2. CONCERN: (Ref. NUREG-0835, Section 4.4.3.1.b)

The location of the radioactivity control data CRT (AR/PR CRT) does not make it easily visible to an operator seated at the P680 Nuclenet panel.

6. (Cont'd)

RECOMMENDATION:

It may be advisable to make the containment isolation display dependant on a demand signal for the isolation.

7. CONCERN:

All the SPDS parameters are not pertinent to all modes of reactor operation. Parameters which do not provide useful information for a given reactor mode are displayed.

RECOMMENDATION:

The SPDS Parameter Set will provide indications of all parameters that must be monitored during each mode of plant operation necessary to fulfill the purpose of SPDS. It is presently believed that those parameters required for SPDS during plant operating modes 1, 2, and 3 are provided by the CPS SPDS. Those parameters required for SPDS during plant operating modes 4 and 5 are considered to be a subset of the those parameters provided by the CPS SPDS. The reactor mode switch is located on the Primary Plant Console (Nuclenet) in the CPS Main Control Room in close proximity to the SPDS display. This fact coupled with appropriate operator training in the use of SPDS is considered appropriate to resolve this concern. However, it is recommended that, when detailed SPDS design information is available, this concern be further reviewed to ensure the adequacy of SPDS.

2. (Cont'd)

RECOMMENDATION:

An alternate location for the AR/PR CRT should be considered.

3. CONCERN:

The Human Factors review of SPDS was conducted with the AR/PR CRT mounted in a temporary location.

RECOMMENDATION:

Perform a re-evaluation of the appropriate portions of the Human Factors Review when the AR/PR CRT is in its permanent location.

4. CONCERN:

The Recommendations section of the Human Factors Review of the SPDS states that the displays were found to meet or exceed the acceptance criteria while the concerns raised point out items that do not meet the letter of the acceptance criteria.

RECOMMENDATION:

Reword the Recommendation section to state that while the letter of the acceptance criteria was not met in some cases, the intent was met or exceeded in all cases.

5. CONCERN:

Several areas of the SPDS were not reviewed due to incomplete design or construction. There is no commitment made to review these items when they become available.

RECOMMENDATION:

Add to the review a commitment to conclude the human factors review when these features are available.

6. CONCERN:

The containment isolation portion of the SPDS display provides indication of the open/closed status of the inboard and outboard containment isolation devices. There are situations when it will be normal for some portions of isolation groups to be open and some closed. There are also situations when it is normal for some groups to be isolated and others not isolated. Due to the complexity of containment isolation configuration with respect to any particular mode of plant operation, it is questioned if this portion of SPDS display will allow the operator to assess the significance of these parameters in a timely manner.