

APPENDIX 7.7A

PLANT SAFETY PARAMETER DISPLAY SYSTEM

(SPDS)

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## 7.7A.1 DESCRIPTION

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The Waterford 3 Safety Parameter Display System (SPDS) consists of a plant monitoring computer-driven CRT display providing the operators with an indication of a set of parameters defining the safety status of the plant.

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While the main purpose of the SPDS is to aid the operator in the detection of abnormal operating conditions, duplication of the SPDS displays in the Technical Support Center (TSC) and the Emergency Operations Facility (EOF) enhances the exchange of information between these facilities and the control room; it also assists the management in the decision making process.

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The data base of the plant monitoring computer includes many of the variables required to provide significant information to the operator on the status of every important plant function, such as:

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- Reactivity Control
- Reactor Core Cooling and RCS Heat Removal
- RCS Integrity
- Radiation Releases
- Containment Conditions

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The use of the Plant Monitoring Computer as a data acquisition system for the SPDS offers the following advantages.

- a) Most, if not all, of the specified parameters required for the SPDS are already available in the extensive plant monitoring computer data base, as required by other monitoring activities or specific application programs.
- ← b) Additional inputs from plant instrumentation or from other monitoring systems (e.g., radiation monitoring system) are also provided.
- c) Derived variables required for the display can be obtained through software information processing.
- d) The display formats are designed according to human factors principles. A routinely displayed, readily interpretable presentation of the safety status for all modes of operation is always available to the operator. This information is obtained by grouping a limited number of parameters, derived variables and their trends, in dedicated primary display formats. Alternate formats may be displayed at the operator's request.

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- e) The CRTs used for the safety parameter displays in the control room, as well as their corresponding keyboards, are similar to the CRTs integrated in the main control board. Availability of similar displays in the Technical Support Center (TSC) and the Emergency Operations Facility (EOF) is obtained through additional CRTs and keyboard consoles linked to the Plant Monitoring Computer.

