JUL 2 1985

DMB01

Dockets Nos. 50-277
and 50-278

LICENSEE: Philadelphia Electric Company

FACILITY: Peach Bottom Atomic Power Station, Units 2 and 3

SUBJECT: SUMMARY OF MEETING WITH PHILADELPHIA ELECTRIC COMPANY PROPOSED SAFETY PARAMETER DISPLAY SYSTEM (SPDS) AT THE PEACH BOTTOM FACILITY

Introduction

On June 14, 1985, the NRC staff met with representatives of Philadelphia Electric Company (the licensee) in Bethesda, Maryland to further discuss the proposed Peach Bottom Safety Parameter Display System (SPDS). The list of participants is included as Enclosure 1.

Discussion

By letter dated April 3, 1985, the NRC staff sent to the licensee a review of the Peach Bottom proposed SPDS based upon the staff's review of the licensee's submittals of September 28, 1983 and July 17, 1984 and an in-plant audit of the Peach Bottom SPDS. The licensee requested a follow-up meeting to further discuss the staff's findings and conclusions as addressed in the April 3, 1985 transmittal and a telephone conference call. The NRC staff agreed to this meeting in order to provide the licensee with an opportunity to more fully describe the proposed SPDS and respond to the April 3, 1985 transmittal. A summary of licensee's description of its proposed SPDS and responses to the staff's review is attached as Enclosure 2.

The licensee's proposed SPDS is based upon the Emergency Procedure Guidelines(EPG) in place at Peach Bottom at the time of the design of the SPDS. Integration of all Nureg 0737, Supplement 1 goals was basis of the proposed SPDS at Peach Bottom. The proposed SPDS under review by the staff would be replaced in 1990 by an updated SPDS in connection with the installation of upgraded process control computer.

The NRC staff agreed that further review of the Peach Bottom SPDS was warranted based upon the licensee's presentation and the fact that the licensee was in the planning stages to install a new process control computer and associated computer assisted SPDS. The licensee was asked to respond to the the staff's April 3, 1985 transmittal as well as include documentation on the status of the new process computer (e.g., time frame, costs, individual SPDS versus integrated SPDS with new process computer etc.).

The licensee agreed to submit the above information in support of its proposed SPDS as interim compliance to Nureg-0737, Supplement 1 prior to the installation of a new process control computer and associated SPDS.

Gerald E. Gears, Project Manager
Operating Reactors Branch #4
Division of Licensing

Enclosures:
1. List of Attendees
2. The Licensee's Summary

cc w/enclosures:
See next page

ORB#4:DL
GGears:cf
6/2/85

MEETING SUMMARY DISTRIBUTION

Licensee: Philadelphia Electric Company

*Copies also sent to those people on service (cc) list for subject plant(s).

Docket File
NRC PDR
L PDR
ORB#4 Rdg
Project Manager - GGears
JStolz
BGrimes (Emerg. Preparedness only)
OELD
EJordan, IE
ACRS-10
PMorriette
NRC Meeting Participants:
LBeltracchi
SWeiss
WRegan
JMazetis
MMcCoy
WKennedy

Enclosure 1

SPDS MEETING JUN 14, 1985

Name	Organization	Telephone
Gerald Gears	Project Manager/NRC/DL	301-492-8362
Wes Bowers	Supervising Engr./PECo	215-841-4602
W. T. Ullrich	Supervising/Nucl. Generat. Divis.	215-841-5593
L. Beltracchi	NRC/DHFS	301-492-4879
S. Weiss	NRC/DHFS	301-492-4875
W. Regan	NRC/DHFS	301-492-4813
Jerry Mazetis	NRC/DHFS	301-492-7254
Mike McCoy	NRC/DHFS	301-492-9692
W. Kennedy	NRC/DHFS	301-492-4578
W. Birley	PECo-Licensing Engineer	215-841-5048

PEACH BOTTOM APS

UNITS 2 AND 3

SAFETY

PARAMETER

DISPLAY

SYSTEM

AGENDA

LICENSING STATUS

DISCUSSION OF EPG
IMPLEMENTATION

REVIEW OF PEACH BOTTOM DESIGN

DISCUSSION OF ISSUES
- -RELIABILITY VS. VALIDATION
- -PARAMETER SELECTION
- -OPERATOR USE OF SPDS

FUTURE ACTION

LICENSING STATUS

*NUREG-0737, SUPPLEMENT 1
ISSUED 12/82

*PECO COMMITMENT 4/83

*SAFETY EVALUATION SUBMITTED
9/83

*NRC REQUESTED ADDITIONAL
INFORMATION 5/84

*ADDITIONAL INFORMATION SUBMITTED
7/84

*NRC SITE AUDIT 10/84

*NRC FINDING REPORT 4/85

*RESPONSE TO FINDINGS
PREPARED BUT NOT ISSUED

NRC FINDINGS

*MONITOR ADDITIONAL VARIABLES

*PROVIDE MORE EFFECTIVE VALIDATION

*INCORPORATE HUMAN FACTORS PRINCIPLES

*JUSTIFY ISOLATION BETWEEN CLASS 1E AND NON-CLASS 1E CIRCUITS

REQUIREMENTS IN NUREG-0737

*SPDS MUST BE PROVIDED

*COMMERCIAL GRADE EQUIPMENT ACCEPTABLE

*OPERATORS TRAINED TO RESPOND WITH OR WITHOUT SPDS

*HUMAN FACTORS PRINCIPLES APPLIED TO DISPLAY

*PROMPT IMPLEMENTATION DESIRED

*DISPLAYS MUST COVER:

- -REACTIVITY CONTROL
- -CORE COOLING AND HEAT REMOVAL
- -REACTOR COOLANT SYSTEM INTEGRITY
- -RADIOACTIVITY CONTROL
- -CONTAINMENT CONDITIONS

*SPECIFIC PARAMETERS SELECTED BY LICENSEE

*ANALYSIS REQUIRED TO JUSTIFY SELECTED PARAMETERS

SPDS AT PEACH BOTTOM

*USES STRIP-CHART RECORDERS AND VALVE POSITION LIGHTS AT TWO LOCATIONS

*HIGHLY RELIABLE INDICATION

*VARIABLES SELECTED ARE TRIP ENTRY CONDITIONS

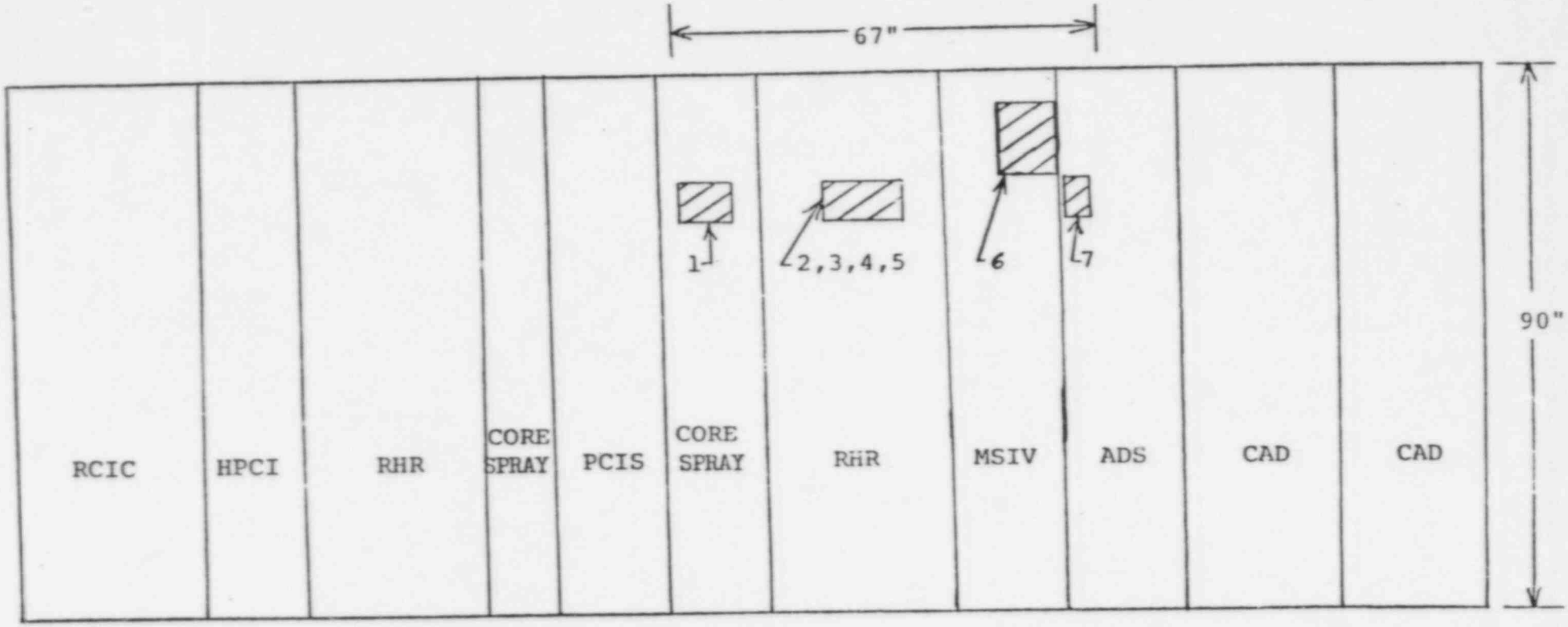
*FULLY OPERATIONAL AFTER REACTOR PRESSURE INDICATION ADDED

*CRDR TO PROVIDE ENHANCEMENTS
- -NEW LABLES
- -INDICATORS COLOR CODED
- -OUT-OF-NORMAL LIMITS COLOR CODED

*OPERATORS TRAINED AS PART OF TRIP TRAINING

FIGURE 1

SPDS ARRANGEMENT (OS)



Approximate Scale 1" =25"

SPDS Indicators

1. Drywell Temperature Recorder (0 to 240° F).
2. Suppression Pool Level Recorder (1 to 21 feet).
3. Suppression Pool Temperature Recorder (30 to 230° F).
4. Drywell Pressure Recorder (5 to 25 psia and 0 to 225 psig).
5. Reactor Water Level Recorder (-165 to +50 inches and -325 to 0 inches).
6. Group I Isolation Valve Position Lights (Open/Close).
7. Reactor Pressure (0 to 1500 psig).

SPDS Design and Qualification

Variable	Safety Related	Quality Assured	Periodically Tested	On-site Power	Sensor Qualification Seismic	Sensor Qualification Environmental
Reactor water level	Yes	Yes	Yes	Yes	Yes	Yes
Reactor pressure	Yes	Yes	Yes	Yes	Yes	Yes
Drywell pressure	Yes	Yes	Yes	Yes	Yes	Yes
Drywell Temperature	No	No	Yes	Yes	Yes	Yes
Suppression pool temperature	Yes	Yes	Yes	Yes	Yes	Yes
Suppression pool level	Yes	Yes	Yes	Yes	Yes	Yes
Group I isolation valve position	Yes	Yes	Yes	Yes	Yes	Yes
Neutron flux	Note 1	Note 1	Yes	Yes	Yes	Yes

NOTES

1. All portions of the loop are safety related and quality assured except for the recorder.

DISCUSSION ITEMS

PECO BELIEVES SPDS MEETS NUREG-0737 REQUIREMENTS

PECO BELIEVES NRC REVIEW DONE WITHOUT CONSIDERING ALL SUBMITTALS

- -NEUTRON FLUX MONITORED
- -HUMAN FACTORS REVIEW INTEGRATED WITH CRDR
- -ISOLATION INFORMATION PROVIDED
- -PLANT-UNIQUE PROCEDURES USED

IT APPEARS THAT GUIDANCE UPGRADED TO REQUIREMENTS

- -VALIDATION

IT APPEARS THAT NEW REQUIREMENTS WERE IMPOSED

- -SHIFT SUPERVISOR IS ONLY USER
- -OFFSITE RELEASES MUST BE MONITORED
- -SINGLE FAILURE CRITERIA IMPOSED

RELIABILITY OF SPDS

*NUREG-0737 REQUIRES RELIABLE DISPLAY

*RELIABILITY REQUIREMENT MET
- -SELECTED SAFETY-GRADE CRITERIA
- -ALL PARAMETERS VALIDATED ON REDUNDANT DISPLAY
- -ADDITIONAL VALIDATION POSSIBLE

*SRP 18.2 SUGGESTS USE OF ON-LINE VALIDATION TO MEET RELIABILITY REQUIREMENT

*NRC REVIEW
- -NO CREDIT FOR "PEDIGREED" INSTRUMENTS
- -APPEARS TO ELEVATE VALIDATION GUIDANCE TO A REQUIREMENT
- -REDUNDANT DISPLAYS IN ONE FIELD OF VIEW
- -APPEARS TO IMPOSE SINGLE FAILURE CRITERIA

SPDS PARAMETER SELECTION

*BASED ON ENTRY CONDITIONS FOR EMERGENCY PROCEDURES

- -PLANT-UNIQUE TRIP PROCEDURES
- -REVISION 2 OF EPGs

*PROCEDURES OF INTEREST

- -REACTOR CONTROL
- -CONTAINMENT CONTROL

*RADIATION RELEASE GUIDELINES NOT INCLUDED

- -NOT PART OF TRIP PROCEDURES
- -NUREG-0737 SAYS SPDS USED BY OPERATORS RESPONSIBLE FOR AVOIDANCE OF DEGRADED AND DAMAGED CORE EVENTS
- -NUREG-0737 SAYS SPDS USED TO DETERMINE SAFETY STATUS OF PLANT AND ASSESS WHETHER ABNORMAL CONDITIONS WARRANT CORRECTIVE ACTION TO AVOID A DEGRADED CORE

PARAMETER SELECTION (CONT.)

*NRC REVIEW

- —ADDITIONAL PARAMETERS REQUIRED
  - APRM
  - SRM
  - AREA RADIATION (CONTAINMENT?)
  - PLANT VENT RADIATION
  - CONTAINMENT HYDROGEN (FUTURE)
  - CONTAINMENT OXYGEN (FUTURE)
- —APPEARS TO IMPOSE NEW REQUIREMENTS

OPERATOR USE OF SPDS

*NUREG-0737 SAYS USED BY OPERATORS RESPONSIBLE FOR AVOIDANCE OF DEGRADED AND DAMAGED CORE EVENTS

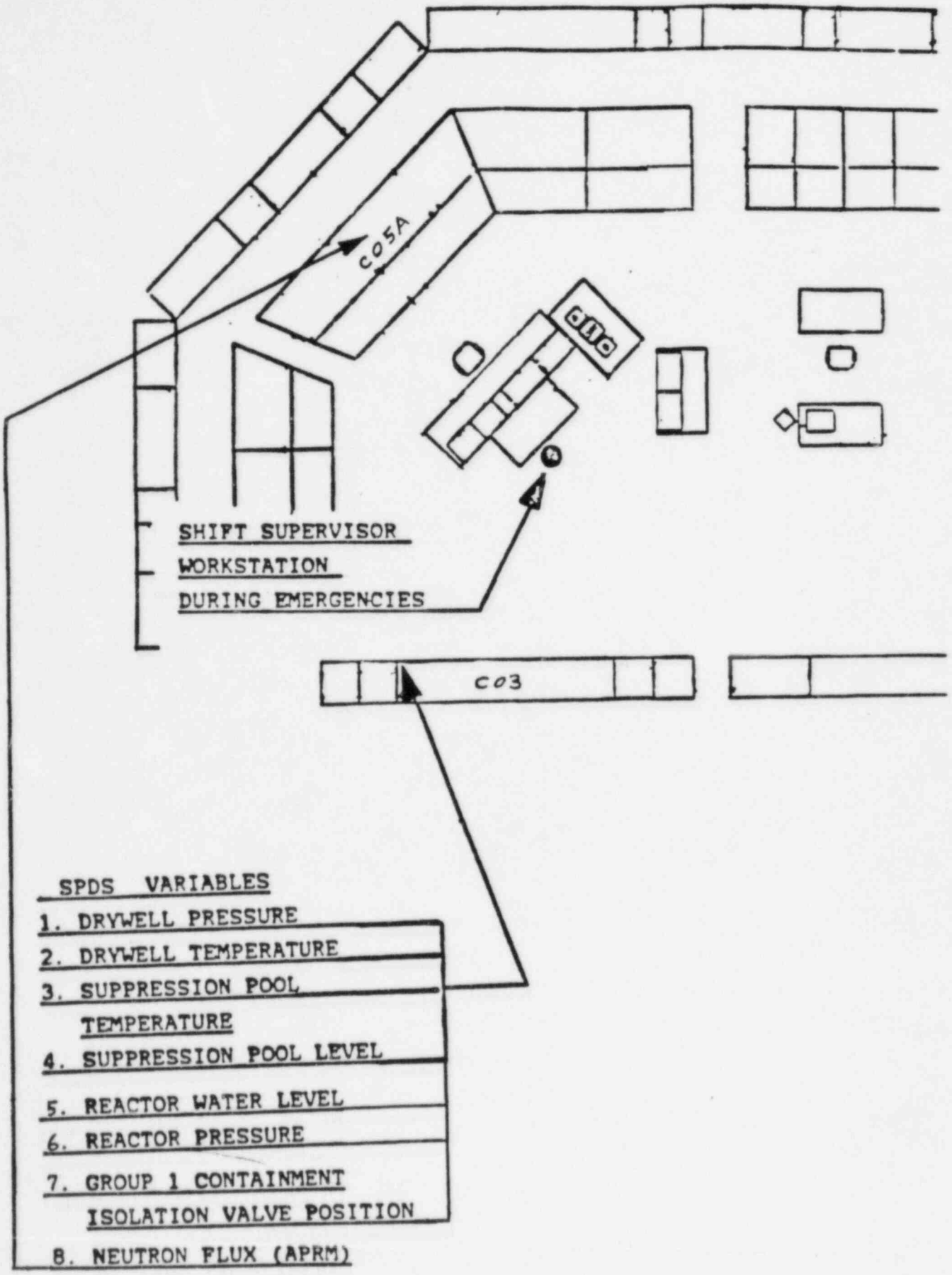
*SRP 18.2 SUGGESTS USE BY
- -SHIFT SUPERVISOR
- -SENIOR REACTOR OPERATOR
- -SHIFT TECHNICAL ADVISOR
- -ONE REACTOR OPERATOR

*PLANT UNIQUE IMPLEMENTATION
- -OPERATOR AT PANEL C05A CONTROLLING REACTIVITY
- -OPERATOR AT PANELS C04B AND C, C03, C484A AND B CONTROLLING ECCS
- -SHIFT SUPERVISOR IN MIDDLE OF ROOM RECEIVING DATA AND LOOKING AT PROCEDURES
- -STA HAS ACCESS TO DATA
- -DISPLAYS ARE CONCISE FOR USER
- -SIMULATOR EXPERIENCE SHOWS THIS WORKS WELL

USE OF SPDS (CONT.)

*NRC REVIEW

- —REQUIRES MORE CONCISE DISPLAY
- —REQUIRES SHIFT SUPERVISOR TO GATHER DATA
- —APPEARS TO IMPOSE NEW REQUIREMENT



PEACH BOTTOM --UNIT 2 SPDS LAYOUT

TABLE 1

Revised SPDS Parameter List

Function / Variable	Reactivity Control	Reactor Core Cooling And Heat Removal	Reactor Coolant System Integrity	Radioactivity Control	Containment Conditions
Reactor Water Level	X	X			
Reactor Pressure	X		X		
Drywell Pressure	X		X	X	X
Drywell Temperature					X
Suppression Pool Temperature					X
Suppression Pool Level					X
Group I Containment Isolation Valve Position	X		X	X	
Neutron Flux (APRM)	X				