Docket No. 52-002

April 30, 1992

APPLICANT: ABB Combustion Engineering Nuclear Power (CE)

PROJECT: CE SYSTEM 80+

SUBJECT: MEETING HELD ON APRIL 9, 1992, REGARDING CONTROL ROOM DESIGN CERTIFICATION

On April 9, 1992, a public meeting was held at the Nuclear Regulatory Commission in Rockville, Maryland, to discuss the scope of the design to be certified for NUPLEX 80+, the control room for System 80+. A list of attendees is provided as Enclosure 1. The CE presentation is provided as Enclosure 2.

CE stated that the part of the control room design for which CE wanted certification would be defined in the system description provided with the inspection, test, and analysis acceptance criteria (ITAAC) submittal. At this meeting they stated that CE wanted the NRC to review and accept the design of the Reactor Coolant System Panel, the Integrated Process Status Overview and the control room configuration. An option of conducting a detailed control room design review like those conducted at operating plants in accordance with the U. S. Nuclear Regulatory Commission, "Clarification of TMI Action Plan Requirements, Requirements for Emergency Response Capability" NUREG-0737, Supplement 1 dated December 1982, for these three items was raised for future discussion.

NRC asked that CE review the ITAAC that was under consideration for the GE advanced boiling water reactor especially with regard to the design acceptance criteria. CE should provide comments or proposed alternatives for such an approach for NUPLEX 80+. NRC also stated that the documentation required to support the staff's review of the control room must be placed on the docket and, therefore, relying on the staff to obtain this information by reviewing documents in the CE offices was unacceptable. CE indicated that the required documentation would be provided. A meeting of technical reviewers and CE staff was scheduled for April 16 and 17, 1992.

(Original signed by)

Thomas V. Wambach, Project Manager
Standardization Project Directorate
Division of Advanced Reactors
and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. List of Attendees
2. CE presentation

NRC FILE CENTER COPY

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OFC:	LA:PDST	PM:PDST	SC:PDST	D:PDST
NAME:	PShea	TWambach:sg	JNWilson	RPierson
DATE:	04/21/92	04/30/92	04/30/92	04/ /92

OFFICIAL RECORD COPY: DOCUMENT NAME:MTGSUM49.TVW

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

April 30, 1992

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Thomas V. Wambach

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Standardization Project Directorate
Division of Advanced Reactors
and Special Projects
Office of Nuclear Reactor Regulation

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2. CE presentation

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Docket File
NRC PDR
PDST R/F
TMurley/FMiraglia, 12G18
DCrutchfield
WTravers
RPierson
JNWilson
TWambach
JMoore, 15B18
ACRS (10)
EJordan, 3701
JWermiel, 10D24
JRoe, 10H5
CThomas, 10H5
DSmith, 10D24
HLi, 8H10
JStewart, 8H7
AEl-Bassioni, 10E9
SNewberry, 8H1
BPallo, 10E4
NSaltos, 10E4
JBongarra, 10D24

DF03
1/1

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Washington, D.C. 20006

Enclosure 1

CE SYSTEM 80+ HUMAN FACTORS ENGINEERING CERTIFICATION

LIST OF ATTENDEES

April 9, 1992

Name	Affiliation
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Jared Wermiel	NRC/NRR/DLPQ/LHFB
Jack Roe	NRC/NRR/DLPQ
Cecil Thomas	NRC/NRR/DLPQ
Dennis Crutchfield	NRC/NRR/ADAR
Donna L. Smith	NRC/NRR/DLPQ/LHFB
Hulbert Li	NRC/NRR/DST/SICB
Jim Stewart	NRC/NRR/DST/SICB
Adel A. EL-Bassioni	NRC/NRR/DREP/PRAB
Scott Newberry	NRC/NRR/DST/SICB
Bob Palla	NRC/NRR/DREP/PRAB
Nick Saltos	NRC/NRR/DREP/PRAB
Adrian Heymer	NUMARC
Bob Pierson	NRC/NRR/PDST
Stan Ritterbusch	ABB/CE
James P. Bongarra	NRC/NRR/DLPQ/LHFB
Ken Scarola	ABB/CE
Regis Matzie	ABB/CE
Charlie Brinkman	ABB/CE
Paul M. Simon	ABB/CE

SYSTEM 80+ HUMAN FACTORS

- THIS PRESENTATION WILL DEFINE ABB-CE'S EXPECTATIONS REGARDING THE NRC APPROVAL TO BE STATED IN THE DSER FOR THE SYSTEM 80+ CONTROL ROOM DESIGN.

- THIS PRESENTATION WILL NOT DEFINE WHAT WILL BE CERTIFIED.

  DESIGN FEATURES FOR CERTIFICATION WILL BE DEVELOPED AS PART OF THE TIER 1 CERTIFICATION EFFORT.

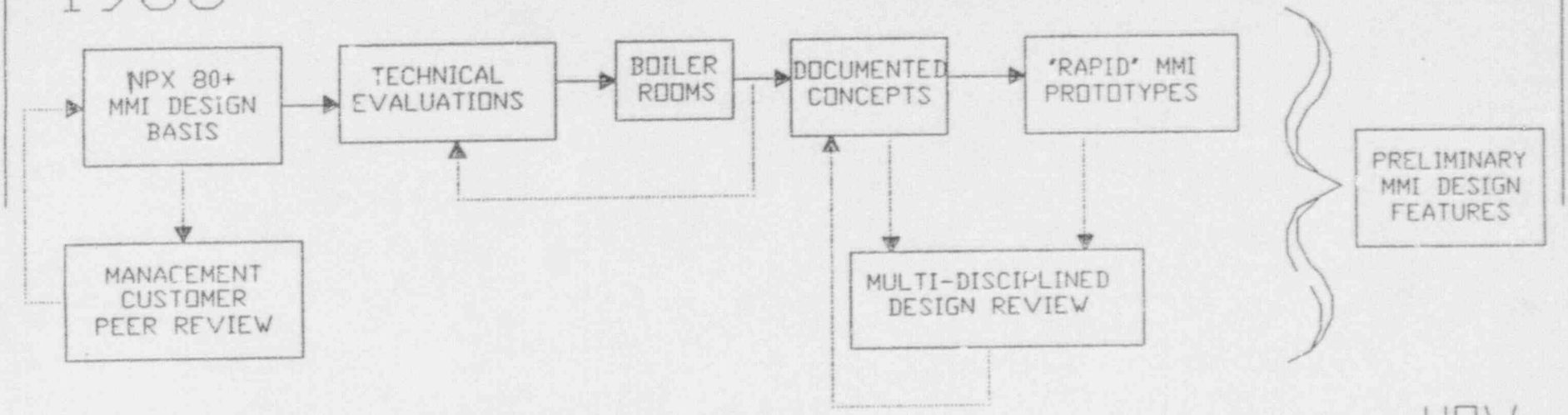
ABB-CE EXPECTATIONS FOR THE CESSAR-DC CHAPTER 18 DSER

1. THE DESIGN PROCESS FOR THE RCS PANEL, CONTROL ROOM CONFIGURATION AND INTEGRATED PROCESS STATUS OVERVIEW (IPSO) IS ACCEPTABLE.

   - MAN-MACHINE INTERFACE DESIGN FEATURES DEVELOPMENT
   - FUNCTIONAL TASK ANALYSIS METHODOLOGY
   - RCS PANEL DESIGN PROCESS
   - VERIFICATION ANALYSIS PROCESS
   - CONTROL ROOM CONFIGURATION DESIGN PROCESS

NUPLEX 80+ MMI DESIGN PROCESS

1986 NUPLEX 80+ MAN MACHINE INTERFACE CONCEPTS 1988



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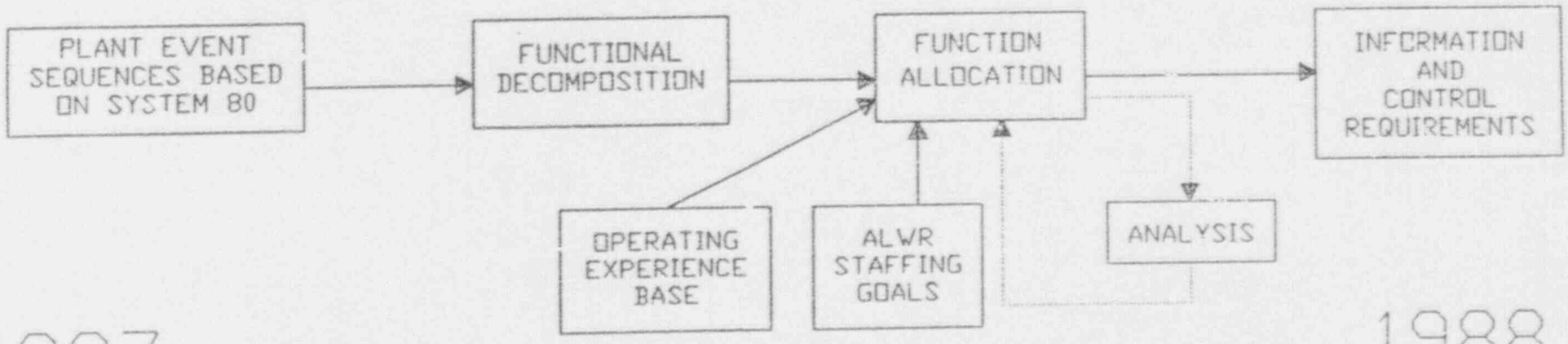
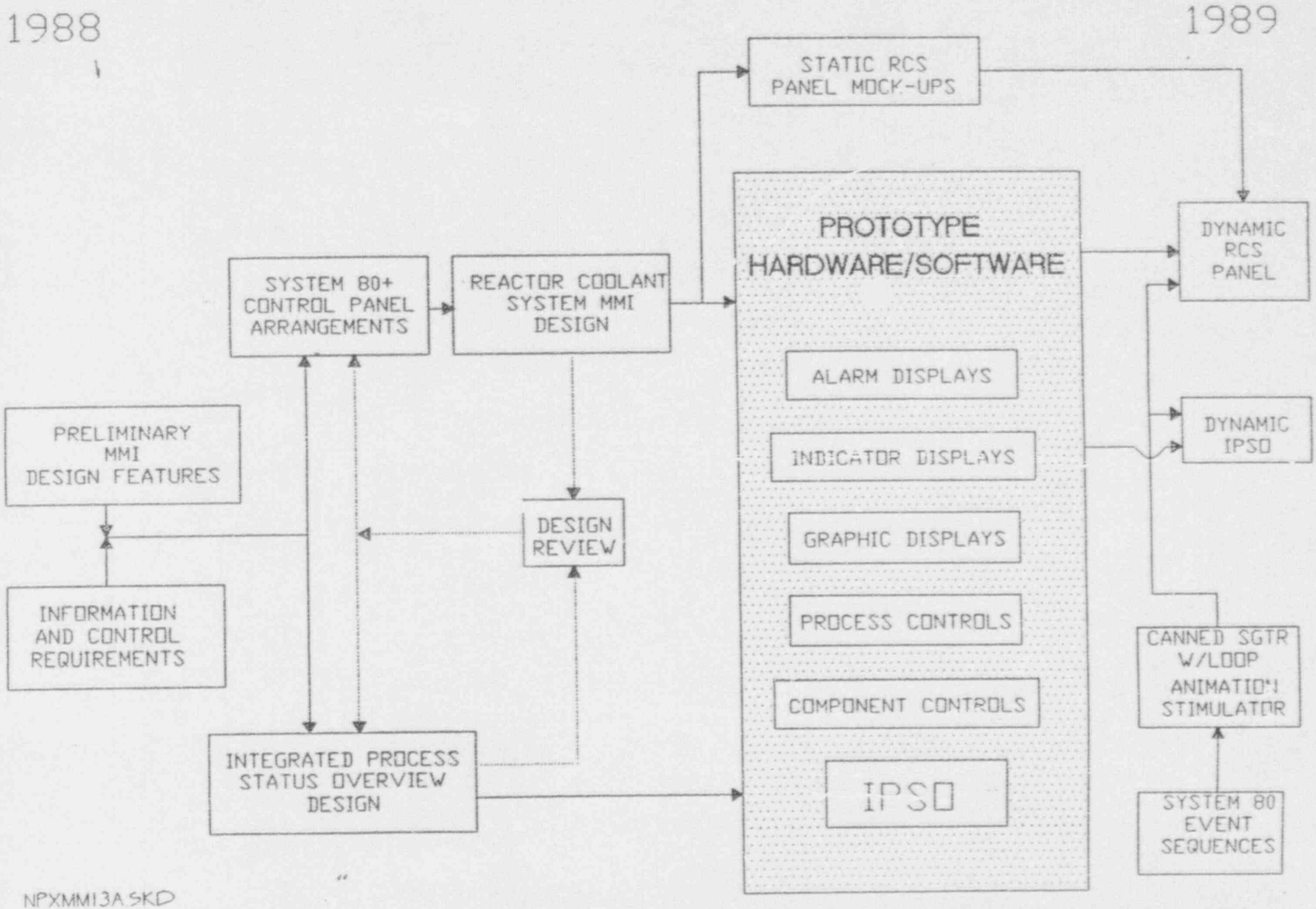


1987 SYSTEM 80+ FUNCTIONAL TASK ANALYSIS 1988

NPXMMI2SKD

NUPLEX 80+ MMI DESIGN PROCESS



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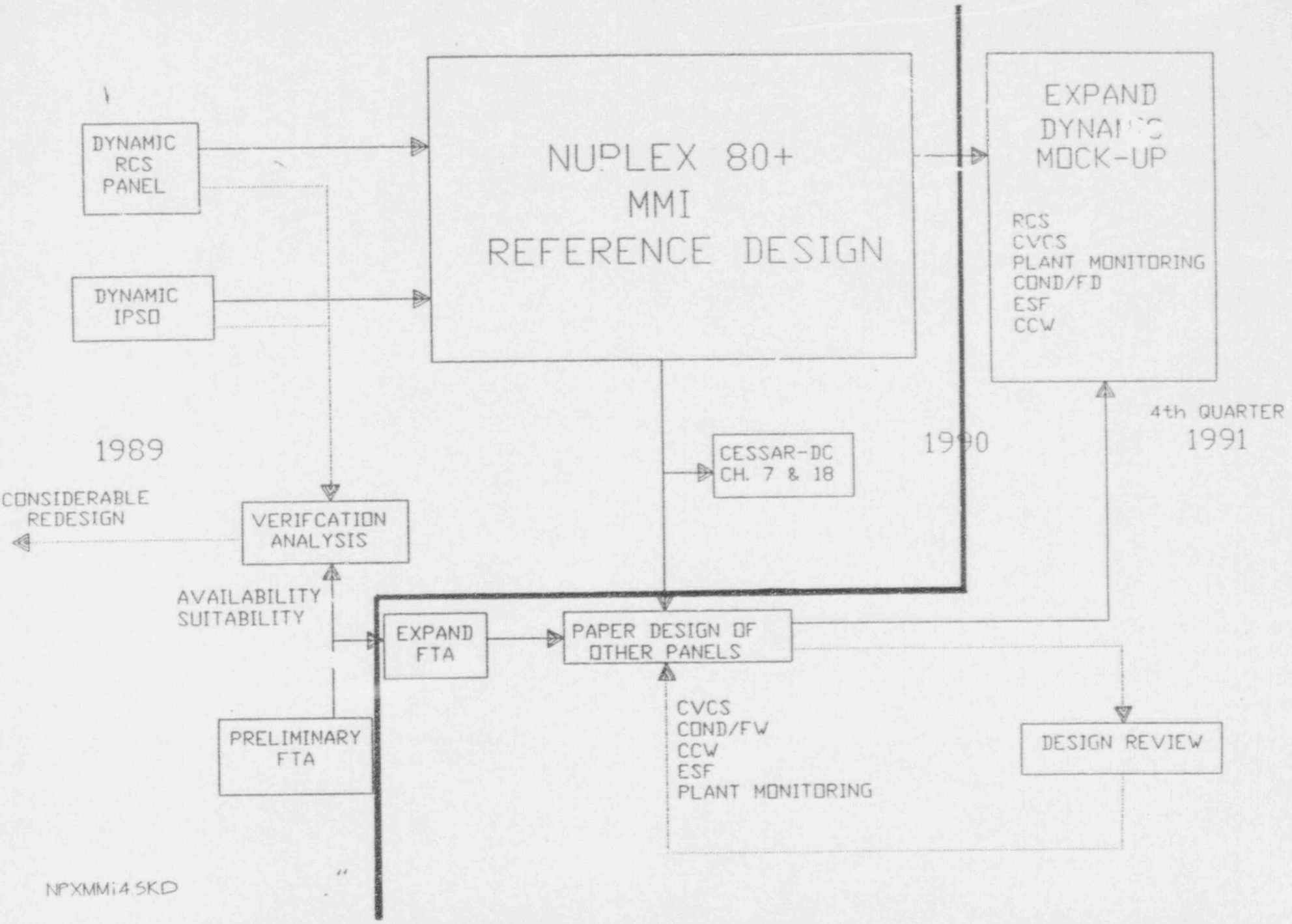

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ABB-CE EXPECTATIONS FOR THE CESSAR-DC CHAPTER 18 DSER

2. THE NUPLEX 80+ MAIN CONTROL ROOM CONFIGURATION IS ACCEPTABLE.

- PANEL FOOTPRINT
- LOCATION OF IPSO
- LOCATION OF OFFICES

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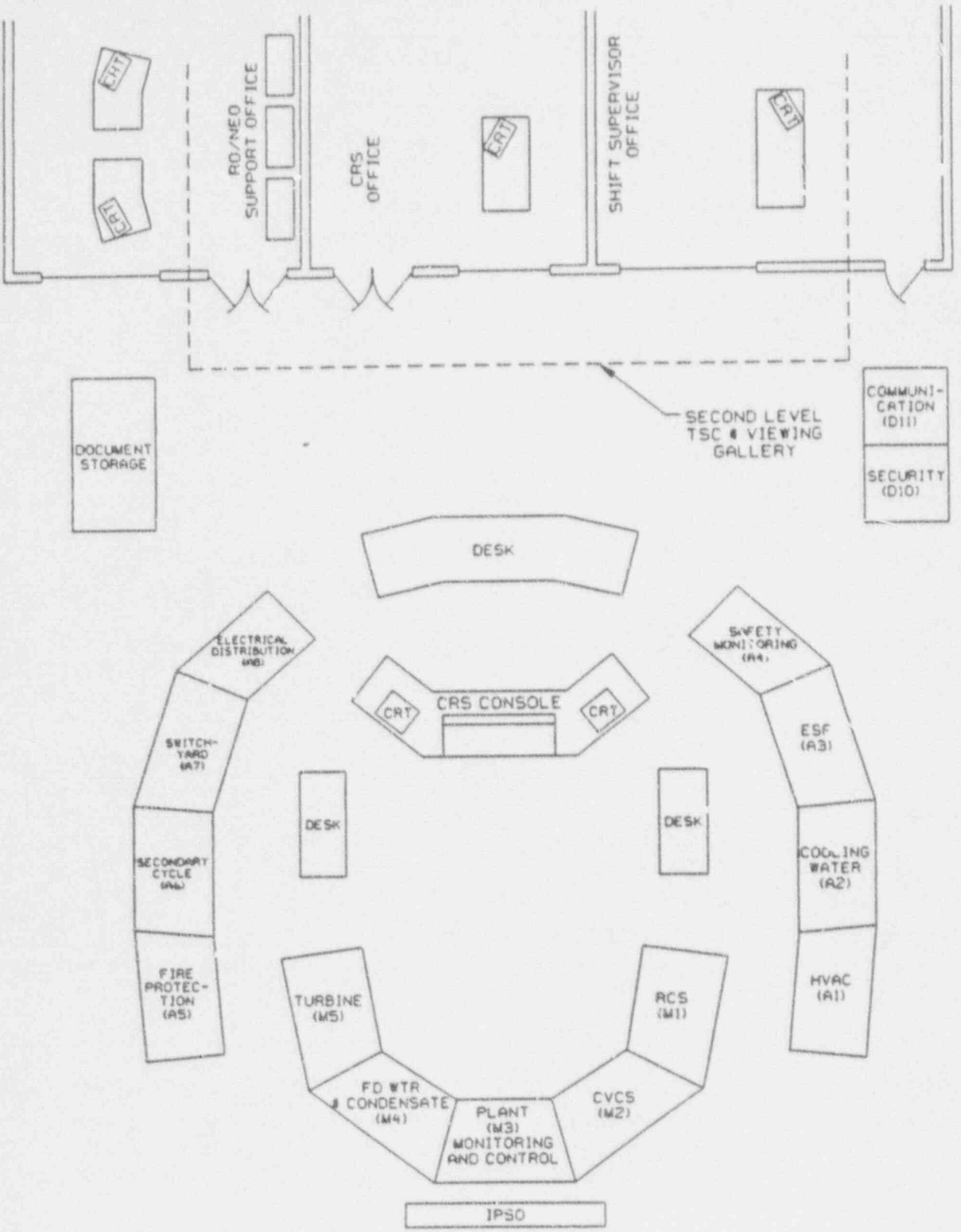

Amendment E
December 30, 1988

SYSTEM 80+™	NUPLEX 80+ CONTROL ROOM CONFIGURATION	Figure 18.6.5-4

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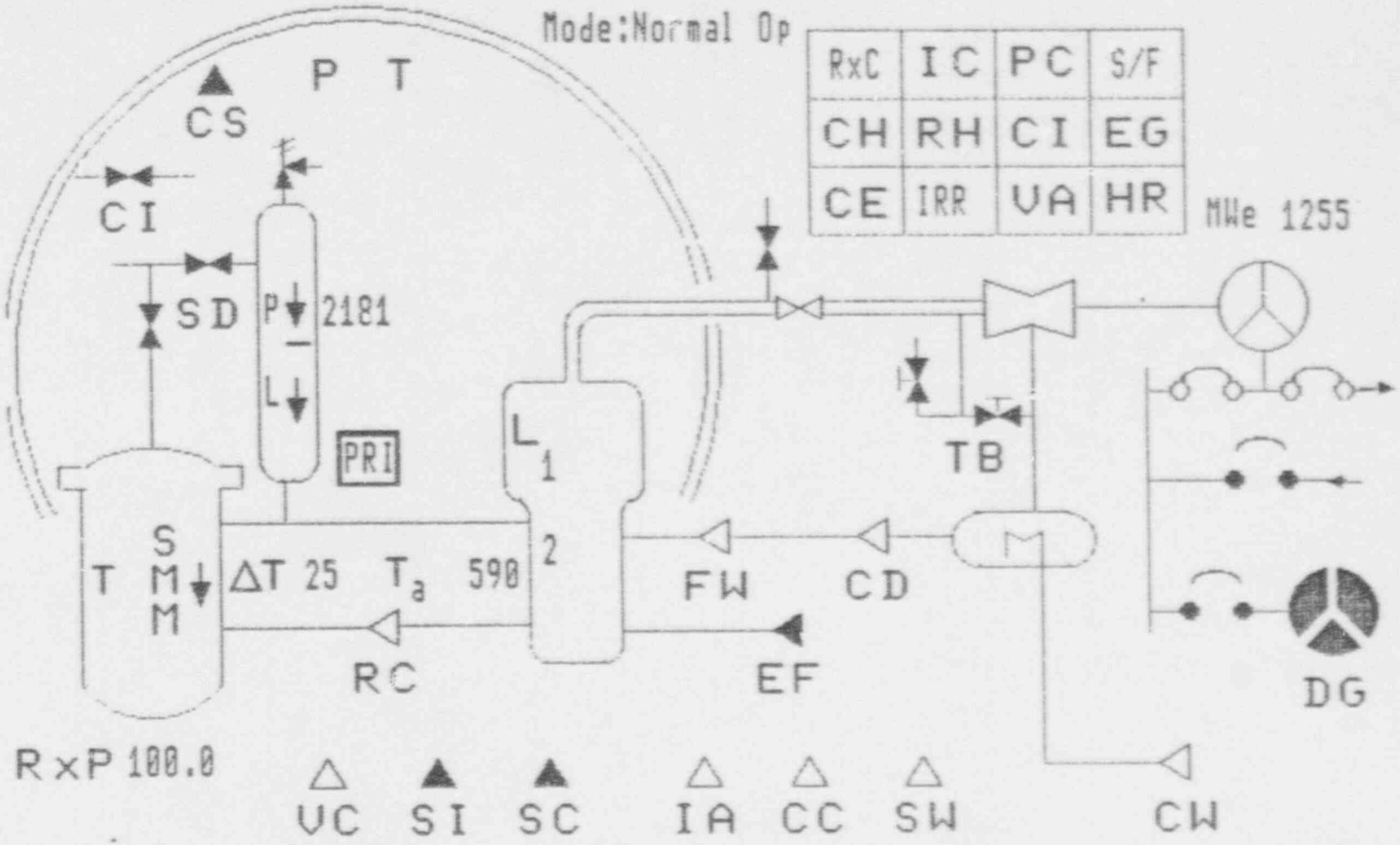
ABB-CE EXPECTATIONS FOR THE CESSAR-DC CHAPTER 18 DSER

3. THE DESIGN OF THE INTEGRATED PROCESS STATUS OVERVIEW IS ACCEPTABLE.

- FUNCTIONAL DESIGN
- CONTINUOUS CRITICAL FUNCTION STATUS DISPLAY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IC
PC
S/F
CH
RH
CI
EG
CE
IRR
VA
HR
MWe 1255
P T
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CI
SD
P
2181
L
PRI
L1
TB
T
S
M
M
ΔT 25
Ta
590
2
FW
CD
RC
EF
DG
RxP 100.0
VC
SI
SC
IA
CC
SW
CW

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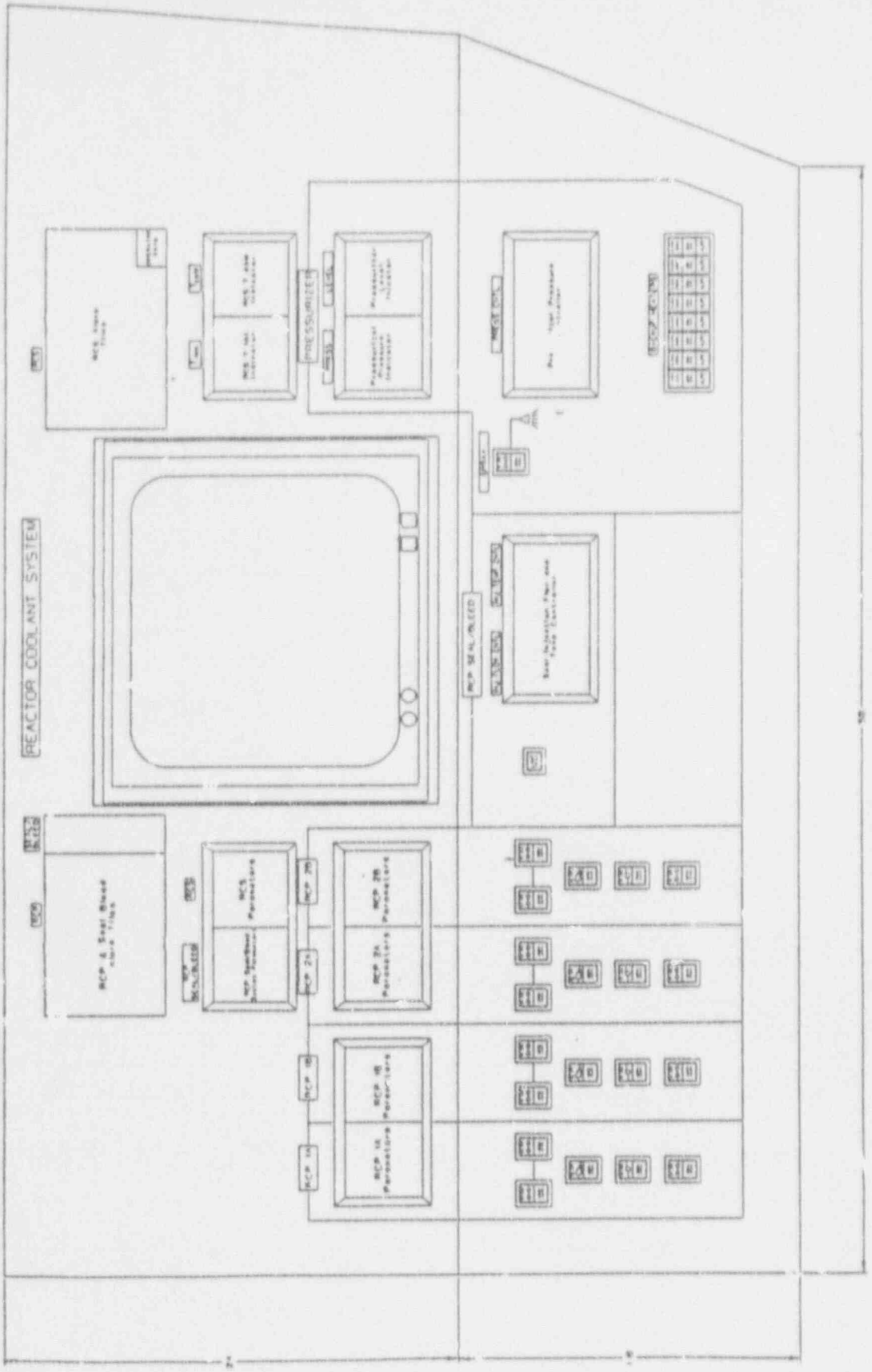
ABB-CE EXPECTATIONS FOR THE CESSAR-DC CHAPTER 18 DSER

4A. THE DESIGN PRODUCT FOR THE RCS PANEL IS ACCEPTABLE.

- RCS ALARM TILES
- RCS DISCRETE INDICATORS
- RCS CRT PAGES
- RCS PROCESS AND COMPONENT CONTROLS
- RCS PANEL LAYOUT

4B. THE MMI FEATURES USED FOR THE RCS ARE ACCEPTABLE FOR USE IN EQUIVALENT APPLICATIONS FOR ALL REMAINING PANELS. EXAMPLES OF THESE FEATURES ARE:

- DIAS ALARM TILE DISPLAY FORMAT/FEATURES
- DIAS DEDICATED PARAMETER DISPLAY FORMAT/FEATURES
- DIAS MULTIPLE PARAMETER DISPLAY FORMAT/FEATURES
- CCS PROCESS CONTROLLER DISPLAY FORMAT/FEATURES
- CCS COMPONENT CONTROLS



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December 21, 1990

SYSTEM 80+™

RCS PANEL/LAYOUT

Figure 18.7.3-39

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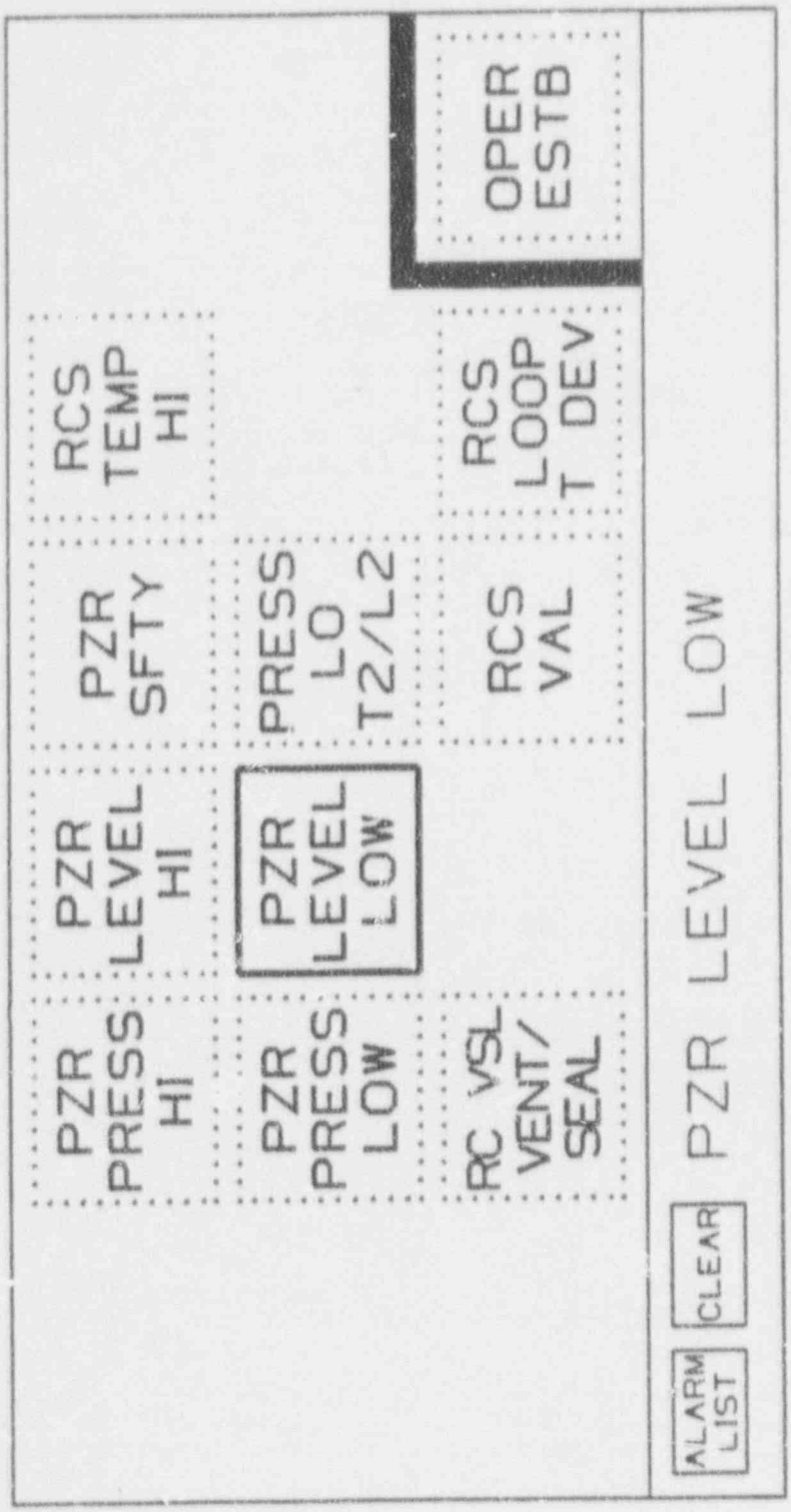

SYSTEM 80+™

ALARM TILE PANEL DISPLAY SHOWING ALARM TILES AND ALARM MESSAGES

Figure 18.7.1-10

ALARM TILE	STATUS	ALARM DESCRIPTION
PZR LEVEL LOW	2	PZR LEVEL LOW
	2	PZR LEVEL ERROR LOW

ALARM STATUS

ALARM LIST | CLEAR

CALMA FILE:
I:SYSBOJRCPDWG2

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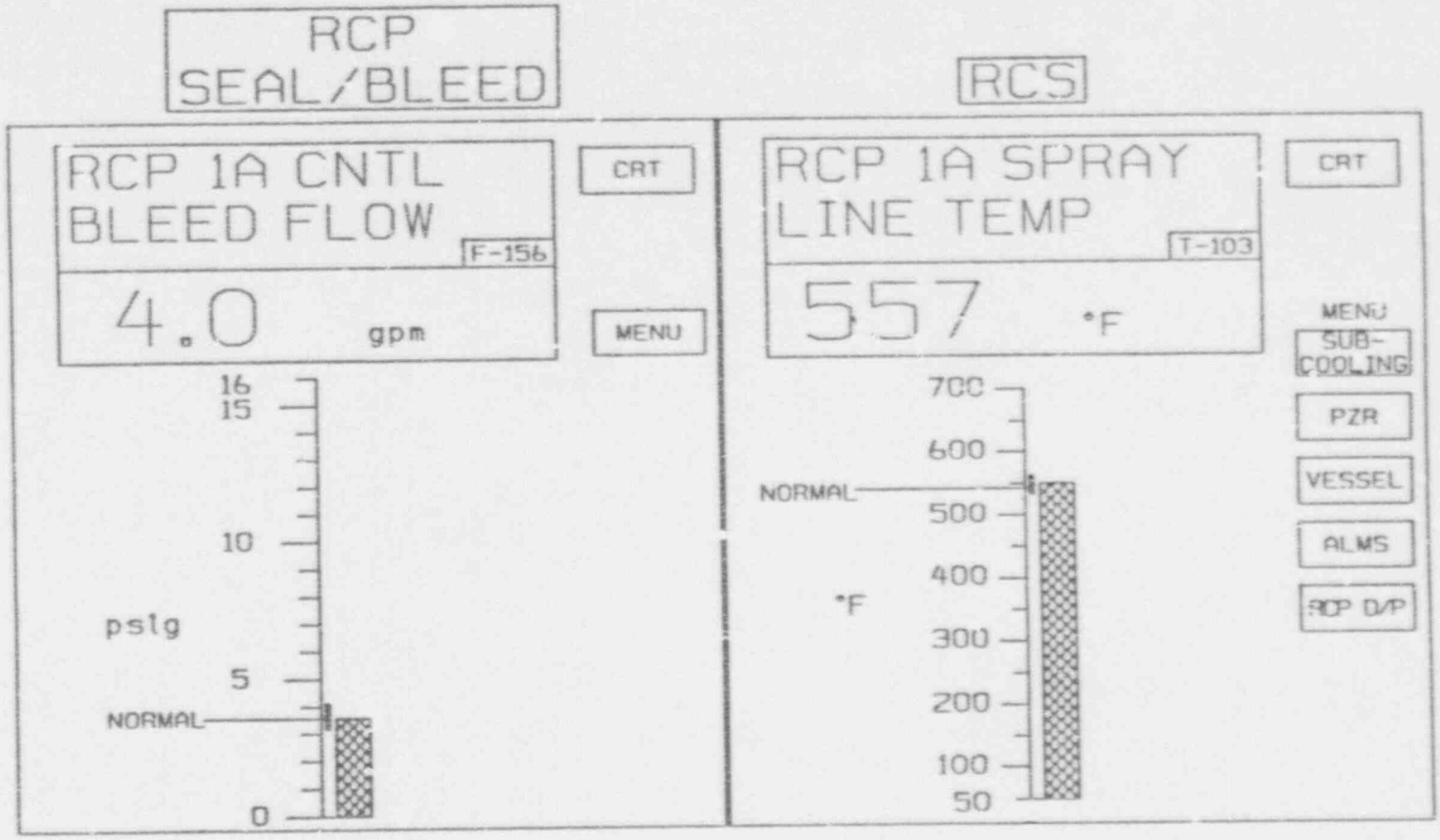
ALARM TILE PANEL DISPLAY SHOWING ALARM LISTING FORMAT

Figure 18.7.1-11

Amendment I
December 21, 1990



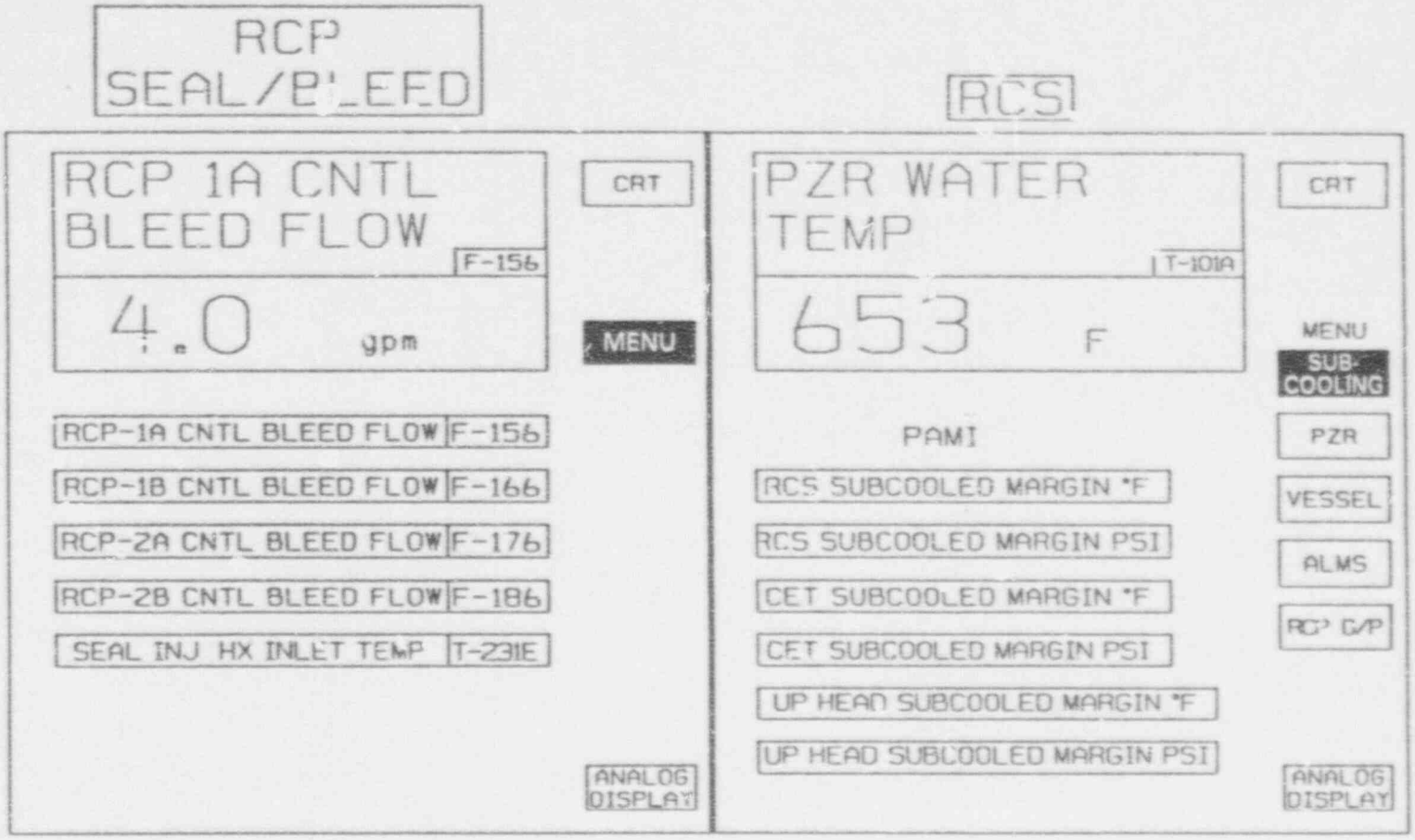
NPS-PANELFRONTS (SHTS)

SYSTEM 80+™

RCP SEAL/BLEED AND RCS DIAS DISPLAYS

Figure
18.7.3-14

Amendment E
December 30, 1988



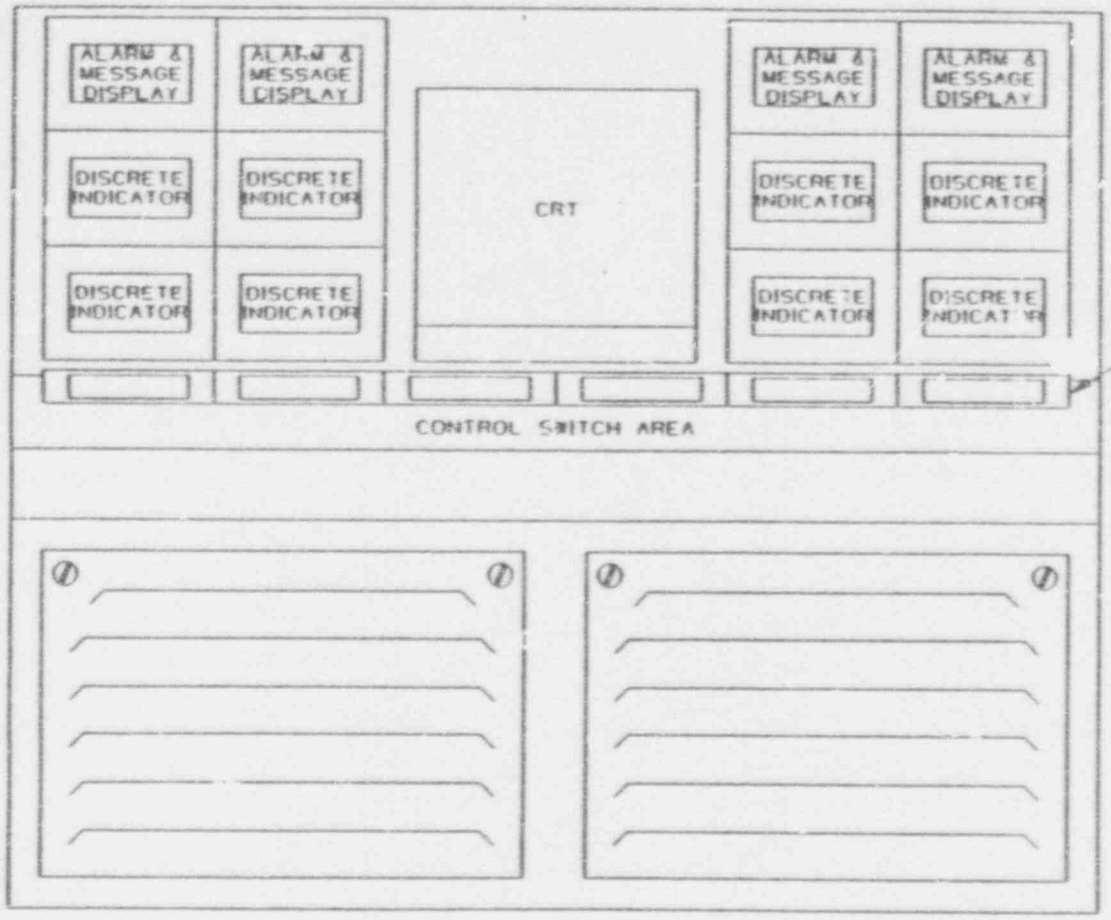
NPS-PANELFRONTS (SHT13)

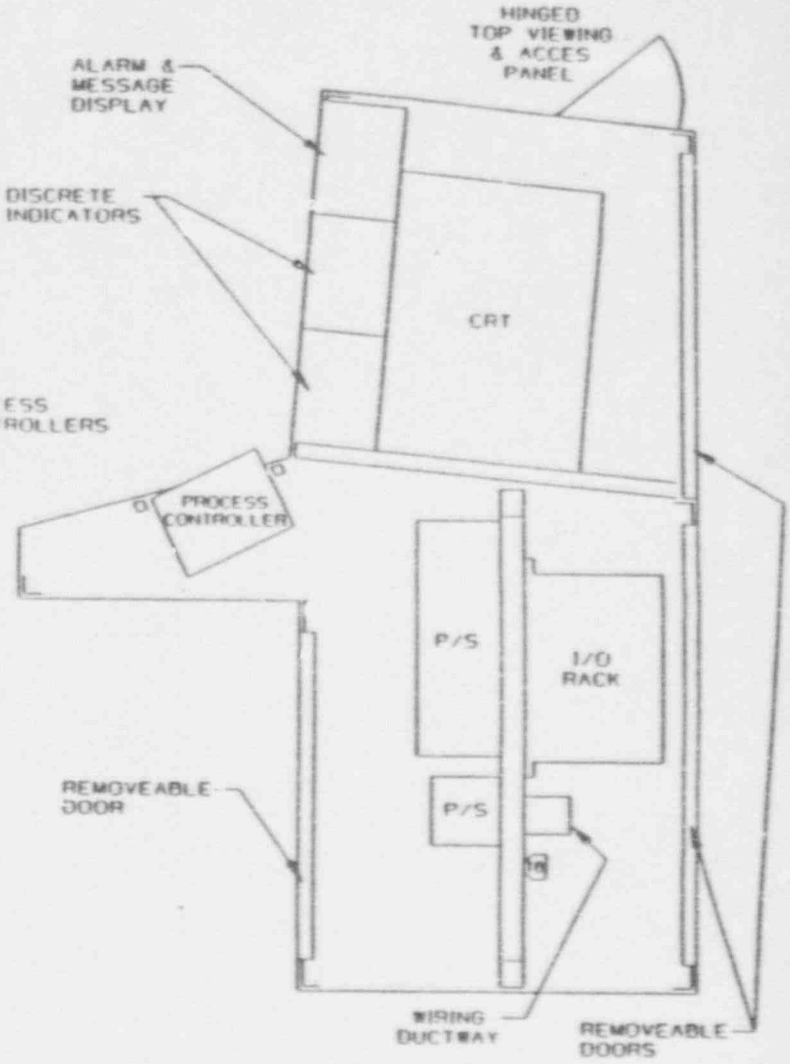
SYSTEM 80+™

RCP SEAL/BLEED AND RCS SUBCOOLING MENU PAGES

Figure 7.3-15

Amendment E
December 30, 1988





NPX80+ MCC

STANDARD TOP LEVEL ASSEMBLY
& CROSS SECTIONAL VIEW

CALMA FILE:
LNPX80PLUS:HCCPAN

ABB-CE EXPECTATIONS FOR THE CESSAR-DC CHAPTER 18 DSER

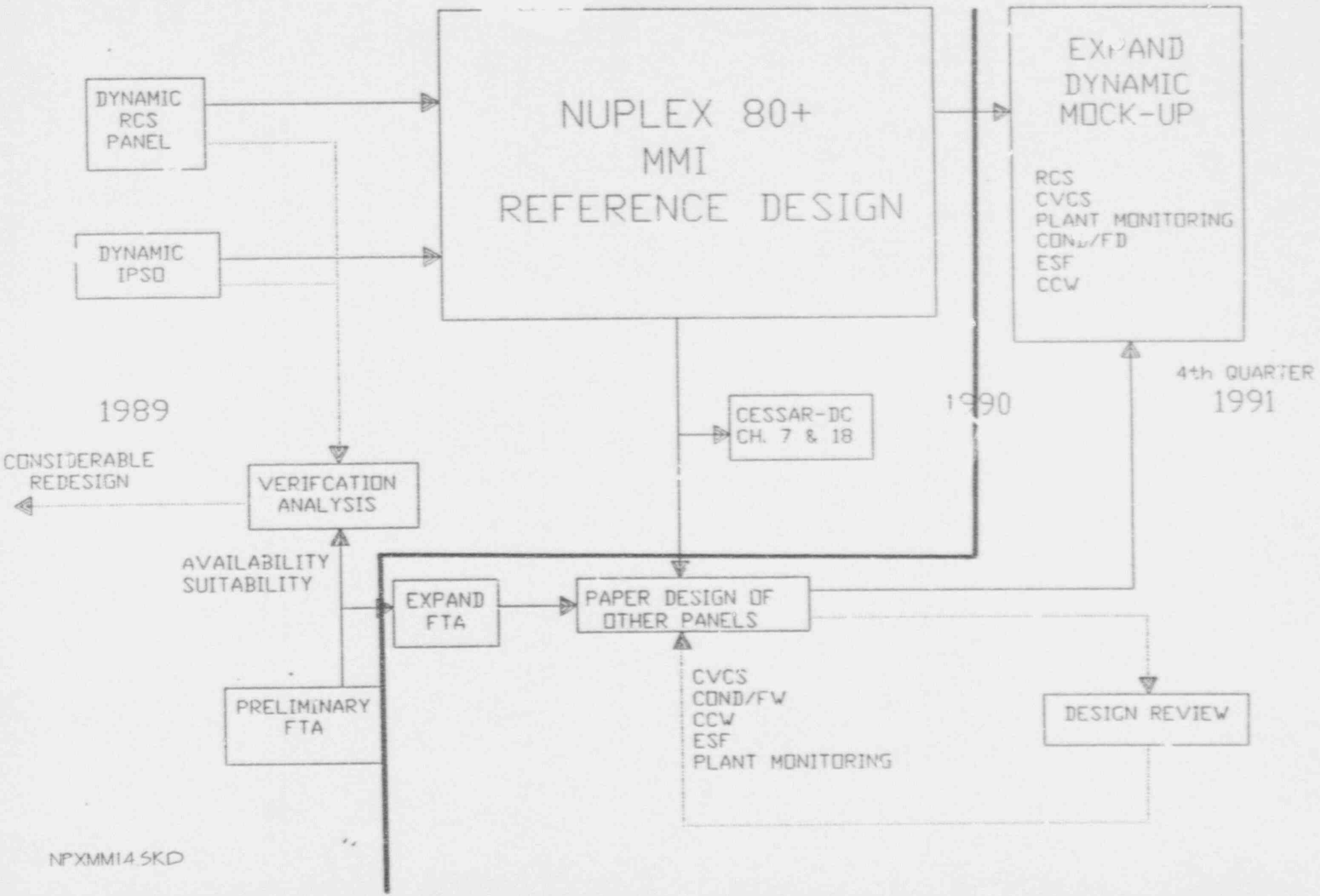
5A. THE DESIGN PROCESS FOR THE REMAINING CONTROL ROOM PANELS IS ACCEPTABLE.

- FUNCTIONAL TASK ANALYSIS EXPANSION
- PANEL DESIGN PROCESS
- DESIGN REVIEW
- DYNAMIC PROTOTYPE EXPANSION
- VERIFICATION ANALYSIS

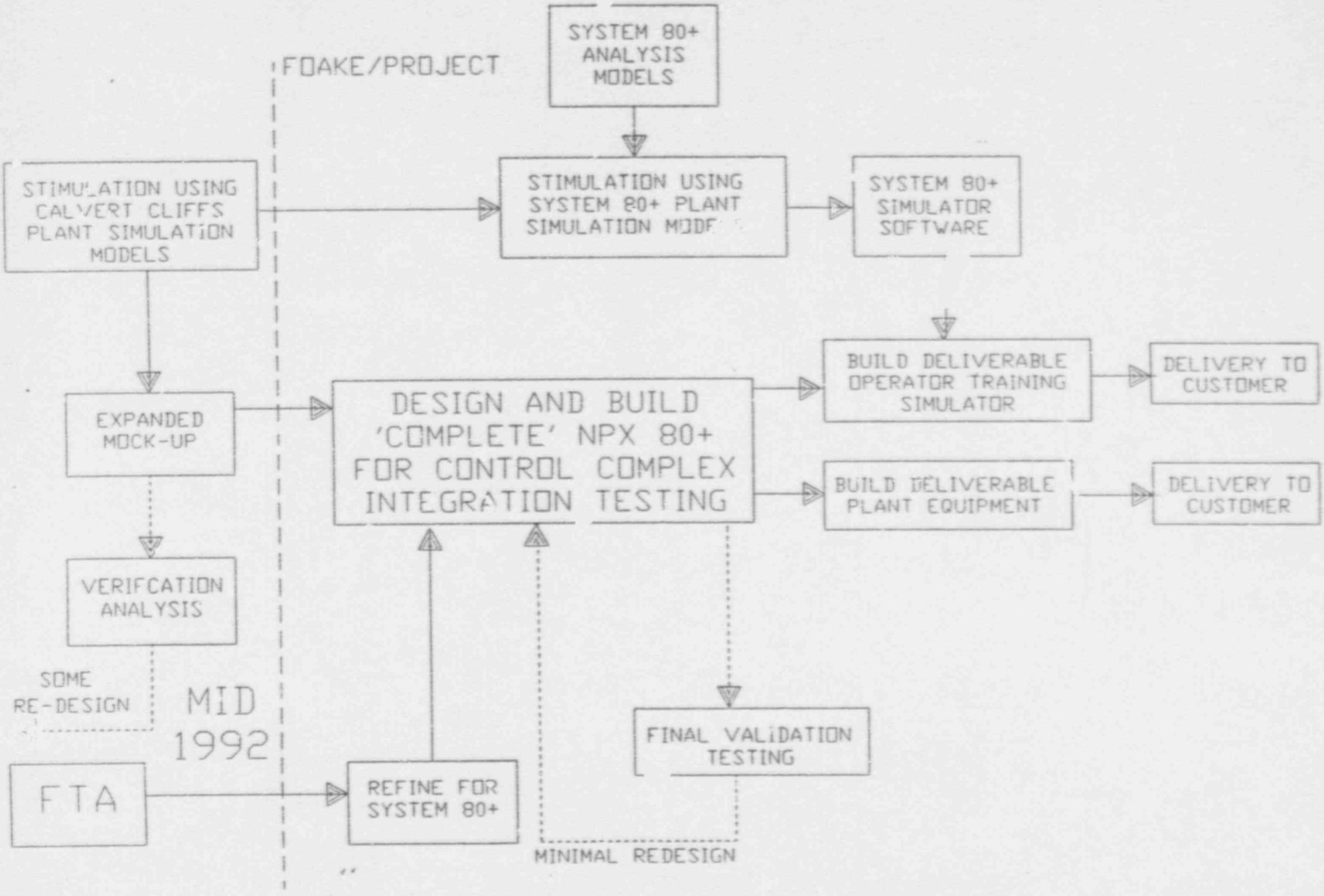
5B. THE ITAAC WILL DEMONSTRATE THAT THE REMAINING PANELS HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH THE REFERENCE RCS PANEL AND THAT THE REQUIRED INVENTORY OF INFORMATION AND CONTROLS IS AVAILABLE.

- CVCS ALARM TILES
- CVCS DISCRETE INDICATORS
- CVCS CRT PAGES
- CVCS PROCESS AND COMPONENT CONTROLS
- CVCS PANEL LAYOUT

NUPLEX 80+ MMI DESIGN PROCESS



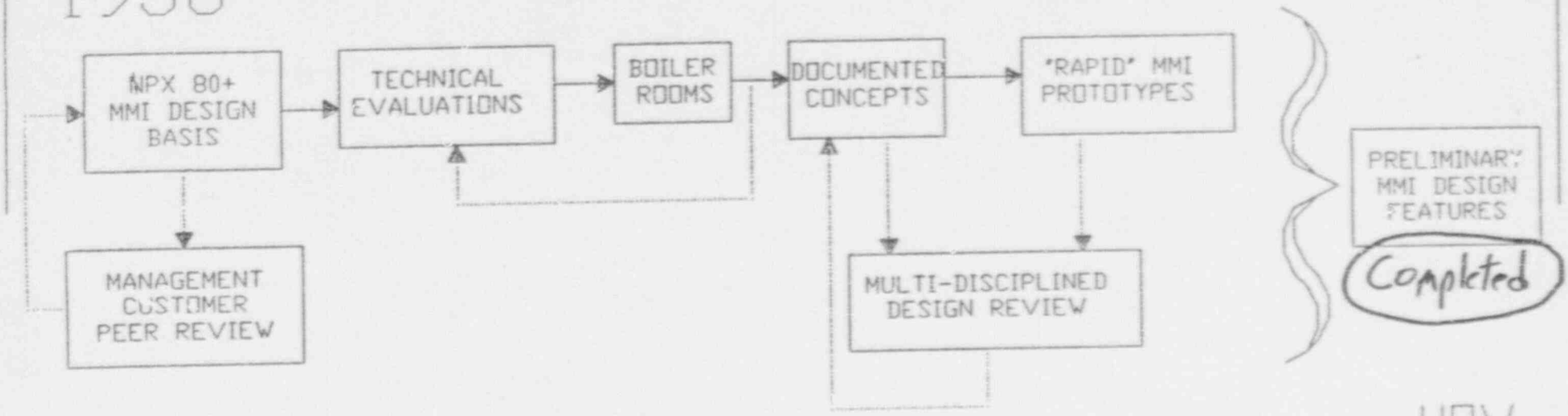
NUPLEX 80+ MMI DESIGN PROCESS



NPXMMI5.SKD

NUPLEX 80+ MMI DESIGN PROCESS

1936 NUPLEX 80+ MAN MACHINE INTERFACE CONCEPTS 1988



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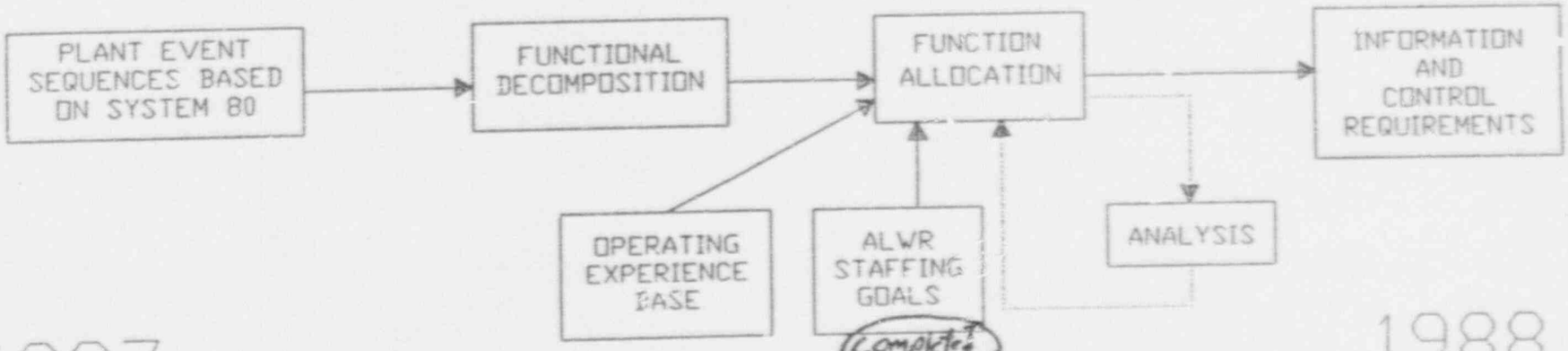
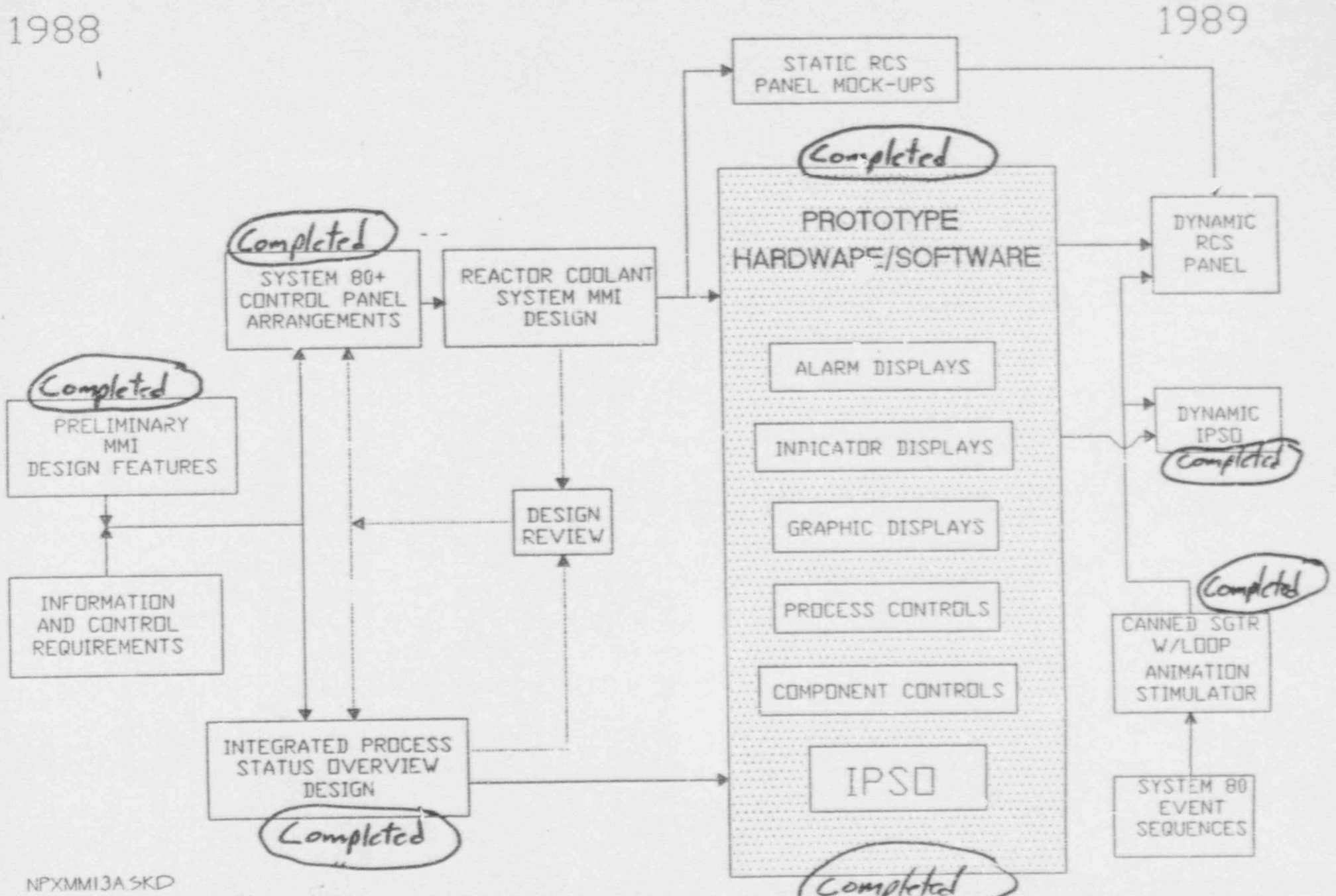


1987 SYSTEM 80+ FUNCTIONAL TASK ANALYSIS 1988

NPXMMI2SKD

NUPLEX 80+ MMI DESIGN PROCESS



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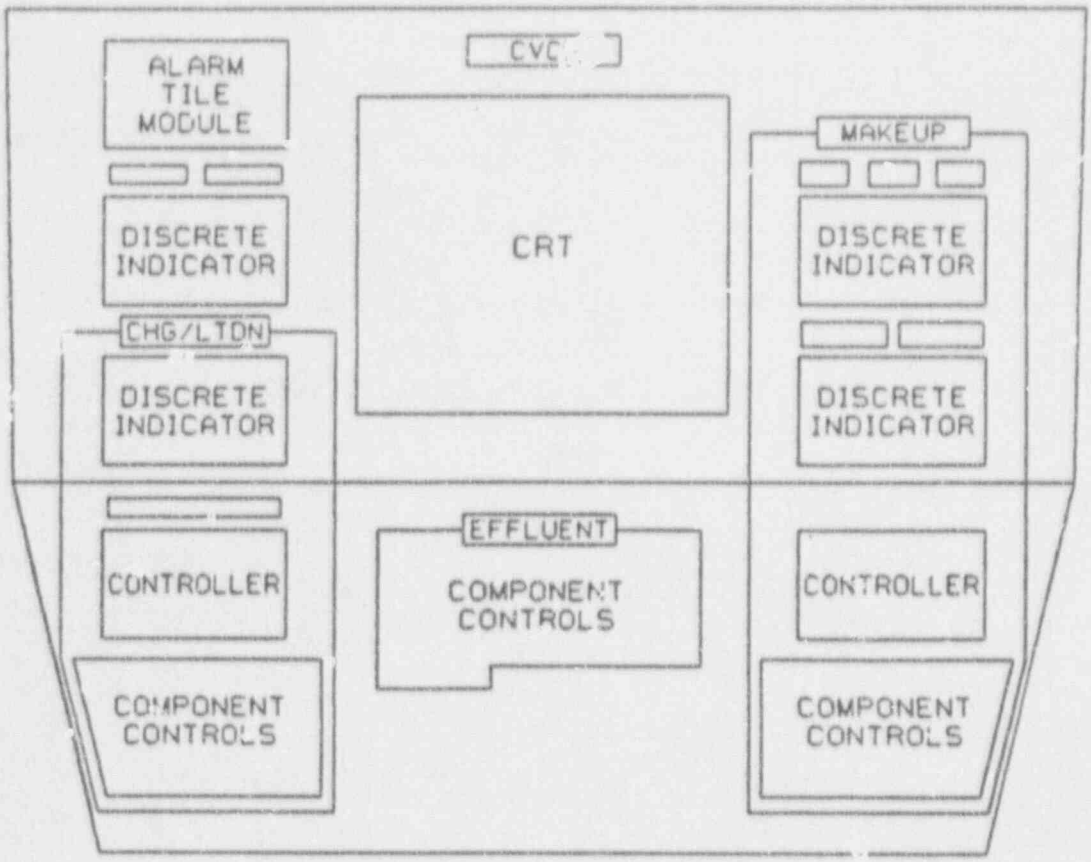

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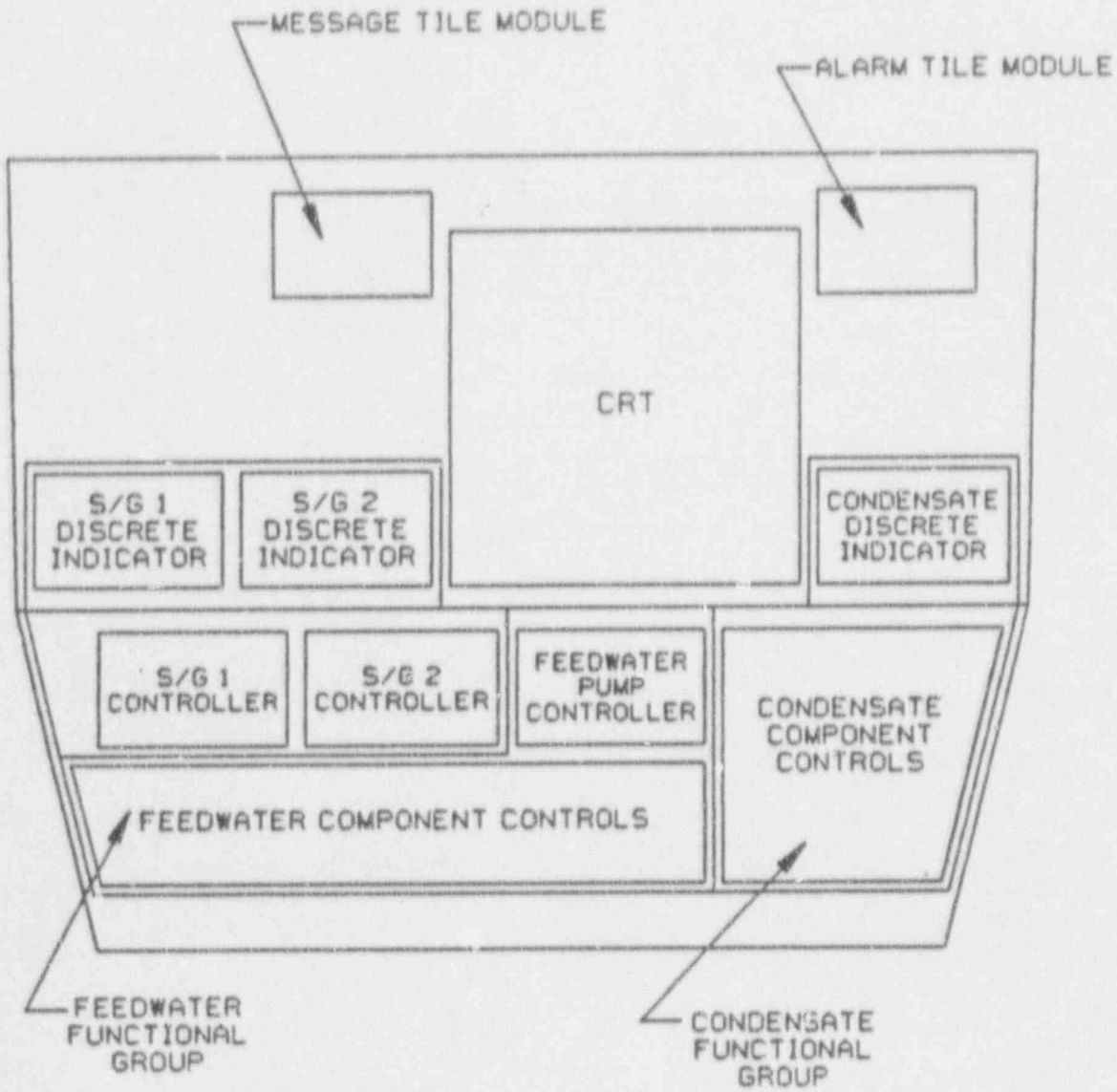

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SYSTEM 80+™	FEEDWATER AND CONDENSATE PANEL LAYOUT	Figure 18.7.4-3

ABB-CE EXPECTATIONS FOR THE CESSAR-DC CHAPTER 18 DSER

6. THE ITAAC WILL DEMONSTRATE ACCEPTABLE OPERATOR PERFORMANCE IN THE COMPLETE CONTROL ROOM.

   - ACCEPTANCE CRITERIA FOR NORMAL OPERATION

   - ACCEPTANCE CRITERIA FOR ABNORMAL OPERATION

CONTROL ROOM DESIGN VERIFICATION ACCEPTANCE CRITERIA

- Main Control Room Evaluated with Complete Complement of Reference and Support Material (e.g., Procedures)

- Operational Verification Using Full Scope Simulator

  Normal Operation
  - Heatup
  - Startup
  - Power Changes
  - Shutdown
  - Cooldown
  - Refueling

  - Achieve Desired States Without Tech. Spec. Violations or Plant Protection System Pre-Trips

ABB
ASEA BROWN BOVERI

CONTROL ROOM DESIGN VERIFICATION ACCEPTANCE CRITERIA

- Operational Verification Using Full Scope Simulator

  Abnormal Conditions - Identify Event, Satisfy Safety Function Status Checks, Meet EPG Event Specific Criteria

  - Uncomplicated Reactor Trip
  - Loss of Coolant Accident
  - Steam Generator Tube Rupture
  - Excess Steam Demand Event
  - Loss of Offsite Power
  - Loss of All Feedwater
  - Station Blackout

  N+1 Event - Using Functional Recovery Meet Critical Safety Function Acceptance Criteria

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CESSAR-DC CHAPTER [illegible] OCUMENTATION

SIGNIFICANT DOCUMENTATION EXISTS SUPPORTING CHAPTER 18.

ABB-CE WILL CLEARLY IDENTIFY DOCUMENTS AND INFORMATION LOCATION WITHIN DOCUMENTS WHEN THEY ARE REFERENCED.

ABB-CE DOES NOT DESIRE TO PLACE BACKUP DOCUMENTS IN THEIR ENTIRETY ON THE DOCKET.

THOSE SECTIONS OF DOCUMENTS USED TO MAKE THE SAFETY DETERMINATION MAY BE PLACED ON THE DOCKET.