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TCLCR	89-235-UFS		0	11	ST	01/17/90	ASB
TCLCR	89-236-UFS		0	11	ST	01/17/90	ASB
TCLCR	89-238-UFS		0	11	ST	01/17/90	ASB
TCLCR	89-239-UFS		0	11	ST	01/17/90	ASB

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ARMS INFORMATION SYSTEMS

DTC TCLCR DCN 89-239-UFS

PAGE REV 0 PIS 935

JAN 17 1990

LICENSING CHANGE REQUEST

LCR 89-2391-UFS

Revision 0 Page 1 of 152

PART 1: UFSAR, PLAN, OR PROGRAM REVISION [ ]NA

A) Document UFSAR

CONTROLLED

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)
FIGURE 6.2-23

C) Reason for Change LOCKED VALVES

D) Reference and Source Documents (Identify)

EDP
PDC
ABN 10907-1, REV. 0
DER 88-1867
Test
Effectiveness Review (Attached) [ ]Yes [X]No
Other
Drawings, Design Calculations, Correspondence, etc.

Tech Spec
Procedure
SE (Attached) 89-0200
PE (Attached)

PART 2: OPERATING LICENSE CHANGES [ ]NA

A) Document
[ ] Operating License [ ] Tech Specs [ ] Environmental Protection Plan
[ ] Tech Spec Clarification

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)

C) Reference and Source Documents Attached
[ ] Significant Hazards Consideration
[ ] Enviromental Impact/Categorical Exclusion
[ ] Environmental Evaluation
[ ] Other

D) Is UFSAR change required?
[ ] Yes [ ] No No

E) Priority
NRC approval required by (date):
An [ ]Emergency [ ]Urgent condition will occur if not approved by (State date):
Explanation

STATUS
NSB closed
DIST. JAN 12, 1990
REV.

F) Implementation
DER No.

PART 3: APPROVALS

A) Originator T. MURPHY III — Date 1-19-89

B) Technical Expert A. M. KLAN — Date 12-21-89

C) Nuclear Generation Unit Head E. M. Wolbe for J. CONTINI — Date 12-27-89

D) General Director, Nuclear Engineering [ ]NA — Date 1/2/90

E) Plant Manager — Date 1-5-90

F) Other — Date

G) Director, Nuclear Licensing — Date 1/2/90

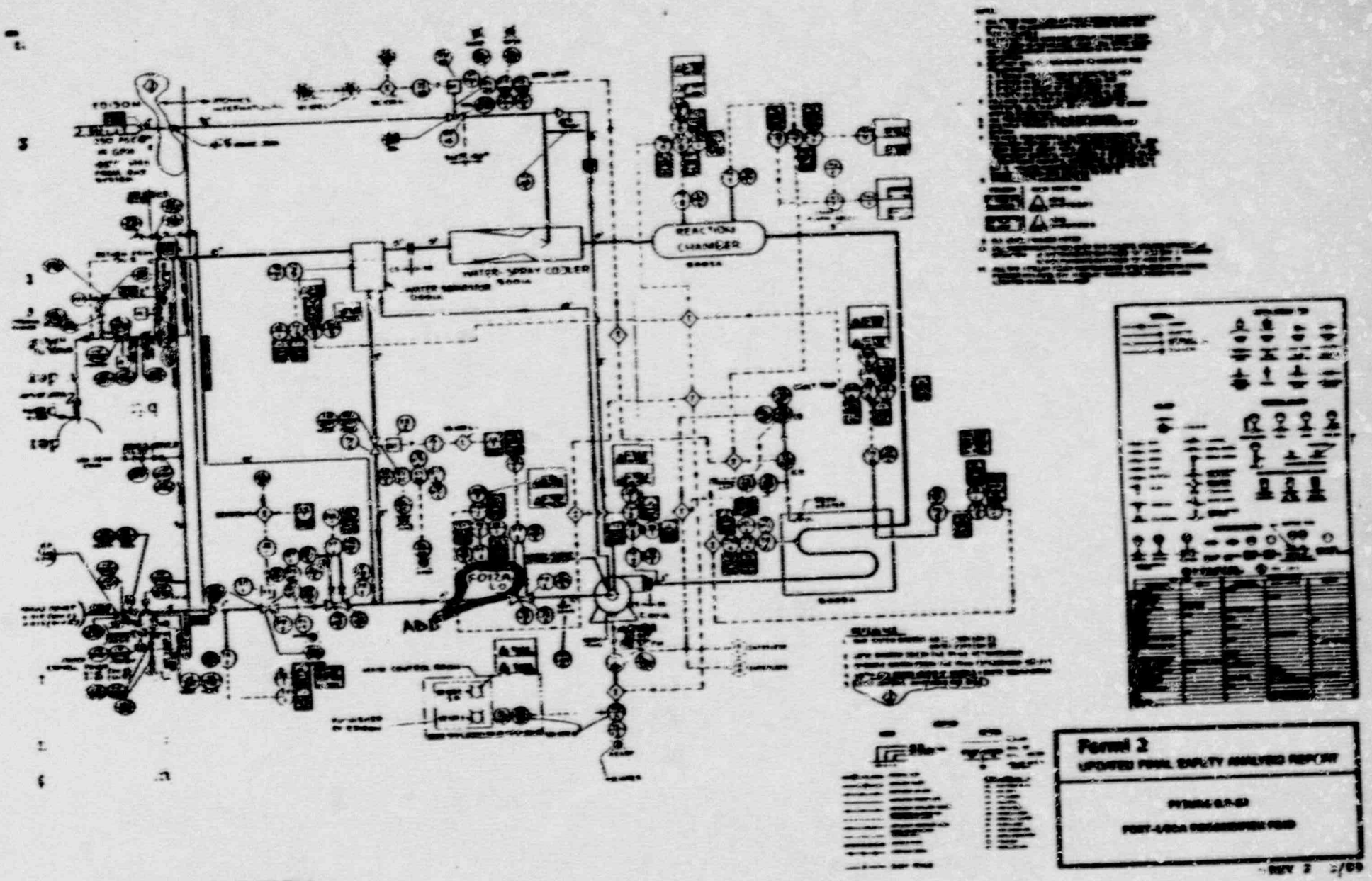
H) OSRO Approval (Tech Spec Amendments) [X] NA J.S. Wolbe 11-20-89 — Date

I) NSRG Approval (Operating License Amendments) [X] NA J.S. Wolbe 11-20-89 — Date

DTC: [X] TCLCR for UFSAR
DTC: [ ] TDLCR for other

File: 1735

LER-89-239-UFS, REV 0
PG. 2 OF 15 2



Fermi 2
UPDATED FINAL SAFETY ANALYSIS REPORT

LICENSING CHANGE REQUEST

ARMS-[illegible] SYSTEMS

DTC TCLCR DCN 89-238-UFS LCR 89-2138-UFS

PAGE ____ REV 0 PS 035

Revision 0 Page 1 of 95

PART 1: UFSAR, FSAR, OR PROGRAM REVISION [ ] NA

A) Document UFSAR

CONTROLLED

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)
FIGURES 9.2-3 & 9.2-4

C) Reason for Change LOCKED VALVES

D) Reference and Source Documents (Identify)

EDP
PDC
ABN 10917-1, REV. 0
DER 88-1867
Test
Effectiveness Review (Attached) [ ] Yes [X] No
Other
Drawings, Design Calculations, Correspondence, etc.

Tech Spec
Procedure
SE (Attached) 89-0203
PE (Attached)

PART 2: OPERATING LICENSE CHANGES [ ] NA

A) Document
[ ] Operating License [ ] Tech Specs [ ] Environmental Protection Plan
[ ] Tech Spec Clarification

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)

C) Reference and Source Documents Attached
[ ] Significant Hazards Consideration
[ ] Enviromental Impact/Categorical Exclusion
[ ] Environmental Evaluation

D) Is UFSAR change required?
[ ] Yes [ ] No LCR No.

E) Priority
NRC approval required by (date)
An [ ] Emergency [ ] Exigent condition will occur if not approved
(State date)

Explanation

STATUS
ASB Closed 1/12/90
DIST. JAN 12, 1990
REV.

F) Implementation
DER No.

PART 3: APPROVALS

A) Originator B. Orsear B. Orsear Date 11/19/89

B) Technical Expert Chris Essex Chris Essex Date 12/21/89

C) Nuclear Generation Unit Head [illegible] for J. Conway Date 12/27/89

D) General Director, Nuclear Engineering [ ] NA [illegible] Date 1/2/90

E) Plant Manager [illegible] Date 1-5-90

F) Other Date

G) Director, Nuclear Licensing [illegible] Date 1/12/90

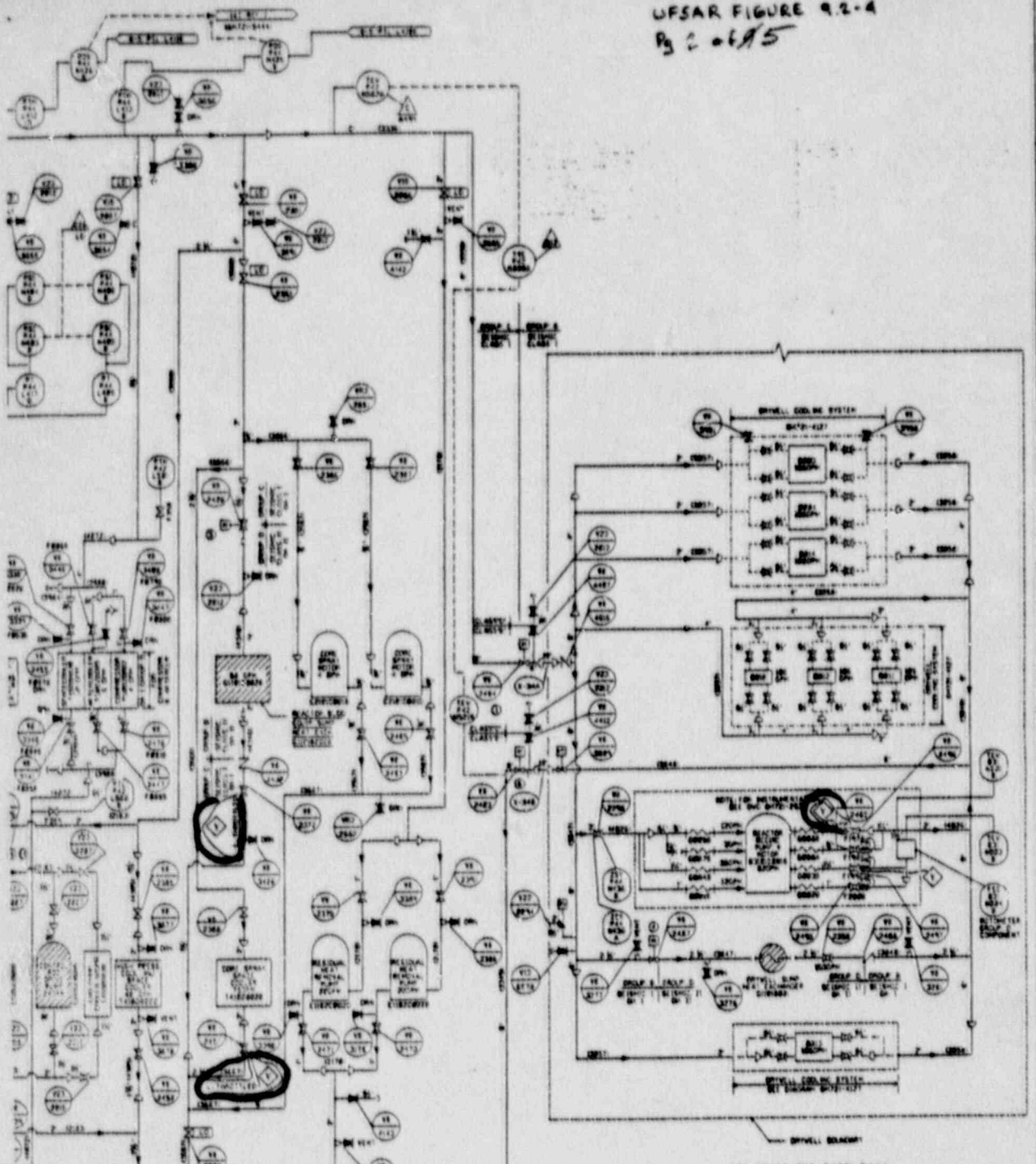
H) OSRO Approval (Tech Spec Amendments) [X] NA [illegible] 11-20-89 Date

I) NSRG Approval (Operating License Amendments) [X] NA [illegible] 11-26-89 Date

DTC: ■ TCLCR for UFSAR
DTC: [ ] TDLCR for other

File: 1735

LCR 89-238-UFS REV. Ø
UFSAR FIGURE 9.2-4
Pg 6 of 15



FOR NOTES SEE 6M721-5444

6M721-5357

THIS DRAWING WITH 6M721-5444 & 6M721-5358 SUPERSEDES 6M721-2827.

THIS IS AN IGDS PRODUCED DRAWING. ANY CHANGES OR REVISIONS TO THIS DRAWING MUST BE BROUGHT TO THE ATTENTION OF THE IGDS COORDINATOR TO ENSURE THAT THE IGDS FILE IS UPDATED.

NUCLEAR SAFETY RELATED

Detroit Edison Form: 2

EMERGENCY EQUIPMENT COOLING WATER SYSTEM DIVISION II

EMER EQUIP COOLING WATER DIV II

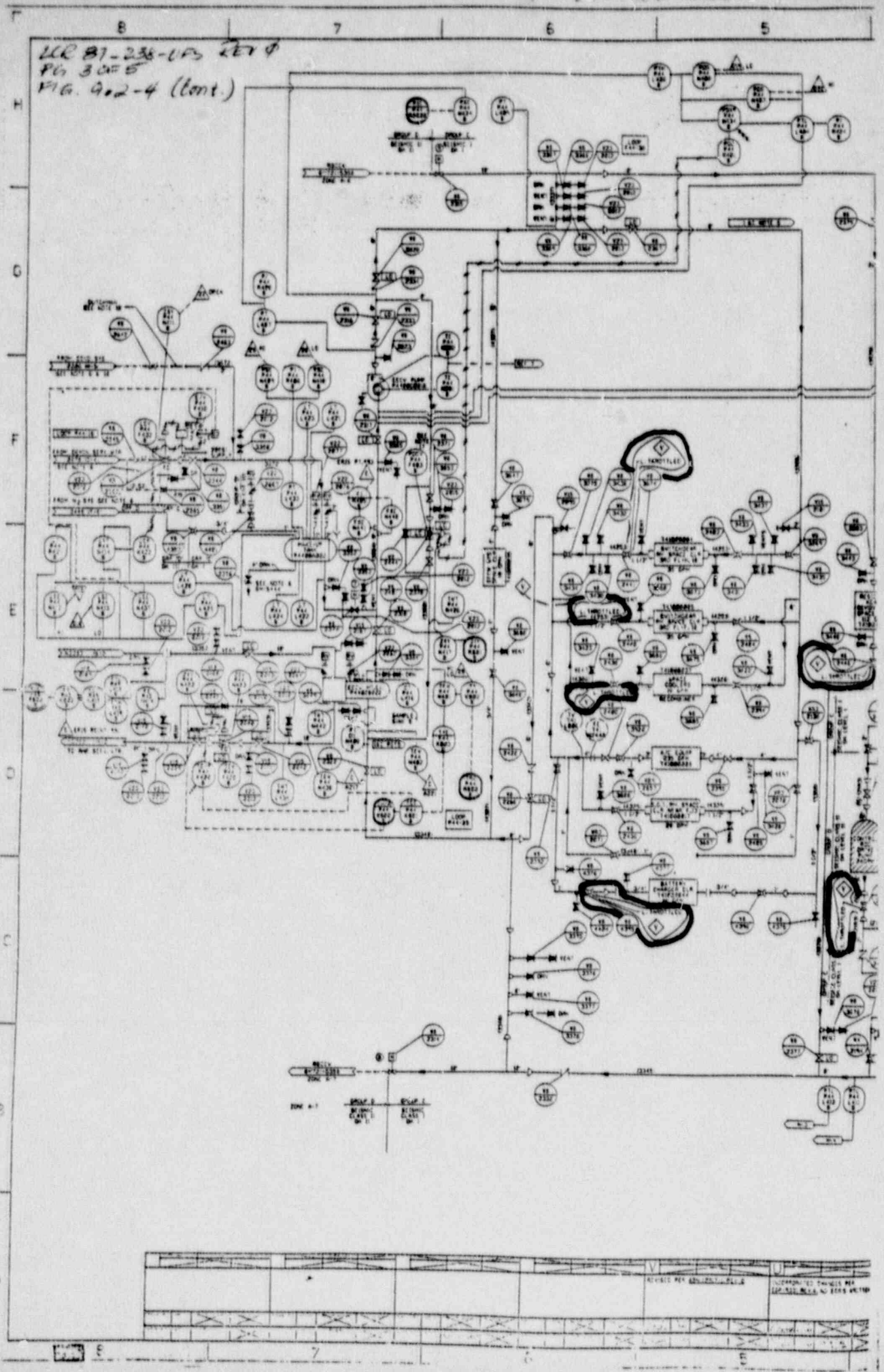
P44-02

DOOMEC

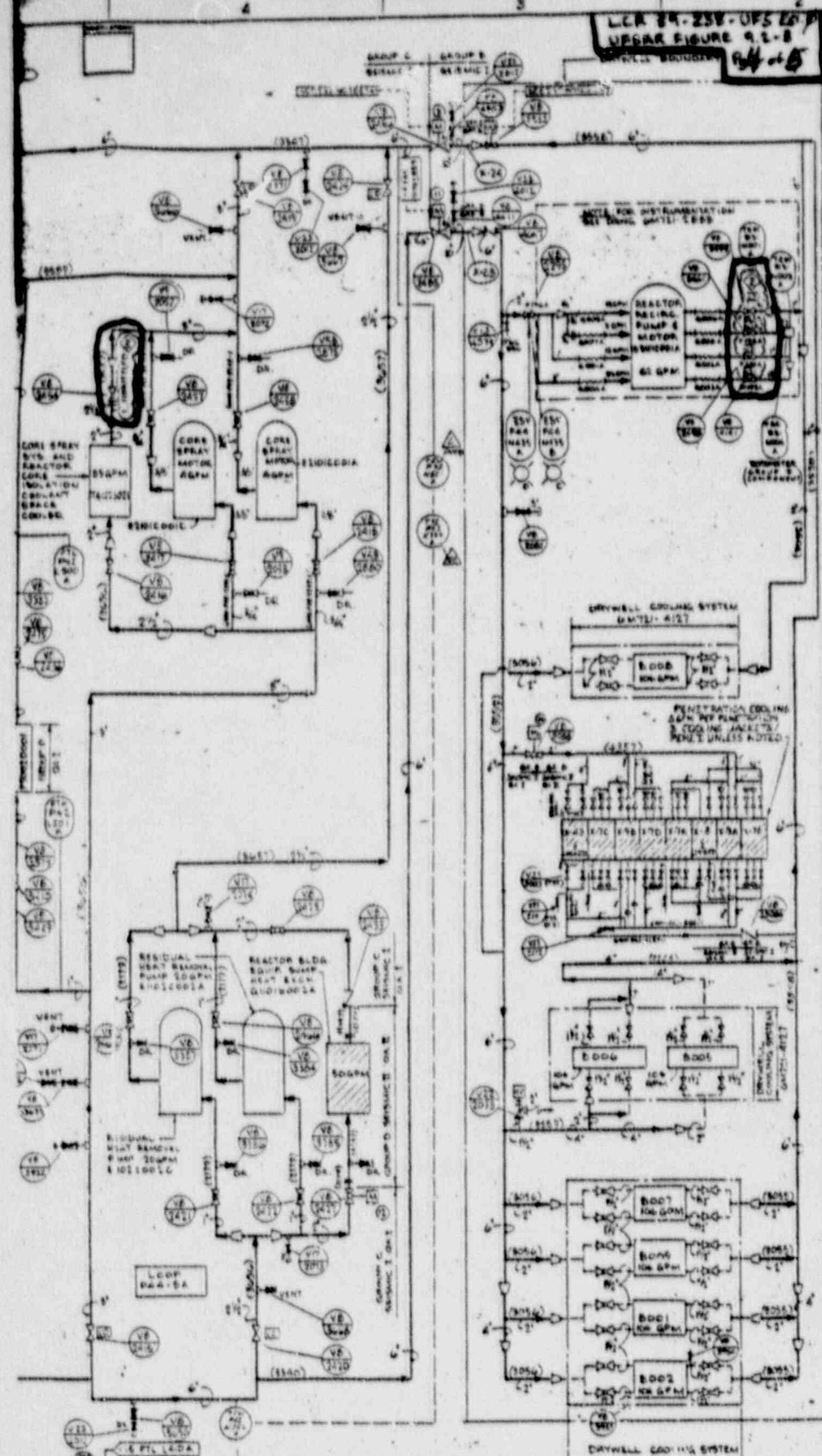
6M721-5357

V

LCR B1-236-US Rev 0
Pg 3 of 5
FIG. 9.2-4 (Cont.)



LCR 89-238-UFSAR
UFSAR FIGURE 9.2-8



M.O. VALVES POSITION DURING THE DIFFERENT OPERATING MODES

VALVE NO.	NORMAL CONDITION: R.B.C.C.W. SYS. IN OPERATION – OPEN	CLOSED	EMERG. COND. DUE TO RBCCW SYSTEM FAILURE OR A.C. POWER FAILURE: E.E.C.W. SYS. DIV. I + DIV. II IN OPER. – OPEN	CLOSED	EMERG. COND. DUE TO RBCCW SYSTEM FAILURE OR A.C. POWER FAILURE (DRYWELL PRESS.): E.E.C.W. SYS. DIV. I + DIV. II IN OPER. – OPEN	CLOSED	E.E.C.W. TEST MODE: E.E.C.W. SYS. DIV. II TEST IN OPER. – OPEN	CLOSED	E.E.C.W. TEST MODE: E.E.C.W. SYS. DIV. I TEST IN OPER. – OPEN	CLOSED
1	X		X			X	X		X	
2	X			X		X	X			X
3	X		X		X		X		X	
4	X			X		X		X	X	
5	X			X		X	X		X	
6	X		X		X		X		X	
7		X	X		X		X			X
8	X			X		X		X	X	
9	X			X		X		X	X	
10	X			X		X	X			X
11	X		X			X	X		X	
12	X			X		X	X		X	
13		X	X		X			X	X	
14	X			X		X	X		X	
15	X			X		X	X		X	
16	X			X		X	X		X	

NOTES:

1) THE SHADED EQUIPMENT WILL NOT BE OPERATING AT EMERGENCY CONDITION

2) WATER REQUIREMENT FOR THE DRYWELL COOLER UNITS IS PER DC-249.

3) DESIGN PRESSURE & TEMPERATURE: 150 PSIG AT 180°F

4) REFERENCE INFORMATION:
- a) R.B.C.C.W. SYSTEM - DESIGN INSTRUCTION NO. 27
- b) E.E.C.W. SYSTEM - DESIGN INSTRUCTION NO. 29
- c) EQUIPMENT ORDERED FOR THE SYSTEMS
  - 1) R.B.C.C.W. PUMPS — DM 534-AM
  - 2) R.B.C.C.W. HEAT EXCHANGERS — DM 521-AM
  - 3) R.B.C.C.W. MAKE-UP TANKS — DM 520-ITM
  - 4) E.E.C.W. PUMPS — DM 534-ITM
  - 5) E.E.C.W. HEAT EXCHANGERS — DM 521-BM
  - 6) E.E.C.W. MAKE UP TANKS — DM 520-ITM
- d) E.E.C.W. SYSTEM DESIGN SPECIFICATION 3071-[illegible]
- e) R.B.C.C.W. E.E.C.W. SYSTEM DESIGN CALCULATION # 349

5) TESTING OF E.E.C.W. SYSTEM DIVISION II SHALL BE SCHEDULED DURING THE PERIOD WHEN COOLING WATER IS NOT REQUIRED FOR THE DRYWELL EQUIPMENT SUMP HEAT EXCHANGER.

6) FOR THE E.E.C.W. MAKE-UP TANKS (DIV I & DIV II):
- a) THE DEMIN. SERVICE WATER SYSTEM IS GROUP C, SEISMIC CLASS I, QUALITY ASSURANCE LEVEL I, UP TO AND INCLUDING THE MODULATING CONTROL VALVE & BY-PASS VALVE.
- b) THE CONDENSATE SYSTEM & THE NITROGEN SYSTEM ARE GROUP C, SEISMIC CLASS I, QUALITY ASSURANCE LEVEL I, UP TO AND INCLUDING THE FIRST SOURCE VALVE.
- c) THE TANK DRAIN SHALL BE GROUP C, SEISMIC CLASS I, QUALITY ASSURANCE LEVEL I, UP TO AND INCLUDING THE VALVE.

BEYOND THESE POINTS, THESE SYSTEMS SHALL BE GROUP D, SEISMIC CLASS II

7) ALL DOUBLE VA. CONFIGURATIONS USED FOR VENTS OR DRAINS HAVE CLASS D MAT'L AFTER FIRST VA. CLASS C VALVE IS USED FOR SECOND VA. FOR VENTS / DRAINS UNLESS NOTED.

8) DELETED IN REV "F" OF 6M721-2027

9) FOR R.B.C.C.W. SYSTEM PUMP, HEAT EXCHANGER AND MAKE-UP VENT AND DRAIN LINES AND VALVE NUMBERS SEE DRAWINGS: 6M721-4018 / 4022 / 4023.

10) CONDENSATE SHALL BE USED FOR PRE-OPERATIONAL FLUSHING AND FILLING OF THE SYSTEM ONLY. SYSTEM DESIGN SHALL INCLUDE MEASURES TO PREVENT ACCIDENTAL USAGE OF CONDENSATE AFTER PLANT START-UP

11) THE FOLLOWING ARE PIS NUMBERS OF RBCCW PUMP INLET STRAINER TAPS AND DIFF. PRESSURE INSTRUMENTS NOT APPEARING IN DIAGRAM:

PUMP	TAPS	INDICATOR
C001	PTH-L104 PTL-L105	PDI-R402
C002	PTH-L102 PTL-L103	PDI-R403
C003	PTH-L100 PTL-L101	PDI-R404

12) NOTE AND SKETCH WAS INCORPORATED INTO DIAGRAM

13) THE RBCCW / EECW IS SPLIT INTO THREE (3) DWGS #:
- 6M721-5444 EMERGENCY EQUIPMENT COOLING WATER DIVISION I
- 6M721-5557 EMERGENCY EQUIPMENT COOLING WATER DIVISION II
- 6M721-5556 REACTOR BUILDING CLOSED COOLING WATER

FOR HISTORY SEE 6M721-2027 REV.1

14) FOR FUNCTIONAL OPERATING SKETCHES SEE 6M721-5727, 5727-[illegible] & 5729-2

INSTRUMENTATION AND CONTROLS

NOTES:
1) UNLESS OTHERWISE SHOWN, ALL INSTRUMENT NOS ON THIS DIAGRAM ARE FOR SYSTEM P44
2) I&C LOOPS ARE DETAILED IN D.I.'S 27 & 29
3) SEE D.I. NO 8 FOR AIR COND. I&C
4) SAME I&C AS P4400C001 EXCEPT SUFFIX "B"
5) SAME I&C AS P4400C001 EXCEPT SUFFIX "C"

REFERENCES:
1) MOTOR CONTROL LOGIC DIAGRAMS 6I721-5420-[illegible]
2) GSW DIAGRAM 6M721-2010
3) RHR SW DIAGRAM 6M721-N-2052 & 2053
4) G.E. P.I.L.D. 729E403AE, 731E 342 AE
5) PROCESS RADIATION MONITORING SYS DIAG. 6I721-2181-2
6) LOCATED ON DRWG 6M721-5246
7) BEARING AND WINDING TEMPERATURE MONITOR- 6I721-2[illegible]
8) PLANT SAMPLING REQUIREMENTS [illegible]

I&C NOTES (CONT'D):
6) OPEN/CLOSE SWITCH WITH RED & GREEN INDICATING LIGHTS [illegible] DEDICATED SHUTDOWN PANEL H21-P623.
7) OPEN/CLOSE SWITCH WITH RED & GREEN INDICATING [illegible]
8) OPEN/CLOSE BACKLIGHTED P.B. WITH RED & GREEN [illegible] AT C.C.P.
9) OPEN/CLOSE BACKLIGHTED P.B. WITH RED & GREEN INDICATING LIGHTS AT DEDICATED SHUTDOWN PANEL H21-P623
10) INSTRUMENTATION DETAILS FOR BUBBLES DRAWN WITH A DASHED LINE ARE LOCATED ON DRWG 6M721-4535

NOTES (CONT.)
15) [illegible] DESIGNATES VALVE LOCKED OPEN / LOCKED CLOSED POSITION BY LO OR LC INDICATION WITHIN BOX.
16) [illegible]
17) [illegible]

NUCLEAR SAFETY RELATED

SCALE: NONE

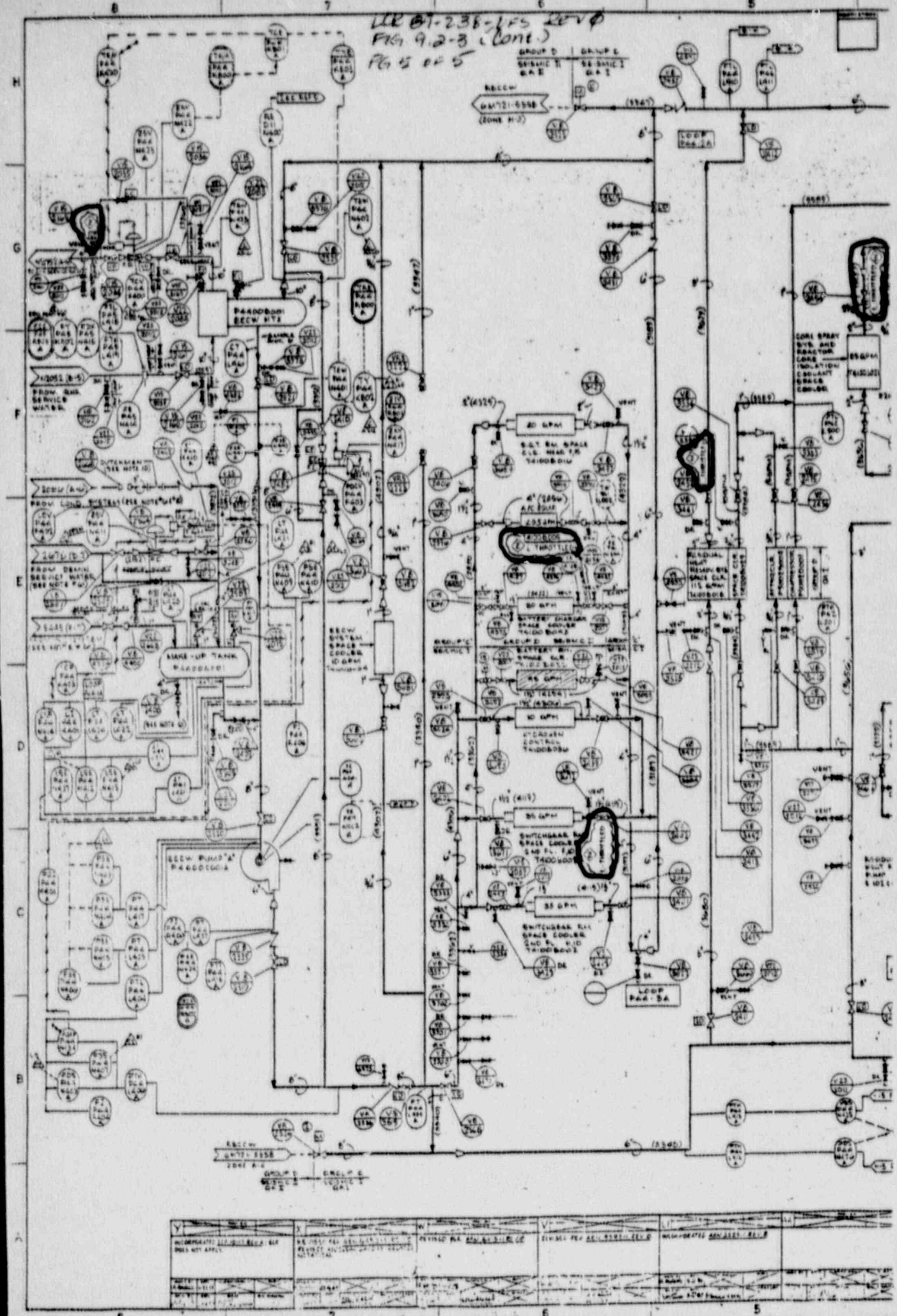
The Detroit Edison Co. — Engineering

EMERGENCY EQUIPMENT COOLING WATER DIVISION I. THIS DWG WITH 6M721-5557 & 6M721-5556 SUPERSEDES 6M721-2027.
DOCUMENT CONTROL NO. P44-00-0-D00-DA

EMER. EQUIP. COOLING WATER DIV. I
ENRICO FERMI ATOMIC P.P. 2

6M721-5444 — REV. Z

LER 87-238-LFS Rev 0
FSAR 9.2-3 (cont.)
Pg 5 of 5



ARMS - INFORMATION SYSTEMS
DTC: TCLCR
DSN: 89-236UFS
PAGE ______ REV ∅
P/S 935

JAN 17 1990

LICENSING CHANGE REQUEST

LCR 89- 236- UFS

Revision ∅ Page 1 of ~~6~~ 5

PART 1: UFSAR, PLAN, OR PROGRAM REVISION [ ]NA

CONTROLLED

A) Document UFSAR

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)
FIGURES 4.5-15 (1) & 4.5-15 (2)

C) Reason for Change LOCKED VALVES
CM721-2081 CM721-3449

D) Reference and Source Documents (identify)

EDP
PDC
ABN 10922-1, REV ∅
DER 88-1867
Test
Tech Spec
Procedure
SE (Attached) 89-0200
PE (Attached)
Effectiveness Review (Attached) [ ]Yes [X]No
Other
Drawings, Design Calculations, Correspondence, etc.

PART 2: OPERATING LICENSE CHANGES [ ]NA

A) Document
[ ] Operating License [ ] Tech Specs [ ] Environmental Protection Plan
[ ] Tech Spec Clarification

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)

C) Reference and Source Documents Attached
[ ] Significant Hazards Consideration
[ ] Enviromental Impact/Categorical Exclusion
[ ] Environmental Evaluation
[ ] Other

D) Is UFSAR change required?
[ ] Yes [ ] No LCR No

E) Priority
NRC approval required by (date)
An [ ]Emergency [ ]Exigent condition will occur if not approved by:
(State date):

Explanation

STATUS
ACS Closed
DAT. JAN 12, 1990
REV.
SE reviewed

F) Implementation
DER No.

PART 3: APPROVALS

A) Originator T. MURPHY III [signature] Date 11-19-89

B) Technical Expert Joel P Melito [signature] Date 12/15/89

C) Nuclear Generation Unit Head [signature] J. Conway Date 12-18-89

D) General Director, Nuclear Engineering [ ]NA [signature: John Walker] Date 12/18/89

E) Plant Manager [signature] Date 12-20-89

F) Other Date

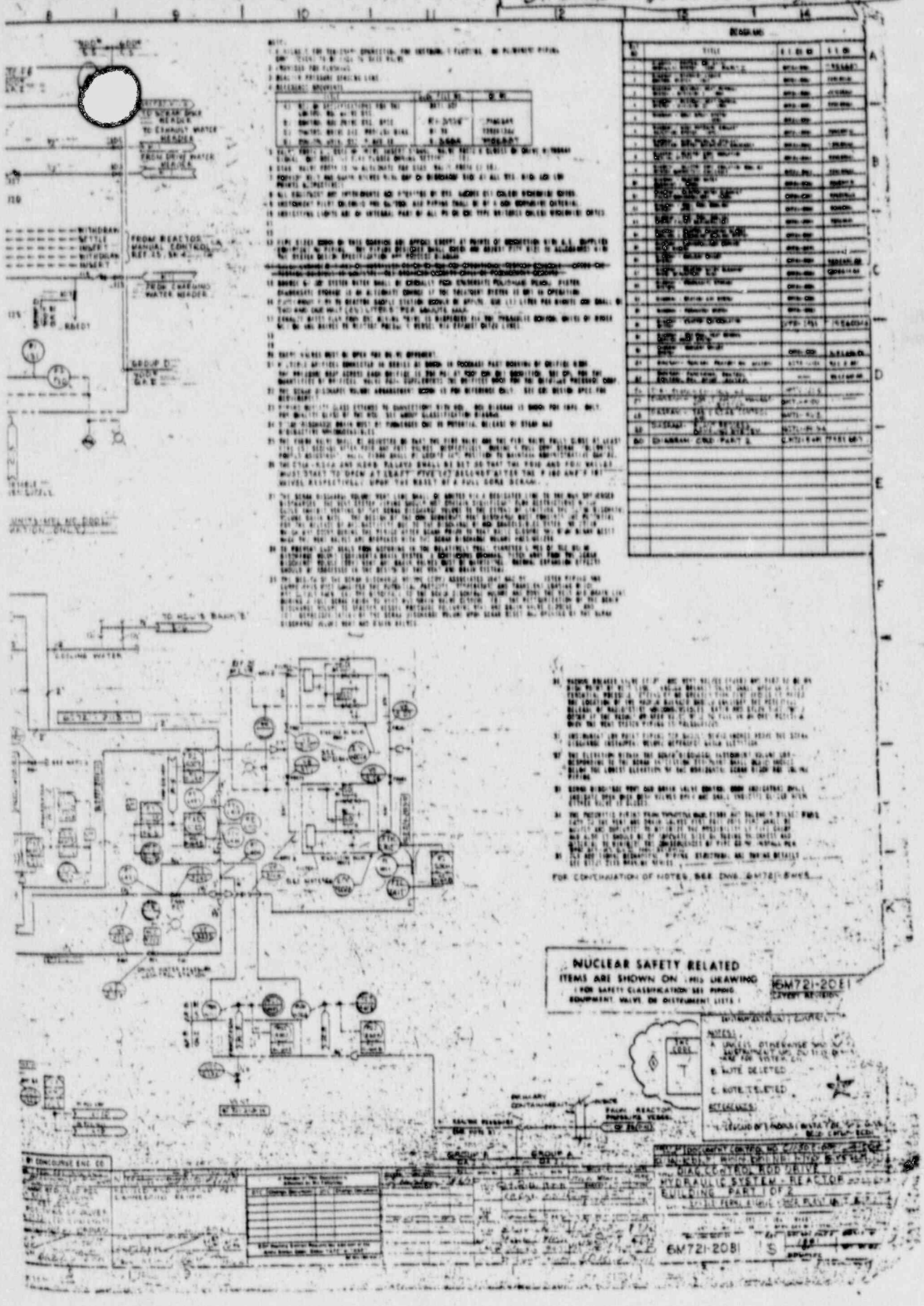
G) Director, Nuclear Licensing [signature] Date 1/6/90

H) OSRO Approval (Tech Spec Amendments) [X] NA [signature] 11-20-89 Date

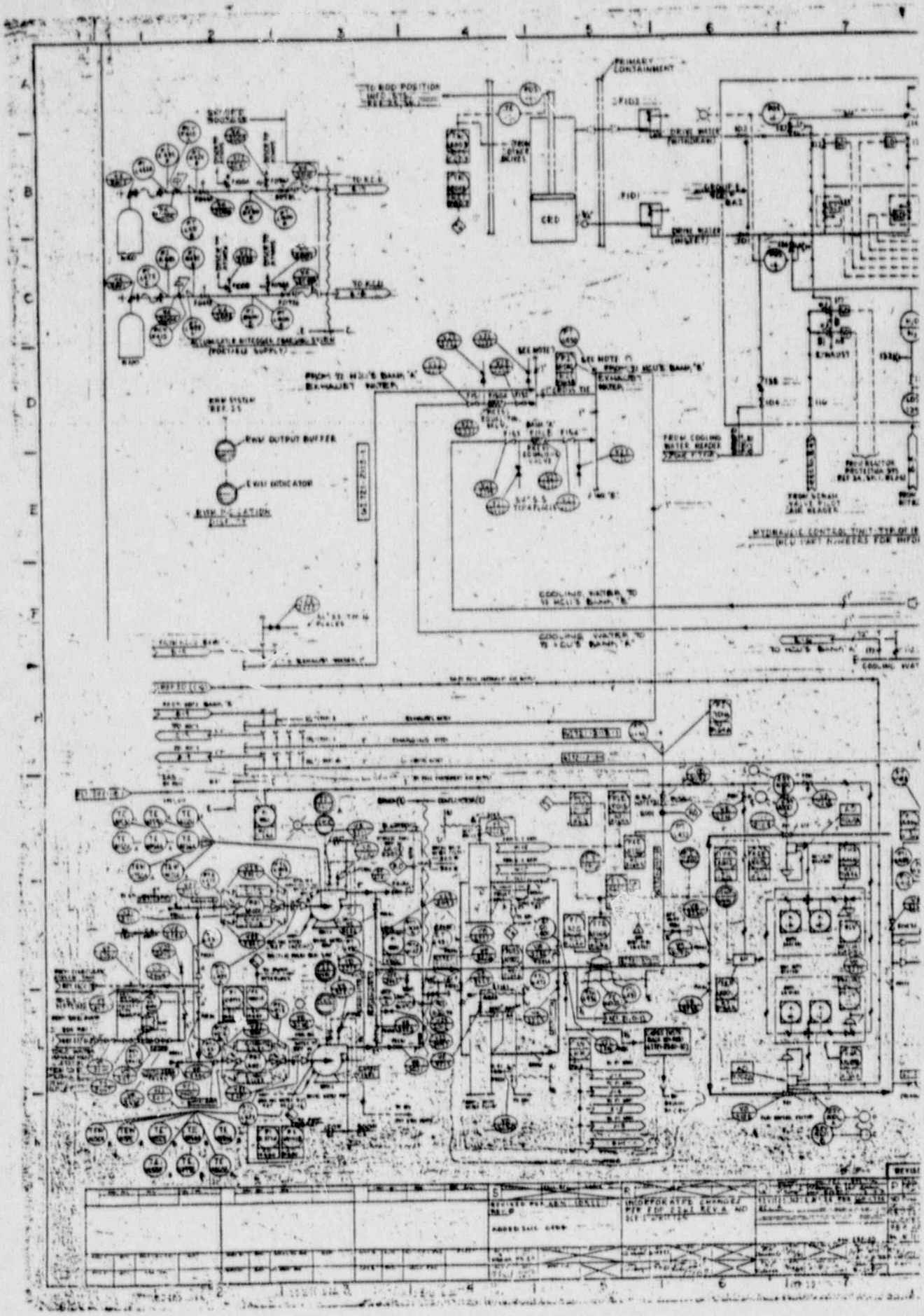
I) NSRG Approval (Operating License Amendments) [X] NA [signature] 11-20-89 Date

Form FIP-RA2-01 Att 1 P1/1 030189
DTC: [X] TCLCR for UFSAR
DTC: [ ] TDLCR for other
File: 1735

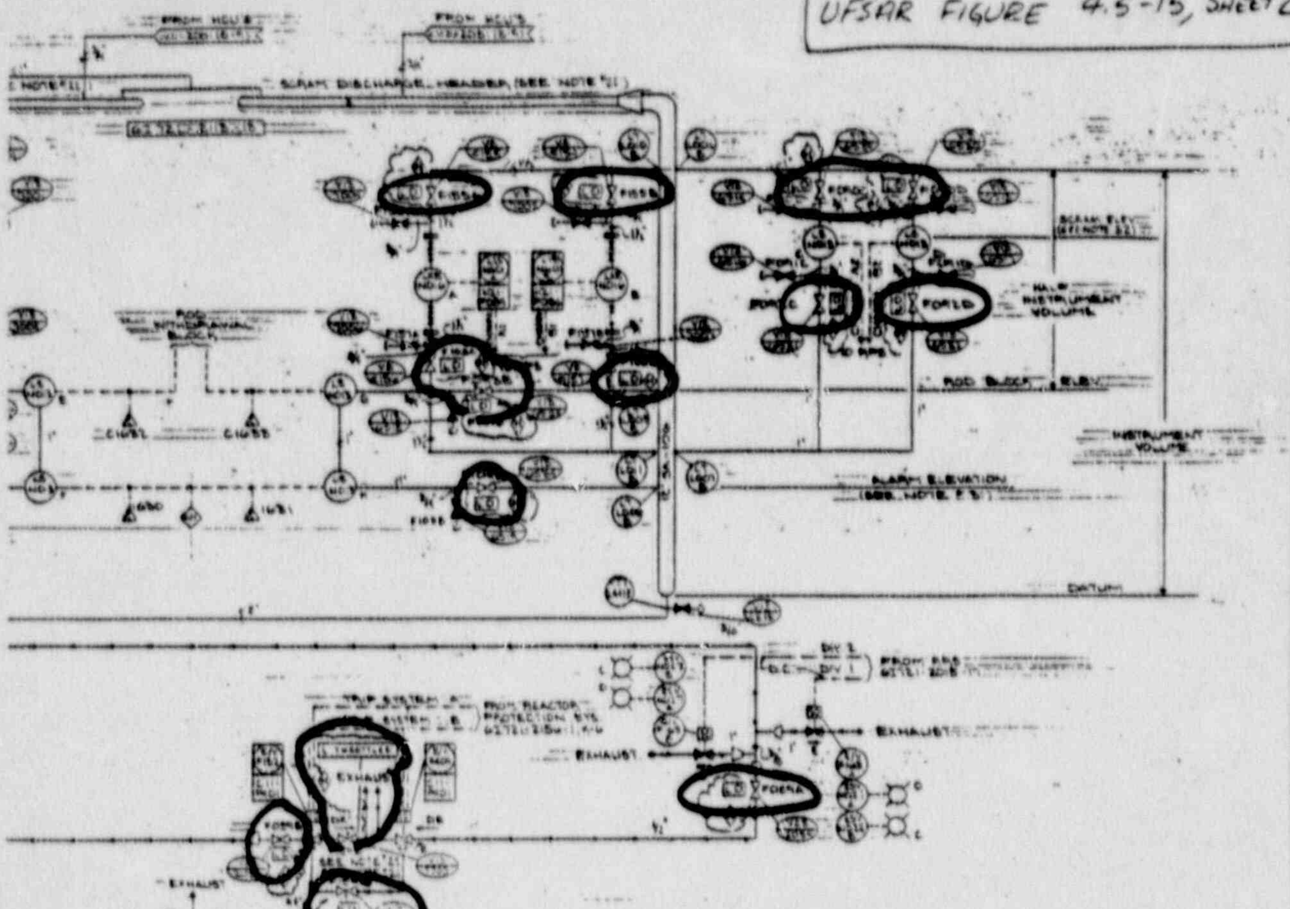
LCR 89-236-VFS REV. 0
PG. 2 OF 145
UFSAR FIGURE 4.5-15, SHEET 1



LCR 89-236-1 FS Rev 0
Pg 3 of 5
UFSAR Pg. 4.5-15 (i) (Cont.)



LCR 89-236-UFS REV Ø
PG ~~3 OF 10~~ 4 OF 5
UFSAR FIGURE 4.5-15, SHEET 2



NOTES CONTINUED FROM DWG. 6M721-2081

43. ▭ DESIGNATES VALVE LOCKED POSITION - EITHER LOCKED OPEN / LOCKED CLOSED AS INDICATED BY LO OR LC.

NUCLEAR SAFETY RELATED
ITEMS ARE SHOWN ON THIS DRAWING
(FOR SAFETY CLASSIFICATION SEE PIPING, EQUIPMENT, VALVE OR INSTRUMENT LISTS)

THE CODE: T

The Detroit Edison Co. — Engineering

DIAG. CONTROL ROD DRIVE HYDRAULIC SYSTEM - REACTOR BUILDING
PART 2 OF 2
DOC. CONT. NO. C11-00

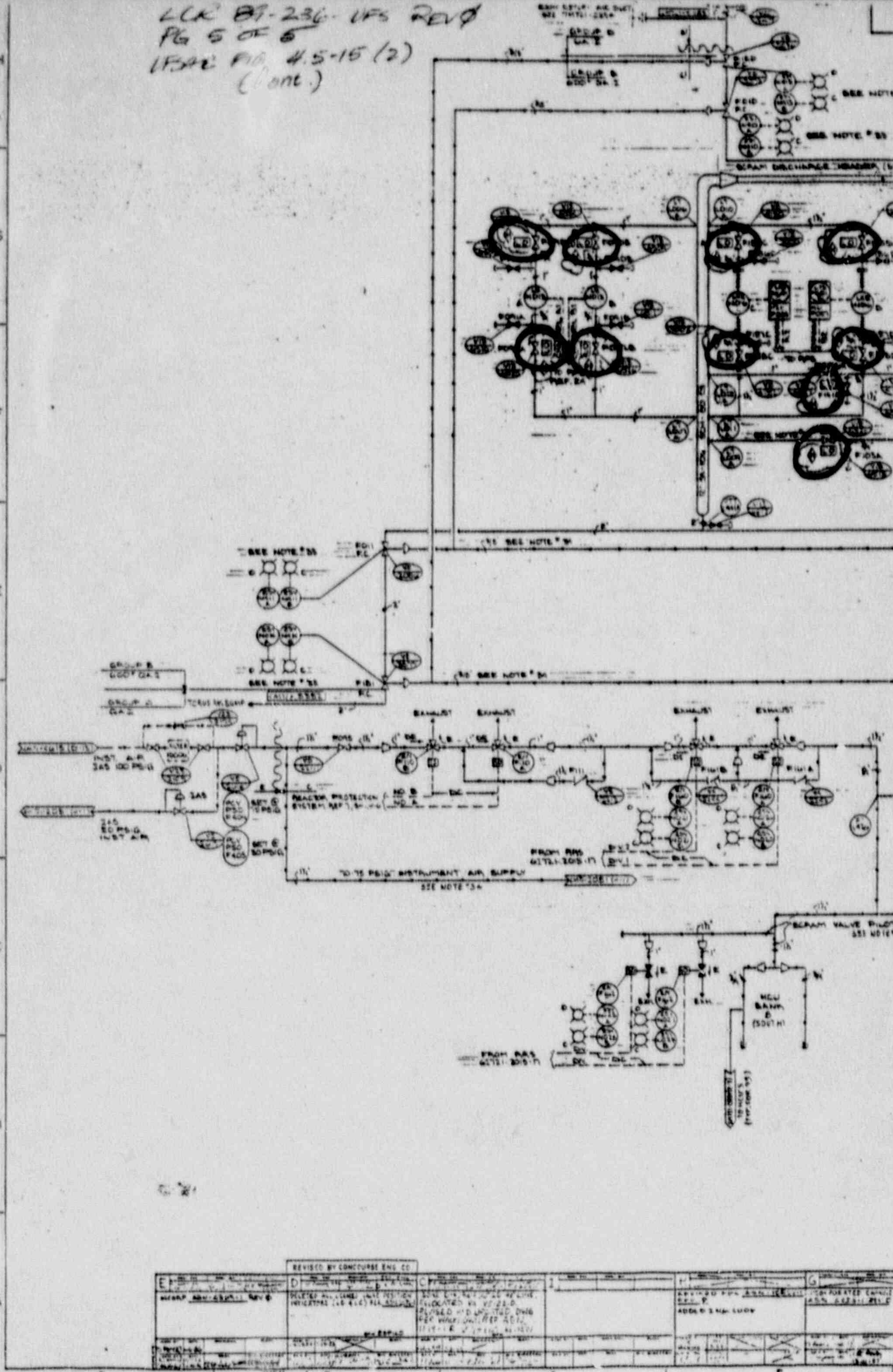
DIA. CONT. ROD DRIVE HYD. SYS. PT. 2
ENRICO FERMI ATOMIC PWR PLANT — 2
GEN. ENG. DEPT
6M721 5449 — REV. H

INCORPORATED CHANGES PER EDP-2330, REV. A

HEIGHT	≥ 5.00 mm
SEPARATION	≥ 2.50 mm
WORD SPACE	≥ 5.00 mm
LINE WIDTH	≥ 0.70 mm
LINE SPACE	≥ 1.75 mm

4 3 1

LCR 87-236 UFS REV Ø
PG 5 OF 6
UFSAR FIG 4.5-15 (2)
(Cont.)



ARMS INFORMATION SYSTEMS **LICENSING CHANGE REQUEST**

DTC: TCLCR DCN 89-235-UFS

PAGE REV 4 PIS

Jan 17, 1990

LCR | 8 | 9 | - | 2 | 3 | 5 | - | U | F | S |

Revision 0 Page 1 of 73

PART 1: UFSAR, PLAN, OR PROGRAM REVISION [ ] NA

A) Document UFSAR CONTROLLED

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)
FIGURE 9.3-1 (sheet 2 of 5)

C) Reason for Change LOCKED VALVES

D) Reference and Source Documents (Identify)

EDP
PDC
ABN 10914-1, REV. 0
DER 88-1867
Test
Effectiveness Review (Attached) [ ] Yes [X] No
Other
Drawings, Design Calculations, Correspondence, etc.

Tech Spec
Procedure
SE (Attached) 89-0202
PE (Attached)

PART 2: OPERATING LICENSE CHANGES [ ] NA

A) Document
[ ] Operating License [ ] Tech Specs [ ] Environmental Protection Plan
[ ] Tech Spec Clarification

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C) Reference and Source Documents Attached
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[ ] Enviromental Impact/Categorical Exclusion
[ ] Environmental Evaluation
[ ] Other

D) Is UFSAR change required?
[ ] Yes [ ] No LCR No

E) Priority
NRC approval required by (date)
An [ ] Emergency [ ] Exigent condition will occur if not approved by (State date)
Explanation

STATUS
ASB closed 1/12/90
DIST. JAN 12, 1990
REV.
SE received

F) Implementation
DER No.

PART 3: APPROVALS

A) Originator B. ORSENO B. Orseno Date 11/15/89

B) Technical Expert R. TASSELL R T Tassell Date 12-13-89

C) Nuclear Generation Unit Head J. CONTENI Date 12-13-89

D) General Director, Nuclear Engineering [ ] NA Date 12/14/89

E) Plant Manager Date 12-18-89

F) Other Date

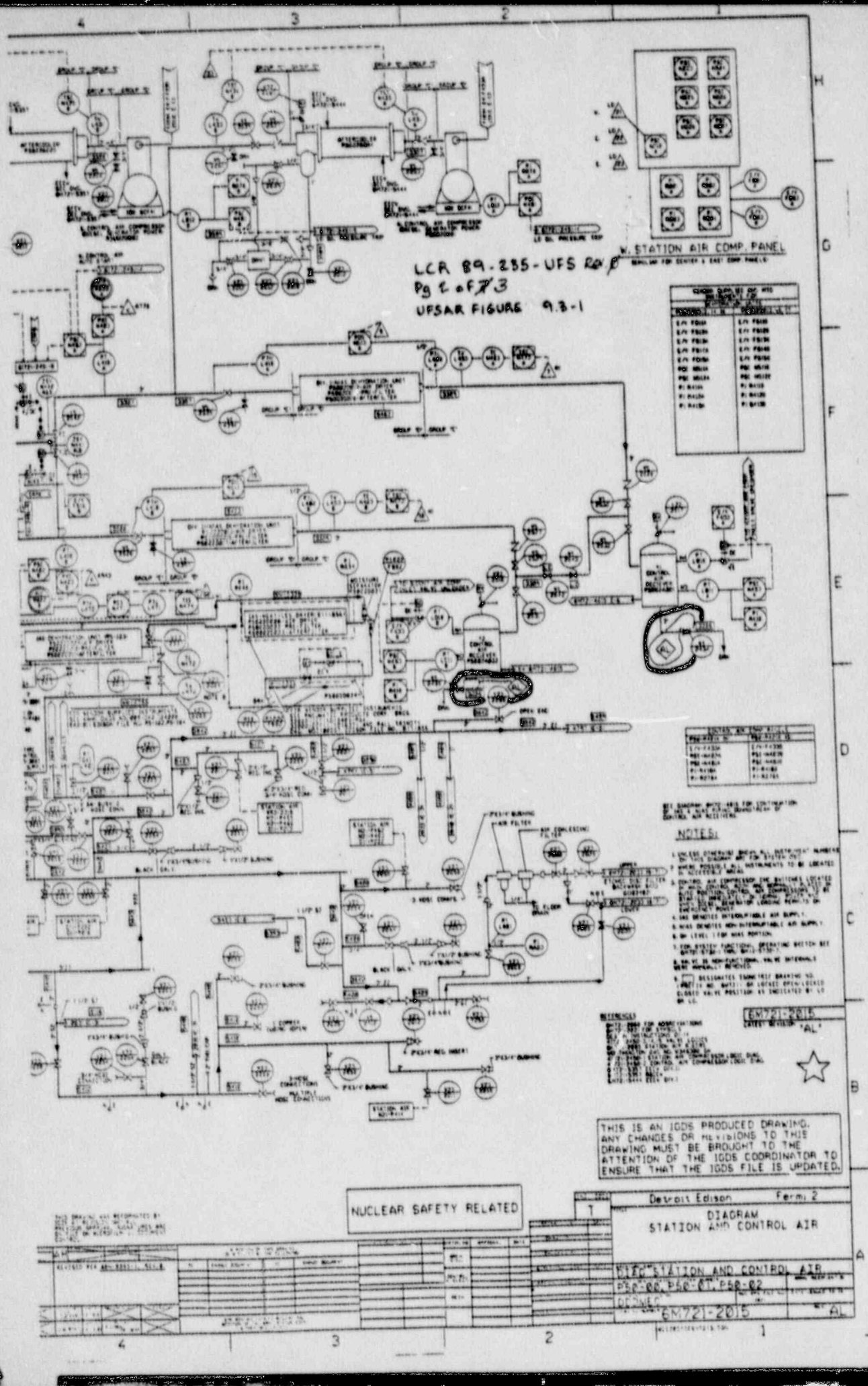
G) Director, Nuclear Licensing Date 1/16/90

H) OSRO Approval (Tech Spec Amendments) [X] NA ISD Memo 11-20-89 Date

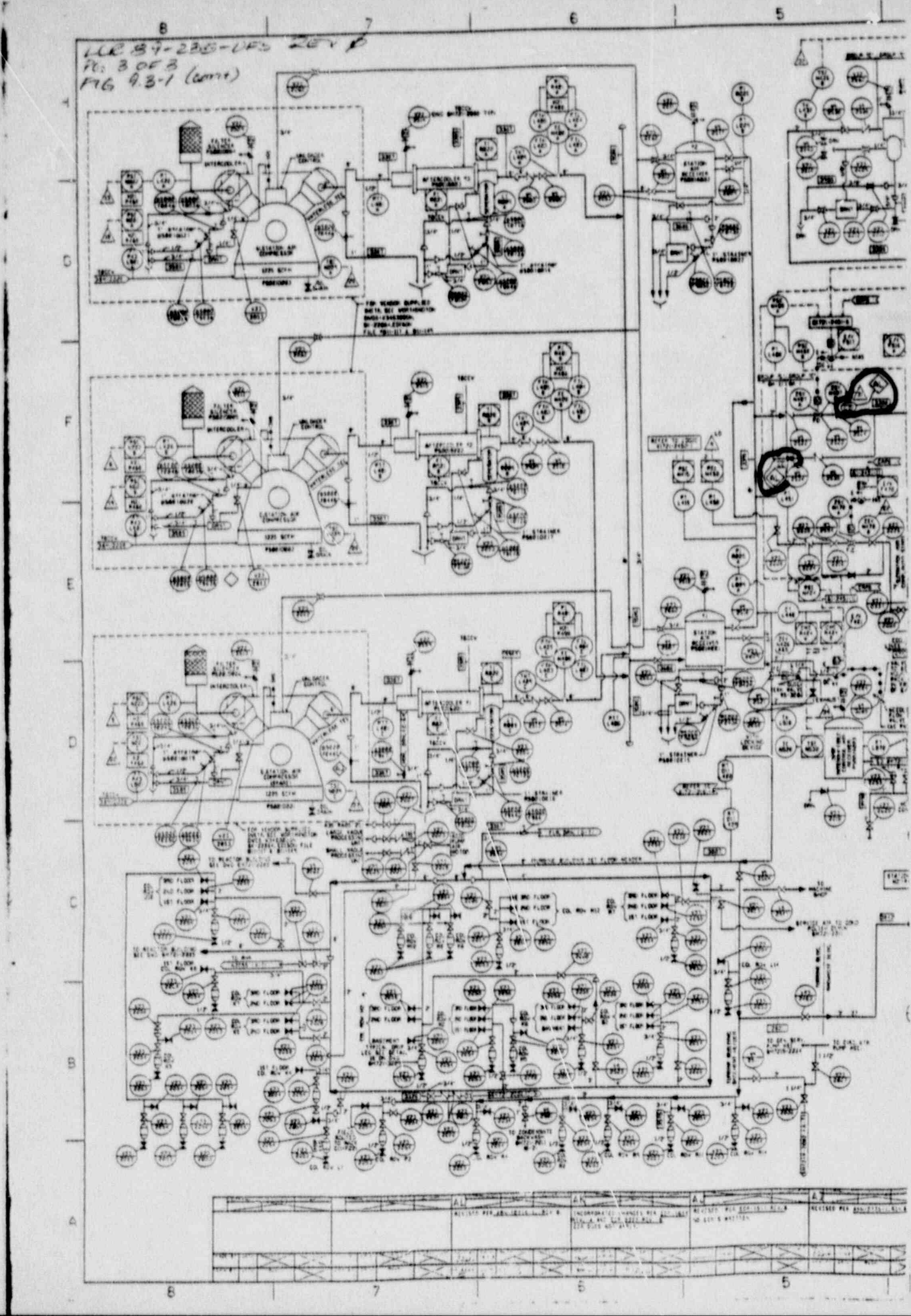
I) NSRG Approval (Operating License Amendments) [X] NA ISD Memo 11-20-89 Date

DTC: [■] TCLCR for UFSAR
DTC: [ ] TDLCR for other

File: 1735


W. STATION AIR COMP. PANEL
LCR 89-235-UFS Rev 0
Pg 2 of 3
UFSAR FIGURE 9.3-1
NOTES:
THIS IS AN IGDS PRODUCED DRAWING. ANY CHANGES OR REVISIONS TO THIS DRAWING MUST BE BROUGHT TO THE ATTENTION OF THE IGDS COORDINATOR TO ENSURE THAT THE IGDS FILE IS UPDATED.
NUCLEAR SAFETY RELATED
Detroit Edison
Fermi 2
DIAGRAM
STATION AND CONTROL AIR
EM721-2015
AL

LER 84-23B-UFS REV 0
PG 3 OF 3
FIG 9.3-1 (cont)



ARMS-INFORMATION SYSTEMS
DTC TCLCR DSN 89-234-UFS
PAGE ____ REV ∅ PIS 035
Jan 17, 1990

LICENSING CHANGE REQUEST

LCR 8 9 - 2 3 4 - U F S

Revision ∅ Page 1 of 7 8 9

PART 1: UFSAR, PLAN, OR PROGRAM REVISION [ ] NA

A) Document UFSAR

CONTROLLED

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)
FIGURES 5.1-3 (1), 5.1-3 (2), 5.1-3 (3), 6.2-27, 7.3-12 (1), 7.3-12 (2), 7.3-12 (3)

C) Reason for Change LOCKED VALVES
6M721-2089, 6M721-2090, 6M721-5538, 6M721-2045, 6M721-2089, 6M721-2090, 6M721-5538

D) Reference and Source Documents (identify)

EDP ____ Tech Spec ____
PDC ____ Procedure ____
ABN 10905-1, REV. ∅ SE (Attached) 89-0200
DER 88-1867 PE (Attached) ____
Test ____
Effectiveness Review (Attached) [ ] Yes [X] No
Other ____
Drawings, Design Calculations, Correspondence, etc.

PART 2: OPERATING LICENSE CHANGES [ ] NA

A) Document
[ ] Operating License [ ] Tech Specs [ ] Environmental Protection Plan
[ ] Tech Spec Clarification

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)

C) Reference and Source Documents Attached
[ ] Significant Hazards Consideration [ ] Environmental Evaluation
[ ] Enviromental Impact/Categorical Exclusion [ ] Other

D) Is UFSAR change required?
[ ] Yes [ ] No LCR No.

E) Priority
NRC approval required by (date): ____
An [ ] Emergency [ ] Exigent condition will occur if not approved by:
(State date): ____

Explanation ____

STATUS
ASD closed 1/2/90
DIST JAN 12, 1990
REV. ____
SE received

F) Implementation
DER No.

PART 3: APPROVALS

A) Originator T. MURPHY III [signature] Date 11-19-89

B) Technical Expert Joel P. Melito [signature] Date 12/15/89

C) Nuclear Generation Unit Head J. Contoni [signature] Date 12-18-89

D) General Director, Nuclear Engineering [ ] NA [signature] Date 12/18/89

E) Plant Manager [signature] Date 12-20-89

F) Other Date

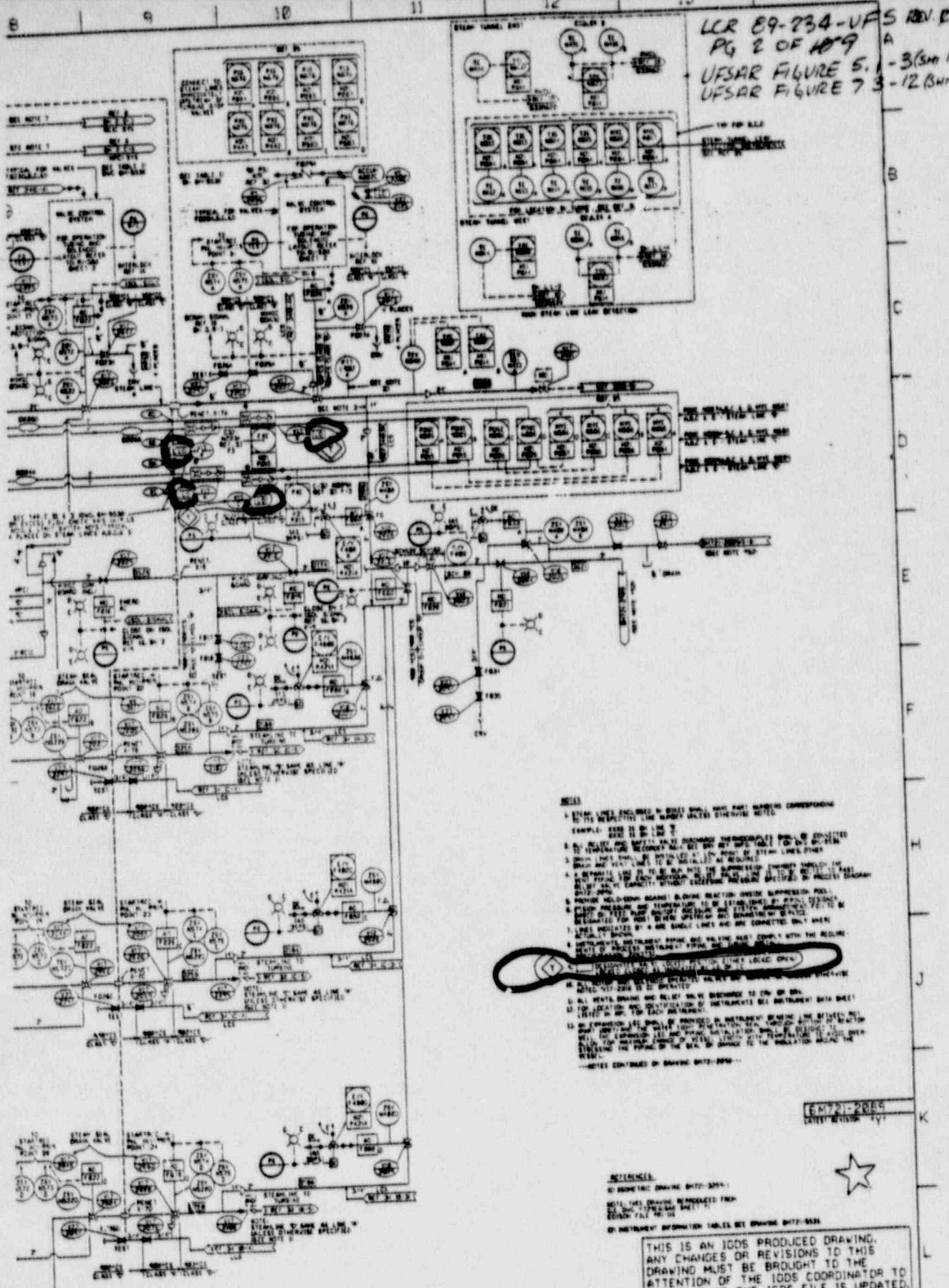
G) Director, Nuclear Licensing [signature] Date 1/6/90

H) OSRO Approval (Tech Spec Amendments) [X] NA [signature] 11-20-89 Date

I) NSRG Approval (Operating License Amendments) [X] NA [signature] 11-20-89 Date

Form FIP-RA2-01 Att 1 P1/1 030189
DTC: [■] TCLCR for UFSAR
DTC: [ ] TDLCR for other
File: 1735

LCR 89-234-UFS REV. 0
PG 2 OF 109
UFSAR FIGURE 5.1-3 (SH 1)
UFSAR FIGURE 7.3-12 (SH 1)



EM721-2RBC

THIS IS AN IGDS PRODUCED DRAWING. ANY CHANGES OR REVISIONS TO THIS DRAWING MUST BE BROUGHT TO THE ATTENTION OF THE IGDS COORDINATOR TO ENSURE THAT THE IGDS FILE IS UPDATED.

NUCLEAR SAFETY RELATED
ITEMS ARE SHOWN ON THIS DRAWING

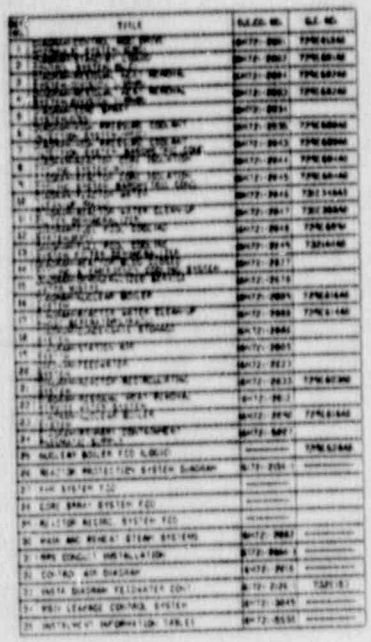
Detroit Edison — Fermi 2

SYSTEM DIAGRAM
NUCLEAR BOILER SYSTEM

DIAGRAM NUCLEAR BOILER SYSTEM — B21-00

DDDMES — EM721-2089 — Y

LCR 89-224-UFS Rev 0
Pg 3 of 9
FIG 6.1-3 (1) (cont)
FIG 7.3-12 (1) (cont)



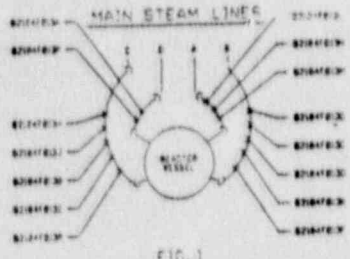
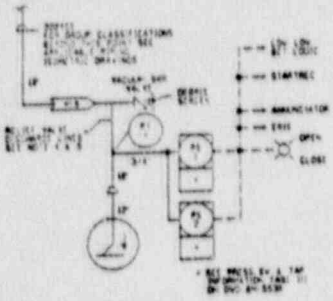
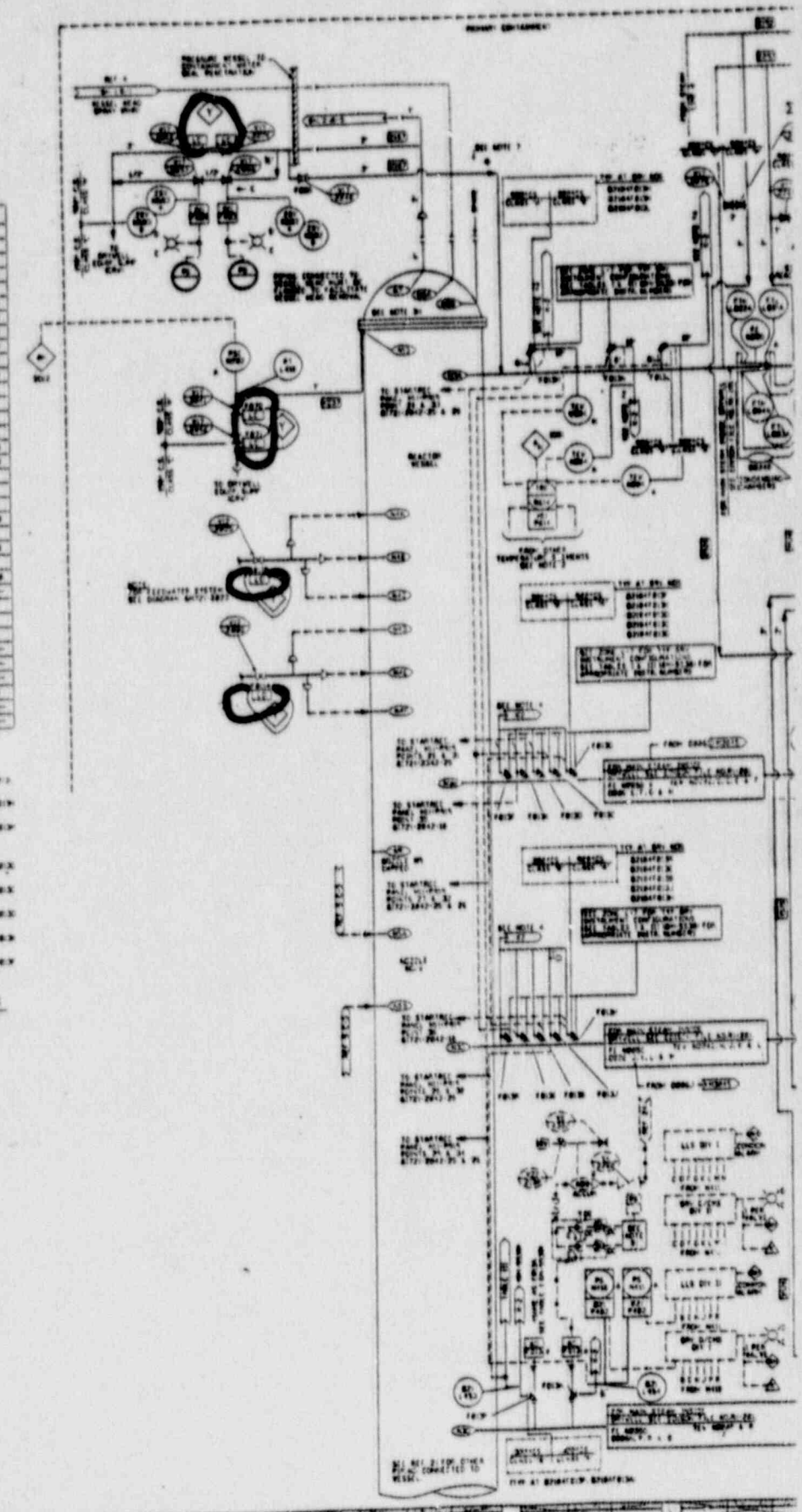


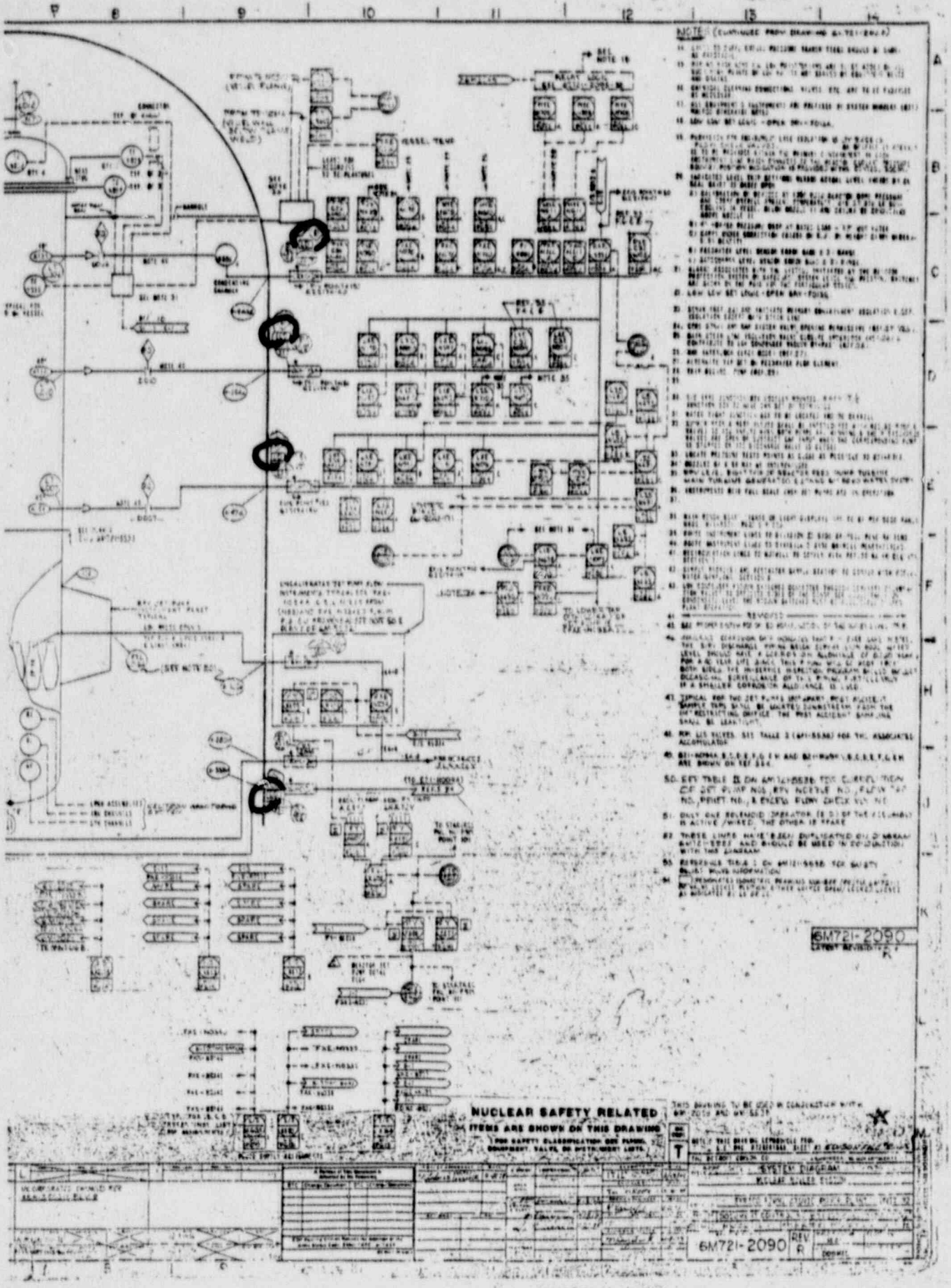
FIG. 1
SAFETY/RELIEF VALVE LOCATION



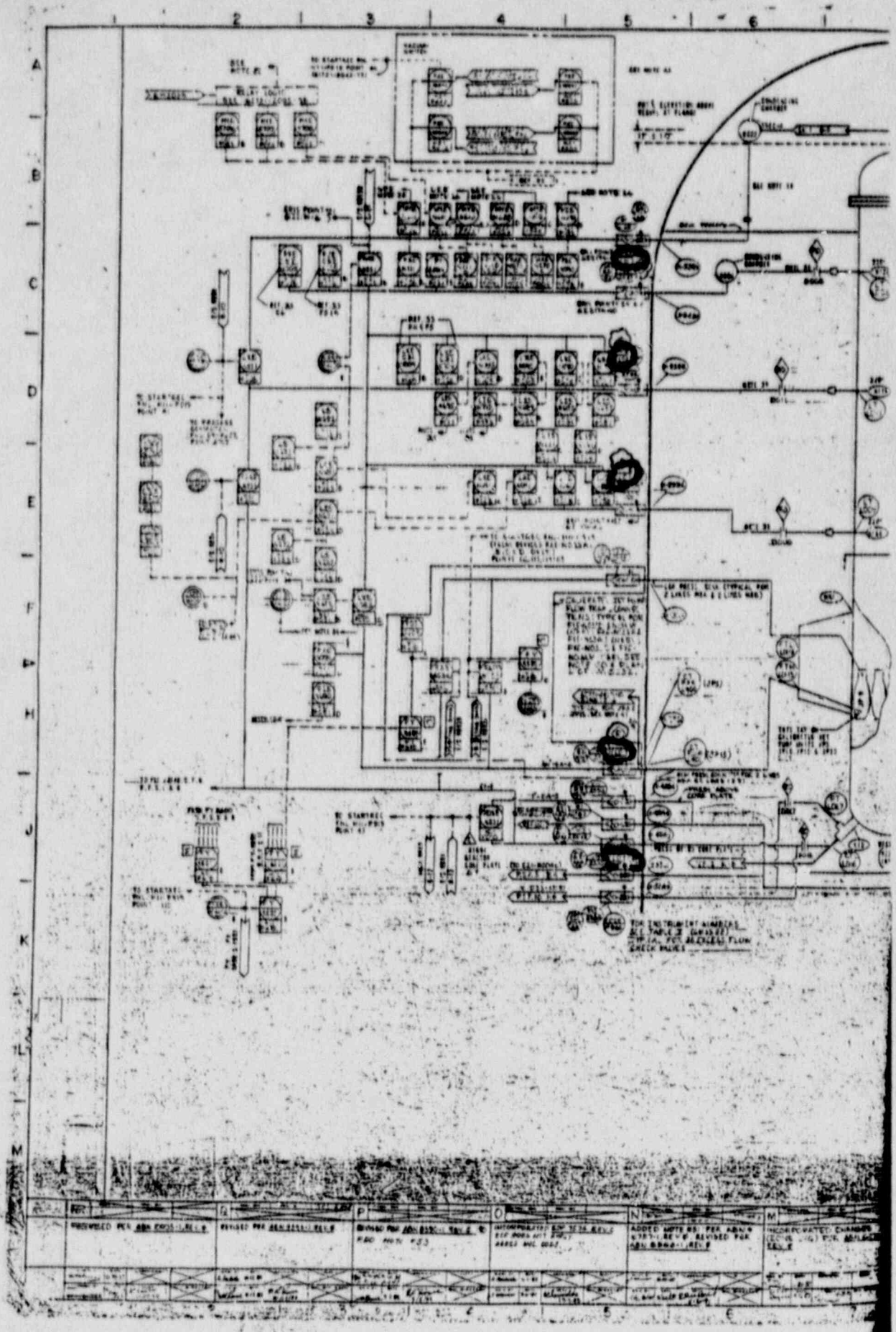
SUPPRESSION POOL



LCR 89-234-VFS REV. 0
PG. ~~8 OF 10~~ 4 OF 9
UFSAR FIGURE 5.1-3 (SHT. 2)
UFSAR FIGURE 9.3-12 (SHT. 2)



LCR 89-234-VFS REV 0
Pg 5 of 9
FIG 5.1-3 (2) (cont)
FIG 7.3-12 (2) (cont)



LCR 89-234-UFS REV. 0
Pg ~~4 OF 10~~ 6 OF 9
UFSAR FIGURE 5.1-3 (SHT 3)
UFSAR FIGURE 7.3-12 (SHT 3)

DIV	POWER SUPPLY	TRIP UNIT	FUNCTION
-	K6 04	-	CORE PLATE (ΔP)
-	K6 04	-	-
-	K6 13A	-	-
-	K6 13B	-	-
I A	C71-K6 08A C71-K6 10A	PIS N676A	NS⁴
I B	C71-K6 08B C71-K6 10B	PIS N676B	NS⁴
II A	C71-K6 08C C71-K6 10C	PIS N676C	NS⁴
II B	C71-K6 08D C71-K6 10D	PIS N676D	NS⁴
I A	[illegible]	PIS N678A	RPS
I B	[illegible]	PIS N678B	RPS
II A	[illegible]	PIS N678C	RPS
II B	[illegible]	PIS N678D	RPS
I A	[illegible]	PDIS N686A	NS⁴
I B	[illegible]	PDIS N686B	NS⁴
II A	[illegible]	PDIS N686C	NS⁴
II B	[illegible]	PDIS N686D	NS⁴
I A	[illegible]	PDIS N687A	NS⁴
I B	[illegible]	PDIS N687B	NS⁴
II A	[illegible]	PDIS N687C	NS⁴
II B	[illegible]	PDIS N687D	NS⁴
I A	[illegible]	PDIS N688A	NS⁴
I B	[illegible]	PDIS N688B	NS⁴
II A	[illegible]	PDIS N688C	NS⁴
II B	[illegible]	PDIS N688D	NS⁴
I A	[illegible]	PDIS N689A	NS⁴
I B	[illegible]	PDIS N689B	NS⁴
II A	[illegible]	PDIS N689C	NS⁴
II B	[illegible]	PDIS N689D	NS⁴
I	K6 10A K6 10C	PIS N690A	CS / RHR
II	K6 10B K6 10D	PIS N690B	CS / RHR
I	K6 08A K6 08C	PIS N690C	CS / RHR
II	K6 08B K6 08D	PIS N690D	CS / RHR
I A	C71-K6 08A C71-K6 10A	PIS N694A	NS⁴
I B	C71-K6 08B C71-K6 10B	PIS N694B	NS⁴
II A	C71-K6 08C C71-K6 10C	PIS N694C	NS⁴
II B	C71-K6 08D C71-K6 10D	PIS N694D	NS⁴
I	K6 10A K6 10C	PIS N610A, C	RHR
II	K6 10B K6 10D	PIS N610B, D	RHR
I	K6 10A K6 10C	PIS N611A	RPT/ARI/FW
		FS N708A	LLS REOPEN/ RECLOSE
		FS N709A	LLS ARMING
II	K6 10B K6 10D	PIS N611B	RPT/ARI/FW
		FS N708B	LLS REOPEN/ RECLOSE
		FS N709B	LLS ARMING
I	K6 10C K6 10A	PIS N611C	RPT/ARI/FW
		FS N708C	LLS REOPEN/ RECLOSE
II	K6 10D K6 10B	PIS N611D	RPT/ARI/FW
		FS N708D	LLS REOPEN/ RECLOSE
I	—	PS N412A,B,C,H, J,F,R	LLS ARMING SRVDCMS
II	—	PS N412C,D,F,G, K,L,M,N	LLS ARMING SRVDCMS
I	—	PS N413A,B,E,H, J,F,R	LLS ARMING
II	—	PS N413C,D,F,G, K,L,M,N	LLS ARMING

[illegible] ARS N/A 367
[illegible]ATE ALTERNATE ROD INSERTION SOLENOID VALVES

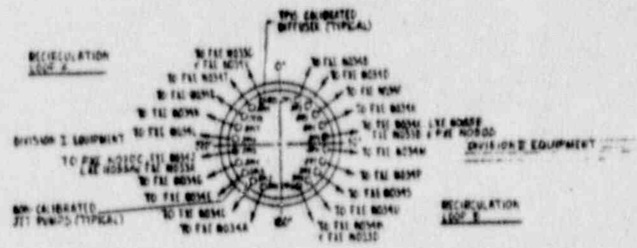
[illegible]URE INSTRUMENT CONTACT UTILIZATION
[illegible]TEM PREFIX IS B21 UNLESS OTHERWISE NOTED)
TABLE XIII

SEN	TRIP UNIT
[illegible]	TIS-N617A
[illegible]	TIS-N617B
[illegible]	TIS-N617C
[illegible]	TIS-N617D
[illegible]	TSE-N600
[illegible]	TSE-N601
[illegible]	TSE-N600
[illegible]	TSE-N602

[illegible]UATION

TABLE II - JET PUMP INFORMATION									
LOOP 'B'					LOOP 'A'				
JET PUMP	NOZZLE (TYPE)	FLOW TAP	PENETRATION	VALVE	JET PUMP	NOZZLE (TYPE)	FLOW TAP	PENETRATION	VALVE
JP1	N8A(K)	FTL-L015B	X-28Ce	V13-2333	JP11	N8B(F)	FTL-L015A	X-40Ce	V13-2332
JP2	N8A(J)	FTL-L015D	X-28Cb	V13-2335	JP12	N8B(J)	FTL-L015C	X-40Db	V13-2334
JP3	N8A(E)	FTL-L015F	X-28Ca	V13-2337	JP13	N8B(E)	FTL-L015E	X-40Ca	V13-2336
JP4	N8A(G)	FTL-L015H	X-28Cc	V13-2339	JP14	N8B(G)H	FTL-L015G	X-40Da	V13-2338
JP5	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	JP15	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~
JP6	N8A(K)	FTL-L015M	X-28Ad	V13-2341	JP16	N8B(A)	FTL-L015L	X-40Cf	V13-2340
JP7	N8A(B)	FTL-L015P(Q)	X-28Ac	V13-2343	JP17	N8B(B)	FTL-L015N	X-40Ce	V13-2342
JP8	N8A(F)	FTL-L015S	X-28Ab	V13-2345	JP18	N8B(F)	FTL-L015R	X-40Cb	V13-2344
JP9	N8A(D)	FTL-L015U	X-28Af	V13-2347	JP19	N8B(D)	FTL-L015T	X-40Ca	V13-2346
JP10	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	JP20	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~

JET PUMP INFORMATION
TABLE II
(SYSTEM PREFIX IS B21 UNLESS OTHERWISE NOTED)



PLAN I
(ROTATED 180°)
JET PUMP & TRANSMITTER MATCHING
(REF. DWG. 6M-2080, ZONE F-11)
(SYSTEM PREFIX IS B21 UNLESS OTHERWISE NOTED)

[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

EXCESS FLOW CHECK VALVE INSTRUMENT CROSS-REFERENCE
TABLE X
[illegible] SEE TABLE [illegible]
[illegible] - INDICATES THESE VALVES ARE LOCKED OPEN.

NOTES:
(FOR NOTES SEE DRAWING 6M721-2089 AND 6M721-2090).

REFERENCE DRAWINGS
6M721-2089 .... SYSTEM DIAGRAM NUCLEAR BOILER SYSTEM
6M721-2090 .... SYSTEM DIAGRAM NUCLEAR BOILER SYSTEM

G.E. DRAWINGS
729E616AB SHTS 1,2 & 3 (NUCLEAR BOILER SYSTEM)
761E 862 OUTLINE - JET PUMP
117C4792 JET PUMP ADAPTER

COMBUSTION ENG'G DRAWINGS
E-231-835 GENERAL ARRANGEMENT
E-231-837 VESSEL ASSEMBLY

6M721-5535
LATEST REVISION "H"

THIS DRAWING TO BE USED IN CONJUNCTION WITH DWGS 6M721-2089 & 6M721-2090

NOTE: THIS DRAWING WAS DERIVED FROM G.E. CO. DWGS. 6M721-2089 & 6M721-2090 AND FROM G.E. DWG. 729E616AB SHEETS 1,2 & 3, REV.13

INITIAL ISSUE INCORPORATES DCP 82100-304 (EDCN 1&3)

5

NUCLEAR SAFETY RELATED
ITEMS ARE SHOWN ON THIS DRAWING
(FOR SAFETY CLASSIFICATION SEE PIPING, EQUIPMENT, VALVE, OR INSTRUMENT LISTS.)

The Detroit Edison Co. Engineering
SYSTEM DIAGRAM
NUCLEAR BOILER SYSTEM
INSTRUMENT INFORMATION TABLES
DCC CONT B2100
[illegible] NSSS INSTR INFO TABLE
ENRICO FERMI ATOMIC P.P.
6M721-5535
REV H

LCR 87-234-LFS Rev 1
Pg 7 of 9
FIG. 5.1-3(3); 7.3-12(3) (cont)

		DIVISION I							DIVISION II								SPARES							
SAFETY RELIEF VALVE	F051	A	B	E	H	J	P	R	C	D	F	G	K	L	M	N								
	V22-	[illegible]	2591	2048	2042	2597	2010	2611	2048	2056	2047	2612	2606	[illegible]	2046	2056	2060	2062	2071	2592	2360	2595	2361	[illegible]
MANUFACTURERS S/N		337	371	341	331	391	340	370	333	364	356	368	392	390	359	353	377	380	387	372	328	389	382	342
SETTING (PSIG)		1110	1110	1130	1130	1120	1130	1150	1110	1120	1120	1110	1110	1120	1120	1120	1110	1110	1110	1110	1120	1120	1150	1150
VACUUM BREAKER VALVE NUMBER	F037	F	J	K	G	B	A	C	L	D	F	H	E	B	M	N								
	V22-	2110	2102	2103	2099	2100	2111	2101	2106	2106	2107	2098	2105	2104	2097	2108								
ACCUMULATOR	A003	-	-	E	B	D	C	A	-	-	-	-	-	-	-	-								
	A004	B	-	-	-	-	-	-	-	-	-	C	-	-	-	-								
CHECK VALVE NO	V4-	2260	-	2261	2299	2240	2242	2258	-	-	-	2261	-	-	-	-								
DRYWELL PENET. NO	X-	5G	5F	5F	5H	5H	5G	5E	5B	5C	5D	5C	5D	5A	5B	5A								
ISOMETRIC DWG NO. GMTEI-___-H1		4095 4415	4250 2591 4407	4250 2592 4408	4250 2588 4404	4250 2589 4405	4096 4416	2590 4406	4250 2594 4410	2593 4409	4250 2596 4412	2587 4403	4250 2595 4411	4094 4414	4250 2586 4402	4093 4413								
TEMP. ELEMENT	N004	F	J	K	G	H	B	L	C	D	F	B	E	A	M	N								
PRESSURE SWITCH	N410*	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]								
	N411*	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]								
	N108*	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]								
	N108*	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]								
	N109*	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]								
LLS OPENING SETPOINT (PSIG)		1017	-	-	-	-	-	-	-	-	-	1047	-	-	-	-								
LLS RECLOSING SETPOINT (PSIG)		905	-	-	-	-	-	-	-	-	-	955	-	-	-	-								
ADS FUNCTION		-	-	YES	YES	YES	YES	YES	-	-	-	-	-	-	-	-								

* X/Y: X INDICATES INSTRUMENT IS POWERED FROM ELECTRICAL DIVISION I.
Y " " " " " " " II.

TABLE I: SAFETY RELIEF VALVE REF INFORMATION

STEAM LINE No	A	B	C	D	
VALVE NO	V17-2001	V17-2003	V17-2006	V17-2008	
PI ACCUM No	A 001C	A 001D	A 001A	A 001B	
CHECK VALVE NO*(AIR)	V5 2066	V5 2017	V5 2058	V5 2059	
DRAIN VALVE NO* (AIR)	V5 2060	V5 2169	V5 2167	V5 2168	[illegible]
RELIEF VALVE	V22 2123	V22 2162	V22 2159	V22 2161	

AIR ACCUMULATORS AND VALVE REF. INFO.

TABLE II

PRESSURE SWITCH PSI-B21- NO. I	PRESSURE SWITCH PSI-B21- NO. II	PRESSURE TAP PT-B21-
N410M	N411M	L440
N410N	N411N	L441
N410L	N411L	L441
N410P	N411P	L443
N410K	N411K	L444
N410D	N411D	L445
N410C	N411C	L447
N410G	N411G	L446
N410F	N411F	L449
N410E	N411E	L451
N410B	N411B	L451
N410J	N411J	L448
N410H	N411H	L450
N410R	N411R	L453
N410A	N411A	L454

* INDICATES SUFFIX OF ASSOC SRV SOL VLV. NO * [illegible]

PRESSURE SWITCH & TAP INFORMATION

TABLE III

STEAM LINE	EXCESS FLOW CHECK A	EXCESS FLOW CHECK B	EXCESS FLOW CHECK C	EXCESS FLOW CHECK D	INSTRUMENT PENETRATION XA	INSTRUMENT PENETRATION XB	INSTRUMENT PENETRATION XC	INSTRUMENT PENETRATION XD
A	V15-2915	V15-2909	V15-2906	V15-2907	X52a	X52b	X408a	X408b
B	V15-2914	V15-2910	V15-2904	V15-2902	X52c	X52d	X408c	X408d
C	V15-2913	V15-2911	V15-2903	V15-2905	X46a	X46b	X46a	X46a
D	V15-[illegible]	V15-[illegible]	V15-[illegible]	V15-2906	X46b	X46b	X46c	X46d

[illegible]

NOTES: [illegible] EXCESS FLOW CHECK VALVE INFO.

TABLE IV

* SEE TABLE II

TRANSMITTER NUMBER	DIV	POWER SUPPLY	TRIP UNIT	FUNCTION	[illegible]
LXE-N080A	IA	C71-K6D9A C71-K610A	LIS-N680A	RPS/NS[4]	3
LXE-N080B	IB	C71-K6D9B C71-K610B	LIS-N680B	RPS/NS[4]	3
LXE-N080C	IIA	C71-K6D9C C71-K610C	LIS-N680C	RPS/NS[4]	3
LXE-N080D	IIB	C71-K6D9D C71-K610D	LIS-N680D	RPS/NS[4]	3
LXE-N081A	IA	C71-K6D9A C71-K610A	LIS-N681A LS-N681A	NS[4] NS[4]/(MSIV)	1 1
LXE-N081B	IB	C71-K6D9B C71-K610B	LIS-N681B LS-N681B	NS[4] NS[4]/(MSIV)	1 1
LXE-N081C	IIA	C71-K6D9C C71-K610C	LIS-N681C LS-N681C	NS[4] NS[4]/(MSIV)	1 1
LXE-N081D	IIB	C71-K6D9D C71-K610D	LIS-N681D LS-N681D	NS[4] NS[4]/(MSIV)	1 1
LXE-N085A	I	K6D9A,E	LIS-N685A	RHR	0
LXE-N085B	II	K6D9B,D	LIS-N685B	RHR	0
LXE-N091A	I	K610A K610C	LIS-N691A LS-N692A LS-N693A	CS(A)/RHR(A)/ADS(A) PWRL(A)/HPCI/RCIC, RPT RCIC	1 2 6
LXE-N091B	II	K610B K610D	LIS-N691B LS-N692B LS-N693B	CS(B)/RHR(B)/ADS(B) PWRL(B)/HPCI/RCIC, RPT RCIC	1 2 6
LXE-N091C	I	K610A K610C	LIS-N691C LS-N692C LS-N693C	CS(A)/RHR(A)/ADS(A) PWRL(A)/HPCI/RCIC, RPT HPCI	1 2 6
LXE-N091D	II	K610B K610D	LIS-N691D LS-N692D LS-N693D	CS(B)/RHR(B)/ADS(B) PWRL(B)/HPCI/RCIC, RPT HPCI	1 2 6
LXE-N027	-	K6D4	-	-	-
LXE-N095A	I	K610A K610C	LIS-N695A LS-N710A	ADS (A) RFP/SBFW/MTG	3 8
LXE-N095B	II	K610B K610D	LIS-N695B LS-N710B	ADS (B) RFP/MTG	3 8
LXE-N095C	I	K610A K610C	LIS-N695C	RFP/MTG	8
LXE-N095D	II	K610B K610D	LIS-N695D	RFP/MTG	8

WATER LEVEL INSTRUMENT CONTACT UTILIZATION (SEE NOTE 20&D)
(SYSTEM PREFIX IS B21 UNLESS OTHERWISE NOTED)

TABLE V

REFERENCE	ELEV. (INCHES ABOVE VESSEL ZERO)*	DESCRIPTION OF TRIPS (SEE TABLE V)	REACTOR VESSEL LEVELS (REF. B21)	CONTROL ROOM WATER LEVEL INDICATION AND TRIP LEVELS (SEE NOTE 20): SHUTDOWN/LOW RANGE, FUEL ZONE / LT-R610	WIDE RANGE / LT-R604A,B	NARROW RANGE / C32-LT R606A,B,C
NOZZLE N11	658.1					
NOZZLE N4	595.0	TRIP REACTOR FEED PUMPS, CLOSE MAIN TURBINE STOP VALVES, TRIP RCIC & HPCI TURBINES, TRIP RFPT PUMPS & MAIN TURBINE GENERATOR	8	- -	110.0 / 54.2	220.0 / 54.2
		HIGH LEVEL ALARM	7	- -	- -	201.9
		NORMAL WATER LEVEL	5,6			
		LOW LEVEL ALARM	4	- -	- -	192.7
		SCRAM & CLOSE RHR SHUTDOWN COOLING ISOL VALVES, DRYWELL EQUIP DRAIN VALVES AND DRYWELL FLOOR DRAIN VALVES, ADS DEPRESSURIZATION PERMISSIVE	3	- -	- -	172.4
FEEDWATER SYS & REACTOR PROTECT SYS LOWER RANGE LIMIT	516.3		- -	- -	160.0	160.0
NOZZLE N16	517.0	INITIATE RCIC/HPCI & SELECT RHR LOOP FOR INJECTION; TRIP RECIRC PUMPS; INITIATE ALTERNATE ROD INSERTION AND CLOSE PRIMARY SYS ISOL VALVES (EXCEPT MSIVS), MAIN STEAM LINE DRAIN ISOL VALVES, RHR SHUTDOWN COOLING, DRYWELL EQUIP DRAIN VALVES & DRYWELL FLOOR DRAIN VALVES	2	- -	110.8	
		INITIATE RHR & CORE SPRAY SYSTEMS, CONTRIBUTE TO AUTO DEPRESSURIZATION, START STANDBY DIESEL GEN, CLOSE [illegible]	1	+50	31.8 / 10.0	
TOP OF ACTIVE FUEL	366.3		- -	0		
NOZZLE N4	240.0					
	2[illegible]	CONTAINMENT SPRAY PERMISSIVE	0			
BOTTOM OF ACTIVE FUEL	216.3			-150		
JET PUMP DIFFUSER	161.4					
NOZZLE N3	158.0					

* THESE DIMENSIONS ARE NOMINAL AS NOTED, PROVIDED FOR REFERENCE ONLY

ELEVATION CORRELATION CHART
(SYSTEM PREFIX IS B21 UNLESS OTHERWISE NOTED)

TABLE VI

TEMP ELEMENT NUMBER	DIV	POWER SUPPLY	TRIP UNIT
TE-N112A	IA	C71-K6D9A C71-K610A	TIS-N612A
TE-N112B	IB	C71-K6D9B C71-K610B	TIS-N612B
TE-N112C	IIA	C71-K6D9C C71-K610C	TIS-N612C
TE-N112D	IIB	C71-K6D9D C71-K610D	TIS-N612D
TE-N113A	IA	C71-K6D9A C71-K610A	TIS-N613A
TE-N113B	IB	C71-K6D9B C71-K610B	TIS-N613B
TE-N113C	IIA	C71-K6D9C C71-K610C	TIS-N613C
TE-N113D	IIB	C71-K6D9D C71-K610D	TIS-N613D
TE-N114A	IA	C71-K6D9A C71-K610A	TIS-N614A
TE-N114B	IB	C71-K6D9B C71-K610B	TIS-N614B
TE-N114C	IIA	C71-K6D9C C71-K610C	TIS-N614C
TE-N114D	IIB	C71-K6D9D C71-K610D	TIS-N614D
TE-N115A	IA	C71-K6D9A C71-K610A	TIS-N615A
TE-N115B	IB	C71-K6D9B C71-K610B	TIS-N615B
TE-N115C	IIA	C71-K6D9C C71-K610C	TIS-N615C
TE-N115D	IIB	C71-K6D9D C71-K610D	TIS-N615D
TE-N116A	IA	C71-K6D9A C71-K610A	TIS-N616A
TE-N116B	IB	C71-K6D9B C71-K610B	TIS-N616B
TE-N116C	IIA	C71-K6D9C C71-K610C	TIS-N616C
TE-N116D	IIB	C71-K6D9D C71-K610D	TIS-N616D

(CONTINUED ABOVE)

(CONTINUED)

TEMP ELEMENT No.	DIV	[illegible]
TE-N117A	IA	[illegible]
TE-N117B	IB	[illegible]
TE-N117C	IIA	[illegible]
TE-N117D	IIB	[illegible]
TE-N014	-	-
TE-N044A/B	-	-
TE-N44	-	-
TE-N440A/B	-	-

STEAM TUNNEL LEAK DETECTION INSTRUMENT TAB[illegible]
SYSTEM PREFIX IS B21 UNLESS OTHERWISE NOTED

TABLE VII

TRANSMITTER NUMBER
PDX-N0[illegible]
PDX-N0[illegible]
PXE-N0[illegible]
PXE-N0[illegible]
PXE-N0[illegible]
PXE-N0[illegible]
PXE-N0[illegible]
PXE-N0[illegible]
PXE-N0[illegible]
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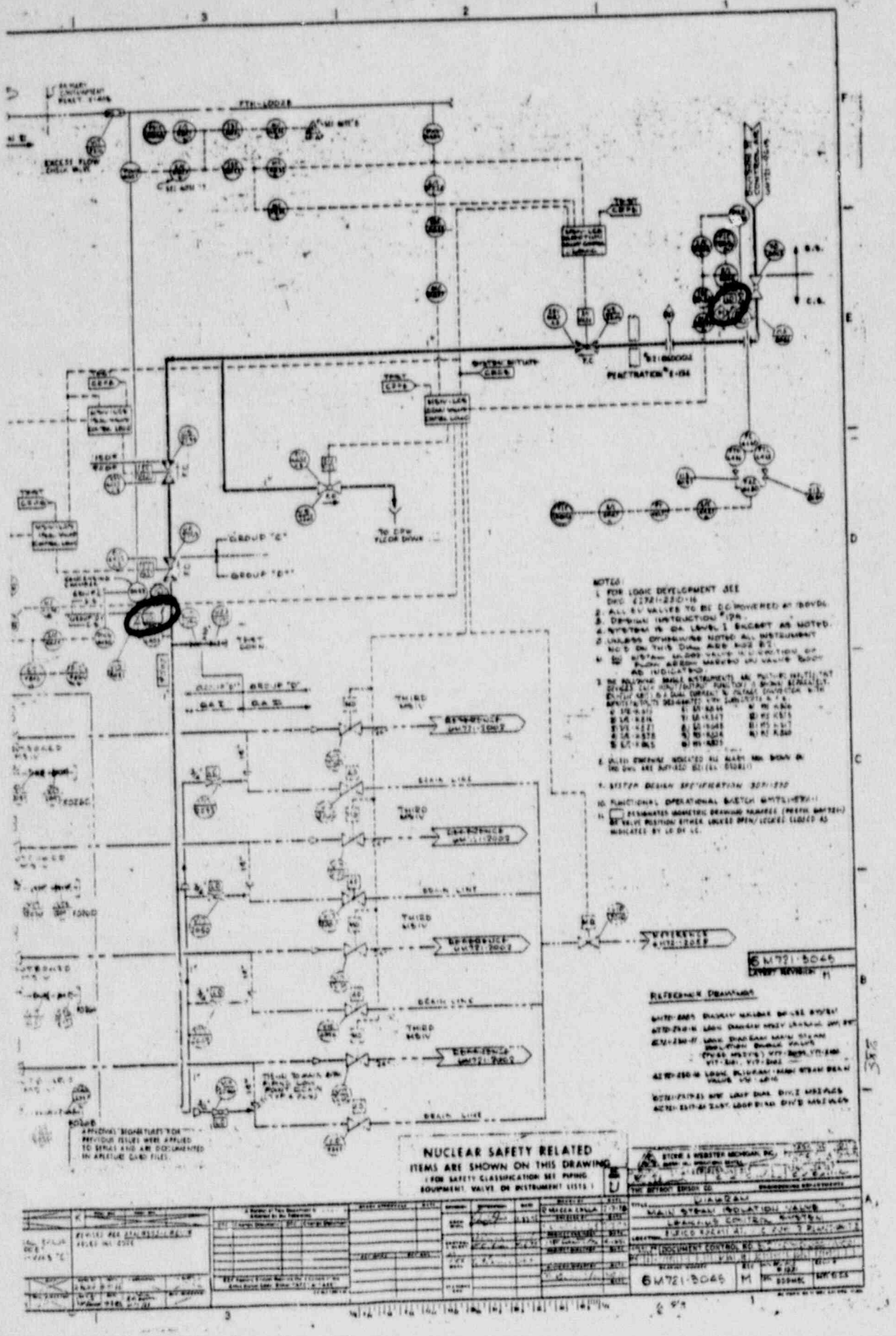
PXE-N1[illegible]
PXE-N1[illegible]
PXE-N1[illegible]
PXE-N1[illegible]

* T[illegible]
** IN[illegible]

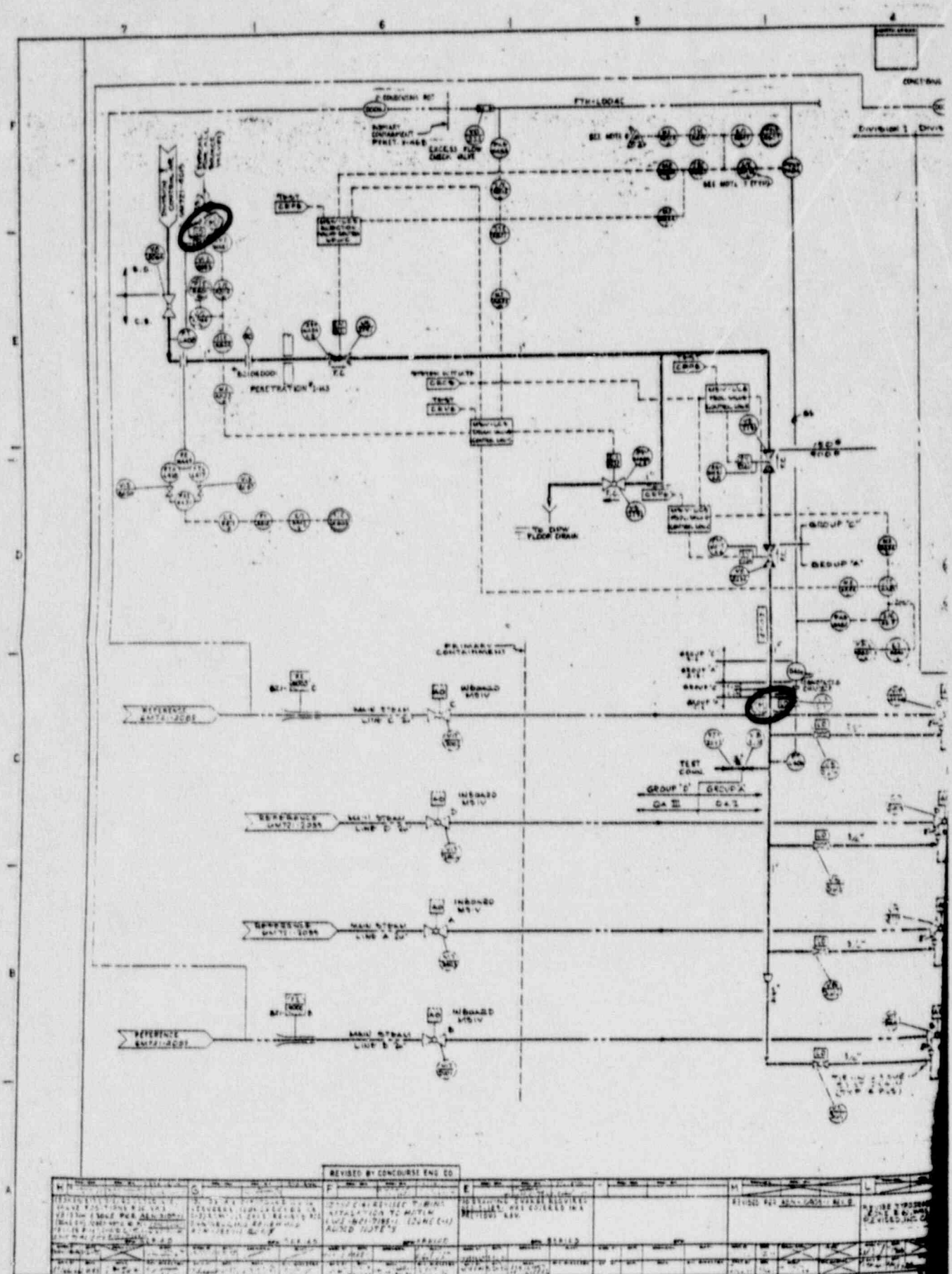
PRES[illegible]

F	E	D	C	H
REVISED PER [illegible] AND ADDED [illegible]	REVISED PER [illegible]	INCORPORATED CHANGES PER [illegible]	REVISED BY TECHNICAL SERVICES [illegible]	REVISED PER [illegible]

LER 87-234-UFS REV. 0
Pg. 5 OF ~~16~~ 8 OF 9
UFSAR FIGURE 6.2-27



LCR 87-234-VFS Rev 0
PG 9 of 9
VFSAR Fig 6.2-27 (cont.)



ARMS-INFORMATION SYSTEMS 232

DTC: TCLCR ID N 89-234-UFS

PAGE ____ REV ∅ P/S ____

Jan 17, 1990

LICENSING CHANGE REQUEST

LCR 89- 232- UFS

Revision ∅ Page 1 of 153

PART 1: UFSAR, PLAN, OR PROGRAM REVISION [ ] NA

A) Document UFSAR

CONTROLLED

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)
FIGURE 7.3-7 GM33A 3034

C) Reason for Change LOCKED VALVES

D) Reference and Source Documents (identify)

EDP ____
PDC ____
ABN 10910-1, REV. ∅
DER 88-1867
Test ____
Effectiveness Review (Attached) [ ] Yes [X] No
Other ____
Drawings, Design Calculations, Correspondence, etc.

Tech Spec ____
Procedure ____
SE (Attached) 89-0200
PE (Attached) ____

PART 2: OPERATING LICENSE CHANGES [ ] NA

A) Document
[ ] Operating License [ ] Tech Specs [ ] Environmental Protection Plan
[ ] Tech Spec Clarification

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)

C) Reference and Source Documents Attached
[ ] Significant Hazards Consideration [ ] Environmental Evaluation
[ ] Enviromental Impact/Categorical Exclusion [ ] Other

D) Is UFSAR change required?
[ ] Yes [ ] No LCR No

E) Priority
NRC approval required by (date): ____
An [ ] Emergency [ ] Exigent condition will occur if not approved by:
(State date): ____

Explanation ____

F) Implementation
DER No.

STATUS
ACT closed
DIST JAN 12, 1990
REV.
SE required

PART 3: APPROVALS

A) Originator T. MURPHY III T. Murphy III Date 11-19-89

B) Technical Expert GOPAL K. SHARMA G.K. Sharma Date 12-8-89

C) Nuclear Generation Unit Head J. Conteni J. CONTENI Date 12-13-89

D) General Director, Nuclear Engineering [ ] NA [signature] Date 12/14/89

E) Plant Manager [signature] Date 12-18-89

F) Other Date

G) Director, Nuclear Licensing [signature] Date 1/6/90

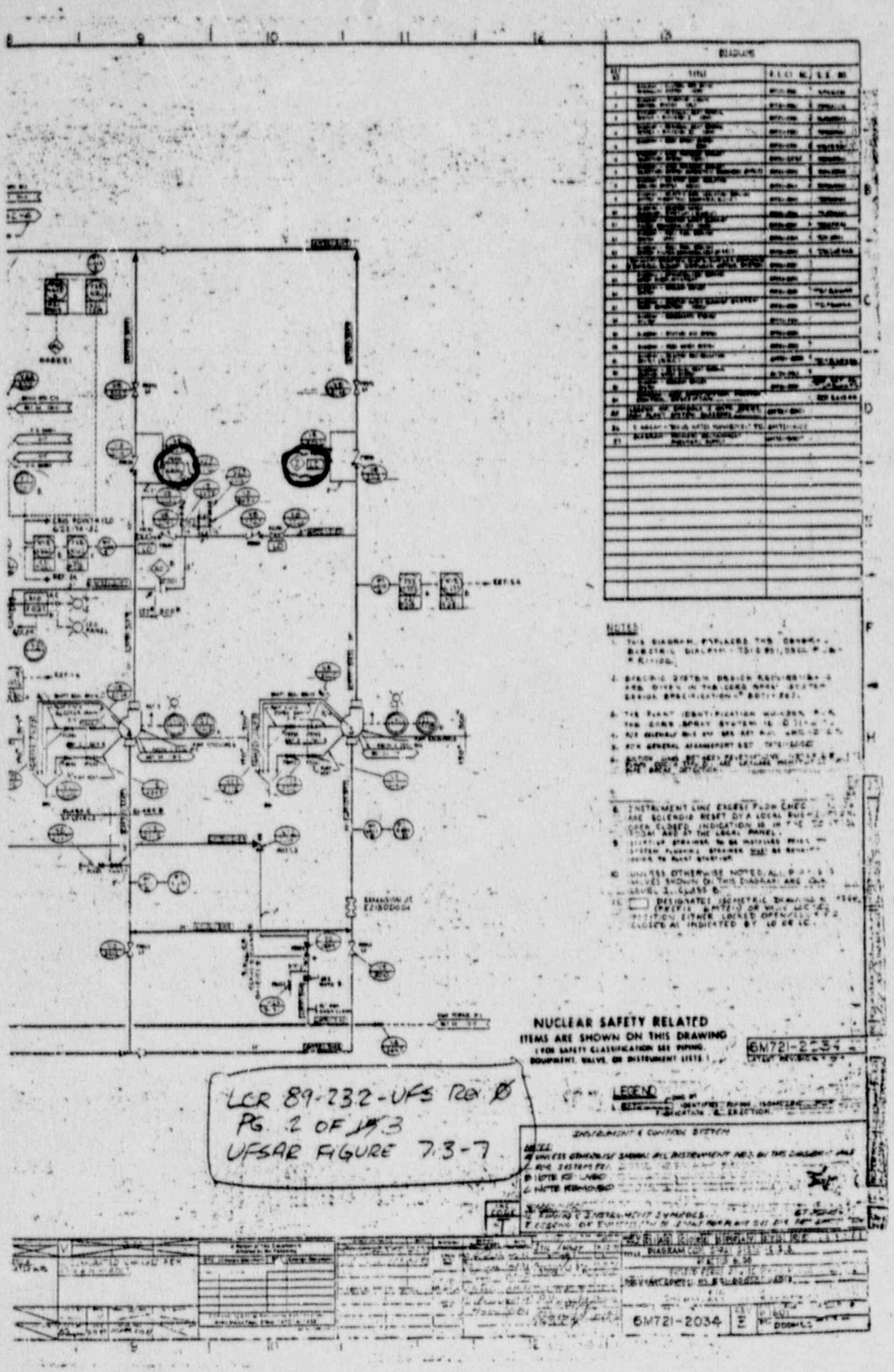
H) OSRO Approval (Tech Spec Amendments) [X] NA [signature] 11-20-89 Date

I) NSRG Approval (Operating License Amendments) [X] NA [signature] 11-20-89 Date

Form FIP-RA2-01 Att 1 P1/1 030189

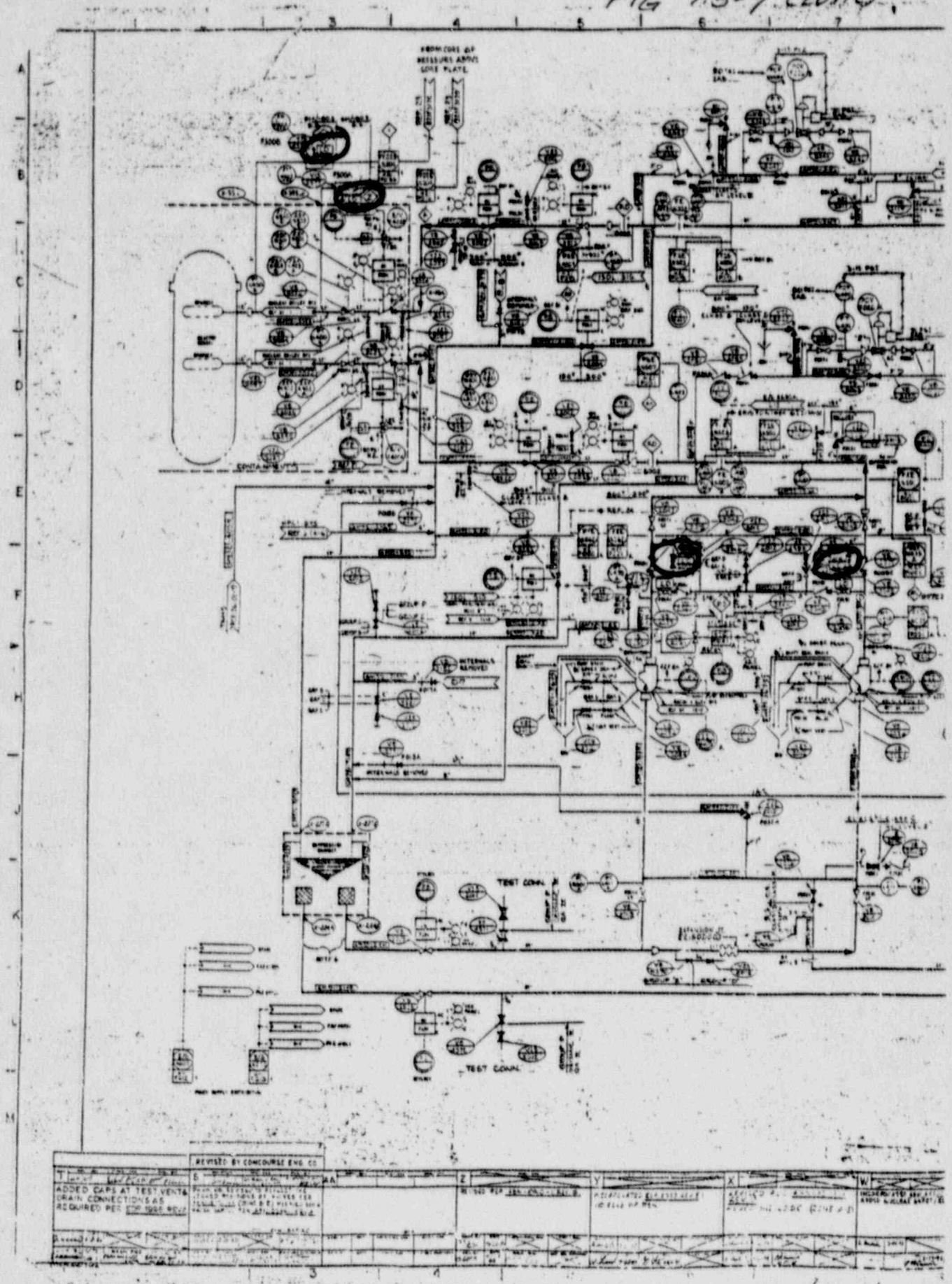
DTC: [■] TCLCR for UFSAR
DTC: [ ] TDLCR for other

File: 1735



LCR 89-232-UFS Rev 0
PG. 2 OF 3
UFSAR FIGURE 7.3-7

LCR 89-232-UFS
Rev 0
Pg 2 of 3
FIG 7.3-7 (cont)



DATE: January 12, 1990

TO: Information Management

FROM: Licensing

SUBJECT: UFSAR Volume XI Distribution

LCR 89-231-UFS was distributed with Index 90-01, but was incomplete. Please reissue this corrected copy of LCR 89-231-UFS to replace the old one.

LICENSING CHANGE REQUEST

ARMS INFORMATION SYSTEMS

DTC TCLCR DCN 89-231-UFS LCR 89-2311-UFS

PAGE REV 0 PIS 935

Revision 0 Page 1 of 45

PART 1: UFSAR, PLAN, OR PROGRAM REVISION [ ] NA

A) Document UFSAR

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)
FIGURES 5.5-13(1) & 5.5-13(2) 6M721-2083, 6M721-2084

C) Reason for Change LOCKED VALVES

D) Reference and Source Documents (Identify)

EDP
PDC
ABN 10909-1, REV. 0
DER 88-1867
Test
Effectiveness Review (Attached) [ ]Yes [X]No
Other
Drawings, Design Calculations, Correspondence, etc

Tech Spec
Procedure
SE (Attached) 89-0200
PE (Attached)

CONTROLLED

PART 2: OPERATING LICENSE CHANGES [ ] NA

A) Document
[ ] Operating License [ ] Tech Specs [ ] Environmental Protection Plan
[ ] Tech Spec Clarification

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)

C) Reference and Source Documents Attached
[ ] Significant Hazards Consideration
[ ] Enviromental Impact/Categorical Exclusion
[ ] Environmental Evaluation
[ ] Other

D) Is UFSAR change required?
[ ] Yes [ ] No LCR No

E) Priority
NRC approval required by (date):
An [ ]Emergency [ ]Exigent condition will occur if not approved by:
(State date):

Explanation

STATUS
ASN Closed 12/14/89
DIST. JAN 3 1990
REV.
SE Number

F) Implementation
DER No.

PART 3: APPROVALS

A) Originator THOMAS J. MURPHY Thomas J. Murphy Date 11-19-89

B) Technical Expert Michael S. Williams / Michael S. Williams Date 11-5-89

C) Nuclear Generation Unit Head J. CONTONI Date 12-5-89

D) General Director, Nuclear Engineering [ ]NA Date 12/7/89

E) Plant Manager Date 12-11-89

F) Other Date

G) Director, Nuclear Licensing Date 12/28/89

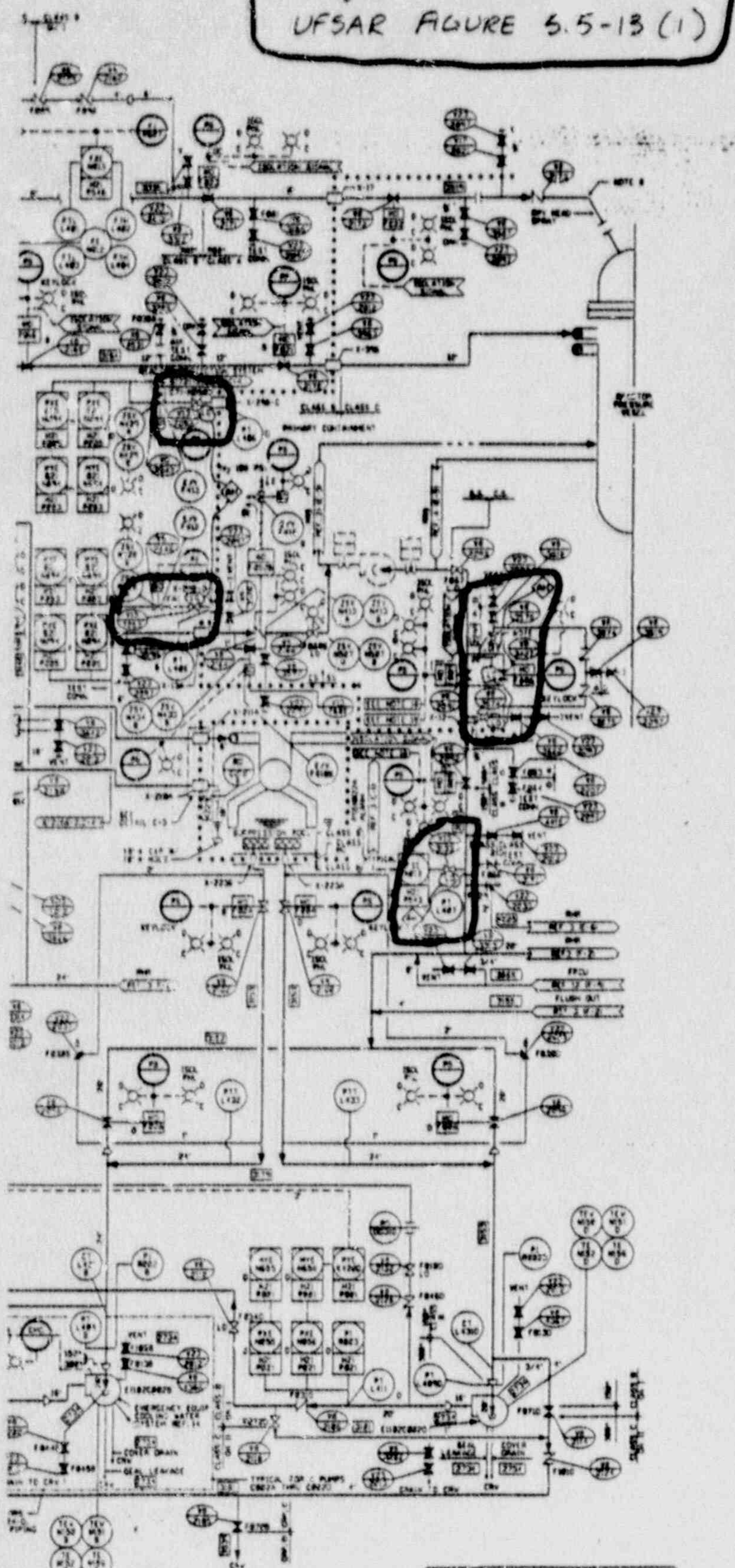
H) OSRO Approval (Tech Spec Amendments) [X] NA per Mueller 11-24-89 Date

I) NSRG Approval (Operating License Amendments) [X] NA per Mueller 11-20-89 Date

DTC: [■] TCLCR for UFSAR
DTC: [ ] TDLCR for other

File: 1735

LCR 89-231-UF[illegible] REV. 0
Pg 9 of 10 20 5
UFSAR FIGURE 5.5-13 (1)



DIAGRAM

REF NO	TITLE	D.E. DWG NO.	G.E. NO.
1	DIAGRAM-CONTROL ROD DRIVE HYDRAULIC SYSTEM (CRD)	[illegible]	[illegible]
2	DIAGRAM-STANDBY LIQUID CONTROL SYSTEM (SLC)	[illegible]	[illegible]
3	DIAGRAM-RESIDUAL HEAT REMOVAL SYSTEM-DIVISION I (RHR)	[illegible]	[illegible]
4	DIAGRAM-RESIDUAL HEAT REMOVAL SYSTEM-DIVISION II (RHR)	[illegible]	[illegible]
5	DIAGRAM-CORE SPRAY SYSTEM (CS)	[illegible]	[illegible]
6	DIAGRAM-HIGH PRESSURE COOLANT INJECTION SYSTEM (HPCI)	[illegible]	[illegible]
7	DIAGRAM-HIGH PRESSURE COOLANT INJECTION SYSTEM BAROMETRIC CONDENSER (HPCI)	[illegible]	[illegible]
8	DIAGRAM-REACTOR CORE ISOLATION COOLING SYSTEM (RCIC)	[illegible]	[illegible]
9	DIAGRAM-REACTOR CORE ISOLATION COOLING SYSTEM BAROMETRIC CONDENSER (RCIC)	[illegible]	[illegible]
10	DIAGRAM-REACTOR WATER CLEAN-UP SYSTEM (RWCU)	[illegible]	[illegible]
11	DIAGRAM-REACTOR WATER CLEAN-UP FILTER/DEMINERALIZER (RWCU)	[illegible]	[illegible]
12	DIAGRAM-FUEL POOL COOLING SYSTEM (FPC)	[illegible]	[illegible]
13	DIAGRAM-FUEL POOL COOLING SYSTEM FILTER/DEMINERALIZER (FPC)	[illegible]	[illegible]
14	DIAGRAM-REACTOR BLDG. CLOSED COOLING & MISC. EQUIP. COOLING WTR	[illegible]	
15	DIAGRAM-[illegible] SERVICE WATER [illegible]	[illegible]	
16	DIAGRAM-NUCLEAR BOILER SYSTEM	[illegible]	[illegible]
17	DIAGRAM-REACTOR WATER CLEAN-UP PHASE SEPARATORS (RWCU)	[illegible]	[illegible]
18	DIAGRAM-CONDENSATE STORAGE SYSTEMS	[illegible]	
19	DIAGRAM-STATION AIR SYSTEM	[illegible]	
20	DIAGRAM-FEEDWATER SYSTEM	[illegible]	
21	DIAGRAM-REACTOR RECIRCULATION SYSTEM (RRC)	[illegible]	[illegible]
22	DIAGRAM-RESIDUAL HEAT REMOVAL SERVICE WATER SYSTEM, DIV II	[illegible]	
23	DIAGRAM-NUCLEAR BOILER SYSTEM	[illegible]	[illegible]
24	DIAGRAM-HYDROGEN RECOMBINER SYSTEM	[illegible]	
25	INDEX FOR STAR TREC POINTS	[illegible]	
26	S/D ERIS SIGNAL POINT 73,75 & 77	[illegible]	
27	S/D ERIS SIGNAL POINT 79	[illegible]	

NOTES:

1. THE METHOD OF MOUNTING LOCAL INSTRUMENTS IS TO BE DETERMINED BY EDISON.
2. PIPING HIGH POINT VENTS AND LOW POINT DRAINS ARE TO BE ADDED AT ALL SUCH HIGH POINTS OR LOW POINTS NOT SERVED BY EQUIPMENT VENTS OR DRAINS.
3. CHEMICAL CLEANING CONNECTIONS ARE TO BE PROVIDED AS NECESSARY & WILL BE QUALITY LEVEL NONE.
4. DISCHARGE LINES FOR COOLING WATER TO BE ROUTED UPSTREAM OF SERVICE WATER RADIATION MONITORS.
5. ALL POSITION INDICATING LIGHTS ARE LOCATED IN CONTROL ROOM UNLESS OTHERWISE NOTED.
6. ALL MOTOR OPERATED VALVES ARE A.C. OPERATED UNLESS OTHERWISE NOTED.
7. ALL VENTS & DRAINS ARE 3/4" UNLESS OTHERWISE SPECIFIED.
8. PIPING CONNECTED TO VESSEL HEAD MUST BE FLANGED TO FACILITATE VESSEL HEAD REMOVAL.
9.
10. REFERENCE DOCUMENTS

TITLE	DECO FILE NO	GE NO	REV
RHR DESIGN SPECIFICATION	[illegible]	[illegible]	[illegible]
RHR SYS PROCESS DIA	R-2[illegible]	[illegible]	3
RHR SYS P&ID	R-7[illegible]	[illegible]	[illegible]

11. THE PRIMARY AND SECONDARY PIPING SYSTEMS ARE QUALITY LEVEL I EXCEPT AS FOLLOWS:
    A. WHERE OTHERWISE NOTED.
    B. ALL VENT AND DRAIN LINES SHALL CHANGE TO QUALITY LEVEL III AFTER THE FIRST SOURCE VALVE.
12. VALVES [illegible] & [illegible] ON THIS SHEET & [illegible] & [illegible] ON 6M721-2084 ARE DOUBLE ACTING WITH DUAL COIL SOLENOIDS. VALVES FAIL "AS IS" ON LOSS OF POWER. POSITION INDICATION IS IN THE CONTROL ROOM.
13. [6M721-DWG NO.] IDENTIFIES PIPING ISOMETRIC DRAWING FOR FABRICATION AND ERECTION.
14. FOR TRANSMITTER POWER SUPPLY & TRIP UNIT SEE TABLE ON DWG 6M721-2084.
15. INDICATING LIGHTS FOR VALVES F[illegible] & F[illegible] ARE LOCATED AT RACK H21-P[illegible] IN ADDITION TO ISOL PANEL.
16. OPEN & CLOSE BACKLIGHTED PUSHBUTTONS WITH RED & GREEN INDICATING LIGHTS AT REMOTE SHUTDOWN PANEL H21-P[illegible].
17. INSULATION CLASS "[illegible]" MOTOR REPLACED WITH CLASS "[illegible]" PER EDP-[illegible].
18. OPEN & CLOSE BACKLIGHTED PUSHBUTTONS WITH RED & GREEN INDICATING LIGHTS AT DEDICATED SHUTDOWN PANEL H21-P[illegible] FOR MO F[illegible].

INSTRUMENT & CONTROL NOTES:

A. UNLESS OTHERWISE SHOWN ALL INSTRUMENTS NO'S ON THIS DIAGRAM ARE FOR SYSTEM E11.
B. NOTE REMOVED.
C. NOTE REMOVED.

REFERENCES

1. PIPING & INSTRUMENT SYMBOLS G.E. [illegible]
2. LEGEND OF SYMBOLS & INSTRUMENTS IDENT. DECO 6M721-[illegible] FOR PLANT SYSTEM DIAGRAMS.
3. REACTOR PROTECTION SYSTEM 6I721-2[illegible].

6M721-2083
LATEST REVISION "AH"

THIS IS AN IGDS PRODUCED DRAWING. ANY CHANGES OR REVISIONS TO THIS DRAWING MUST BE BROUGHT TO THE ATTENTION OF THE IGDS COORDINATOR TO ENSURE THAT THE IGDS FILE IS UPDATED.

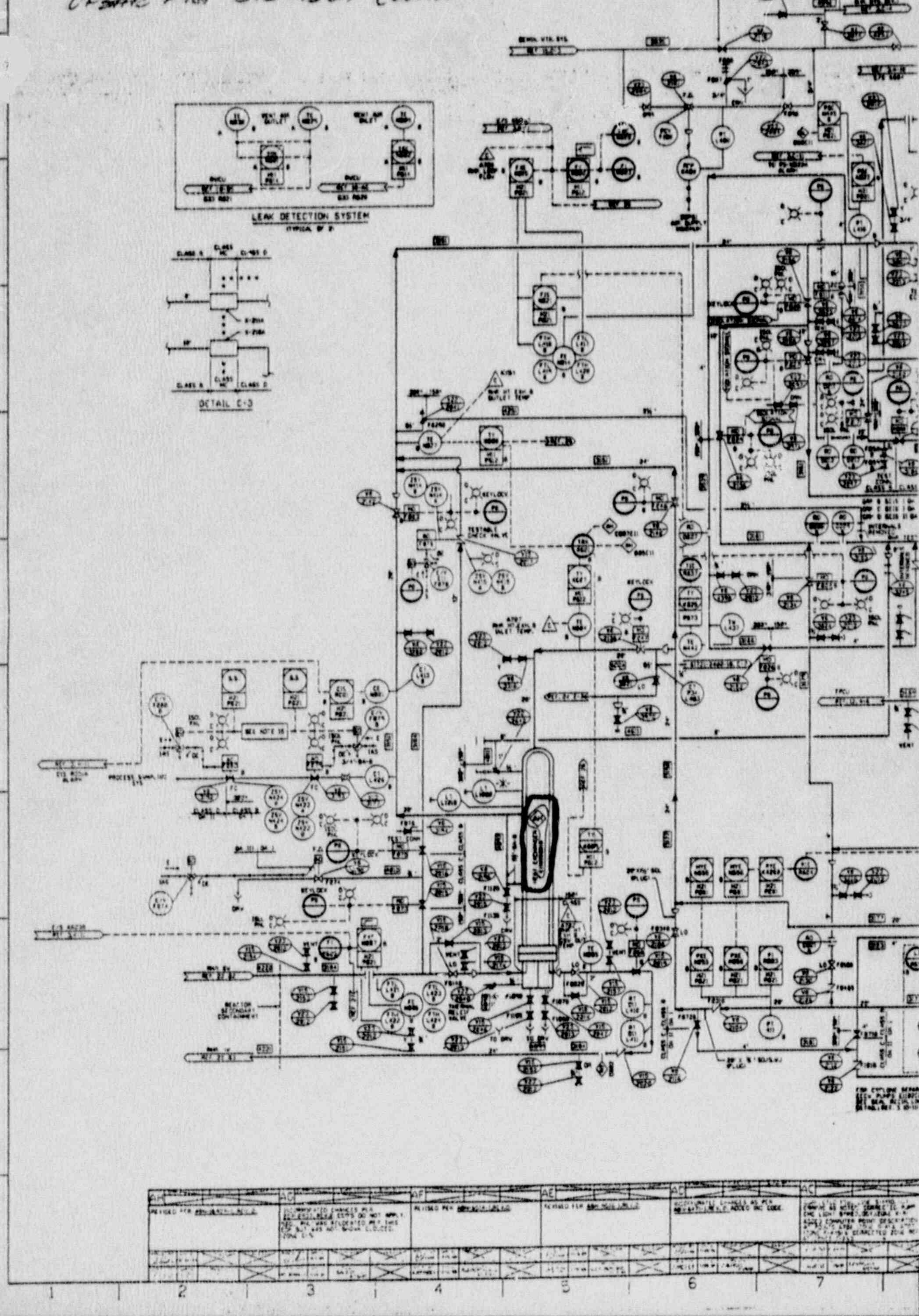
NUCLEAR SAFETY RELATED

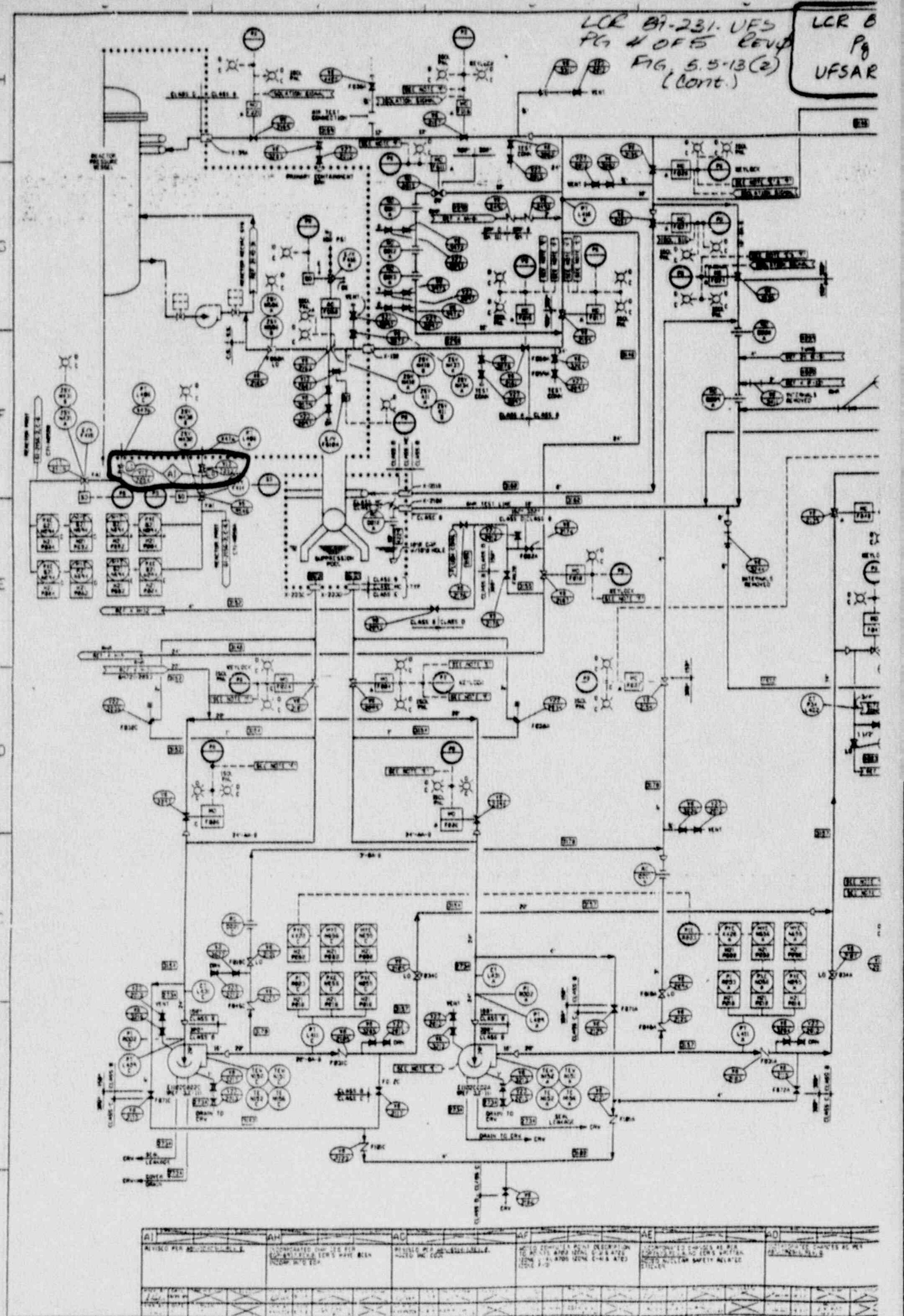
Detroit Edison Fermi 2

DIAGRAM
RESIDUAL HEAT REMOVAL (RHR)
DIVISION II

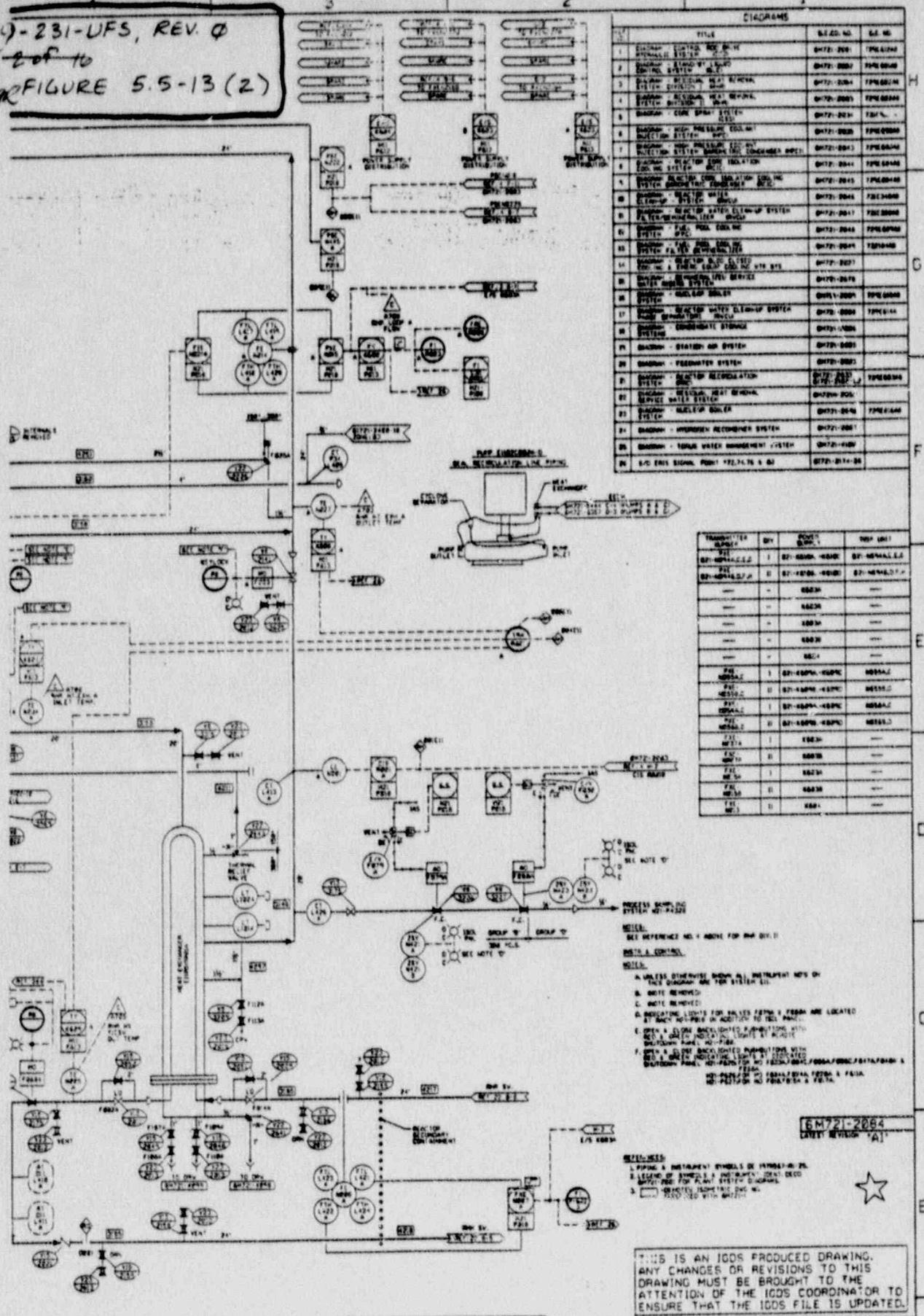
DIAG RESIDUAL HT REMOVAL DIV II
E11-00
DODMEC
6M721-2083
AH

LCR 81-231 UFS
REV 0
PG 3 OF 5
UFSAR FIG 5.5-13(1) (cont)




LCR 87-231-UFS
Pg 4 OF 5 Rev 0
FIG. 5.5-13(2)
(Cont.)
LCR 8
Pg
UFSAR
REACTOR PRESSURE VESSEL
PRIMARY CONTAINMENT
SUPPRESSION POOL
INTERNALS REMOVED
KEYLOCK
VENT
DRAIN TO CRW
SEAL LEAKAGE
CLASS B
CLASS C
CLASS D
SEE NOTE
ISOLATION SIGNAL
8
7
6
5

LCR 84-231-UFS, REV. 0
Pg. 5 of 5 ~~2 of 10~~
FIGURE 5.5-13 (2)



LICENSING CHANGE REQUEST

ARMS INFORMATION SYSTEMS
DTC TCLCR DCN 89-232-UFS LCR 89-12310-UFS
PAGE REV 0 PIS 93
Jan 17, 1990

Revision 0 Page 1 of 153

PART 1: UFSAR, PLAN, OR PROGRAM REVISION [ ]NA

A) Document UFSAR

CONTROLLED

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)
FIGURE 5.5-2(1) 6M721-2833

C) Reason for Change LOCKED VALVES

D) Reference and Source Documents (Identify)

EDP
PDC
ABN 10908-1, REV. 0
DER 88-1867
Test
Effectiveness Review (Attached) [ ]Yes [X]No
Other
Drawings, Design Calculations, Correspondence, etc.

Tech Spec
Procedure
SE (Attached) 89-0200
PE (Attached)

PART 2: OPERATING LICENSE CHANGES [ ]NA

A) Document
[ ] Operating License [ ] Tech Specs [ ] Environmental Protection Plan
[ ] Tech Spec Clarification

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)

C) Reference and Source Documents Attached
[ ] Significant Hazards Consideration
[ ] Enviromental Impact/Categorical Exclusion
[ ] Environmental Evaluation
[ ] Other

D) Is UFSAR change required?
[ ] Yes [ ] No LCR No

E) Priority
NRC approval required by (date):
An [ ]Emergency [ ]Exigent condition will occur if not approved by:
(State date):

Explanation

STATUS
ASP Issued 12/22/89
DUE JAN 12, 1990
SE received

F) Implementation
DER No.

PART 3: APPROVALS

A) Originator T. MURPHY III — Date 11-19-89
B) Technical Expert Joel P Melito — Date 12-15-89
C) Nuclear Generation Unit Head — Date 12-18-89
D) General Director, Nuclear Engineering [ ]NA — Date 12/18/89
E) Plant Manager (FOR GVC) — Date 12-20-89
F) Other — Date
G) Director, Nuclear Licensing — Date 1/16/90
H) OSRO Approval (Tech Spec Amendments) [X] NA — Date
I) NSRG Approval (Operating License Amendments) [X] NA — Date

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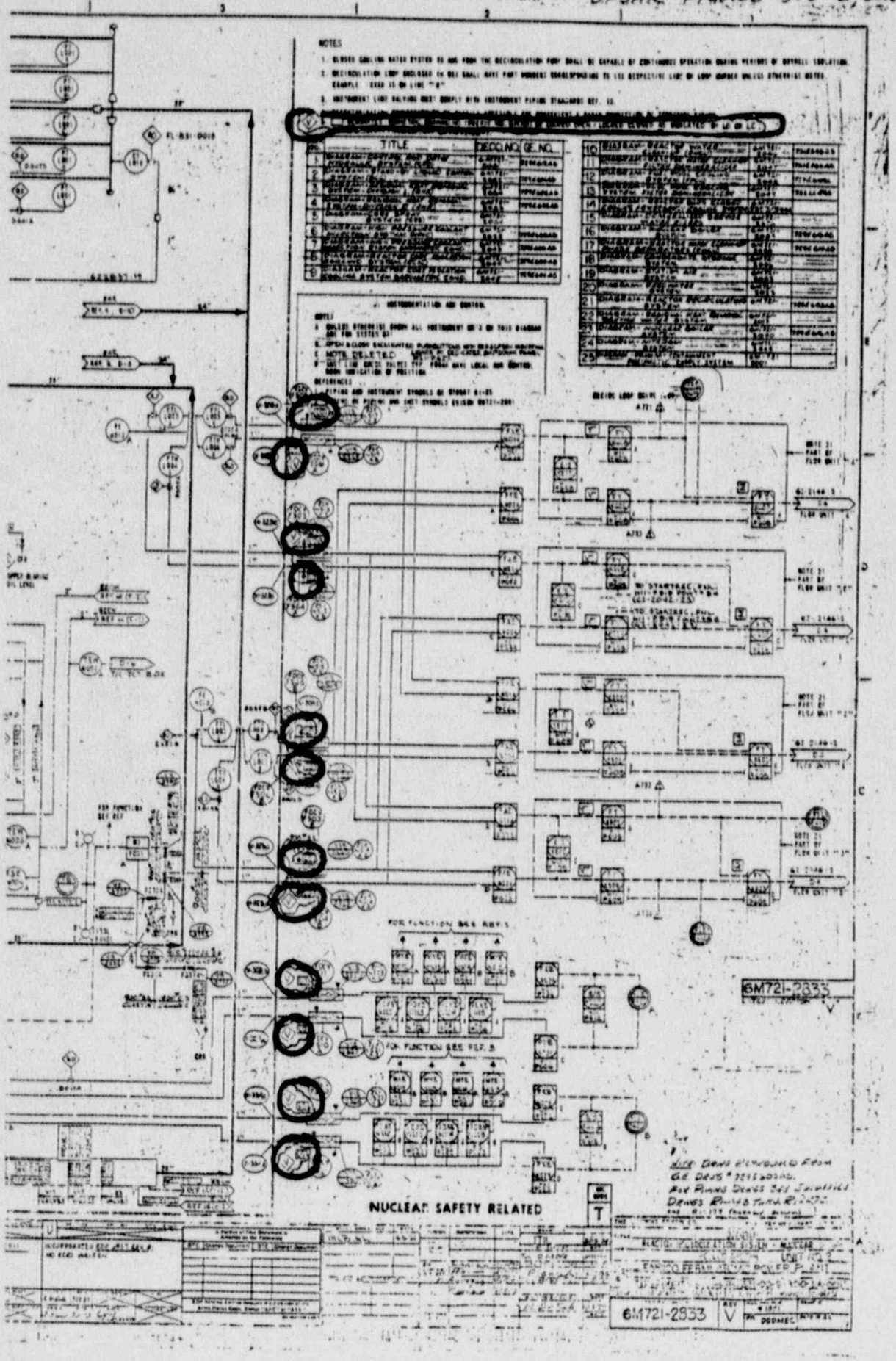
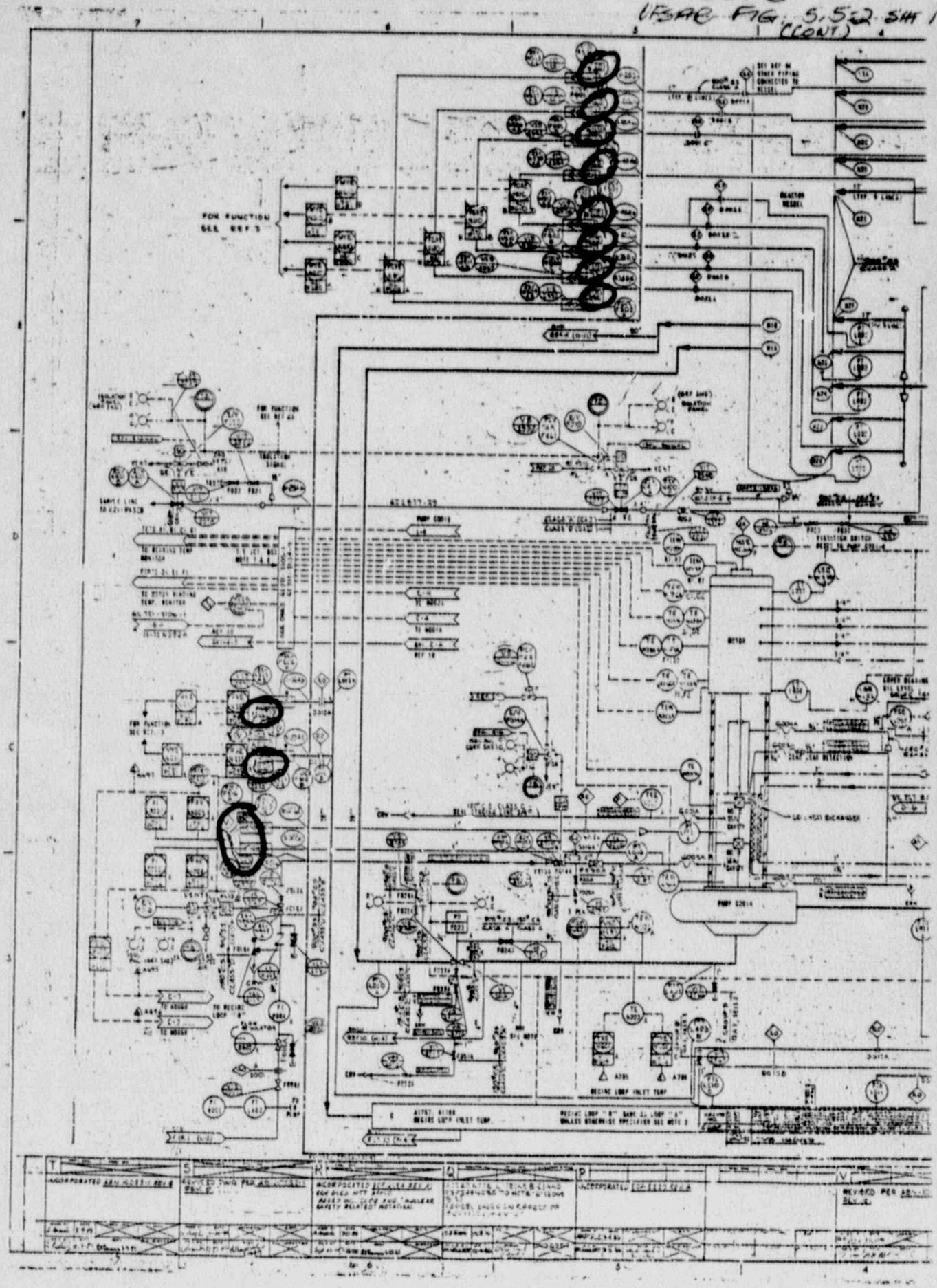
DTC: [■] TCLCR for UFSAR
DTC: [ ] TDLCR for other
File: 1735

LCR 89-230-UFS REV. Ø
PG. 2 OF 3
UFSAR FIGURE 5.5-2, SHEET 1



LCR 89-230-UFS
Rev 0
Pg 3 of 3
UFSAR FIG. 5.5-2 SHT 1
(CONT.)



ARMS INFORMATION SYSTEMS

DTC: TCLCR DCN 89-225-UFS

PAGE REV 0 PIS

Jan 17, 1990 935

JAN 17 1990

LICENSING CHANGE REQUEST

LCR 8 9 - 2 2 5 - U F S

Revision 0 Page 1 of 97

PART 1: UFSAR, PLAN, OR PROGRAM REVISION [ ]NA

A) Document UFSAR (Locked Valves) CONTROLLED

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)
FIGURE 6.2-20

C) Reason for Change TO SHOW VALVES IN THEIR NORMAL OPERATING POSITION.

D) Reference and Source Documents (Identify)

EDP
PDC
ABN 10904-1 REV 0
DER 88-1667
Test
Effectiveness Review (Attached) [X]Yes [ ]No
Other
Drawings, Design Calculations, Correspondence, etc.

Tech Spec
Procedure
SE (Attached) 89-0198
PE (Attached)

PART 2: OPERATING LICENSE CHANGES [ ]NA

A) Document
[ ] Operating License [ ] Tech Specs [ ] Environmental Protection Plan
[ ] Tech Spec Clarification

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)

C) Reference and Source Documents Attached
[ ] Significant Hazards Consideration
[ ] Enviromental Impact/Categorical Exclusion
[ ] Environmental Evaluation
[ ] Other

D) Is UFSAR change required?
[ ] Yes [ ] No LCR No.

E) Priority
NRC approval required by (date):
An [ ]Emergency [ ]Exigent condition will occur if not approved
(State date):

Explanation

STATUS
ASB Closed 1/17/90
BY:
DIST. JAN 12, 1990
REV.
SE Reviewed

F) Implementation
DER No.

PART 3: APPROVALS

A) Originator T MURPHY III — Date 12-11-89

B) Technical Expert D.P. Kaan 12-14-89 — Date 12-14-89

C) Nuclear Generation Unit Head J. CONTONI — Date 12-15-89

D) General Director, Nuclear Engineering [ ]NA — Date 12/15/89

E) Plant Manager — Date 12-19-89

F) Other — Date

G) Director, Nuclear Licensing — Date 1/16/90

H) OSRO Approval (Tech Spec Amendments) [X] NA JS Dudley 12-12-89 — Date

I) NSRG Approval (Operating License Amendments) [X] NA JS Dudley 12-12-89 — Date

DTC: ■ TCLCR for UFSAR
DTC: [ ] TDLCR for other

EFFECTIVENESS REVIEW

Reference LCR 89-225-UFS

Revision 0 Page 2 of 8

PART 1: UFSAR [ ] NA

A) Quality Assurance Program

[ ] Yes [X] No — Does the change(s) cease to satisfy the criteria of 10CFR50, Appendix B and the UFSAR program commitments previously accepted by the NRC?

Provide the basis for each change on Attachment 2, Page 2.

B) Fire Protection Program

[ ] Yes [X] No — Does the change(s) significantly decrease the level of fire protection in the plant?

[ ] Yes [X] No — Does the change(s) result in failure to complete Fire Protection Program approved by the NRC prior to license issue?

Provide the basis for each change on Attachment 2, Page 2.

PART 2: RADIOLOGICAL EMERGENCY RESPONSE PREPAREDNES PLAN [X] NA

A) [ ] Yes [ ] No — Does the change(s) decrease the effectiveness of the RERP Plan?

[ ] Yes [ ] No — Does the RERP Plan, as changed, cease to meet the standards of 10CFR50.47(b) and 10CFR50 Appendix E?

Provide the basis for each change on Attachment 2, Page 2.

PART 3: SECURITY PLANS [X] NA

A) Document

A) [ ] Yes [ ] No — Does the change(s) decrease the effectiveness of the Physical Security Plan or Security Personnel Training and Qualification Plan prepared pursuant to 10CFR50.34(c) or 10CFR73?

[ ] Yes [ ] No — Does the change(s) decrease the effectiveness of the first four categories of Informational Background, Generic Planning Base, Licensee Planning Base, and/or responsiblity matrix of the Safeguards Contingency Plan prepared pursuant to 10CFR50.34(d) or 10CFR73?

Provide the basis for each change on Attachment 2, Page 2.

PART 4: PROCESS CONTROL PROGRAM [X] NA

A) [ ] Yes [ ] No — Does the change(s) reduce the overall conformance of the solidified waste product to existing criteria for solid wastes in accordance with Technical Specification 6.13?

Provide the basis for each change on Attachment 2, Page 2.

PART 5: ODCM [X] NA

A) [ ] Yes [ ] No — Does the change(s) reduce the accuracy or reliability of the dose calculations or setpoint determinations in in accordance with Technical Specification 6.14?

Provide the basis for each change on Attachment 2, Page 2.

PART 6: APPROVALS

A) Originator T. MURPHY III — Date 12-11-89

B) Technical Expert — Date 12-14-89

C) Quality Assurance (For Security Plans only) N/A — Date

D) OSRO (Not required for UFSAR Changes) N/A — Date

DTC: [ ] TCLCR for UFSAR
DTC: [ ] TDLCR for other

File: 1735

EFFECTIVENESS REVIEW DOCUMENTATION

Reference LCR 89-2225-UFS

Document ABN-10904-1, REV. 0

Listed below is each change by section and page; the reason for the change; and the basis for concluding that the revised plan or program continues to satisfy the criteria for that plan or program.

Section/Page	Change	Basis
UFSAR FIGURE 6.2-20	SHOW VALVES T4600-F021A, F021B, F022A AND F022B IN THE CLOSED POSITION.	IN THE NORMAL PLANT OPERATING CONFIGURATION THESE VALVES ARE CLOSED. THE VALVES ARE OUTBOARD ISOLATION VALVES ON THE FILL AND EQUALIZING LINES FOR CARDOX VESSELS T46002001 & T4600-2002 AND ARE OPENED ONLY DURING CARDOX VESSEL FILLING OPERATIONS. SHOWING THESE VALVES AS CLOSED WILL NOT AFFECT THE OPERATION OR PERFORMANCE OF THE FIRE SUPPRESSION OR STANDBY (CONT'D, PG. 9)

DTC: [ ] TCLCR for UFSAR
DTC: [ ] TDLCR for other

EFFECTIVENESS REVIEW DOCUMENTATION

Reference LCR 89-225-UFS

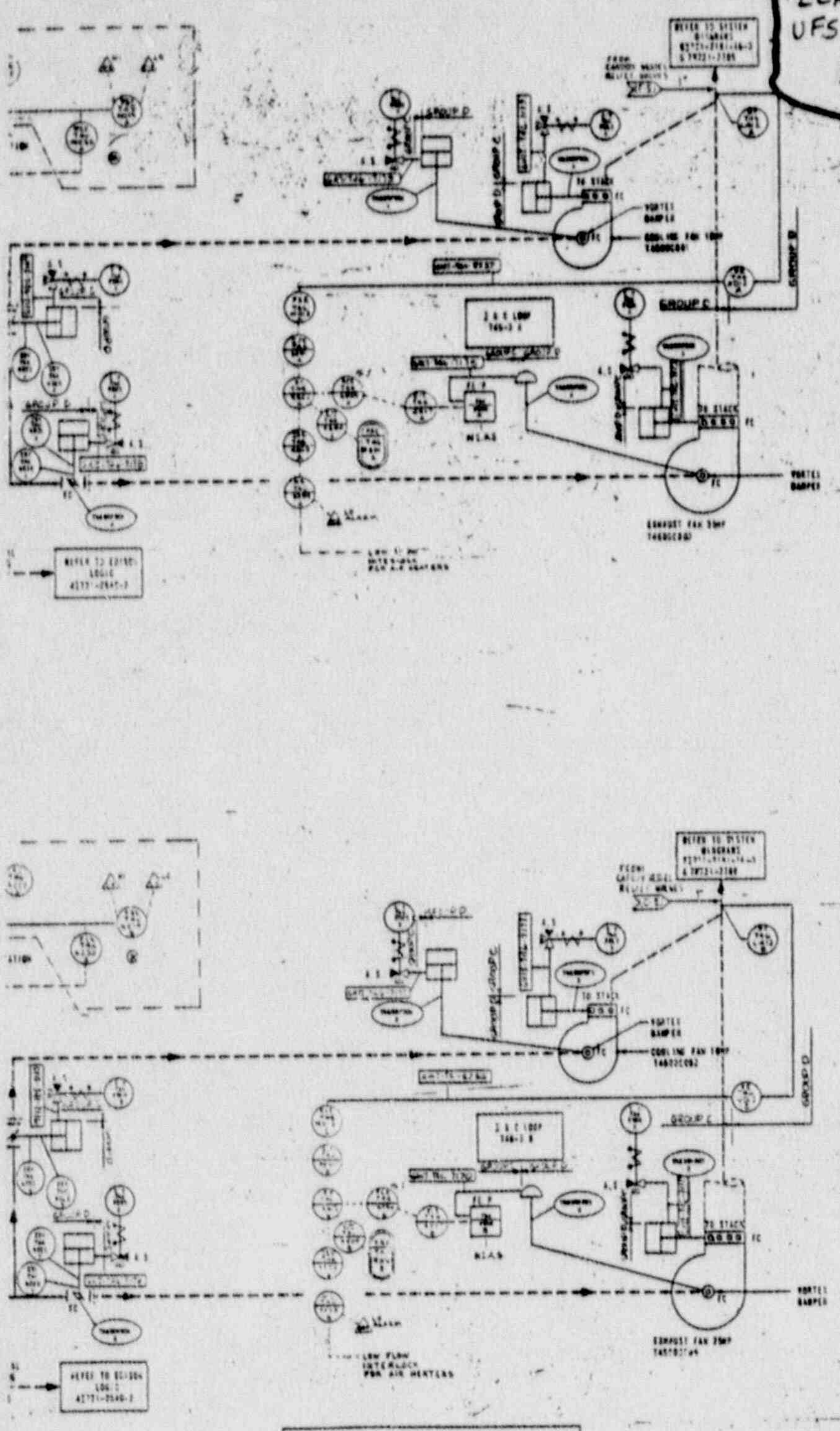
Revision 0 Page 9 of 9

Document ABN-10904-1, REV. 0

Listed below is each change by section and page; the reason for the change; and the basis for concluding that the revised plan or program continues to satisfy the criteria for that plan or program.

Section/Page	Change	Basis
		(CONT'D) GAS TREAT-
		MENT SYSTEMS.
		MAINTAINING THESE
		VALVES IN THEIR
		NORMALLY CLOSED
		CONFIGURATION PRO-
		VIDES ADDITIONAL
		ASSURANCE AGAINST
		LEAKAGE FROM THE
		CARDOX TANK BY
		BACKING UP THE
		INBOARD ISOLATION
		VALVES ON THE
		FILL AND EQUALIZ-
		ING LINES.

LCR 89-225-UFS Rev. 0
UFSAR FIGURE 6.2-20
Pg 5 of 7



NOTES

1. THIS DWG WAS DEVELOPED FROM EVI DWG ...
2. FOR THE SGTS INSTRU. & CTL. THIS DWG SUPERCEDES DWGS ... & ... AND WILL SERVE AS THE ... DOCUMENT FOR DESIGN.
3. THIS DWG IS TO BE USED IN CONJUNCTION WITH ...
4. THE FOS FOR THIS DWG IS 6M721-2727
5. ▭ DESIGNATES ... DRAWING NUMBER OF VALVE LOCKED POSITION EITHER LOCKED OPEN OR LOCKED CLOSED AS INDICATED BY LO/LC.

LEGEND

FOR SYMBOLS REFER TO EVI DWG ...
FOR INSTRUMENT IDENTIFICATIONS REFER TO DETROIT EDISON CO. DWG. 6M721-2001
OTHER
PHYSICAL EQUIPMENT OR CONSTRUCTION BY EDISON
INTERLOCK OR CUTOFF-NORMAL SIGNAL PATH IS BETWEEN LINES OPPOSITE EACH OTHER
FC — FAIL CLOSE
A.S — NON-INTERRUPTIBLE CONTROL AIR
NON-ESSENTIAL INSTRUMENTATION

REFERENCE DOCUMENTS

EDISON FILE ...	EVI SYMBOLS LEGEND DWG ...
6I721-2646-1	LOGIC DIAGRAM-SGTS EXHAUST FANS & DAMPERS
6I721-2646-2	LOGIC DIAGRAM-SGTS COOLING FANS & DAMPERS
6M721-2708	SYSTEM DIAGRAM-PRIMARY CONTAINMENT PURGE SYSTEM & STANDBY GAS TREATMENT
DESIGN INSTRU. ...	STANDBY GAS TREATMENT SYSTEM
6M721-2001	SYSTEM DIAGRAM LEGEND & SYMBOLS
6I721-2181-...	SYSTEM DIAGRAM-PROCESS AND ATMOS MONITOR SUBSYSTEMS

PRELIM. SAFETY ANALYSIS REPORT-SECTION ...
6I721-2642-1 THRU 6 SCHEMATIC DIAGRAMS
6I721-2643-1 THRU 5 WIRING DIAGRAMS

I&C NOTES
(1) REFER TO ... REV. A FOR DESCRIPTION OF CONTROL LOOPS.
(2) QA LEVELS FOR INSTRUMENTS SHOWN IN INSTRUMENT LIST.

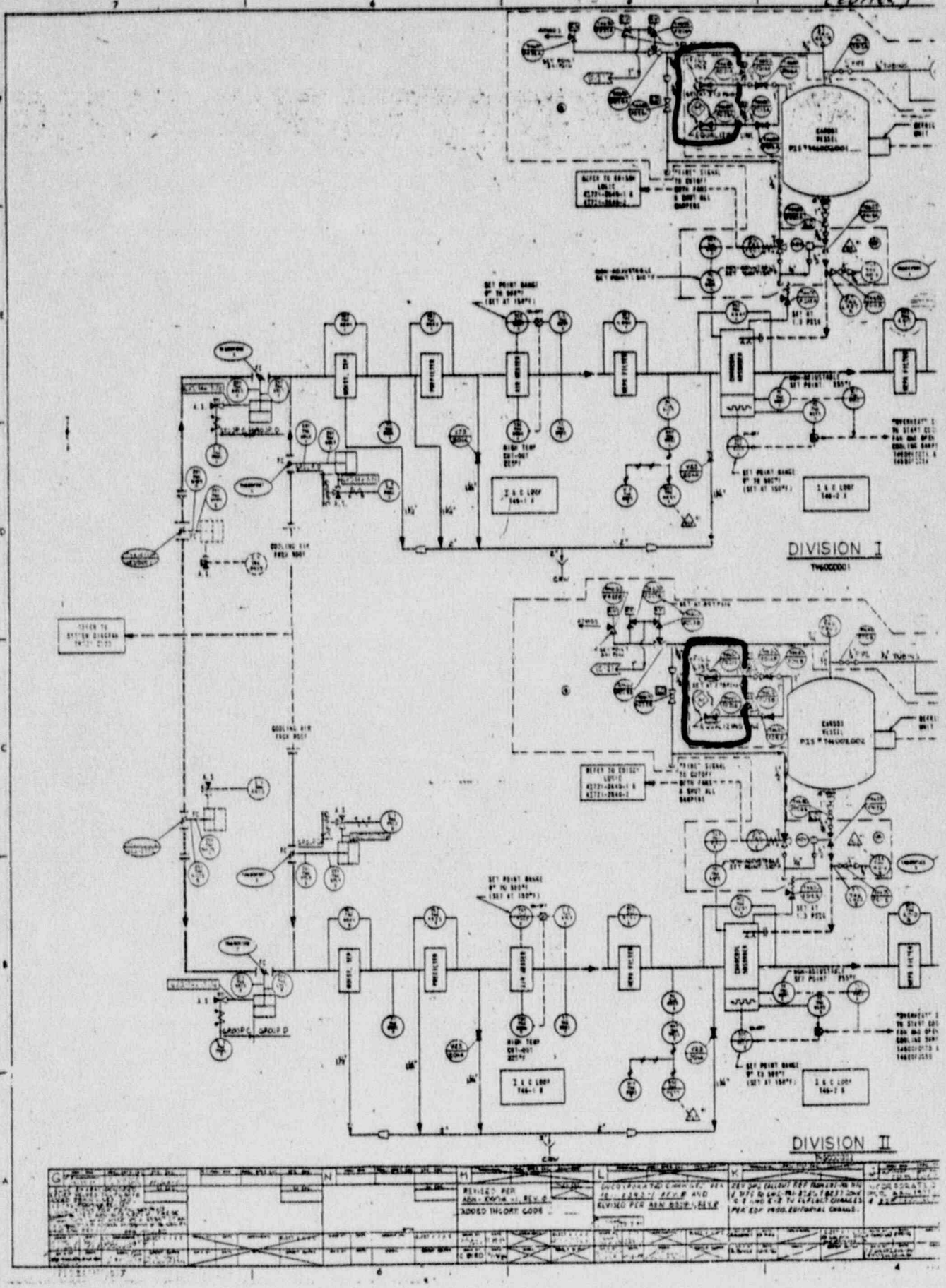
NUCLEAR SAFETY RELATED
EQUIPMENT IS SHOWN ON THIS DRAWING.
(FOR SAFETY CLASSIFICATION SEE EQUIPMENT, VALVE, OR INSTRUMENT LISTS.)
(UNLESS OTHERWISE INDICATED)

INC. CODE T

THE DETROIT EDISON CO. — ENGINEERING DEPARTMENT
TITLE: STANDBY GAS TREATMENT SYSTEM DIAGRAM — INSTRUMENTATION & CONTROLS — ENRICO FERMI ATOMIC POWER PLANT UNIT 2
DOCUMENT CONTROL NO.
61721-2649-1 — REV. M

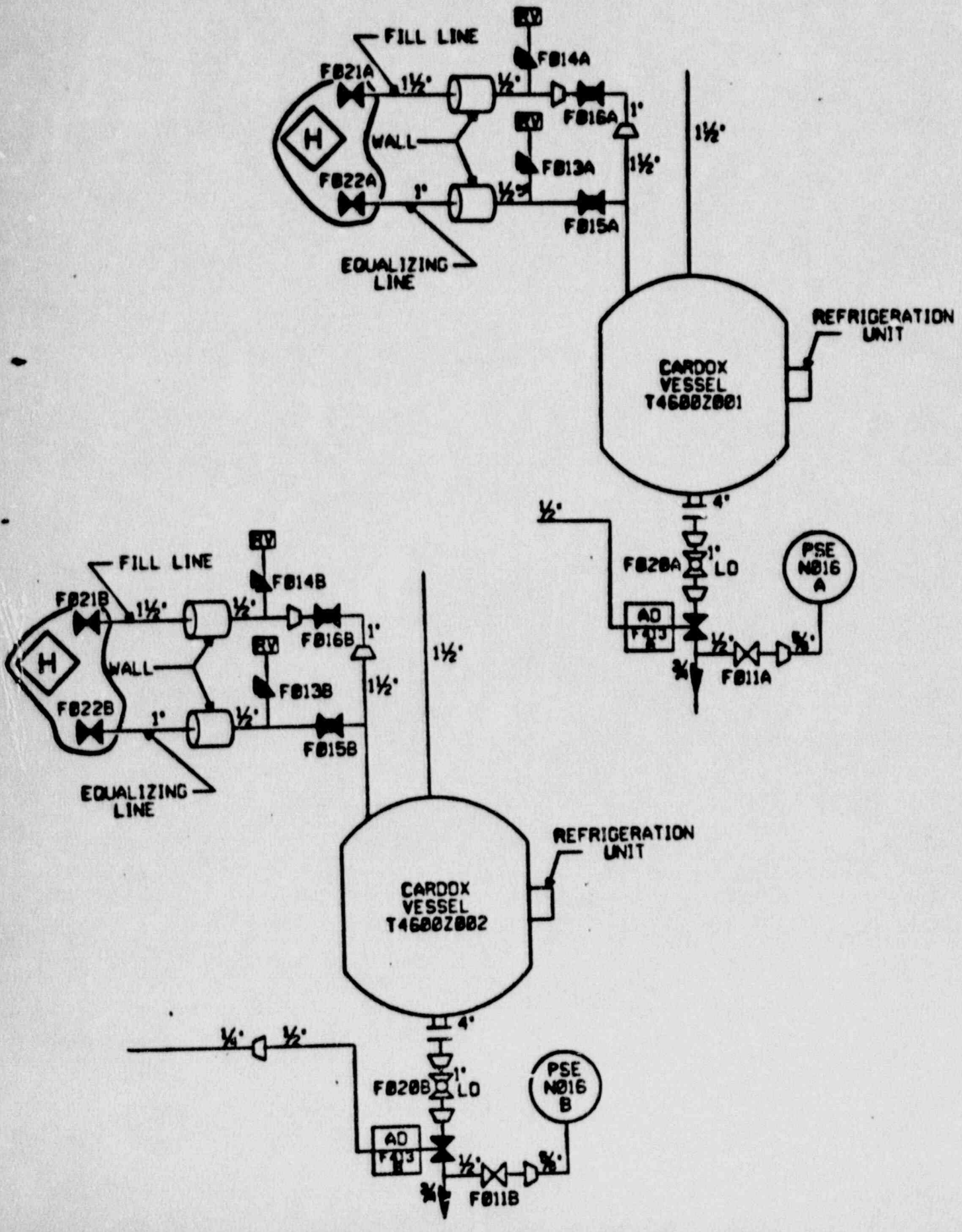
CHANGES: INCORPORATED CHANGES PER ...

LCR 89-225-UFS
REV 0
PG. 6 OF 7
UFSAR FIG. 6.2-20 (cont'd)



LCR 89-225-UFS/ Pg. 6 of ~~69~~
REV Ø
PAGE 7 OF 7
SE 89-019B
REV Ø
P. 4 OF 4
Orig 12-11-89

M-5737



LICENSING CHANGE REQUEST

ARMS-INFORMATION SYSTEMS

DTC: TCLCR DCN 89-164-UFS LCR 89-1-116H-UFS

PAGE REV 0 PIS

Jan 17, 1990

Revision 0 Page 1 of 3

PART 1: UFSAR, PLAN, OR PROGRAM REVISION [ ] NA

A) Document UFSAR CONTROLLED

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)
5.2.3.2.1.2, 5.2.3.2.1.3, & 5.23.2.1.5

C) Reason for Change PROPOSED CHANGE TO TECHNICAL SPECIFICATION 4.0.5 AFFECTS SECTIONS OF UFSAR LISTED ABOVE.

D) Reference and Source Documents (Identify)

EDP
PDC
ABN
DER 88-0241 & 89-0015
Test
Effectiveness Review (Attached) [ ] Yes [ ] No
Other NRC 88-0243, 89-0086 (2 ltrs)
Drawings, Design Calculations, Correspondence, etc.

Tech Spec 4.0.5
Procedure
SE (Attached) 89-043
PE (Attached)

STATUS
ASB Closed 1/8/90
DIST.
REV.

PART 2: OPERATING LICENSE CHANGES [X]

A) Document
[ ] Operating License [X] Tech Specs [ ] Environmental Protection Plan
[ ] Tech Spec Clarification

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)
T.S. 4.0.5

C) Reference and Source Documents Attached N/A
[ ] Significant Hazards Consideration N/A
[ ] Enviromental Impact/Categorical Exclusion N/A

STATUS
N/A ASB Environmental Evaluation
N/A [ ] Other
DIST.
REV.

D) Is UFSAR change required?
[X] Yes [ ] No LCR No 89-164-UFS

E) Priority
NRC approv required by (date) N/A
An [ ] Emergency [ ] Exigent condition will occur if not approved by
(State date)
Explanation 12/20/89

F) Implementation
DER No 88-0241 & 89-0015

PART 3: APPROVALS

A) Originator R HAMBLETON Date 8-19-89

B) Technical Expert Date 8-23-89

C) Nuclear Generation Unit Head Date 12/14/89

D) General Director, Nuclear Engineering [ ] NA Date 12-15-89

E) Plant Manager Date 12-20-89

F) Other Date

G) Director, Nuclear Licensing Date 1/6/90

H) OSRO Approval (Tech Spec Amendments) [ ] NA Date

I) NSRG Approval (Operating License Amendments) [ ] NA Date

Form FIP-RA2-01 Att 1 P1/1 030189

DTC: ■ TCLCR for UFSAR
DTC: [ ] TDLCR for other

File: 1735

to the shop for solution annealing and for application of a nonsusceptible inlay to the ends. The inlay extends beyond the heat-affected zone from field welds. Thus, no sensitized 12-in. pipe is exposed to reactor coolant.

5.2.3.2.1.2 Recirculation Inlet Nozzle

The recirculation inlet nozzle configuration for Fermi 2 is shown in Figure 5.2-8. The thermal sleeve is type 304 stainless steel; the weld buildup pad on the nozzle is type 308.

This configuration is different from the ones which have developed (IGSCC).

a. The thickness of the pressure retaining boundary at the attachment is 6 in. on Fermi 2 versus 0.5 in.; therefore, stresses are very much lower

b. The pad material on Fermi 2 is type 308 stainless steel versus Inconel. Type 308 is basically not susceptible to IGSCC.

Compared to the configuration that developed IGSCC, the lower stress and decreased vulnerability of the Fermi 2 configuration will greatly increase the time to IGSCC initiation (if any occurs at all) and slow the rate of growth if IGSCC is initiated.

The configuration of Fermi 2 recirculation line vessel nozzles is essentially the same as that on five other operating plants: Millstone, Pilgrim, Cooper, FitzPatrick, and Hatch 1.

The safe-end welds are scheduled to be examined as part of the ASME Section XI Inservice Inspection Program. In addition, welds selected in accordance with the rules of Section XI will receive examination commensurate with the requirements of NUREG-0313 (Revision 2) and Generic Letter 88-01.

5.2.3.2.1.3 Induction Heating Stress Improvement

Operating experience has shown that many BWR plants have had problems with IGSCC in large-diameter recirculation system piping. To minimize the likelihood of IGSCC in portions of the recirculation system piping that had not received IGSCC remedies, IHSI was performed during July 1983. Induction heating stress improvement is recommended by both GE and EPRI as an effective IGSCC countermeasure, especially for plants under construction.

On completion of IHSI, only four welds in the recirculation system piping did not receive some IGSCC countermeasure. These welds have been included in the inservice inspection program and will be inspected on the inspection cycle detailed in NUREG-0313, Revision 2, and Generic Letter 88-01.

retainer tube may be increased by a factor of 100 with this reduction in dissolved oxygen content.

5.2.3.2.1.5 Inservice Inspection and Leak Detection

NUREG-0313, Revision 2, and Generic Letter 88-01 (G.L-88-01), January 1988, present the Technical bases for the NRC staff positions on materials, processes, and primary coolant chemistry to minimize and control IGSCC problems. Inspection schedules are comparable to those specified in Section XI of the ASME Boiler and Pressure Vessel Code in cases where the piping material is IGSCC resistant.

The modifications discussed in the previous subsections significantly reduce susceptibility to IGSCC. As detailed in G.L.-88-01, inspection schedules and inspection sample sizes are based on the susceptibility of weldments to initiation and propagation of IGSCC. Varying amounts of augmented inspections are specified for piping, with a greater susceptibility to cracking.

All applicable welds at Fermi 2 have been evaluated and classified according to the requirements of NUREG 0313, Revision 2, and Generic Letter 88-01. As required selected welds are included in the ASME Section XI Inservice Inspection Program.

The leak detection capability on Fermi 2 discussed in Subsection 5.2.7.3 is consistent with the 5-gpm rate discussed in NUREG-0313, Revision 2. As stated in Subsection 5.2.7.3, the unidentified leakage rate limit is established to allow time for corrective action before the nuclear system process barrier can be significantly compromised.

5.2.3.2.2 Steps To Maintain Occupational Exposure As Low As Reasonably Achievable

Steps taken in the selection of material to minimize and control the buildup, transport, and deposition of activated corrosion products in the reactor coolant and auxiliary systems follow:

The primary coolant system consists primarily of carbon steel (very low nickel and cobalt content), except for the use of austenitic stainless steel (in the recirculation loops) and low alloy steel. The nickel content of these materials is low and is controlled in accordance with the applicable ASME material specifications. Because the cobalt in steel usually appears as a small-percentage component of the nickel (usually, 2 percent of the nickel), the amount of cobalt in the primary system components is also very low.

A small amount of nickel base material (Inconel 600) is used in the RPV internals. Inconel 600 is required where components are attached to the reactor vessel shell, and the coefficient of expansion must match the thermal expansion characteristics of the low alloy vessel steel. Inconel 600 was selected because it

LICENSING CHANGE REQUEST

ARMS-INFORMATION SYSTEMS
DTC: TCLCR DSN 89-164-UFS LCR 89-1-116H-UFS
PAGE REV 0 PIS
Jan 17, 1990

Revision 0 Page 1 of 3

PART 1: UFSAR, PLAN, OR PROGRAM REVISION [ ] NA

CONTROLLED

A) Document UFSAR

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)
5.2.3.2.1.2, 5.2.3.2.1.3, & 5.2.3.2.1.5

C) Reason for Change PROPOSED CHANGES TO TECH SPECIFICATION 4.0.5 AFFECTS SECTIONS OF UFSAR LISTED ABOVE.

D) Reference and Source Documents (Identify)
EDP
PDC
ABN
DER 88-0241 & 89-0015
Test
Effectiveness Review (Attached) [ ] Yes [ ] No
Other NRC 88-0243, 89-0026 (letters)
Drawings, Design Calculations, Correspondence, etc.

Tech Spec 4.0.5
Procedure
SE (Attached) 89-045
PE (Attached)

STATUS
ASB Closed 1/6/90
DIST.
REV.

PART 2: OPERATING LICENSE CHANGES [X] NA

A) Document
[ ] Operating License [ ] Tech Specs [ ] Environmental Protection Plan
[ ] Tech Spec Clarification

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)
T.S. 4.0.5

C) Reference and Source Documents Attached N/A
[ ] Significant Hazards Consideration N/A
[ ] Enviromental Impact/Categorical Exclusion N/A

D) Is UFSAR change required?
[ ] Yes [ ] No LCR No 89-164-UFS

E) Priority
NRC approval required by (date): N/A
An [ ] Emergency [ ] Exigent condition will occur if not approved by
(State date)

Explanation 12/20/89

STATUS
N/A ASB Environmental Evaluation
N/A [ ] Other
DIST.
REV.

F) Implementation
DER No 88-0241 & 89-0015

PART 3: APPROVALS

A) Originator R HAMBLETON Date 8-19-89

B) Technical Expert Date 8-23-89

C) Nuclear Generation Unit Head Date 12/14/89

D) General Director, Nuclear Engineering [ ] NA Date 12-15-89

E) Plant Manager Date 12-20-89

F) Other Date

G) Director, Nuclear Licensing Date 1/6/90

H) OSRC Approval (Tech Spec Amendments) [ ] NA Date

I) NSRG Approval (Operating License Amendments) [ ] NA Date

Form FIP-RA2-01 Att 1 P1/1 030189

DTC: ■ TCLCR for UFSAR
DTC: [ ] TDLCR for other

File: 1735

to the shop for solution annealing and for application of a nonsusceptible inlay to the ends. The inlay extends beyond the heat-affected zone from field welds. Thus, no sensitized 12-in. pipe is exposed to reactor coolant.

5.2.3.2.1.2 Recirculation Inlet Nozzle

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retainer tube may be increased by a factor of 100 with this reduction in dissolved oxygen content.

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NUREG-0313, Revision 2, and Generic Letter 88-01 (G.L-88-01), January 1988, present the Technical bases for the NRC staff positions on materials, processes, and primary coolant chemistry to minimize and control IGSCC problems. Inspection schedules are comparable to those specified in Section XI of the ASME Boiler and Pressure Vessel Code in cases where the piping material is IGSCC resistant.

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All applicable welds at Fermi 2 have been evaluated and classified according to the requirements of NUREG 0313, Revision 2, and Generic Letter 88-01. As required selected welds are included in the ASME Section XI Inservice Inspection Program.

The leak detection capability on Fermi 2 discussed in Subsection 5.2.7.3 is consistent with the 5-gpm rate discussed in NUREG-0313, Revision 2. As stated in Subsection 5.2.7.3, the unidentified leakage rate limit is established to allow time for corrective action before the nuclear system process barrier can be significantly compromised.

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A small amount of nickel base material (Inconel 600) is used in the RPV internals. Inconel 600 is required where components are attached to the reactor vessel shell, and the coefficient of expansion must match the thermal expansion characteristics of the low alloy vessel steel. Inconel 600 was selected because it

LICENSING CHANGE REQUEST

B. MADSEN

DEC 21 1989

LCR 89 - 0321 - UFS

Revision 0 Page 1 of 4

PART 1: UFSAR, PLAN, OR PROGRAM REVISION [ ] NA

A) Document
UFSAR

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)
Figure 7.5-1 Sheets 1 and 3. 6I721-2003-1 , 6I721-2003-3

C) Reason for Change Feedwater and Recirc system label changes on Panel H11-P603

D) Reference and Source Documents (identify)

EDP
PDC 8475
ABN
DER
Test
Tech Spec
Procedure
SE (Attached) 89-0016
Effectiveness Review (Attached)
Other DCRDR HED 855
Drawings, Design Calculations, Correspondence, etc.

PART 2: OPERATING LICENSE CHANGES [X] NA

CONTROLLED

A) Document
[ ] Operating License [ ] Tech Specs [ ] Environmental Protection Plan
[ ] Tech Spec Clarification

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)

C) Reference and Source Documents Attached
[ ] Significant Hazards Consideration
[ ] Enviromental Impact - Categorical Exclusion
[ ] Environmental Evaluation
[ ] Other

STATUS
ASB open 12/21/89
DIST. JAN 12, 1990
REV.
SE reviewed

ARMS-INFORMATION SYSTEMS
DTC TCLCR
DSN 89-0321-UFS
PAGE
REV 035
PIS
Jan 17, 1990

D) Is UFSAR change required?
[ ] Yes [ ] No LCR No

E) Priority
NRC approval required by (date):
An [ ] Emergency [ ] Exigent condition will occur if not approved by:
(State date):

Explanation

F) Implementation
DER No

PART 3: APPROVALS

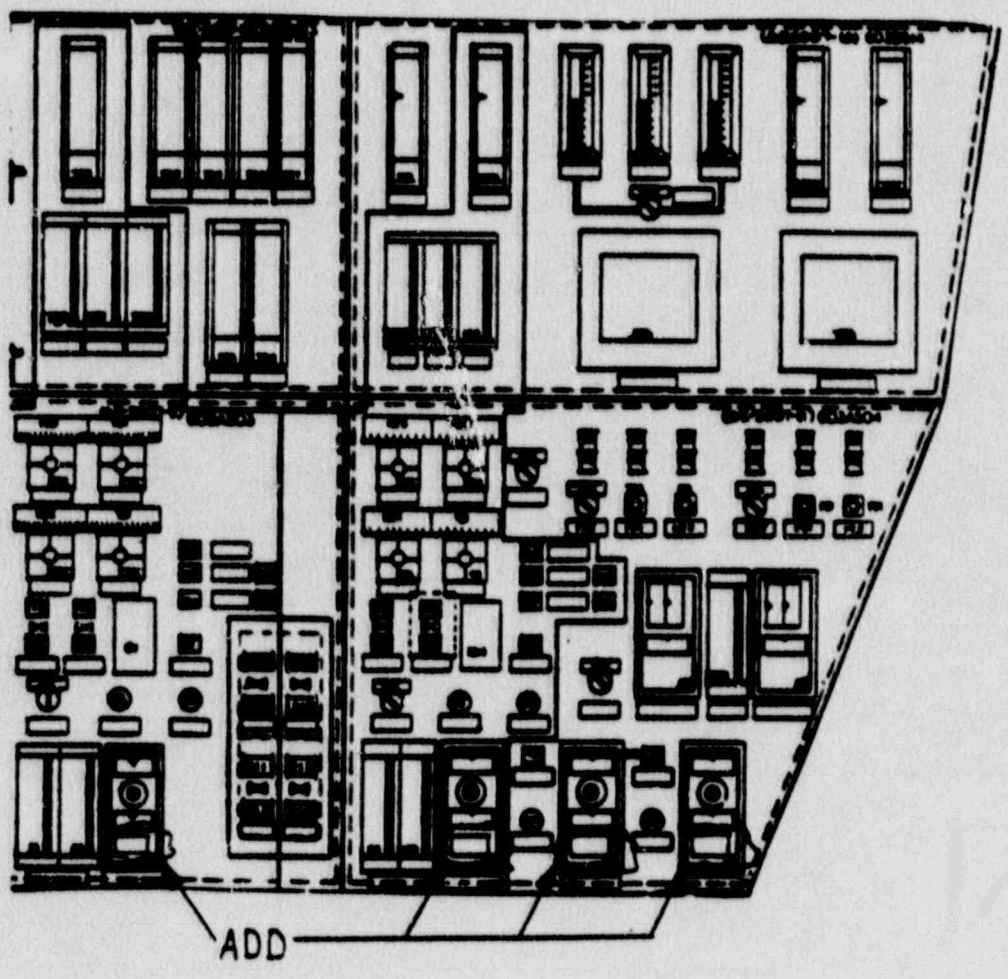
A) Originator	R.S. Munnings/Impell [signature]	Date 4/24/89
B) Technical Expert	I.P. Warner/Impell [signature] G. SHARMA [signature]	Date 4/24/89 4/27/89
C) Nuclear Organization Unit Head	[signature]	Date 5/3/89
D) Director, Nuclear Engineering [ ] NA	John Walker	Date 5/8/89
E) Plant Manager	[signature]	Date 6-21-89
F) Director, Nuclear Licensing	[signature]	Date 1/3/90
G) OSRO Approval [ ] NA		Date
H) NSRG Approval [ ] NA		Date

Form FIP-RA2-01 Att 1 P1/1 092188 DTC: TCLCR File: 1735

A) Document

UFSAR

UFSAR Figure 7.5-1
Sheet 1



A) Document

UFSAR

UFSAR Figure 7.5-1
Sheet 3

3A110		C32-R618	A M STATION SET POINT	FEEDWATER REAC LEVEL CONTROL		C32	—11—
3A111			N/A				
3A112		C32 R616A	A M STATION	NORTH FEEDWATER FLOW CONTROL		C32	GE-2125-8
3A113		C32-R618B	A M STATION	SOUTH FEEDWATER FLOW CONTROL		C32	—11—
3A114			N/A				
3A115	VB-2078	C11-Z010/F188	BACK LIGHTED DISPLAY OPEN (RED)		GM721-2081	C11	GE-2125-11

REVISE

A) Document

UFSAR

UFSAR Figure 7.5-1
Sheet 3

3A103			RACE LIGHTED DISPLAY AND RECIRC P	RECIRC. FLOW LIMITED			
3A104			PUSHBUTTON SWITCH RECIR	RECIRC. RUN BACK RESET P		C31	6J-2105-5
3A105			PUSHBUTTON SWITCH, RESET	RFPT N LOSS OF CONTROL SIGNAL		C32	6J-2125-
3A106			RACE LIGHTED DISPLAY (WHITE) FAILURE	RFPT N CONTROL SIGNAL			
3A107			PUSHBUTTON SWITCH RESE	RFPT S LOSS OF CONTROL SIGNAL			
3A108			RACE LIGHTED DISPLAY (WHITE) FAIL	RFPT S CONTROL SIGNAL		C32	6J-2125-1
3A109			RACE LIGHTED DISPLAY (WHITE)	SWITCH OVERRIDE *	SEE 3A51	C11	6J-2115-12
3A110		Δ31-R630A	METER FOR BAT.			C31	6J-2101-6

REVISE

ARMS-INFORMATION SYSTEMS
DTC TCLCR DSN 89-221-UFS
PAGE ___ REV ∅ P/S 1
JAN 17 1990
935

LICENSING CHANGE REQUEST

LCR 89-221-UFS

Revision ∅ Page 1 of 54

PART 1: UFSAR, PLAN, OR PROGRAM REVISION [ ] NA

CONTROLLED

A) Document
UFSAR FIGURE 7.5-10

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)
UFSAR FIGURE 7.5-10

C) Reason for Change THE REFERENCED NF-89-0269 REVISES THE TCALC TEMP CURVE TO MATCH INPUT FROM THE RPV LEVEL CURVE USING THE RETRAN COMPUTER CODE.

D) Reference and Source Documents (Identify)
EDP ___
PDC ___
ABN ___
DER 89-0834 (RACTS 39381)
Test ___
Effectiveness Review (Attached) [X] Yes [ ] No
Other NF-89-0269.
Drawings, Design Calculations, Correspondence, etc.

Tech Spec ___
Procedure ___
SE (Attached) 89-0195
PE (Attached) X

PART 2: OPERATING LICENSE CHANGES [X] NA

A) Document
[ ] Operating License [ ] Tech Specs [ ] Environmental Protection Plan
[ ] Tech Spec Clarification

B) Section(s), Table(s), Figure(s), etc. Affected (Attach marked-up pages)

C) Reference and Source Documents Attached
[ ] Significant Hazards Consideration
[ ] Enviromental Impact/Categorical Exclusion
[ ] Environmental Evaluation
[ ] Other

D) Is UFSAR change required?
[ ] Yes [ ] No LCR No

E) Priority
NRC approval required by (date): ___
An [ ] Emergency [ ] Exigent condition will occur if not approved by:
(State date): ___

Explanation ___

STATUS
ASB closed 1/10/90
DST JAN 12, 1990
REV

F) Implementation
DER No.

PART 3: APPROVALS

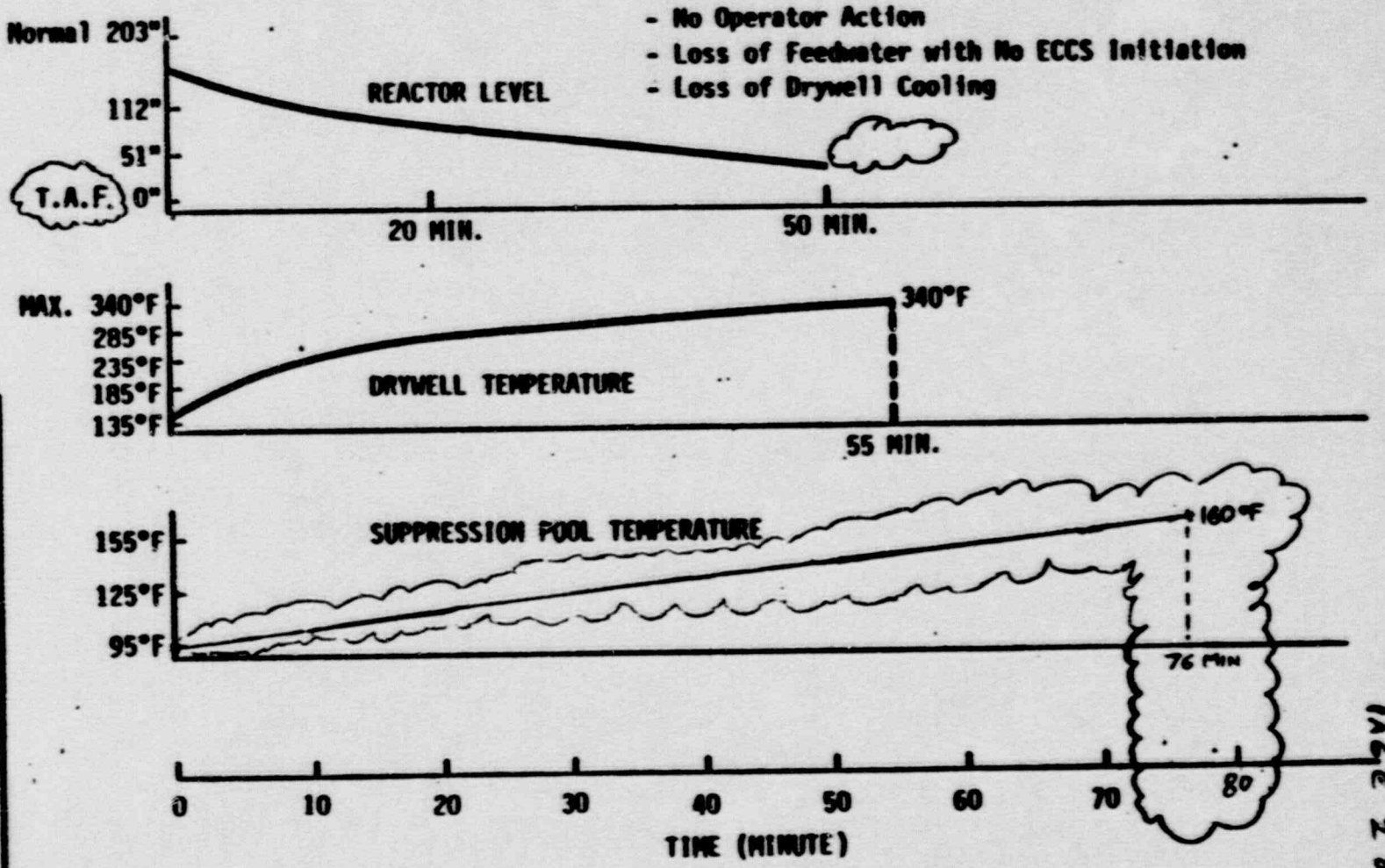
A) Originator R.C. ANDERSON / RCAnderson	Date ~~11-18-89~~ 1-2-90
B) Technical Expert R.C. ANDERSON / RCAnderson	Date ~~11-17-89~~ 1-2-90
C) Nuclear Generation Unit Head [signature]	Date 12/1/89 1-2-90
D) General Director, Nuclear Engineering [ ] NA [signature]	Date 1/3/90
E) Plant Manager [signature]	Date 1-5-90
F) Other	Date
G) Director, Nuclear Licensing [signature]	Date 1/11/90
H) OSRO Approval (Tech Spec Amendments) [ ] NA	Date
I) NSRG Approval (Operating License Amendments) [ ] NA	Date

Form FIP-RA2-01 Att 1 P1/1 030189 DTC: TCLCR for UFSAR File: 1735

TIME AVAILABLE FOR OPERATOR ACTION (MAXIMUM)

FERMI 2

- Loss of Offsite Power
- No Operator Action
- Loss of Feedwater with No ECCS Initiation
- Loss of Drywell Cooling



Fermi 2
UPDATED FINAL SAFETY ANALYSIS REPORT

FIGURE 7.5-10
MAXIMUM TIME AVAILABLE FOR OPERATOR ACTION

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EFFECTIVENESS REVIEW

Reference LCR 8|9|-|2|2|1|-|U|F|S|

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PART 1: UFSAR [ ] NA

A) Quality Assurance Program

[ ]Yes [ ] No — Does the change(s) cease to satisfy the criteria of 10CFR50, Appendix B and the UFSAR program commitments previously accepted by the NRC?

Provide the basis for each change on Attachment 2, Page 2.

B) Fire Protection Program

[ ]Yes [X] No — Does the change(s) significantly decrease the level of fire protection in the plant?

[ ]Yes [X] No — Does the change(s) result in failure to complete Fire Protection Program approved by the NRC prior to license issue?

Provide the basis for each change on Attachment 2, Page 2.

PART 2: RADIOLOGICAL EMERGENCY RESPONSE PREPAREDNES PLAN [X] NA

A) [ ] Yes [ ] No — Does the change(s) decrease the effectiveness of the RERP Plan?

[ ] Yes [ ] No — Does the RERP Plan, as changed, cease to meet the standards of 10CFR50.47(b) and 10CFR50 Appendix E?

Provide the basis for each change on Attachment 2, Page 2.

PART 3: SECURITY PLANS [X] NA

A) Document

A) [ ] Yes [ ] No — Does the change(s) decrease the effectiveness of the Physical Security Plan or Security Personnel Training and Qualification Plan prepared pursuant to 10CFR50.34(c) or 10CFR73?

[ ] Yes [ ] No — Does the change(s) decrease the effectiveness of the first four categories of Informational Background, Generic Planning Base, Licensee Planning Base, and/or responsiblity matrix of the Safeguards Contingency Plan prepared pursuant to 10CFR50.34(d) or 10CFR73?

Provide the basis for each change on Attachment 2, Page 2.

PART 4: PROCESS CONTROL PROGRAM [X] NA

A) [ ] Yes [ ] No — Does the change(s) reduce the overall conformance of the solidified waste product to existing criteria for solid wastes in accordance with Technical Specification 6.13?

Provide the basis for each change on Attachment 2, Page 2.

PART 5: ODCM [X] NA

A) [ ] Yes [ ] No — Does the change(s) reduce the accuracy or reliability of the dose calculations or setpoint determinations in in accordance with Technical Specification 6.14?

Provide the basis for each change on Attachment 2, Page 2.

PART 6: APPROVALS

A) Originator R.C. ANDERSON / RC Anderson — Date 11-28-89 ~~11-8-89~~

B) Technical Expert R. C. ANDERSON / RC Anderson — Date 11-28-89 ~~11-7-89~~

C) Quality Assurance (For Security Plans only) NA — Date

D) OSRO (Not required for UFSAR Changes) NA — Date

DTC: [ ] TCLCR for UFSAR
DTC: [ ] TDLCR for other

File: 1735

EFFECTIVENESS REVIEW DOCUMENTATION

Reference LCR 89-221-UFS

UFSAR FIGURE 7.5-10 — Revision 0 Page 2 of 2
Document

Listed below is each change by section and page; the reason for the change; and the basis for concluding that the revised plan or program continues to satisfy the criteria for that plan or program.

Section/Page	Change	Basis
UFSAR FIGURE 7.5-10	REVISE SUPPRESSION POOL TEMPERATURE CURVE TO SHOW TEMP AT 160°F AT 76 MINUTES RATHER THAN THE PREVIOUS 200 MIN.	THERE IS NO DECREASE TO THE FIRE PROTECTION PROGRAM AS THE DEDICATED SHUTDOWN PROCEDURE DESCRIBED IN UFSAR 7.5.2.5.4 REQUIRES 60 MINUTES TO COMPLETE. THE 60 MIN IS LESS THAN THE 76 MINUTES PREDICTED IN THE ORIGINAL AND REVISED CURVE. SINCE TORUS COOLING IS STILL ESTABLISHED AS DESCRIBED IN UFSAR 7.5.2.5.4, THE FIRE PROTECTION PROGRAM IS BEING COMPLETED AS DESCRIBED IN FSAR AMEND 60 AND SSER 5.
UFSAR FIGURE 7.5-10	REVISE T.A.E. TO T.R.F., AS IT STANDS FOR TOP OF ACTIVE FUEL	EDITORIAL CHANGE.

DTC: [ ] TCLCR for UFSAR
DTC: [ ] TDLCR for other

File: 1735