Docket - 50358 - -90

WM. H. ZIMMER
NUCLEAR POWER STATION
UNIT 1

FINAL

SAFETY ANALYSIS REPORT

VOLUME 11

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MASTER

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COLUMBUS & SOUTHERN OHIO ELECTRIC CO.

THE DAYTON POWER AND LIGHT CO.

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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1

FINAL SAFETY ANALYSIS REPORT

CONTENTS

CHAPTER	VOLUME
Chapter 1.0 - Introduction and General Description of Plant	1
Chapter 2.0 - Site Characteristics	1 & 2
Chapter 3.0 - Design of Structures, Components, Equipment, and Systems	3 & 4
Chapter 4.0 - Reactor	4
Chapter 5.0 - Reactor Coolant System and Connected Systems	4
Chapter 6.0 - Engineered Safety Features	5
Chapter 7.0 - Instrumentation and Controls	5 & 6
Chapter 8.0 - Electric Power	7
Chapter 9.0 - Auxiliary Systems	7
Chapter 10.0 - Steam and Power Conversion System	7
Chapter 11.0 - Radioactive Waste Management	7
Chapter 12.0 - Radiation Protection	8
Chapter 13.0 - Conduct of Operations	8
Chapter 14.0 - Initial Tests and Operation	8
Chapter 15.0 - Accident Analyses	8
Chapter 16.0 - Technical Specifications	9
Chapter 17.0 - Quality Assurance	9

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1

FINAL SAFETY ANALYSIS REPORT

CONTENTS

APPENDIX	VOLUME
Appendix A - Glossary	9
Appendix B - Plant Nuclear Safety Operational Analysis	9
Appendix C - Conformance to Regulatory Guides	10
Appendix D - Analysis of Effects of High-Energy Line Breaks Outside the Primary Containment	10
Appendix E - Soil-Structure Interaction Analysis of Reactor-Auxiliary-Turbine Building Complex	10
Appendix F - Emergency Plan	10

THE CINCINNATI GAS & ELECTRIC COMPANY

E. A. BORGMANN
VICE PRESIDENT - ENGINEERING

August 20, 1975

Docket No. 50-358

Mr. Benard C. Rusche, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

RE: WM. H. ZIMMER NUCLEAR POWER STATION
UNIT 1 - SUBMITTAL OF RESPONSES TO
ENCLOSURE 1 QUESTIONS

Dear Mr. Rusche:

The Cincinnati Gas & Electric Company, on behalf of itself and as agent for Columbus and Southern Ohio Electric Company and The Dayton Power and Light Company, hereby submits additional information in response to the NRC's letter dated June 16, 1975.

The information is submitted in the form of answers to the questions contained in Enclosure 1 of the NRC's June 16, 1975 letter. Fifteen (15) copies of these answers are transmitted. Also, one (1) copy of large size General Arrangement Drawings (FSAR Figures 1.2-5 through 1.2-15) is submitted in response to Question 222.1 of Enclosure 1.

In addition, one (1) copy of large size P&ID's and an updated Drawing Number - FSAR Figure Number Cross Reference Index is included.

Very truly yours,

THE CINCINNATI GAS & ELECTRIC COMPANY

By E. A. BORGMANN

EAB:mjl
Enclosure
cc: Troy B. Conner, Jr.
James P. Fenstermaker
Robert B. Killen
W. J. Moran
J. Robert Newlin
William G. Porter, Jr.
J. D. Flynn

QUESTION 222.1 (1.2)

"Figures 1.2-3 through 1.2-15 are in large part not legible. Submit a set of larger scale and legible copies to be used as a working set during our review."

ANSWER

A complete set of the full size General Arrangement Drawings used in the FSAR is being submitted at this time.

QUESTION 222.2 (3.10 & 7.2.3)

"General Electric Topical Report NEDO-10678 was found unacceptable as information to be incorporated by reference in a SAR in lieu of an approved seismic qualification program. Provide the information specified in Section 3.10 of the Standard Format."

ANSWER

The seismic qualification of GE-supplied equipment for ZPS-1 is applicable to and complies with IEEE 344-1971 (FSAR Subsection 7.1,1.3.4). It is GE's position that all equipment meets the appropriate criteria in effect at the time of plant design. GE report NEDO-10678 provides a description of the programs used for seismic qualification of GE equipment to IEEE 344-1971. It is believed that this complies with Section 3.10, ZPS-1 FSAR. Section 3.5.4.4 of the SER states that the qualification test criteria for safety-related equipment were reviewed in the PSAR and found acceptable.

QUESTION 222.3 (3.11)

"General Electric Topical Report NEDO-10698 was found unacceptable as information to be incorporated by reference in a SAR in lieu of an approved environmental qualification program. Provide the information specified in Section 3.11 of the Standard Format for the systems, components, and conditions listed in Tables 3.11-1, 3.11-2, 3.11-3, and 3.11-4."

ANSWER

The environmental qualification of GE-supplied equipment forZPS-1 is applicable to and complies with IEEE 323-1971 (FSAR Subsection 7.1.1.3.4). It is GE's position that all equipment meets the appropriate criteria in effect at the time of plant design. GE report NEDO-10678 provides a description of the programs used for qualification of GE equipment to IEEE 323-1971. It is believed that this complies with Section 3.11, ZPS-1 FSAR. Section 3.5.4.4 of the SER states that the qualification test criteria for safety-related equipment were reviewed in the PSAR and found acceptable.

QUESTION 222.4 (5A)

"Provide a discussion of how you derived the scram reactivity curves of Figure 5A-2 and their quantitative significance in overpressure protection. Specify if PRT is assumed functioning."

ANSWER

Generation of the scram reactivity curve is accomplished by using the technical specification control rod insertion rate (%/sec) and the generic design basis control rod fraction versus scram reactivity information ($/%) (i.e., "D" scram curve).

By coupling these two pieces of information the scram reactivity versus time characteristic can be determined.

The scram curve entitled as "D" of Figure 5A-2 is a conservative bounding design curve over any expected cycle condition. For the transient analysis, additional design conservatism is applied to the scram reactivity curve in order to ensure adequate transient margins up to an equilibrium core condition. Sensitivity studies of the effects of the scram reactivity on overpressurization are documented in NEDO-10802.

PRT was not assumed to be functioning for the overpressure protection analysis presented in Section 5. Because PRT is designed to trip only on fast control valve closure or turbine stop valve closure, PRT actuation will not occur on MSIV closure.

QUESTION 222.6 (7.1.2)

"Discuss in Section 7.1.2 compliance with the following:

(a) IEEE Std 317-1972.

(b) IEEE Std 323-1971. Note that General Electric Topical Report NEDO-10698 is not an acceptable reference (See 222.3).

(c) IEEE Std 336-1971.

(d) Regulatory Guides:

(1) 1.11	(5) 1.53	(9) 1.75
(2) 1.22	(6) 1.62	(10) 1.80
(3) 1.30	(7) 1.63	(11) 1.89
(4) 1.47	(8) 1.68	

(e) IEEE 344-1975. Note that General Electric Topical Report NEDO-10678 is not an acceptable reference (See 222.2)."

ANSWER

(a) Conformance to IEEE 317 is discussed in Subsection 7.1.2.4 on page 7.1-30.

(b) Subsection 7.1.1.3.4 states that IEEE 323-1971 is applicable to the instrumentation and controls associated with safety-related systems.

(c) Conformance to IEEE 336 is discussed in Subsection 7.1.2.6 on page 7.1-30.

(d) Conformance to Regulatory Guides:

Conformance to Regulatory Guide 1.11

Conformance to this guide is discussed in Appendix C.

Conformance to Regulatory Guide 1.22

Conformance to Regulatory Guide 1.22 is discussed in Subsection 7.1.2.8 on p. 7.1-31 and also in Sections 7.2, 7.3, 7.4, and 7.6.

Conformance to Regulatory Guide 1.30

Conformance to this guide is discussed in Appendix C.

Conformance to Regulatory Guide 1.47

Conformance to Regulatory Guide 1.47 is discussed on pages 7.3-92 and 7.3-93.

Conformance to Regulatory Guide 1.53

This discussion is presented for applicable systems in the analysis portions of Sections 7.2, 7.3, and 7.6. Systems for which Regulatory Guide 1.53 is applicable are listed in Tables 7.1-3 through 7.1-7.

Conformance to Regulatory Guide 1.62

This discussion is presented for applicable systems in the analysis portion of Sections 7.2 and 7.3.

Conformance to Regulatory Guide 1.63

Conformance to this guide is discussed in Appendix C.

Conformance to Regulatory Guide 1.68

The applicant intends to meet the intent of the regulatory position as stated in Paragraph C of Regulatory Guide 1.68. For additional details, see Section 14.1 of the FSAR.

Conformance to Regulatory Guide 1.75

Conformance to this guide is discussed in Appendix C.

Conformance to Regulatory Guide 1.80

The applicant intends to meet the intent of the regulatory position as stated in Paragraph C of Regulatory Guide 1.80. For additional details, see Table 14.1-48.

Conformance to Regulatory Guide 1.89

The SER for the Wm. H. Zimmer Nuclear Power Station, Unit 1 was issued prior to July 1, 1974. In accordance with this guide, the assessment of conformance would be on a case by case basis for Class IE equipment purchased on or after November 15, 1974.

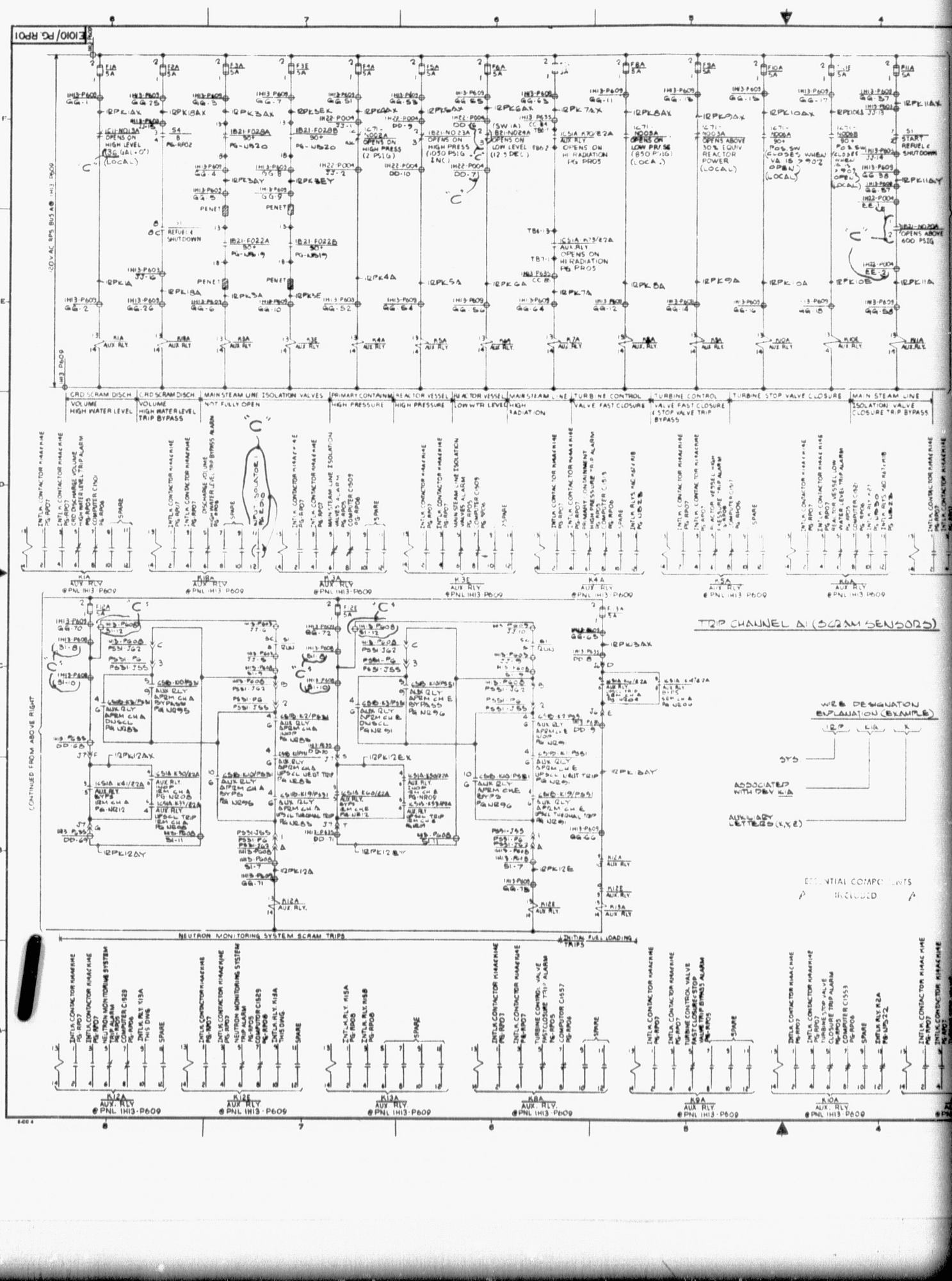
(e) IEEE-344-1975 (issued January 31, 1975) was not in effect at the time of design of the equipment listed in Subsection 7.1.2 and in Tables 7.1-3 through 7.1-9 and has not been implemented for ZPS-1. The tables list the equipment for which IEEE 344-1971 is applicable. Equipment meets the appropriate criteria in effect at the time of plant design.

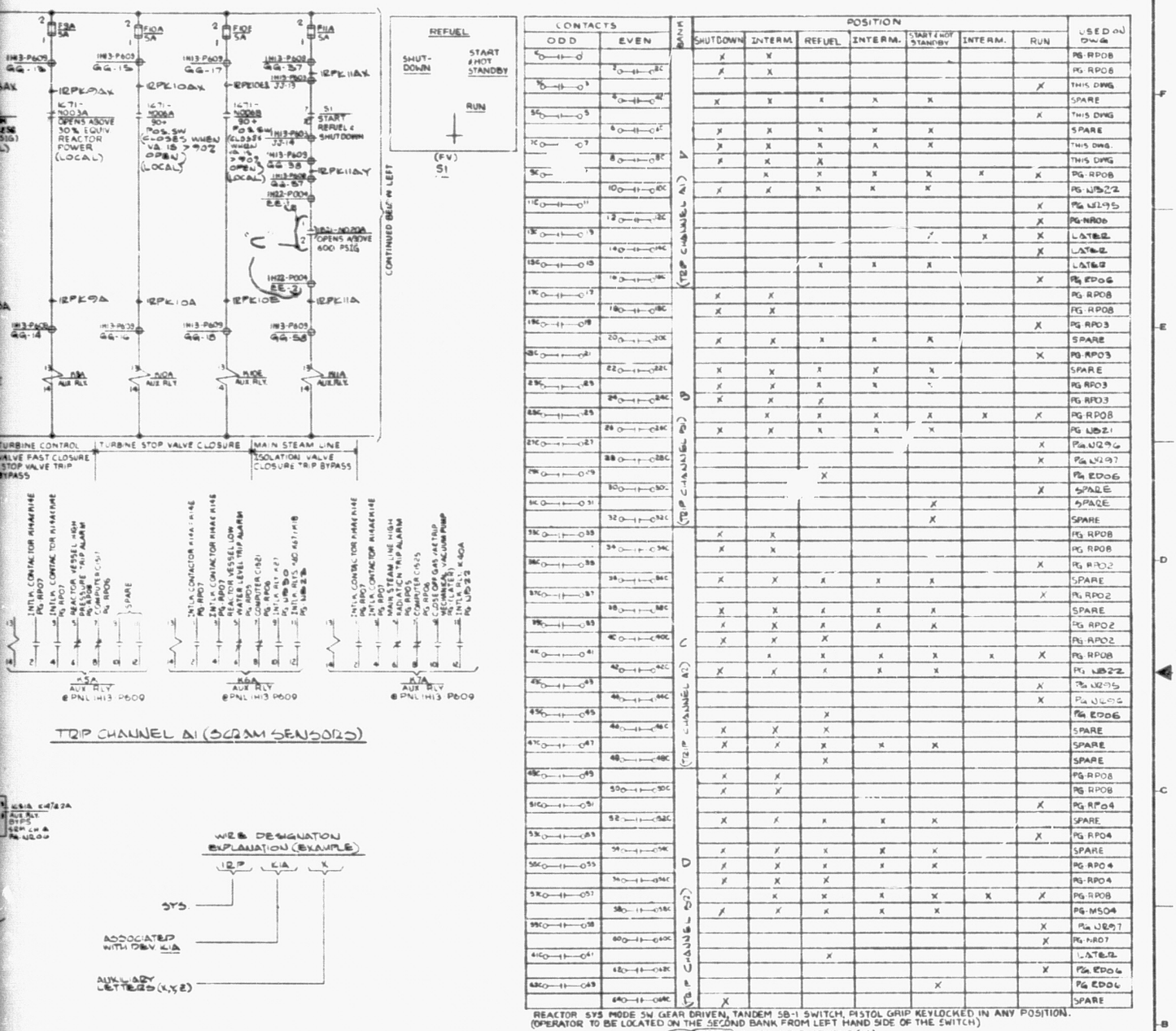
QUESTION 222.7 (7.2.1.3 & 7.3.1.3)

"In Section 7.2.1.3 you indicate the final system drawings will be submitted 'later'. The drawings specified in Sections 7.2.1.3 and 7.3.1.3 of the Standard Format should be provided now at the time of the FSAR submittal."

ANSWER

The final system drawings for Subsections 7.2.1.3 and 7.3.1.3 are enclosed.


E1010/PG RP01
TRIP CHANNEL A1 (SCRAM SENSORS)
WIRE DESIGNATION EXPLANATION (EXAMPLE)
SYS
ASSOCIATED WITH DIV K1A
ALPHABETIC LETTERS (X,Y,Z)
ESSENTIAL COMPONENTS
INCLUDED
CONTINUED FROM ABOVE RIGHT
NEUTRON MONITORING SYSTEM SCRAM TRIPS
INITIAL FUEL LOADING TRIPS
CRD SCRAM DISCH VOLUME HIGH WATER LEVEL
CRD SCRAM DISCH VOLUME HIGH WATER LEVEL TRIP BYPASS
MAIN STEAM LINE ISOLATION VALVES NOT FULLY OPEN
PRIMARY CONTAINMENT HIGH PRESSURE
REACTOR VESSEL HIGH PRESSURE
REACTOR VESSEL LOW WTR LEVEL
MAIN STEAM LINE HIGH RADIATION
TURBINE CONTROL VALVE FAST CLOSURE
TURBINE CONTROL VALVE FAST CLOSURE (STOP VALVE TRIP BYPASS
TURBINE STOP VALVE CLOSURE
MAIN STEAM LINE ISOLATION VALVE CLOSURE TRIP BYPASS



TRIP CHANNEL A1 (SCRAM SENSORS)

CONTACTS ODD	CONTACTS EVEN	BANK	POSITION: SHUTDOWN	INTERM.	REFUEL	INTERM.	START & HOT STANDBY	INTERM.	RUN	USED ON DWG
1	2		X	X						PG-RP08
3	4		X	X						PG-RP08
5	6								X	THIS DWG
7	8		X	X	X	X	X			SPARE
9	10								X	THIS DWG
11	12		X	X	X	X	X			SPARE
13	14		X	X	X	X	X			THIS DWG.
15	16		X	X	X					THIS DWG
17	18			X	X	X	X	X	X	PG-RP08
19	20		X	X	X	X	X			PG-WB22
21	22								X	PG WB95
23	24							X	X	PG-NR06
25	26								X	LATER
27	28								X	LATER
29	30				X	X	X			LATER
31	32								X	PG EP06
33	34		X	X						PG-RP08
35	36		X	X						PG-RP08
37	38								X	PG RP03
39	40		X	X	X	X	X			SPARE
41	42								X	PG-RP03
43	44		X	X	X	X	X			SPARE
45	46		X	X	X	X				PG RP03
47	48		X	X	X					PG RP03
49	50			X	X	X	X	X	X	PG-RP08
51	52		X	X	X	X	X			PG WB21
53	54								X	PG WB97
55	56								X	PG WB97
57	58				X					PG EP06
59	60						X			SPARE
61	62						X			SPARE
63	64		X	X						PG-RP08
65	66		X	X						PG RP08
67	68								X	PG RP02
69	70		X	X	X	X	X			SPARE
71	72								X	PG RP02
73	74		X	X	X	X	X			SPARE
75	76		X	X	X	X	X			PG RP02
77	78		X	X	X					PG RP02
79	80			X	X	X	X	X	X	PG RP08
81	82		X	X	X	X	X			PG WB22
83	84								X	PG WB95
85	86								X	PG WB95
87	88				X					PG EP06
89	90		X	X	X					SPARE
91	92		X	X	X	X	X			SPARE
93	94				X					SPARE
95	96		X	X						PG-RP08
97	98		X	X						PG RP08
99	100								X	PG RP04
101	102		X	X	X	X	X			SPARE
103	104								X	PG RP04
105	106		X	X	X	X	X			SPARE
107	108		X	X	X	X	X			PG RP04
109	110		X	X	X					PG-RP04
111	112			X	X	X	X	X	X	PG RP08
113	114		X	X	X	X	X			PG-M504
115	116								X	PG WB97
117	118								X	PG-NR07
119	120				X					LATER
121	122								X	PG EP06
123	124						X			PG EP06
125	126		X							SPARE

REACTOR SYS MODE SW GEAR DRIVEN, TANDEM 5B-1 SWITCH, PISTOL GRIP KEYLOCKED IN ANY POSITION. (OPERATOR TO BE LOCATED ON THE SECOND BANK FROM LEFT HAND SIDE OF THE SWITCH)

(MODE) SWITCH DEVELOPMENT (C5) @MCB PNL IH13-P603

WIRE DESIGNATION EXPLANATION (EXAMPLE)

1RP K1A X

SYS.

ASSOCIATED WITH DEV K1A

AUXILIARY LETTERS (X,Y,Z)

ESSENTIAL COMPONENTS

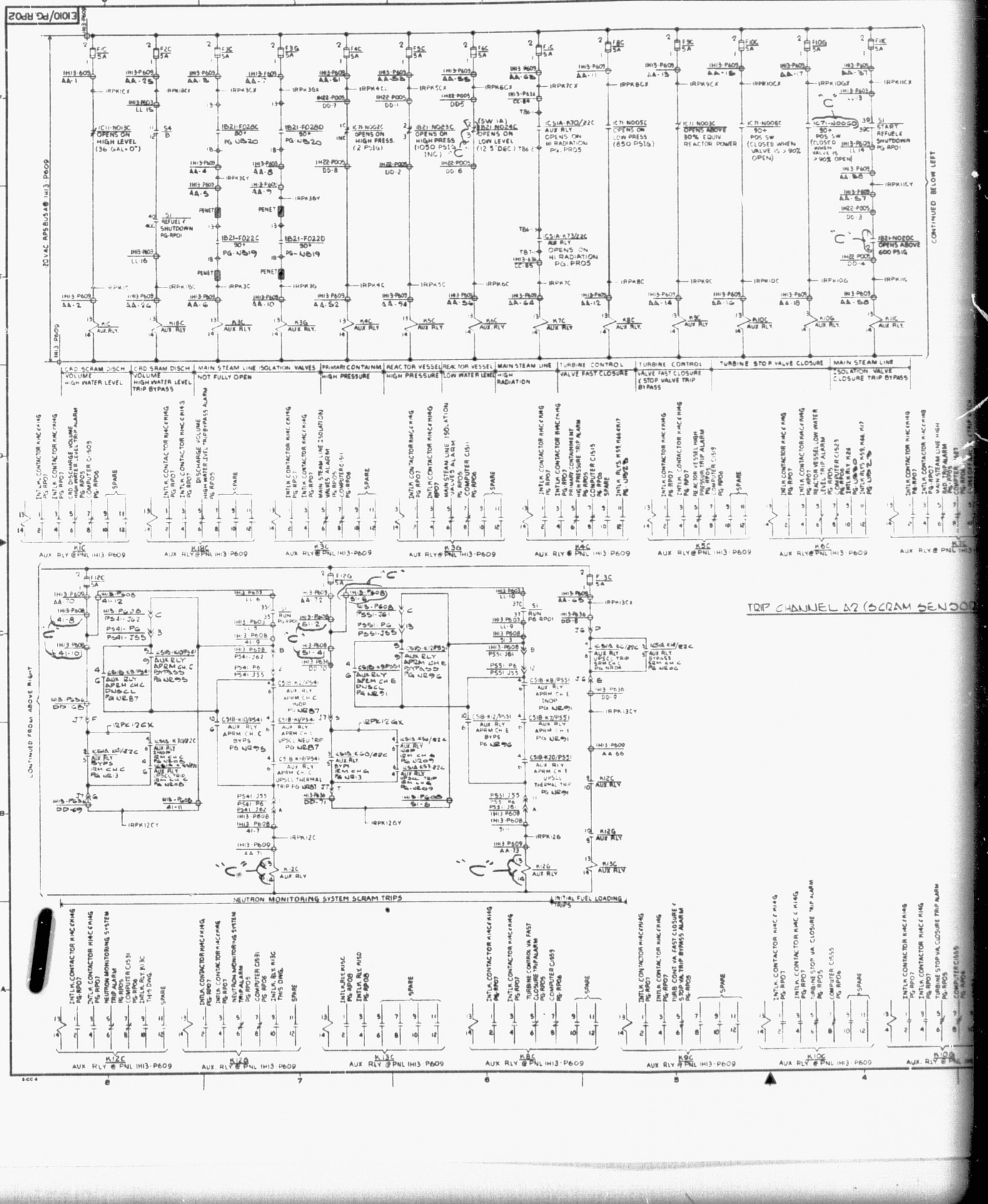
A INCLUDED A

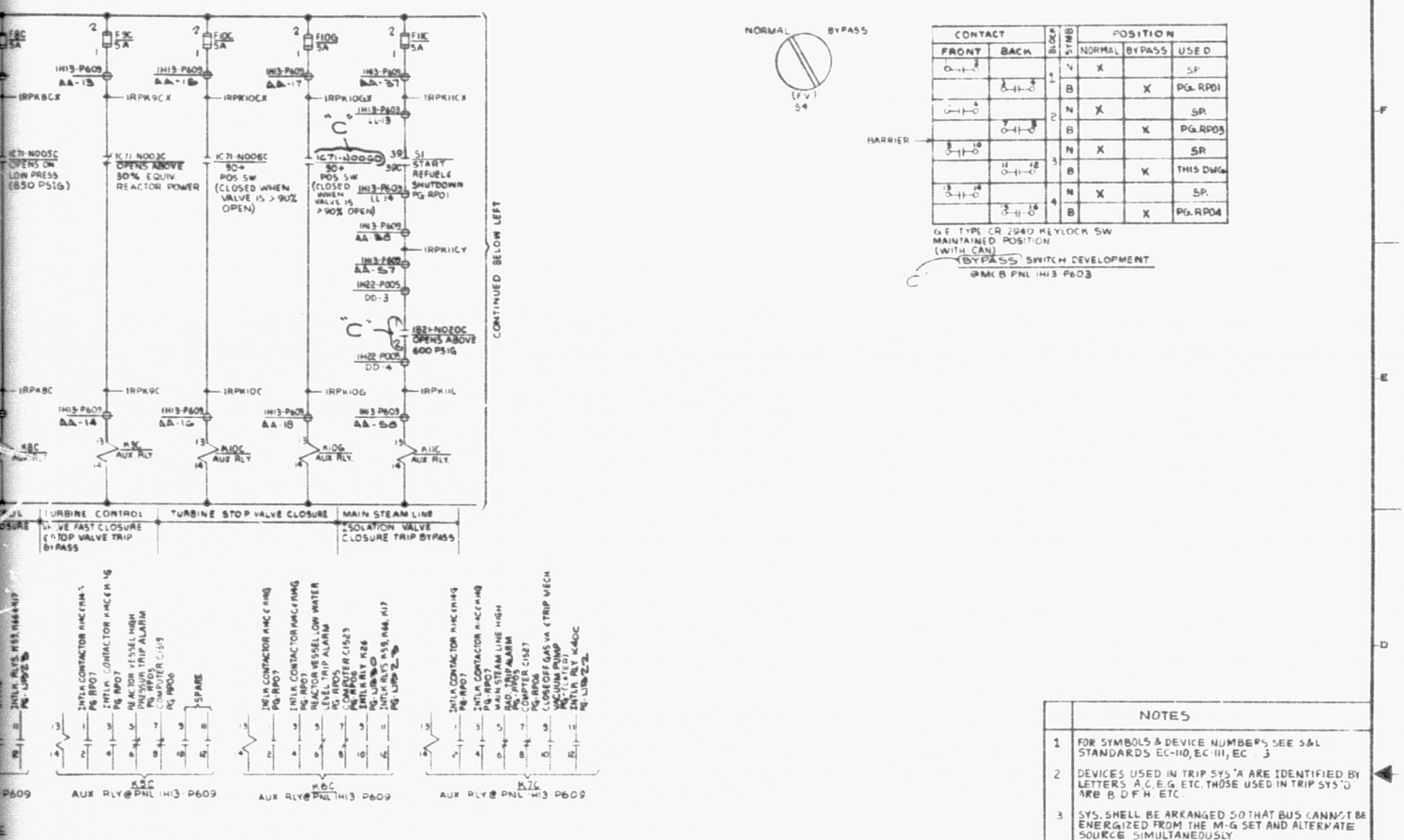
2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-9

REACTOR PROTECTION SYSTEM ESD
(SHEET 1 of 16)


E1010/PG RP02
120 VAC RPS BUS A @ IH13-P609
CONTINUED BELOW LEFT
CONTINUED FROM ABOVE RIGHT
CRD SCRAM DISCH VOLUME HIGH WATER LEVEL
CRD SCRAM DISCH VOLUME HIGH WATER LEVEL TRIP BYPASS
MAIN STEAM LINE ISOLATION VALVES NOT FULLY OPEN
PRIMARY CONTAINM HIGH PRESSURE
REACTOR VESSEL HIGH PRESSURE
REACTOR VESSEL LOW WATER LEVEL
MAIN STEAM LINE HIGH RADIATION
TURBINE CONTROL VALVE FAST CLOSURE
TURBINE CONTROL VALVE FAST CLOSURE & STOP VALVE TRIP BYPASS
TURBINE STOP VALVE CLOSURE
MAIN STEAM LINE ISOLATION VALVE CLOSURE TRIP BYPASS
TRIP CHANNEL A2 (SCRAM SENSOR
NEUTRON MONITORING SYSTEM SCRAM TRIPS
INITIAL FUEL LOADING TRIPS

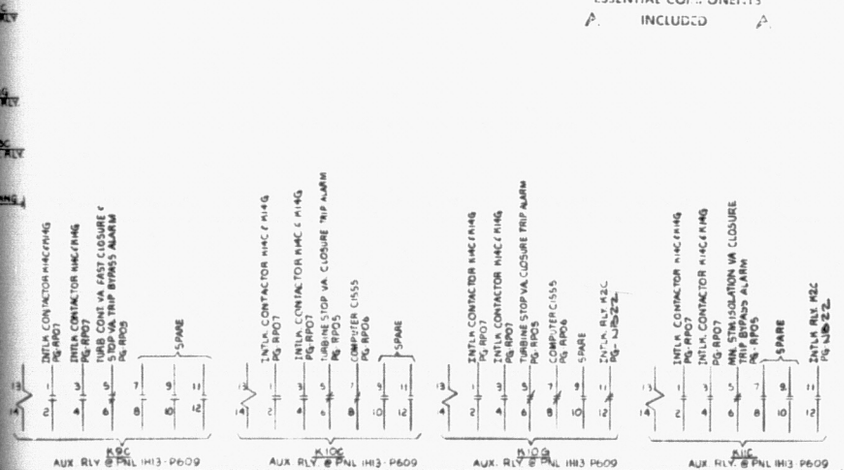


TRIP CHANNEL A2 (SCRAM SENSORS)

	NOTES
1	FOR SYMBOLS & DEVICE NUMBERS SEE S&L STANDARDS EC-110, EC-111, EC-113
2	DEVICES USED IN TRIP SYS 'A' ARE IDENTIFIED BY LETTERS A,C,E,G, ETC. THOSE USED IN TRIP SYS 'D' ARE B,D,F,H, ETC.
3	SYS. SHALL BE ARRANGED SO THAT BUS CANNOT BE ENERGIZED FROM THE M-G SET AND ALTERNATE SOURCE SIMULTANEOUSLY
4	SELENIUM THYRECTOR SUPPRESSORS (OR EQUIVALENT) SHALL BE USED TO SUPPRESS ELECTRICAL ARCING OF SCRAM SOLENOIDS
5	FOR ANY SINGLE ROD GROUP (G) ETC.) A&B SOLENOID CABLES MAY BE RUN TOGETHER IN ONE CONDUIT
6	PARTS (R1A THRU R1H) ARE CURRENT LIMITING ISOLATION RESISTORS AND MUST BE MOUNTED INSIDE THE LAST SCRAM CONTACTOR BOX IN EACH GROUP STRING
7	PROVIDE PHYSICAL ISOLATION AND SEPARATION OF WIRING AND DEVICES AS APPROPRIATE TO PRECLUDE THE POSSIBILITY OF A SINGLE COMPONENT FAILURE (CLOSURE, OPENING OR SHORT) FROM PREVENTING AUTOMATIC SCRAM (TO COMPLY WITH DESIGN SPEC-ELEC EQUIP. SEP. SAFE SYS.)
8	CONDUIT FROM CKT DEVICE TO TERMINAL DEVICE DO NOT RUN DIFFERENT TRIP CHANNELS IN THE SAME CONDUIT TERMINAL DEVICES MUST COMPLY WITH DESIGN SPEC-ELEC EQUIP. SEP. SAFE SYS.

ESSENTIAL COMPONENTS
A INCLUDED A

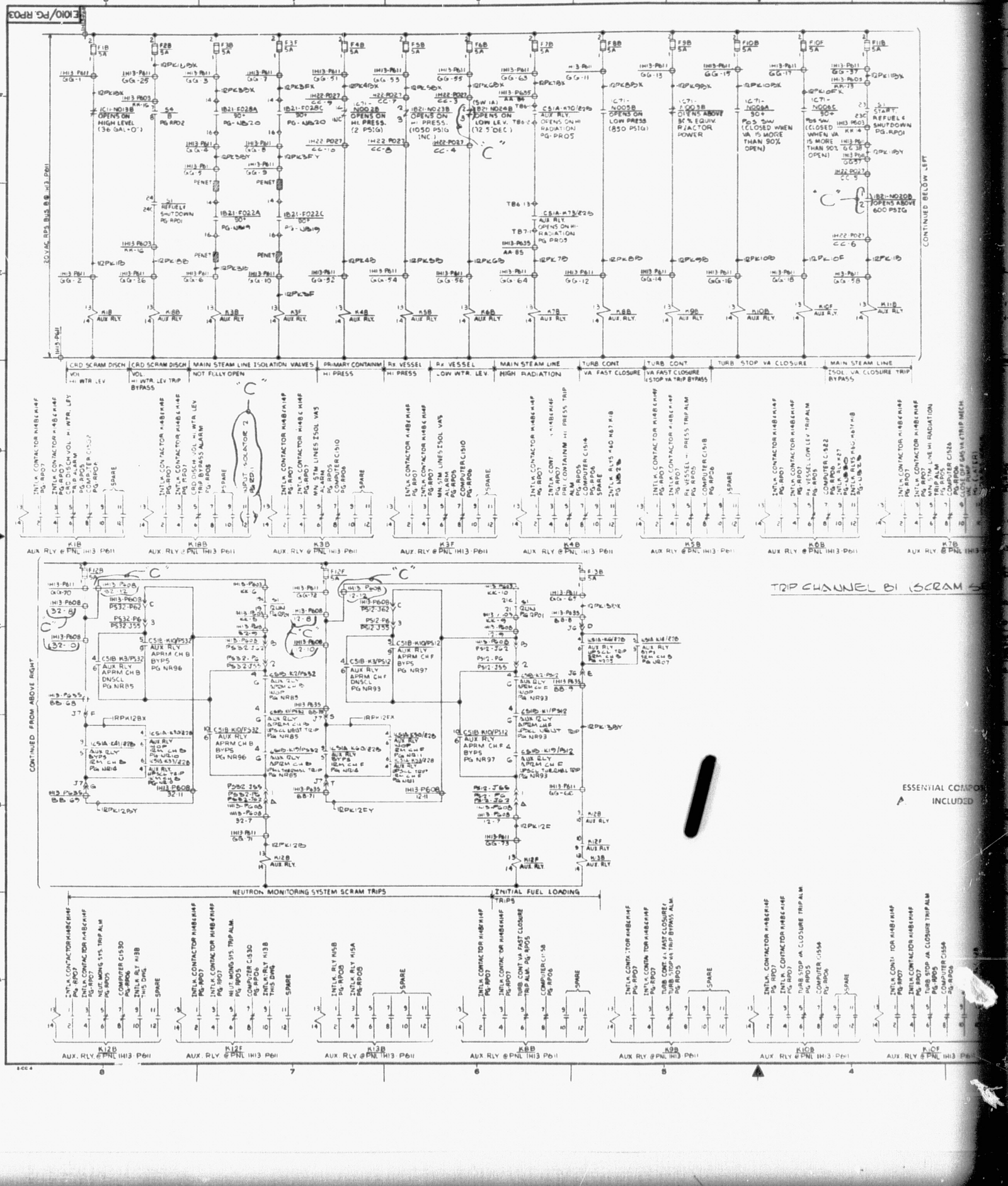
2

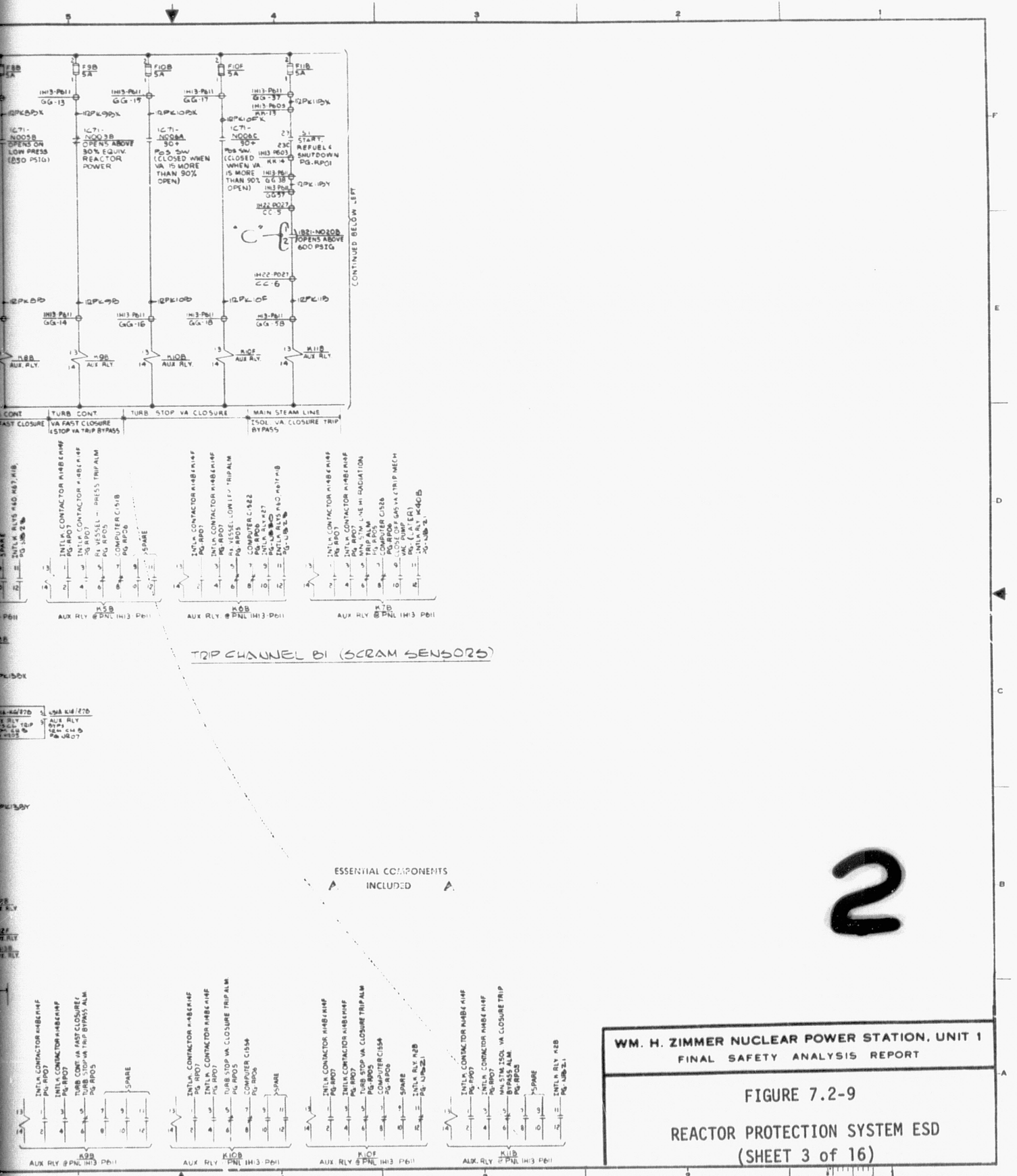


WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-9

REACTOR PROTECTION SYSTEM ESD
(SHEET 2 of 16)


E1010/PG RP03
CONTINUED BELOW-LEFT
CONTINUED FROM ABOVE-RIGHT
CRD SCRAM DISCH VOL HI WTR LEV
CRD SCRAM DISCH VOL HI WTR LEV TRIP BYPASS
MAIN STEAM LINE ISOLATION VALVES NOT FULLY OPEN
PRIMARY CONTAINM HI PRESS
Rx VESSEL HI PRESS
Rx VESSEL LOW WTR. LEV.
MAIN STEAM LINE HIGH RADIATION
TURB CONT VA FAST CLOSURE
TURB CONT VA FAST CLOSURE &STOP VA TRIP BYPASS
TURB STOP VA CLOSURE
MAIN STEAM LINE ISOL VA CLOSURE TRIP BYPASS
NEUTRON MONITORING SYSTEM SCRAM TRIPS
INITIAL FUEL LOADING TRIPS
TRIP CHANNEL B1 (SCRAM
ESSENTIAL COMPON
INCLUDED



TRIP CHANNEL B1 (SCRAM SENSORS)

ESSENTIAL COMPONENTS
INCLUDED

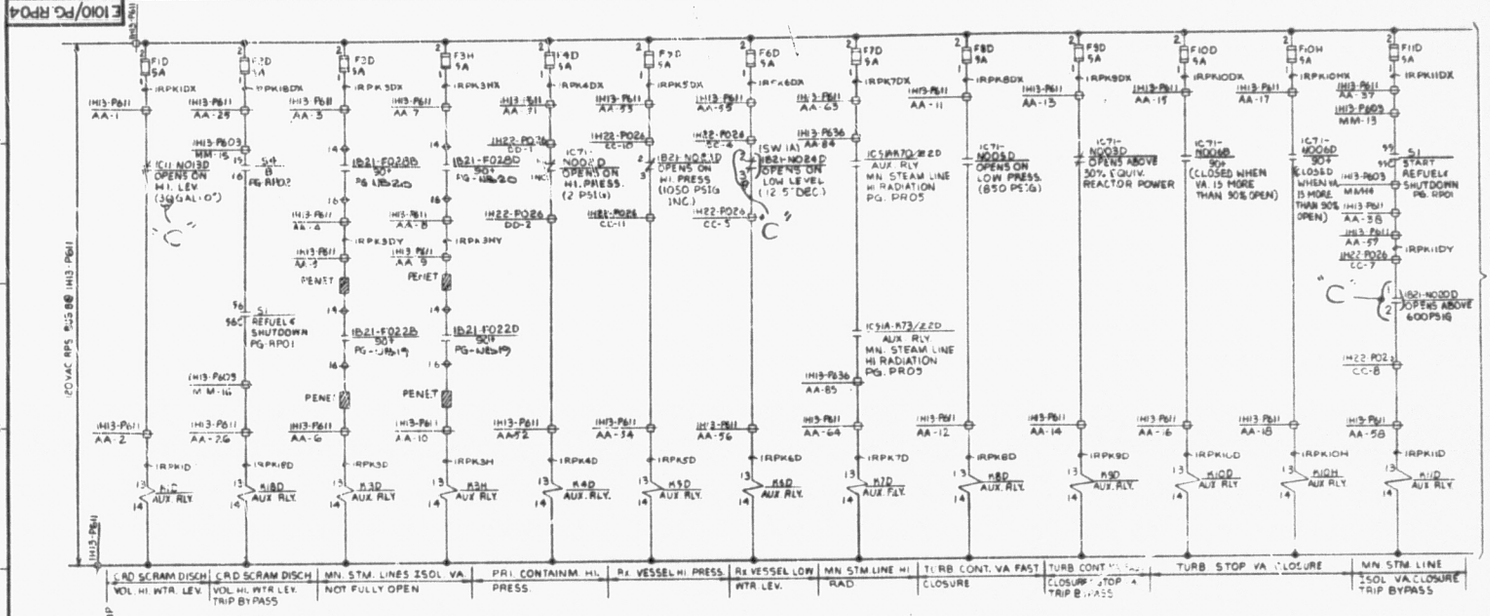
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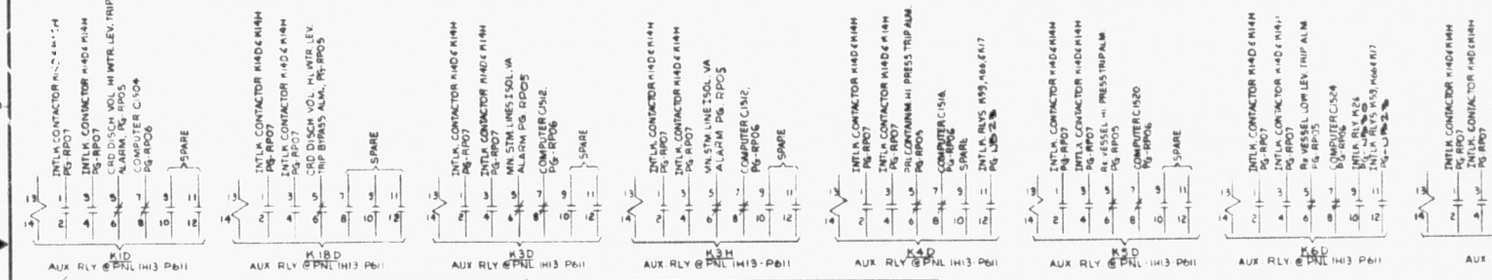
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-9

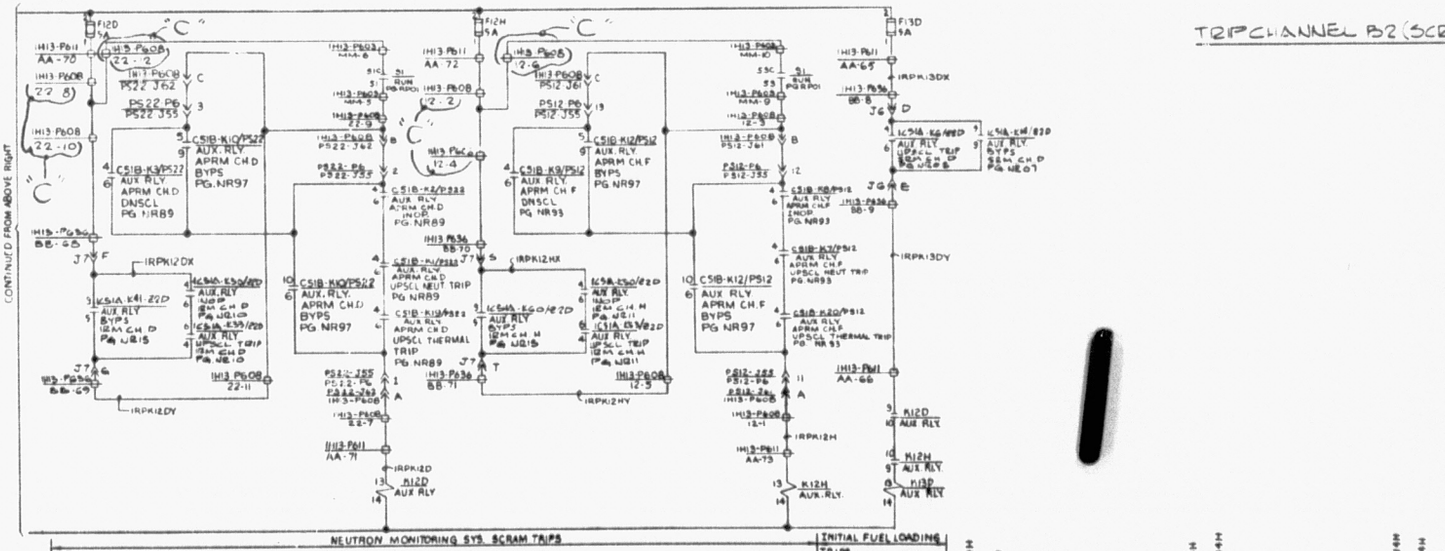
REACTOR PROTECTION SYSTEM ESD
(SHEET 3 of 16)

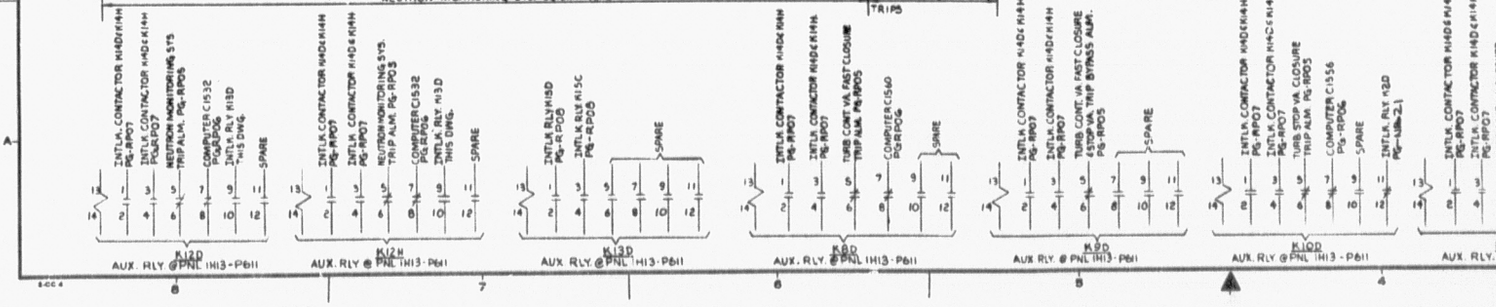
E1010/PG RP04

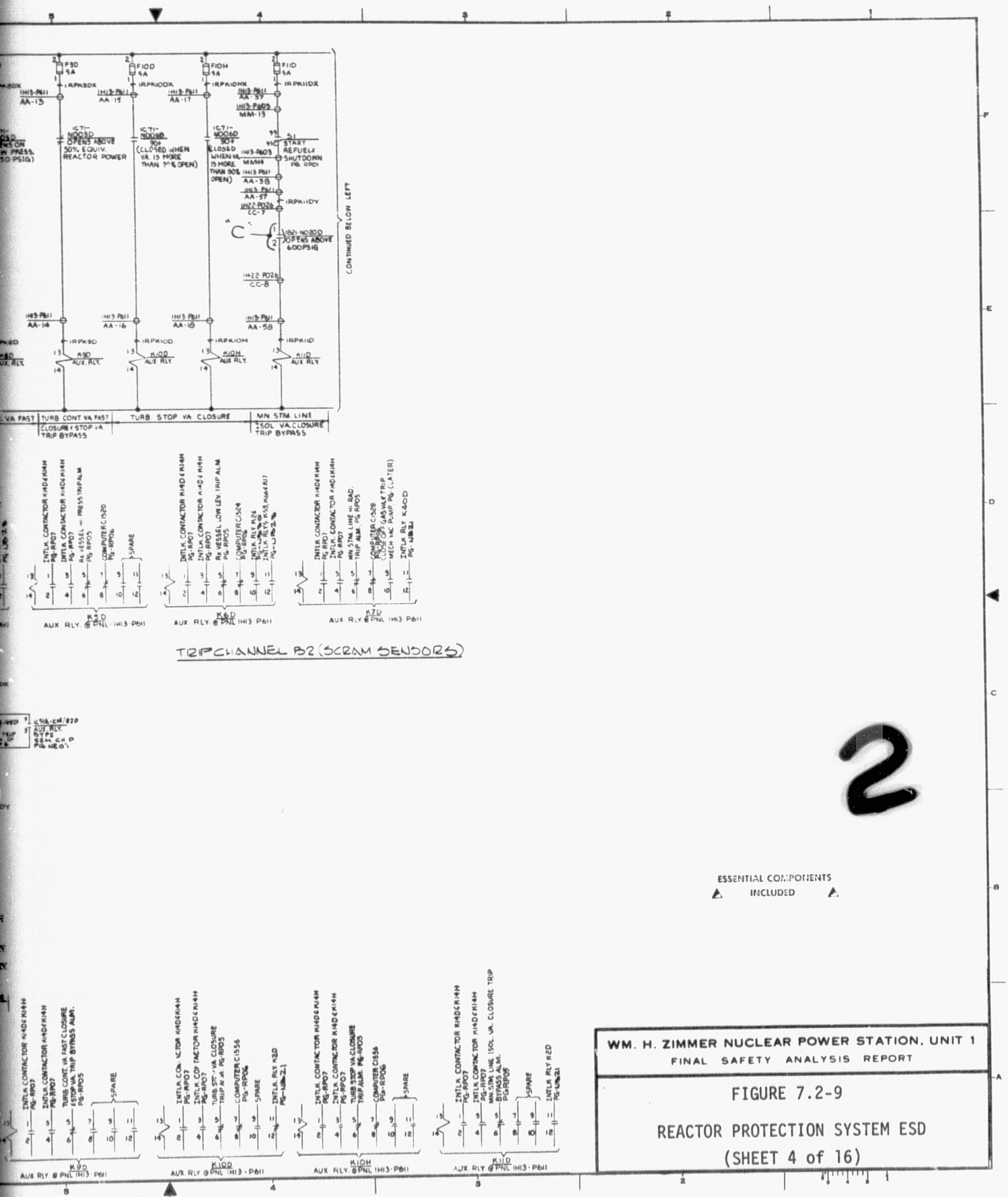




TRIP CHANNEL B2 (SCRAM







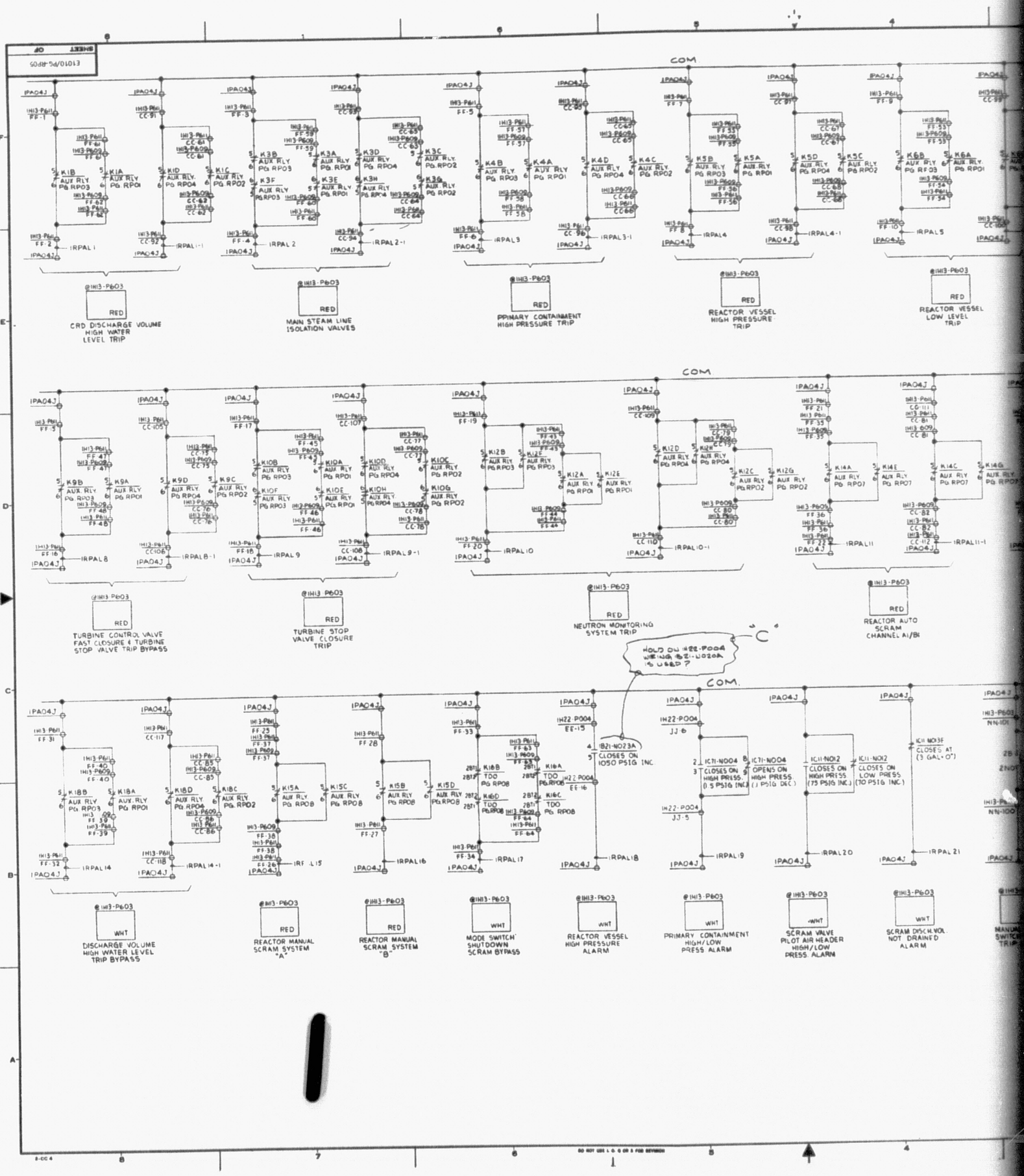
2

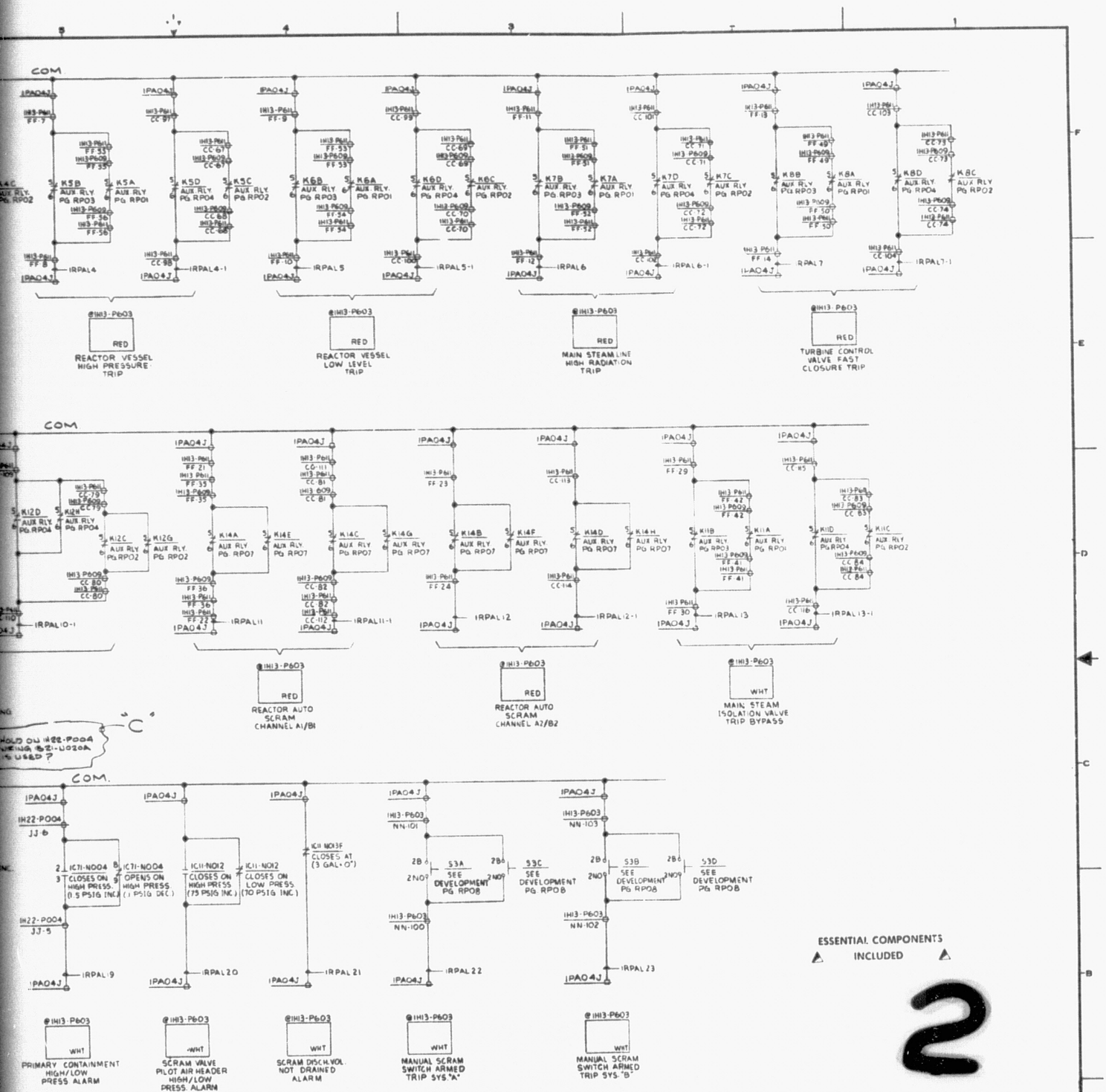
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-9

REACTOR PROTECTION SYSTEM ESD
(SHEET 4 of 16)


SHEET OF
E1010/PL-RP05
COM
1PA04J
1H13-P611
FF-1
K1B AUX RLY PG RPO3
K1A AUX RLY PG RPO1
K1D AUX RLY PG RPO4
K1C AUX RLY PG RPO2
1H13-P609 FF-62
1H13-P611 FF-62
1H13-P611 FF-2
1RPAL1
1H13-P611 CC-91
1H13-P609 CC-61
1H13-P611 CC-92
1RPAL1-1
@1H13-P603
RED
CRD DISCHARGE VOLUME HIGH WATER LEVEL TRIP
1H13-P611 FF-3
K3B AUX RLY PG RPO3
K3A AUX RLY PG RPO1
K3D AUX RLY PG RPO4
K3C AUX RLY PG RPO2
K3F AUX RLY PG RPO3
K3E AUX RLY PG RPO1
K3H AUX RLY PG RPO4
K3G AUX RLY PG RPO2
1H13-P609 FF-59
1H13-P611 FF-59
1H13-P609 FF-60
1H13-P611 FF-60
1H13-P609 CC-63
1H13-P611 CC-63
1H13-P609 CC-64
1H13-P611 CC-64
1H13-P611 FF-4
1RPAL 2
1H13-P611 CC-93
1H13-P611 CC-94
1RPAL2-1
MAIN STEAM LINE ISOLATION VALVES
1H13-P611 FF-5
K4B AUX RLY PG RPO3
K4A AUX RLY PG RPO1
1H13-P611 FF-57
1H13-P609 FF-57
1H13-P609 FF-58
1H13-P611 FF-58
1H13-P611 FF-6
1RPAL3
1H13-P611 CC-95
1H13-P611 CC-96
1RPAL3-1
PRIMARY CONTAINMENT HIGH PRESSURE TRIP
1H13-P611 FF-7
K4D AUX RLY PG RPO4
K4C AUX RLY PG RPO2
1H13-P609 CC-65
1H13-P611 CC-65
1H13-P609 CC-66
1H13-P611 CC-66
1H13-P611 FF-8
1RPAL4
K5B AUX RLY PG RPO3
K5A AUX RLY PG RPO1
1H13-P609 FF-35
1H13-P611 FF-35
1H13-P609 FF-36
1H13-P611 FF-36
1H13-P611 CC-97
1H13-P611 CC-98
1RPAL4-1
REACTOR VESSEL HIGH PRESSURE TRIP
1H13-P611 FF-9
K6B AUX RLY PG RPO3
K6A AUX RLY PG RPO1
K5D AUX RLY PG RPO4
K5C AUX RLY PG RPO2
1H13-P609 FF-53
1H13-P611 FF-53
1H13-P609 FF-54
1H13-P611 FF-54
1H13-P611 CC-99
1H13-P611 CC-100
1H13-P611 FF-10
1RPAL5
REACTOR VESSEL LOW LEVEL TRIP
COM
1PA04J
1H13-P611 FF-15
K9B AUX RLY PG RPO3
K9A AUX RLY PG RPO1
1H13-P609 FF-47
1H13-P611 FF-47
1H13-P609 FF-48
1H13-P611 FF-48
1H13-P611 FF-16
1RPAL8
1H13-P611 CC-105
K9D AUX RLY PG RPO4
K9C AUX RLY PG RPO2
1H13-P609 CC-75
1H13-P611 CC-75
1H13-P609 CC-76
1H13-P611 CC-76
1H12-P611 CC-106
1RPAL8-1
TURBINE CONTROL VALVE FAST CLOSURE & TURBINE STOP VALVE TRIP BYPASS
1H13-P611 FF-17
K10B AUX RLY PG RPO3
K10A AUX RLY PG RPO1
K10D AUX RLY PG RPO4
K10C AUX RLY PG RPO2
K10F AUX RLY PG RPO3
K10E AUX RLY PG RPO1
K10H AUX RLY PG RPO4
K10G AUX RLY PG RPO2
1H13-P609 FF-45
1H13-P611 FF-45
1H13-P609 FF-46
1H13-P611 FF-46
1H13-P611 CC-107
1H13-P609 CC-77
1H13-P611 CC-77
1H13-P609 CC-78
1H13-P611 CC-78
1H13-P611 FF-18
1RPAL 9
1H13-P611 CC-108
1RPAL9-1
TURBINE STOP VALVE CLOSURE TRIP
1H13-P611 FF-19
K12B AUX RLY PG RPO3
K12E AUX RLY PG RPO1
1H13-P609 FF-43
1H13-P611 FF-43
1H13-P609 FF-44
1H13-P611 FF-44
K12A AUX RLY PG RPO1
K12E AUX RLY PG RPO1
1H13-P611 FF-20
1RPAL10
1H13-P611 CC-109
K12D AUX RLY PG RPO4
K12H AUX RLY PG RPO4
K12C AUX RLY PG RPO2
K12G AUX RLY PG RPO2
1H13-P609 CC-79
1H13-P611 CC-79
1H13-P609 CC-80
1H13-P611 CC-80
1H13-P611 CC 110
1RPAL10-1
NEUTRON MONITORING SYSTEM TRIP
1H13-P611 FF-21
K14A AUX RLY PG RPO7
K14E AUX RLY PG RPO7
K14C AUX RLY PG RPO7
K14G AUX RLY PG RPO5
1H13-P609 FF-35
1H13-P611 FF-35
1H13-P609 FF-36
1H13-P611 FF-36
1H13-P611 FF-22
1RPAL11
1H13-P611 CC-111
1H13-P609 CC-81
1H13-P611 CC-81
1H13-P609 CC-82
1H13-P611 CC-82
1H13-P611 CC-112
1RPAL11-1
REACTOR AUTO SCRAM CHANNEL A1/B1
HOLD ON 1H22-P004 WIRING B21-N020A IS USED ?
"C"
COM.
1PA04J
1H13-P611 FF-31
K18B AUX RLY PG RPO3
K18A AUX RLY PG RPO1
1H13-P609 FF-39
1H13-P611 FF-39
1H13-P611 FF-32
1RPAL14
1H13-P611 CC-117
K18D AUX RLY PG RPO4
K18C AUX RLY PG RPO2
1H13-P609 CC-85
1H13-P611 CC-85
1H13-P609 CC-86
1H13-P611 CC-86
1H13-P611 CC-118
1RPAL14-1
DISCHARGE VOLUME HIGH WATER LEVEL TRIP BYPASS
1H13-P611 FF-25
1H13-P611 FF-37
1H13-P609 FF-37
K15A AUX RLY PG RPO8
K15C AUX RLY PG RPO8
1H13-P609 FF-38
1H13-P611 FF-38
1H13-P611 FF-26
1RF 15
1H13-P611 FF-28
K15B AUX RLY PG RPO8
K15D AUX RLY PG RPO8
1H13-P611 FF-27
1RPAL16
REACTOR MANUAL SCRAM SYSTEM "A"
REACTOR MANUAL SCRAM SYSTEM "B"
1H13-P611 FF-33
1H13-P611 FF-63
1H13-P609 FF-63
2BT1
K16B TDO PG RPO8
2BT2
K16A TDO PG RPO8
K16D TDO PG RPO8
K16C TDO PG RPO8
1H13-P609 FF-64
1H13-P611 FF-64
1H13-P611 FF-34
1RPAL17
MODE SWITCH SHUTDOWN SCRAM BYPASS
1H22-P004 EE-15
4 1B21-N023A
5 CLOSES ON 1050 PSIG INC.
1RPAL18
REACTOR VESSEL HIGH PRESSURE ALARM
1H22-P004 JJ 6
2 K71-N004
3 CLOSES ON HIGH PRESS. (0.5 PSIG INC.)
8 K71-N004
9 OPENS ON HIGH PRESS. (1 PSIG DEC.)
1H22-P004 JJ-5
1RPAL19
PRIMARY CONTAINMENT HIGH/LOW PRESS ALARM
K11-N012 CLOSES ON HIGH PRESS (75 PSIG INC.)
K11-N012 CLOSES ON LOW PRESS (70 PSIG INC.)
1RPAL20
SCRAM VALVE PILOT AIR HEADER HIGH/LOW PRESS. ALARM
K11 N013F CLOSES AT (3 GAL+0")
1RPAL 21
SCRAM DISCH. VOL. NOT DRAINED ALARM
WHT
RED
DO NOT USE 1, 0, 0 OR 5 FOR REVISION



ESSENTIAL COMPONENTS
▲ INCLUDED ▲

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-9

REACTOR PROTECTION SYSTEM ESD
(SHEET 5 of 16)

E1010/PG RP06

TYPICAL CHANGE FOR ALL WIRE DESIGNATION ON THIS DWG

"B"

IRPC1503(+) IRPC1511(+) IRPC1515(+) IRPC1519(+) IRPC1523(+) IRPC1527(+) IRPC1559(+) IRPC1555(+) IRPC1531(+)

IC91-P608A

IHI3-P609 CC-20 SHLD CC-22 CC-24 CC-26 CC-28 CC-30 CC-32 CC-34 CC-36

M2E M3E M4E M5E M6E M7E M8E M10E M12E M12G AUX RLY PG-RPO2

M3G AUX RLY PG-RPO2

M10G AUX RLY PG-RPO2

IHI3-P609 CC-21 CC-23 CC-25 CC-27 CC-29 CC-31 CC-33 CC-35 CC-37

SEE NOTE 1 → SHLD

IRPC1503(-) IRPC1511(-) IRPC1515(-) IRPC1518(-) IRPC1523(+) IRPC1527(-) IRPC1559(+) IRPC1555(-) IRPC1531(-)

IC91-P608A

C1503 DISCH. VOL HIGH WTR LEV TRIP

C1511 MN. STM. LINES ISOL. VA'S NOT FULLY OPEN TRIP

C1515 PRI CNMT. HIGH PRESS. TRIP

C1519 Rx. VESSEL HIGH PRESS TRIP

C1523 Rx. VESSEL LOW WTR. LEV TRIP

C1527 MN. STM LINE HIGH RAD TRIP

C1559 TURB. CONT VA FAST CLOSURE TRIP

C1555 TURB. STOP VA CLOSURE TRIP

C1531 NEUTRON MON. SYS TRIP

IRPC1501(+) IRPC1509(+) IRPC1513(+) IRPC1517(+)

IC91-P608A

IHI3-P609 FF-80 SHLD FF-82 FF-84 FF-86

M1A M2A M3A M4A M5A AUX RLY PG-RPO1

M3E AUX RLY PG-RPO1

IHI3-P609 FF-81 FF-83 FF-85 FF-87

SEE NOTE 1 → SHLD

IRPC1501(-) IRPC1509(+) IRPC1513(+) IRPC1517(+)

IC91-P608A

C1501 DISC M VOL HIGH WTR LEV TRIP

C1509 MN. STM LINE ISOL. VA'S NOT FULLY OPEN TRIP

C1513 PRI. CONTAINM. HIGH PRESS TRIP

C1517 Rx. VESSEL HIGH PRESS TRIP

TRIP SYSTEM 'A' COMPUTER INPUTS

IRPC1504(+) IRPC1512(+) IRPC1516(+) IRPC1520(+) IRPC1524(+) IRPC1528(+) IRPC1560(+) IRPC1556(+) IRPC1532(+)

IC91-P608B

IHI3-P611 CC-20 SHLD CC-22 CC-24 CC-26 CC-28 CC-30 CC-32 CC-34 CC-36

M1D M2D M3D M4D M5D M6D M7D M8D M10D M12D M12H AUX RLY PG-RPO4

M3H AUX RLY PG-RPO4

M10H AUX RLY PG-RPO4

IHI3-P611 CC-21 CC-23 CC-25 CC-27 CC-29 CC-31 CC-33 CC-35 CC-37

SEE NOTE 1 → SHLD

IRPC1504(-) IRPC1512(-) IRPC1516(-) IRPC1520(-) IRPC1524(+) IRPC1528(+) IRPC1560(+) IRPC1556(-) IRPC1532(-)

IC91-P608B

C1504 DISCH. VOL HIGH WTR LEV TRIP

C1512 MN. STM LINE ISOL VA'S NOT FULLY OPEN TRIP

C 16 PRI. CONTAINM. HIGH PRESS TRIP

C1520 Rx. VESSEL HIGH PRESS TRIP

C1524 Rx VESSEL LOW WTR. LEV TRIP

C1528 MN. STM. LINE HIGH RAD. TRIP

C1560 TURB. CONT VA FAST CLOSURE TRIP

C1556 TURB. STOP VA CLOSURE TRIP

C1532 NEUTRON MON. SYS TRIP

IRPC1502(+) IRPC1510(-) IRPC1514(+) IRPC1518(+) IRPC1522(+)

IC91-P608B

IHI3-P611 FF-80 SHLD FF-82 FF-84 FF-86

M1B M2B M3B M4B M5B AUX. RLY. PG-RPO3

M3F AUX RLY PG-RPO3

IHI3-P611 FF-81 FF-83 FF-85 FF-87

SEE NOTE 1 → SHLD

IRPC1502(-) IRPC1510(+) IRPC1514(+) IRPC1518(-)

IC91-P608B

C1502 DISCH VOL HIGH WTR LEV TRIP

C1510 MN. STM. LINES ISOL. VA'S NOT FULLY OPEN TRIP

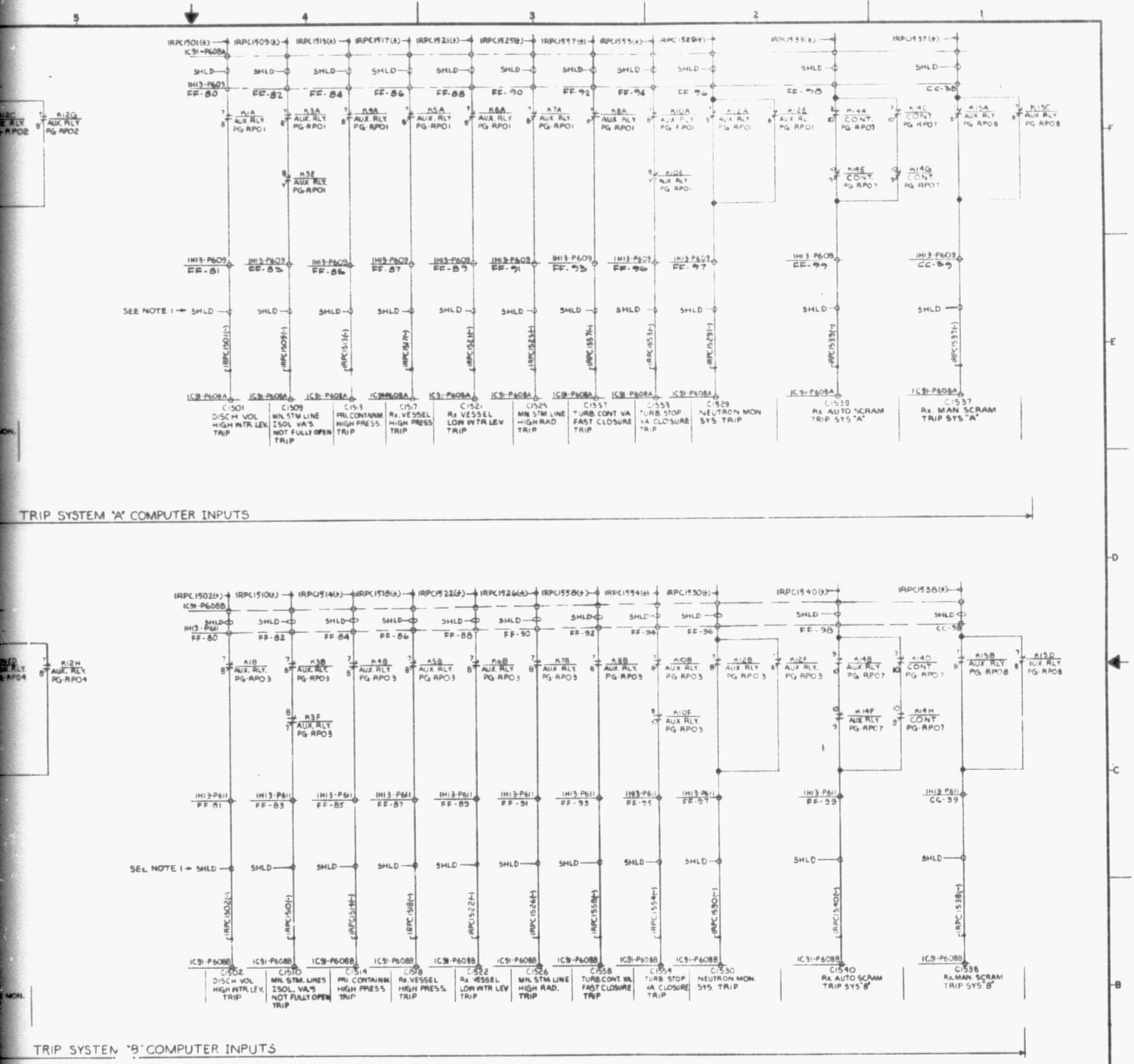
C1514 PRI CONTAINM. HIGH PRESS TRIP

C1518 Rx. VESSEL HIGH PRESS. TRIP

TRIP SYSTEM 'B' COMPUTER INPUTS

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

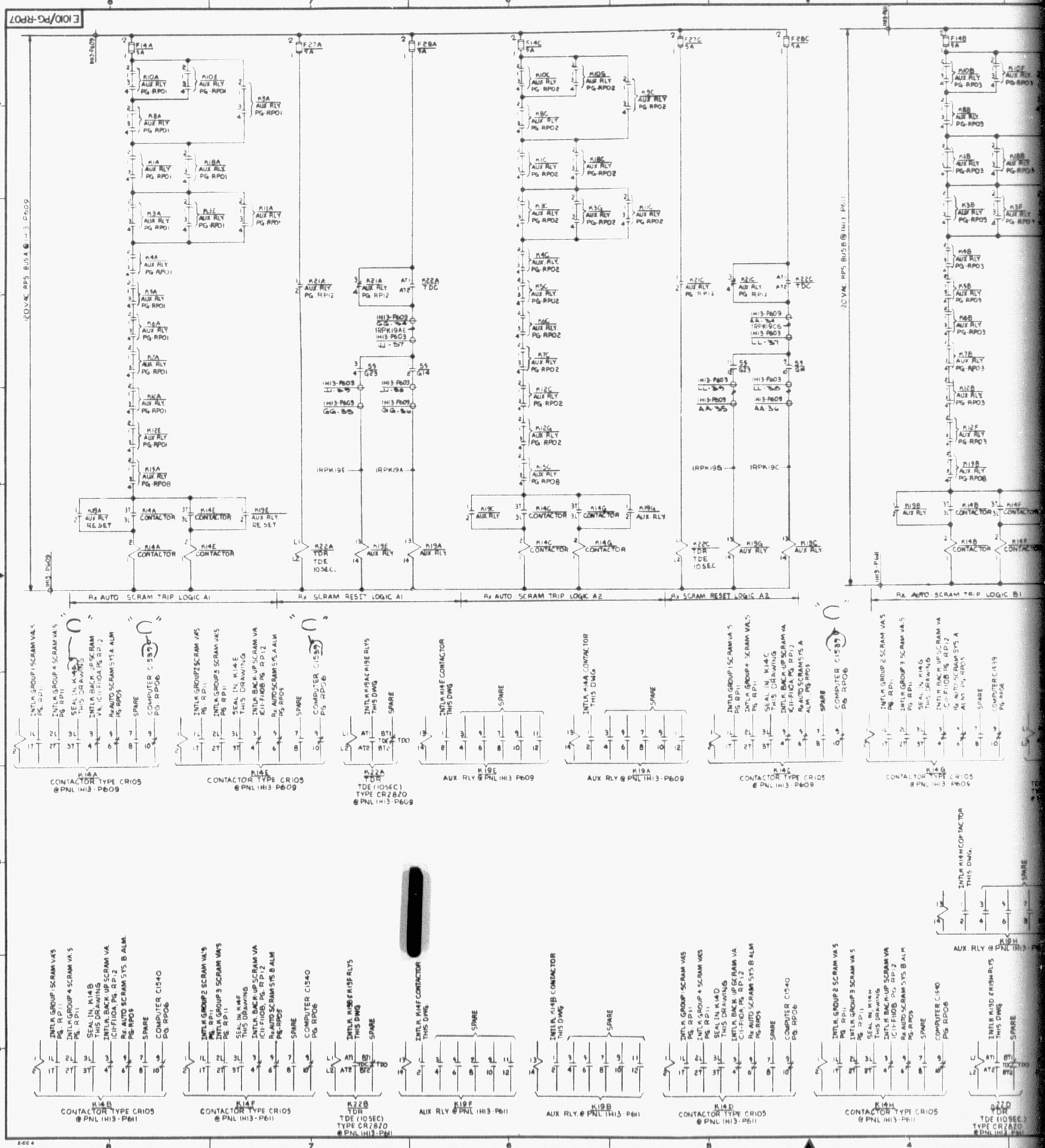
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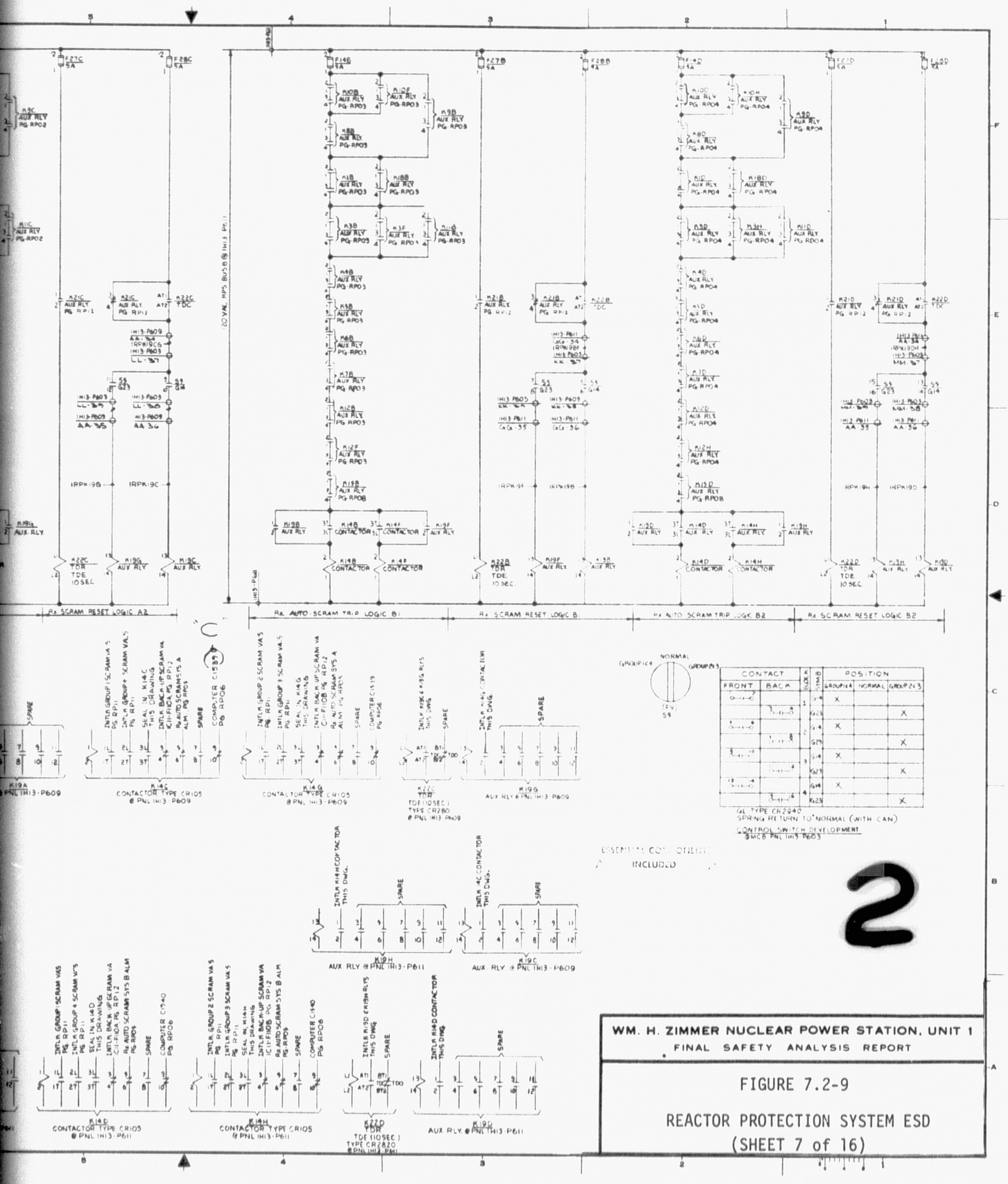


WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-9

REACTOR PROTECTION SYSTEM ESD
(SHEET 6 of 16)


120 VAC RPS BUS A @ IH3 P609
120 VAC RPS BUS B @ IH3 P611
Rx AUTO SCRAM TRIP LOGIC A1
Rx SCRAM RESET LOGIC A1
Rx AUTO SCRAM TRIP LOGIC A2
Rx SCRAM RESET LOGIC A2
Rx AUTO SCRAM TRIP LOGIC B1
K14A CONTACTOR TYPE CR105 @PNL IH3-P609
K14E CONTACTOR TYPE CR105 @PNL IH3-P609
K22A TDR TDE (10SEC) TYPE CR2820 @PNL IH3-P609
K19E AUX RLY @PNL IH3-P609
K19A AUX RLY @PNL IH3-P609
K14C CONTACTOR TYPE CR105 @PNL IH3-P609
K14G CONTACTOR TYPE CR105 @PNL IH3-P609
K14B CONTACTOR TYPE CR105 @PNL IH3-P611
K14F CONTACTOR TYPE CR105 @PNL IH3-P611
K22B TDR TDE (10SEC) TYPE CR2820 @PNL IH3-P611
K19F AUX RLY @PNL IH3-P611
K19B AUX RLY @PNL IH3-P611
K14D CONTACTOR TYPE CR105 @PNL IH3-P611
K14H CONTACTOR TYPE CR105 @PNL IH3-P611
K22D TDR TDE (10SEC) TYPE CR2820 @PNL IH3-P611
K19H AUX RLY @PNL IH3-P611

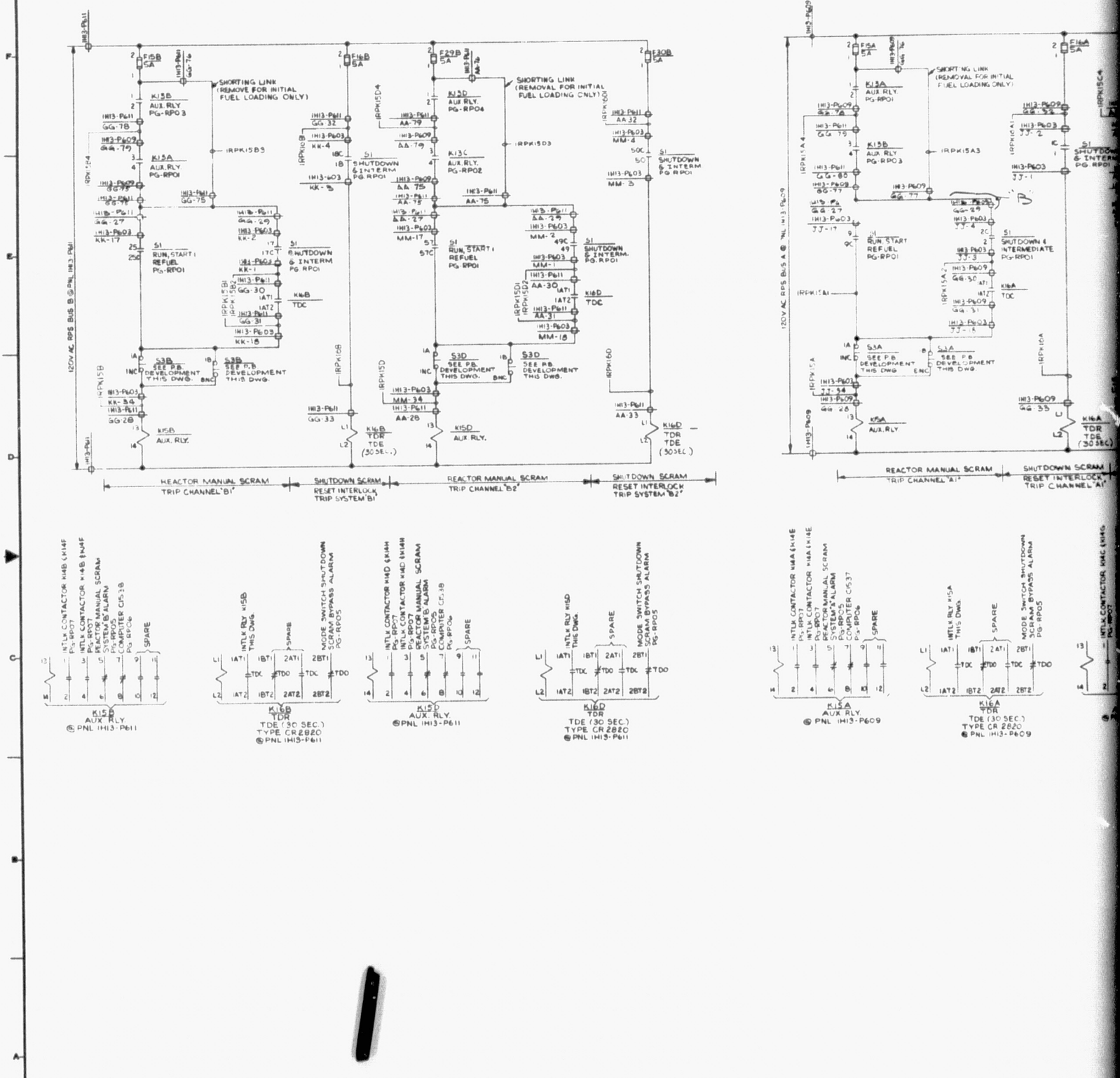


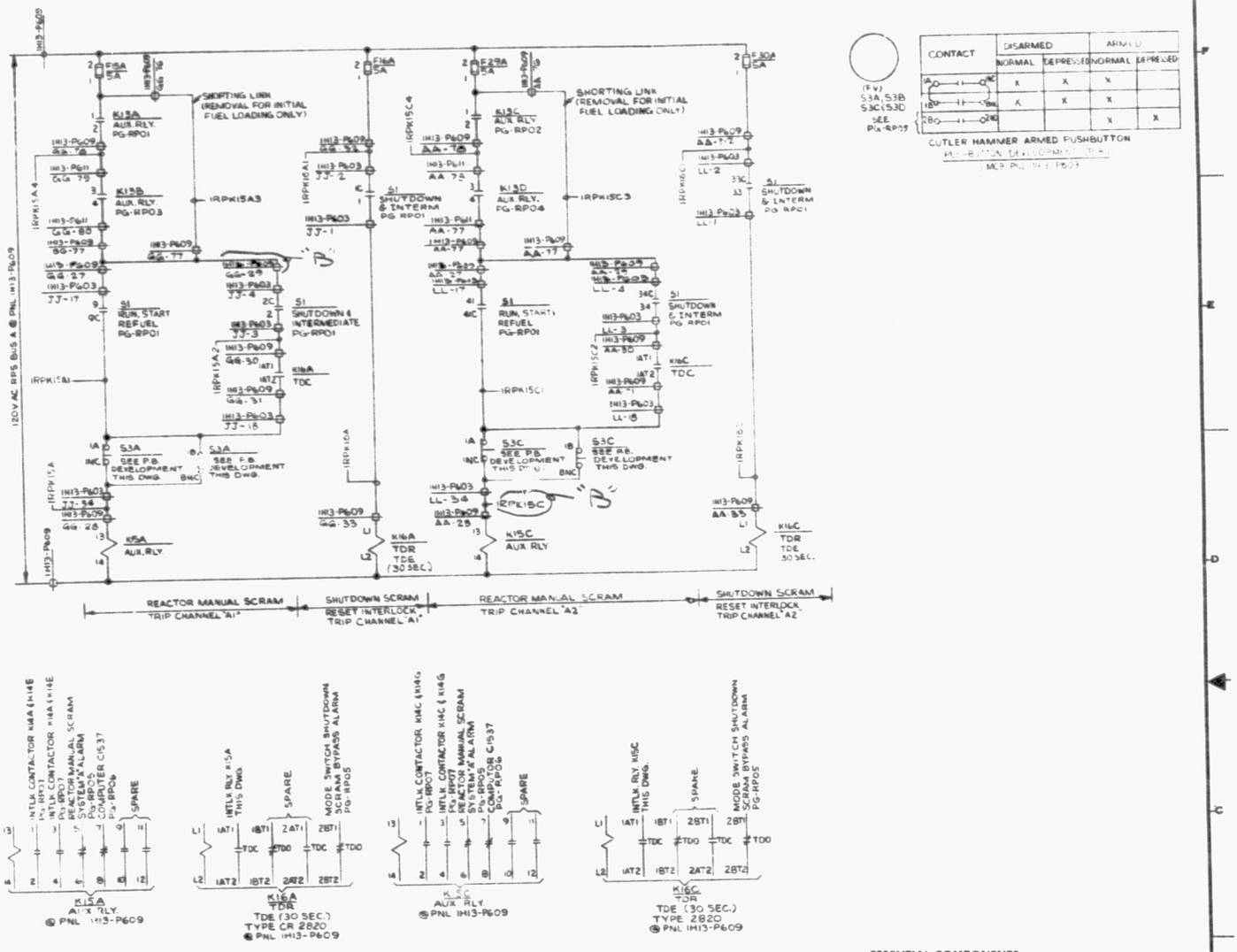
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-9

REACTOR PROTECTION SYSTEM ESD
(SHEET 7 of 16)


SHEET OF
E1010/Pc 4P08
120V AC RPS BUS B @ PNL 1H13-P611
120V AC RPS BUS A @ PNL 1H13-P609
F15B 5A
F16B 5A
F29B 5A
F30B 5A
F15A 5A
F16A 5A
SHORTING LINK (REMOVE FOR INITIAL FUEL LOADING ONLY)
K13B AUX RLY PG-RPO3
K13A AUX. RLY. PG-RPO1
K13D AUX RLY PG-RPO4
K13C AUX. RLY. PG-RPO2
RUN, START REFUEL PG-RPO1
SHUTDOWN & INTERM PG-RPO1
SHUTDOWN & INTERMEDIATE PG-RPO1
K16B TDC
K16D TDC
K15B AUX. RLY.
K15D AUX. RLY.
K16B TDR TDE (30SEC.)
K16D TDR TDE (30SEC.)
S3B SEE P.B. DEVELOPMENT THIS DWG.
S3D SEE P.B. DEVELOPMENT THIS DWG.
S3A SEE P.B. DEVELOPMENT THIS DWG.
K15A AUX. RLY.
K16A TDR TDE (30SEC.)
REACTOR MANUAL SCRAM TRIP CHANNEL 'B1'
SHUTDOWN SCRAM RESET INTERLOCK TRIP SYSTEM 'B1'
REACTOR MANUAL SCRAM TRIP CHANNEL 'B2'
SHUTDOWN SCRAM RESET INTERLOCK TRIP SYSTEM 'B2'
REACTOR MANUAL SCRAM TRIP CHANNEL 'A1'
SHUTDOWN SCRAM RESET INTERLOCK TRIP CHANNEL 'A1'
INTLK CONTACTOR K14B (K14F Pg. RP07
INTLK CONTACTOR K14F (K14B Pg. RP07
REACTOR MANUAL SCRAM SYSTEM 'B' ALARM COMPUTER CR5338 Pg. RP06
SPARE
K15B AUX. RLY. @ PNL 1H13-P611
INTLK RLY K15B THIS DWG.
MODE SWITCH SHUTDOWN SCRAM BYPASS ALARM PG-RP05
K16B TDR TDE (30 SEC.) TYPE CR2820 @ PNL 1H13-P611
INTLK CONTACTOR K14D (K14H Pg. RP07
INTLK CONTACTOR K14H (K14D Pg. RP07
REACTOR MANUAL SCRAM SYSTEM 'A' ALARM COMPUTER CR5338 Pg. RP06
K15D AUX. RLY. @ PNL 1H13-P611
INTLK RLY K15D THIS DWG.
K16D TDR TDE (30 SEC.) TYPE CR2820 @ PNL 1H13-P611
INTLK CONTACTOR K14A (K14E Pg. RP07
INTLK CONTACTOR K14E (K14A Pg. RP07
K15A AUX. RLY. @ PNL 1H13-P609
INTLK RLY K15A THIS DWG.
K16A TDR TDE (30 SEC.) TYPE CR2820 @ PNL 1H13-P609
INTLK CONTACTOR K14G (K14C Pg. RP07



CONTACT	DISARMED		ARMED	
	NORMAL	DEPRESSED	NORMAL	DEPRESSED
1A–1C	X	X	X	
1B–1D	X	X	X	
2B–2D			X	X

(FV) S3A, S3B S3C, S3D SEE PG-RP05

CUTLER HAMMER ARMED PUSHBUTTON

ESSENTIAL COMPONENTS
INCLUDED

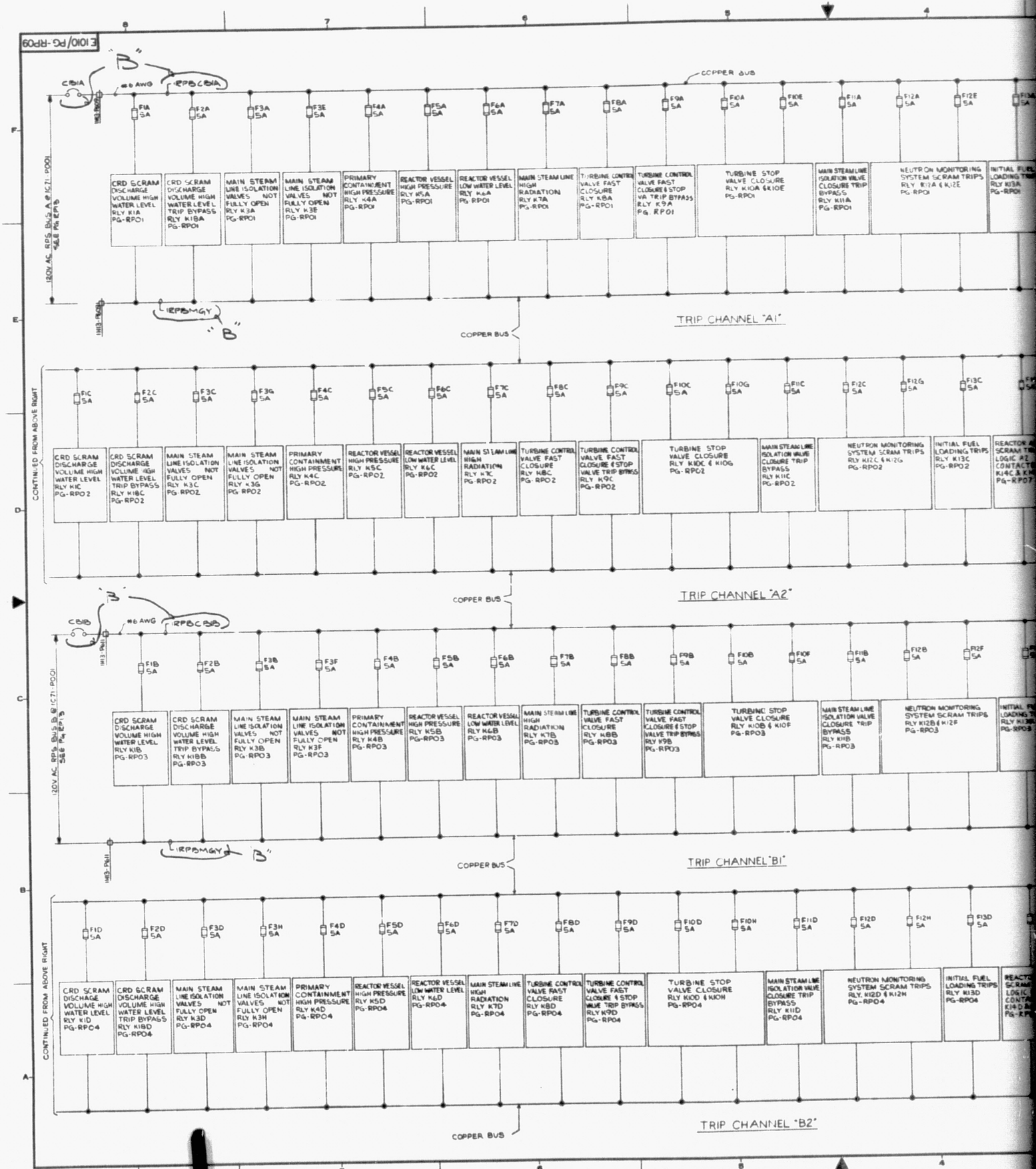
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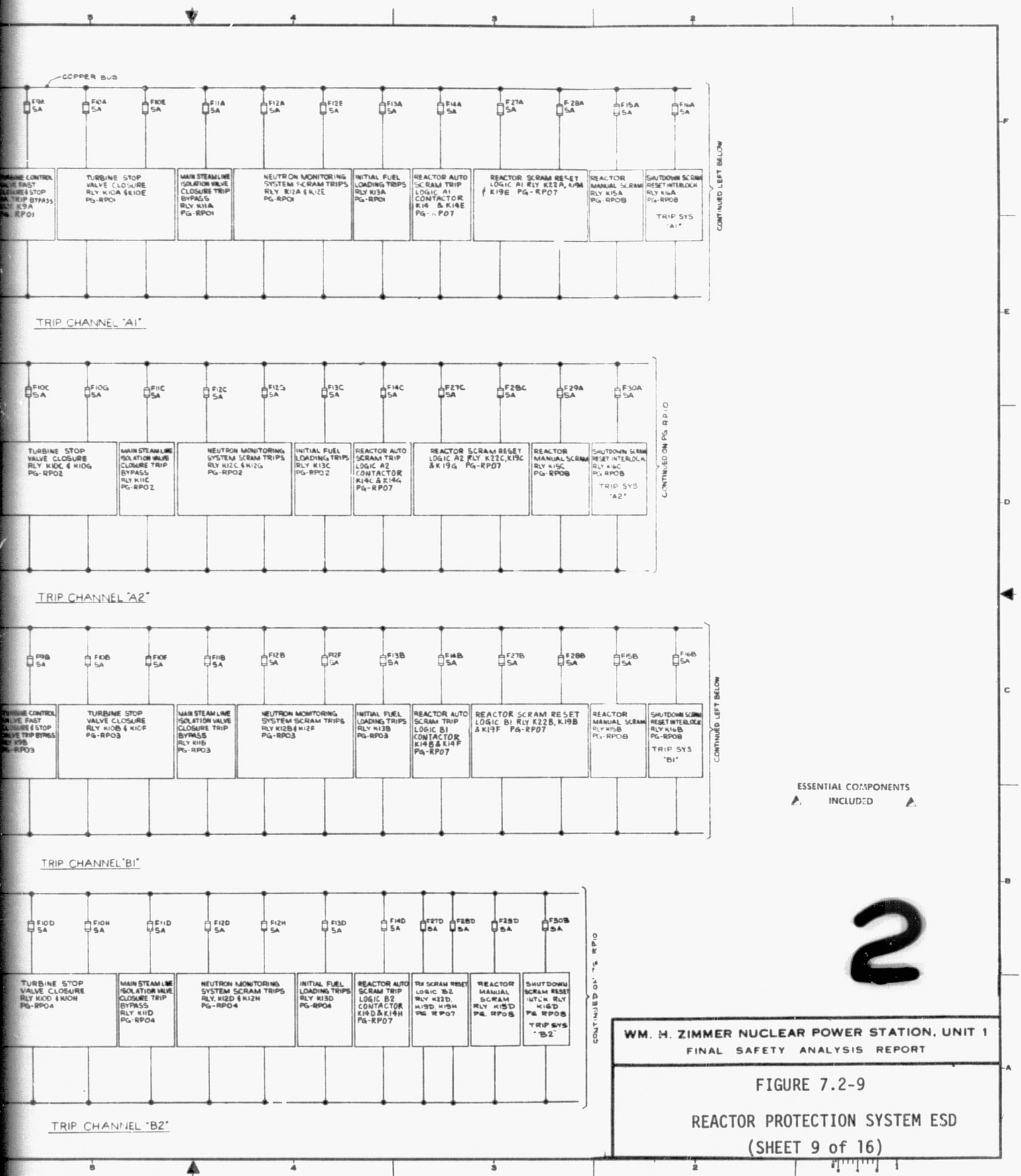
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-9

REACTOR PROTECTION SYSTEM ESD
(SHEET 8 of 16)

E1010/PG-RP09



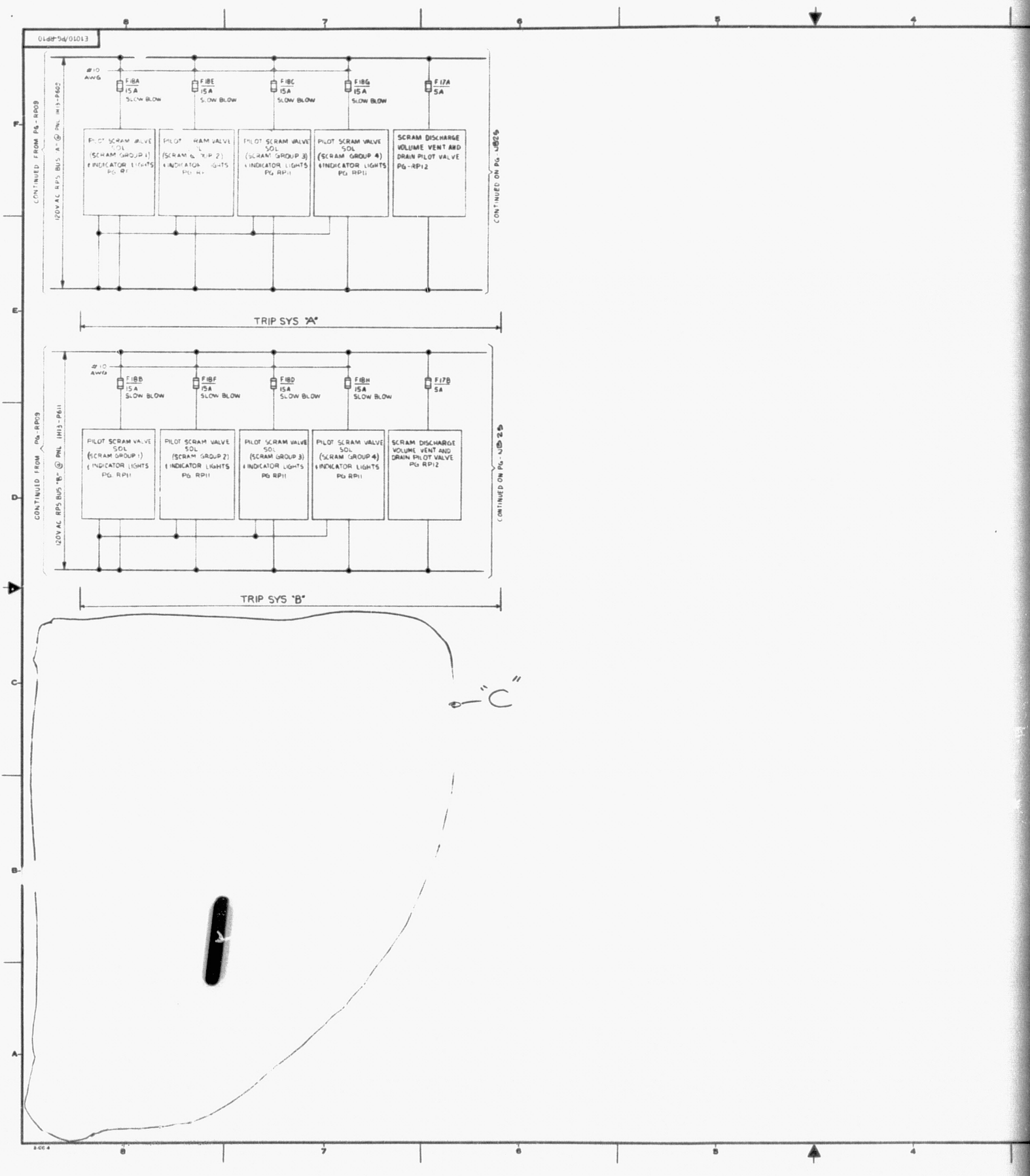


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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-9

REACTOR PROTECTION SYSTEM ESD
(SHEET 9 of 16)


E1010/P6-RP10
CONTINUED FROM P6-RP09
120V AC RPS BUS "A" @ PNL 1H13-P602
#10 AWG
F18A 15A SLOW BLOW
F18E 15A SLOW BLOW
F18C 15A SLOW BLOW
F18G 15A SLOW BLOW
F17A 5A
PILOT SCRAM VALVE SOL (SCRAM GROUP 1) & INDICATOR LIGHTS PG RP11
PILOT SCRAM VALVE SOL (SCRAM GROUP 2) & INDICATOR LIGHTS PG RP11
PILOT SCRAM VALVE SOL (SCRAM GROUP 3) & INDICATOR LIGHTS PG RP11
PILOT SCRAM VALVE SOL (SCRAM GROUP 4) & INDICATOR LIGHTS PG RP11
SCRAM DISCHARGE VOLUME VENT AND DRAIN PILOT VALVE PG-RP12
CONTINUED ON PG-J8C6
TRIP SYS "A"
CONTINUED FROM PG-RP09
120V AC RPS BUS "B" @ PNL 1H13-P611
#10 AWG
F18B 15A SLOW BLOW
F18F 15A SLOW BLOW
F18D 15A SLOW BLOW
F18H 15A SLOW BLOW
F17B 5A
PILOT SCRAM VALVE SOL (SCRAM GROUP 1) & INDICATOR LIGHTS PG. RP11
PILOT SCRAM VALVE SOL (SCRAM GROUP 2) & INDICATOR LIGHTS PG RP11
PILOT SCRAM VALVE SOL (SCRAM GROUP 3) & INDICATOR LIGHTS PG RP11
PILOT SCRAM VALVE SOL (SCRAM GROUP 4) & INDICATOR LIGHTS PG RP11
SCRAM DISCHARGE VOLUME VENT AND DRAIN PILOT VALVE PG RP12
CONTINUED ON PG-J8C6
TRIP SYS "B"
"C"
8
7
6
5
4
F
E
D
C
B
A

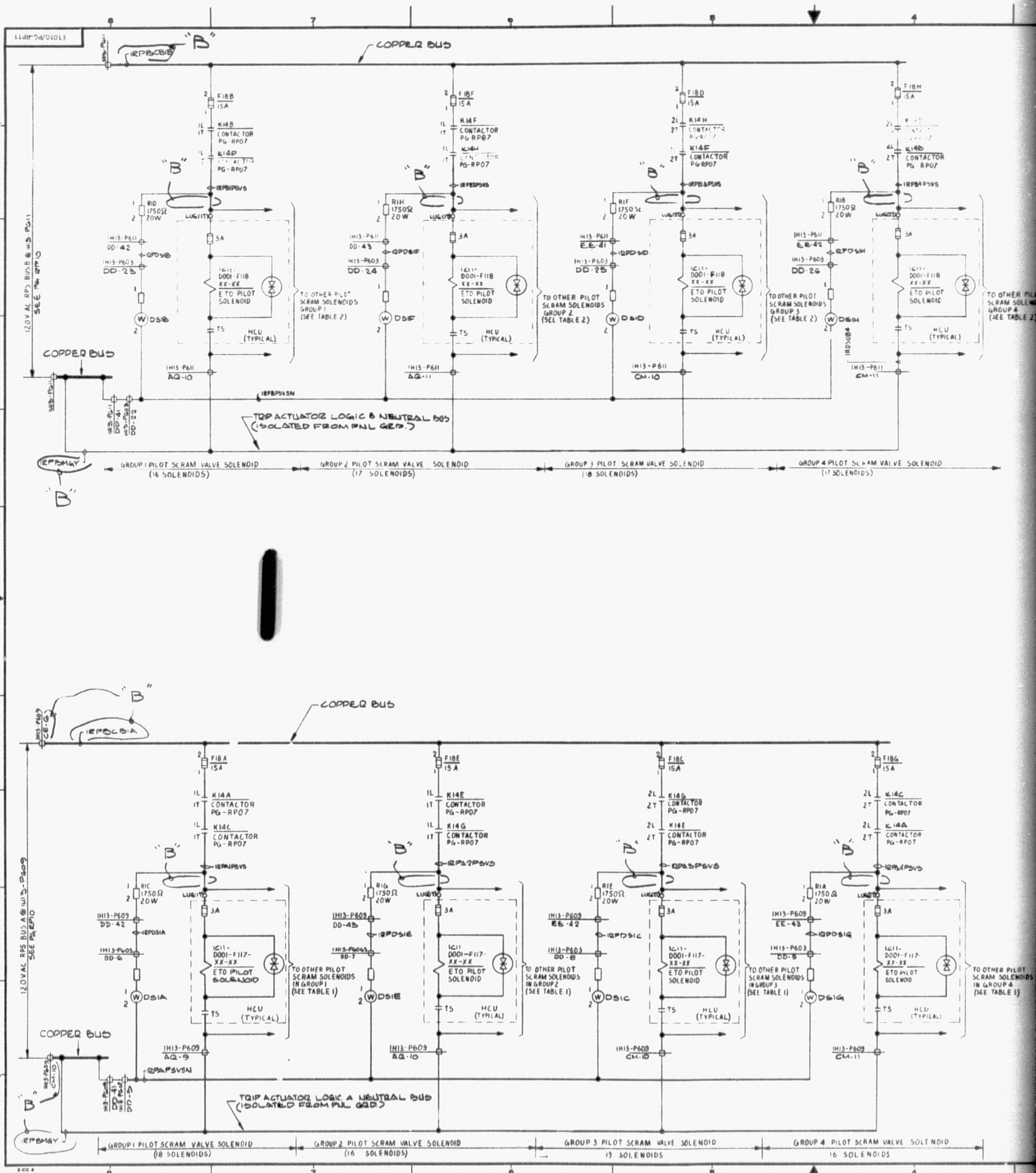
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

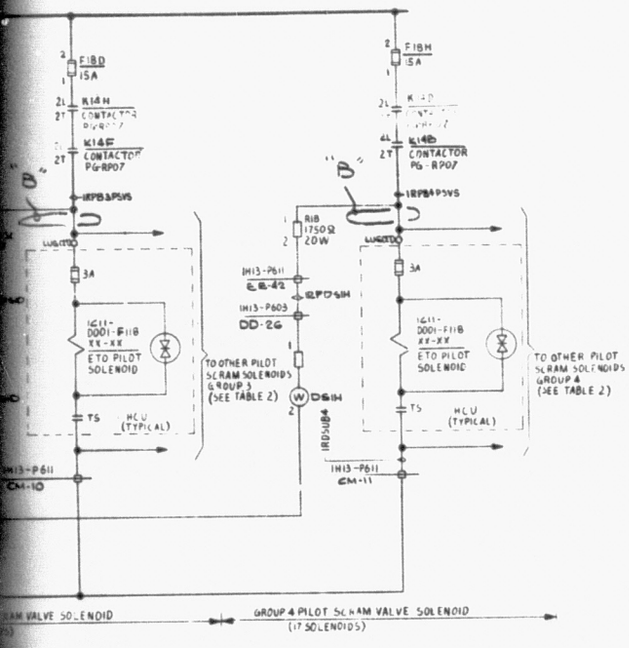
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-9

REACTOR PROTECTION SYSTEM ESD
(SHEET 10 of 16)


COPPER BUS
120 V AC RPS BUS B @ IH3-P611
SEE PG RPI0
F18B 15A
K14B CONTACTOR PG-RP07
K14P CONTACTOR PG-RP07
IRPB1PSVS
R1D 1750Ω 20W
IH13-P611 DD-42
IH13-P603 DD-23
IRPDS1B
3A
IG11-D001-F11B XX-XX ETO PILOT SOLENOID
TS
HCU (TYPICAL)
DS1B
TO OTHER PILOT SCRAM SOLENOIDS GROUP 1 (SEE TABLE 2)
IH13-P611 AQ-10
F18F 15A
K14F CONTACTOR PG-RP07
IRPB2PSVS
R1H 1750Ω 20W
IH13-P611 DD-43
IH13-P603 DD-24
IRPDS1F
DS1F
IH13-P611 AQ-11
F18D 15A
K14H CONTACTOR PG-RP07
IRPB3PSVS
R1F 1750Ω 20W
IH13-P611 EE-41
IH13-P603 DD-25
IRPDS1D
DS1D
IH13-P611 CM-10
TO OTHER PILOT SCRAM SOLENOIDS GROUP 3 (SEE TABLE 2)
F18H 15A
K14D CONTACTOR PG-RP07
IRPB4PSVS
R1B 1750Ω 20W
IH13-P611 EE-42
IH13-P603 DD-26
IRPDS1H
DS1H
IRDSUB4
IH13-P611 CM-11
TO OTHER PILOT SCRAM SOLENOIDS GROUP 4 (SEE TABLE 2)
IRPBPSVSN
TRIP ACTUATOR LOGIC B NEUTRAL BUS (ISOLATED FROM PNL GRD.)
IRPBMGV
GROUP 1 PILOT SCRAM VALVE SOLENOID (16 SOLENOIDS)
GROUP 2 PILOT SCRAM VALVE SOLENOID (17 SOLENOIDS)
GROUP 3 PILOT SCRAM VALVE SOLENOID (18 SOLENOIDS)
GROUP 4 PILOT SCRAM VALVE SOLENOID (17 SOLENOIDS)
COPPER BUS
120 V AC RPS BUS A @ IH3-P609
SEE PG RPI0
F18A 15A
K14A CONTACTOR PG-RP07
K14L CONTACTOR PG-RP07
IRPA1PSVS
R1C 1750Ω 20W
IH13-P609 DD-42
IH13-P603 DD-6
IRPDS1A
3A
IG11-D001-F117-XX-XX ETO PILOT SOLENOID
TS
HCU (TYPICAL)
DS1A
TO OTHER PILOT SCRAM SOLENOIDS IN GROUP 1 (SEE TABLE 1)
IH13-P609 AQ-9
F18E 15A
K14E CONTACTOR PG-RP07
K14G CONTACTOR PG-RP07
IRPA2PSVS
R1G 1750Ω 20W
IH13-P609 DD-43
IH13-P603 DD-7
IRPDS1E
DS1E
IH13-P609 AQ-10
F18C 15A
K14G CONTACTOR PG-RP07
K14E CONTACTOR PG-RP07
IRPA3PSVS
R1E 1750Ω 20W
IH13-P609 EE-42
IH13-P603 DD-8
IRPDS1C
DS1C
IH13-P609 CM-10
TO OTHER PILOT SCRAM SOLENOIDS IN GROUP 2 (SEE TABLE 1)
F18G 15A
K14C CONTACTOR PG-RP07
K14A CONTACTOR PG-RP07
IRPA4PSVS
R1A 1750Ω 20W
IH13-P609 EE-43
IH13-P603 DD-9
IRPDS1G
DS1G
IH13-P609 CM-11
TO OTHER PILOT SCRAM SOLENOIDS IN GROUP 3 (SEE TABLE 1)
IRPAPSVSN
TRIP ACTUATOR LOGIC A NEUTRAL BUS (ISOLATED FROM PNL GRD)
IRPAMGV
GROUP 1 PILOT SCRAM VALVE SOLENOID (18 SOLENOIDS)
GROUP 2 PILOT SCRAM VALVE SOLENOID (16 SOLENOIDS)
GROUP 3 PILOT SCRAM VALVE SOLENOID 17 SOLENOIDS
GROUP 4 PILOT SCRAM VALVE SOLENOID 16 SOLENOIDS



HYDRAULIC CONTROL UNITS BUS A
1G11-D001-F117-XX-XX(2X SHEET 1)

GROUP 1	GROUP 2	GROUP 3	GROUP 4
26-51	26-35	26-39	26-27
26-47	26-51	30-03	26-43
30-11	30-15	30-19	30-07
30-31	30-23	30-27	30-23
30-43	30-47	30-51	30-39
34-03	34-07	34-11	34-15
34-19	34-23	34-27	34-31
34-35	34-39	34-43	34-47
34-51	38-19	38-07	38-11
38-15	38-35	38-23	38-27
38-31	42-11	38-39	38-43
38-47	42-27	42-15	42-19
42-07	42-43	42-31	42-35
42-23	46-23	42-47	46-15
42-39	46-39	46-11	46-31
46-19	50-31	46-27	50-23
46-35		46-43	
50-27		50-19	
		50-35	

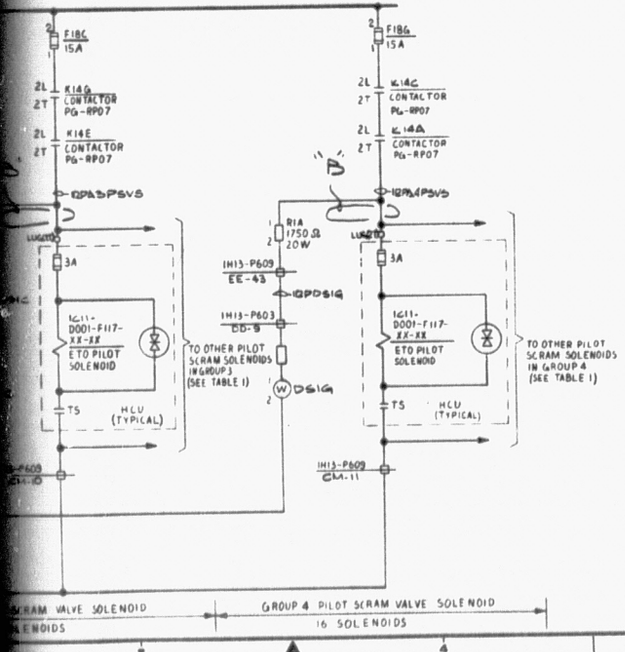
TABLE 1

HYDRAULIC CONTROL UNITS BUS B
1G11-D001-F118-XX-XX(2X SHEET 2)

GROUP 1	GROUP 2	GROUP 3	GROUP 4
02-19	02-23	02-27	02-31
02-35	06-19	06-23	06-11
06-15	06-35	06-39	06-27
06-31	10-11	10-15	06-43
10-07	10-27	10-31	10-19
10-23	10-43	10-47	10-35
10-39	14-07	14-11	14-15
14-19	14-23	14-27	14-31
14-35	14-39	14-43	14-47
18-11	18-15	18-03	18-07
18-27	18-31	18-19	18-23
18-43	18-47	18-35	18-39
22-07	22-11	18-51	22-03
22-23	22-27	22-15	22-19
22-39	22-43	22-31	22-35
26-15	26-03	22-47	22-51
	26-19	26-07	26-11
		26-23	

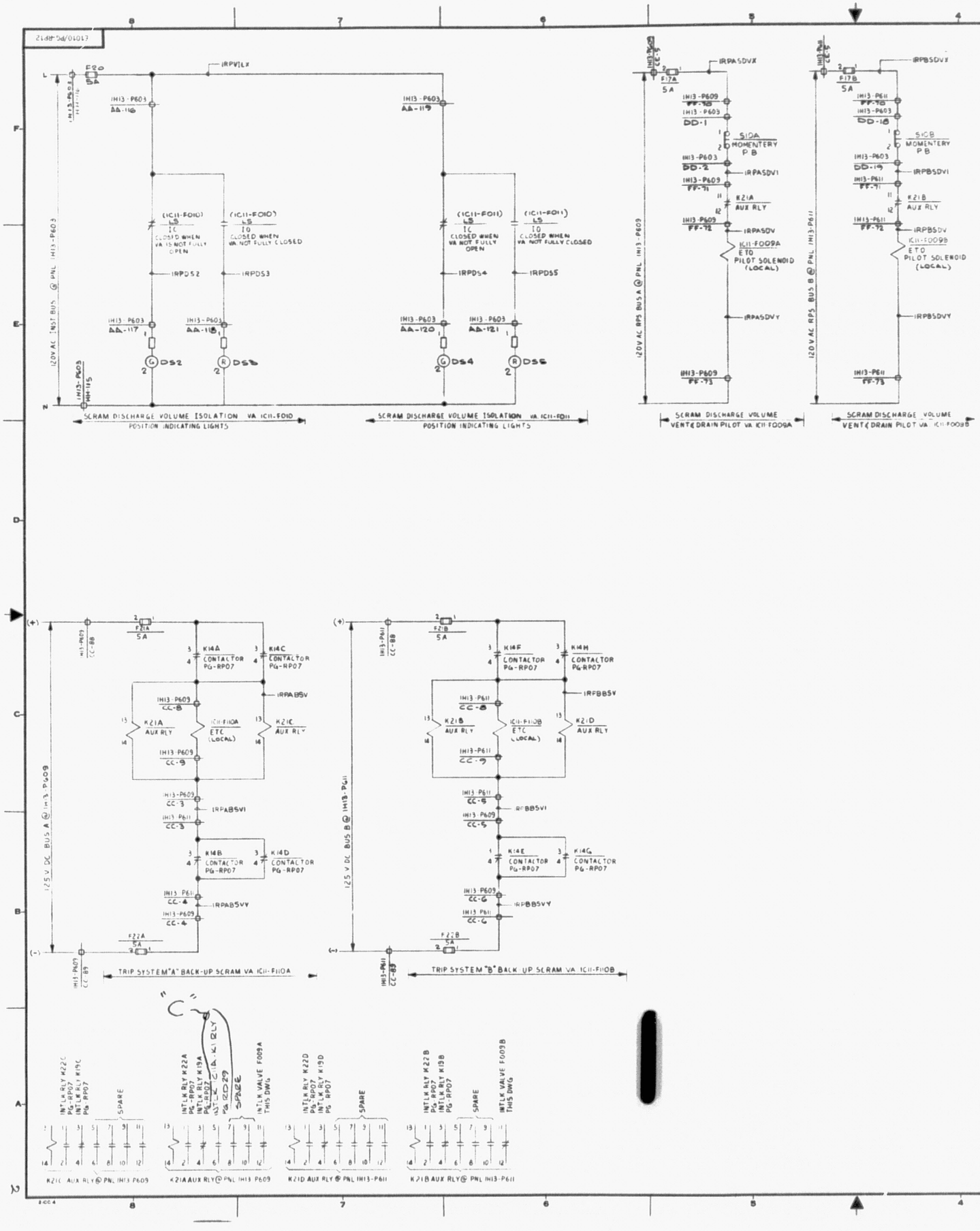
TABLE 2

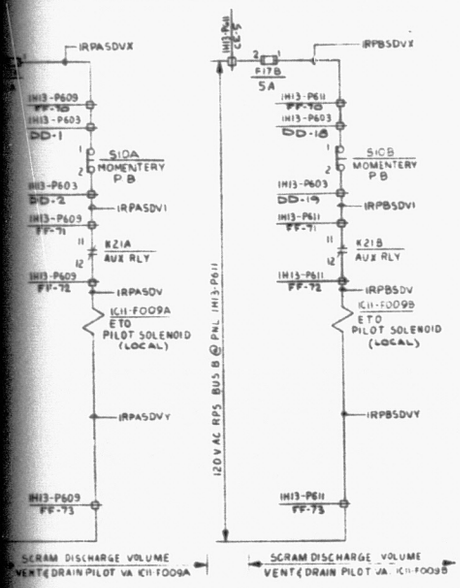
NOTE:
FOR PILOT SCRAM VALVES PIPING,
SEE GE DWG 732E152BC SH.1



2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT
FIGURE 7.2-9
REACTOR PROTECTION SYSTEM ESD
(SHEET 11 of 16)


SCRAM DISCHARGE VOLUME ISOLATION VA ICII-F010 POSITION INDICATING LIGHTS
SCRAM DISCHARGE VOLUME ISOLATION VA ICII-F011 POSITION INDICATING LIGHTS
SCRAM DISCHARGE VOLUME VENT& DRAIN PILOT VA ICII-F009A
SCRAM DISCHARGE VOLUME VENT& DRAIN PILOT VA ICII-F009B
TRIP SYSTEM "A" BACK-UP SCRAM VA ICII-F110A
TRIP SYSTEM "B" BACK-UP SCRAM VA ICII-F110B
120V AC INST BUS @ PNL IH13-P603
120V AC RPS BUS A @ PNL IH13-P609
120V AC RPS BUS B @ PNL IH13-P611
125 V DC BUS A @ IH3-P609
125 V DC BUS B @ IH13-P611
K21C AUX RLY @ PNL IH13 P609
K21A AUX RLY @ PNL IH13 P609
K21D AUX RLY @ PNL IH13-P611
K21B AUX RLY @ PNL IH13-P611



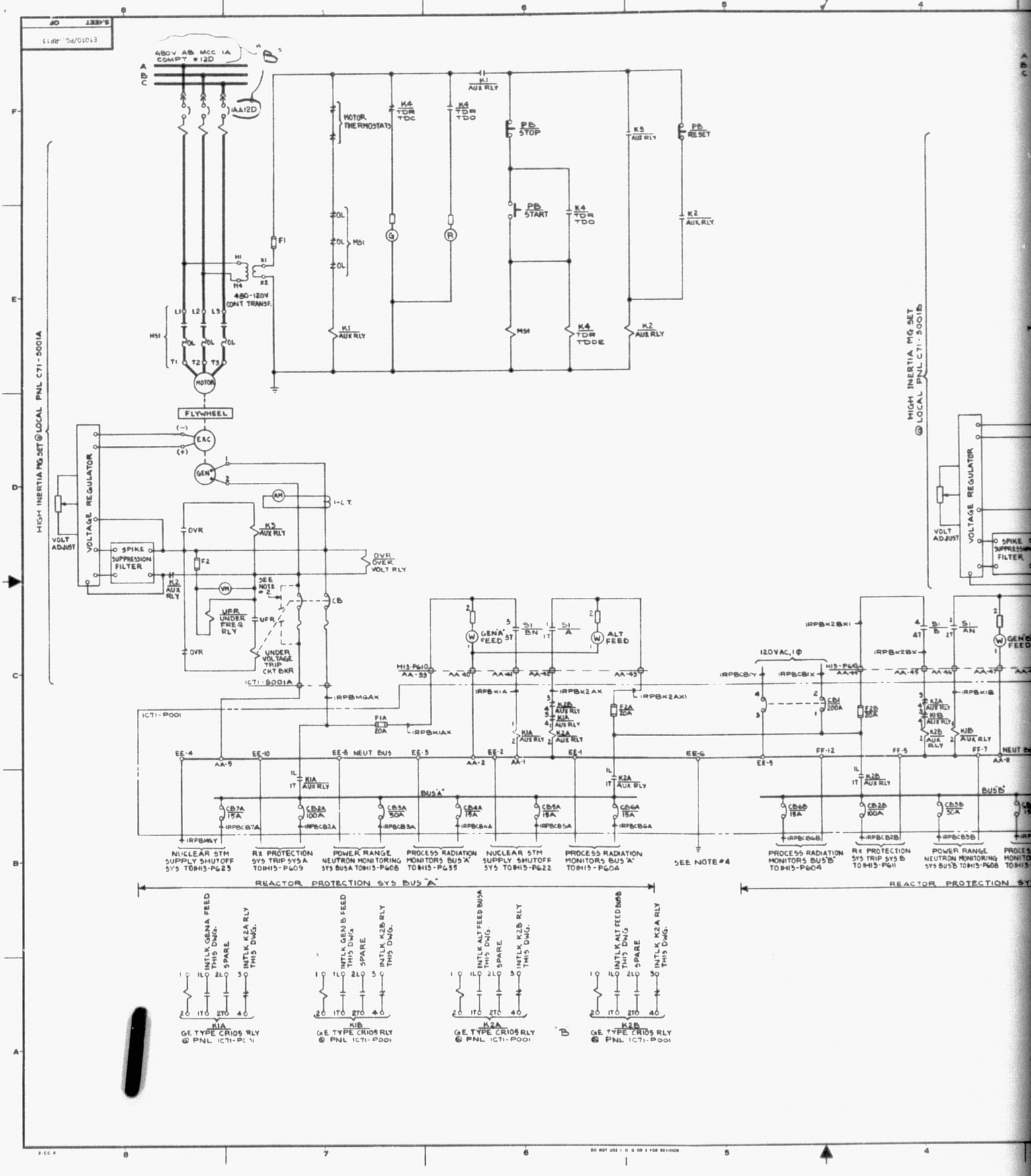
ESSENTIAL COMPONENTS
INCLUDED

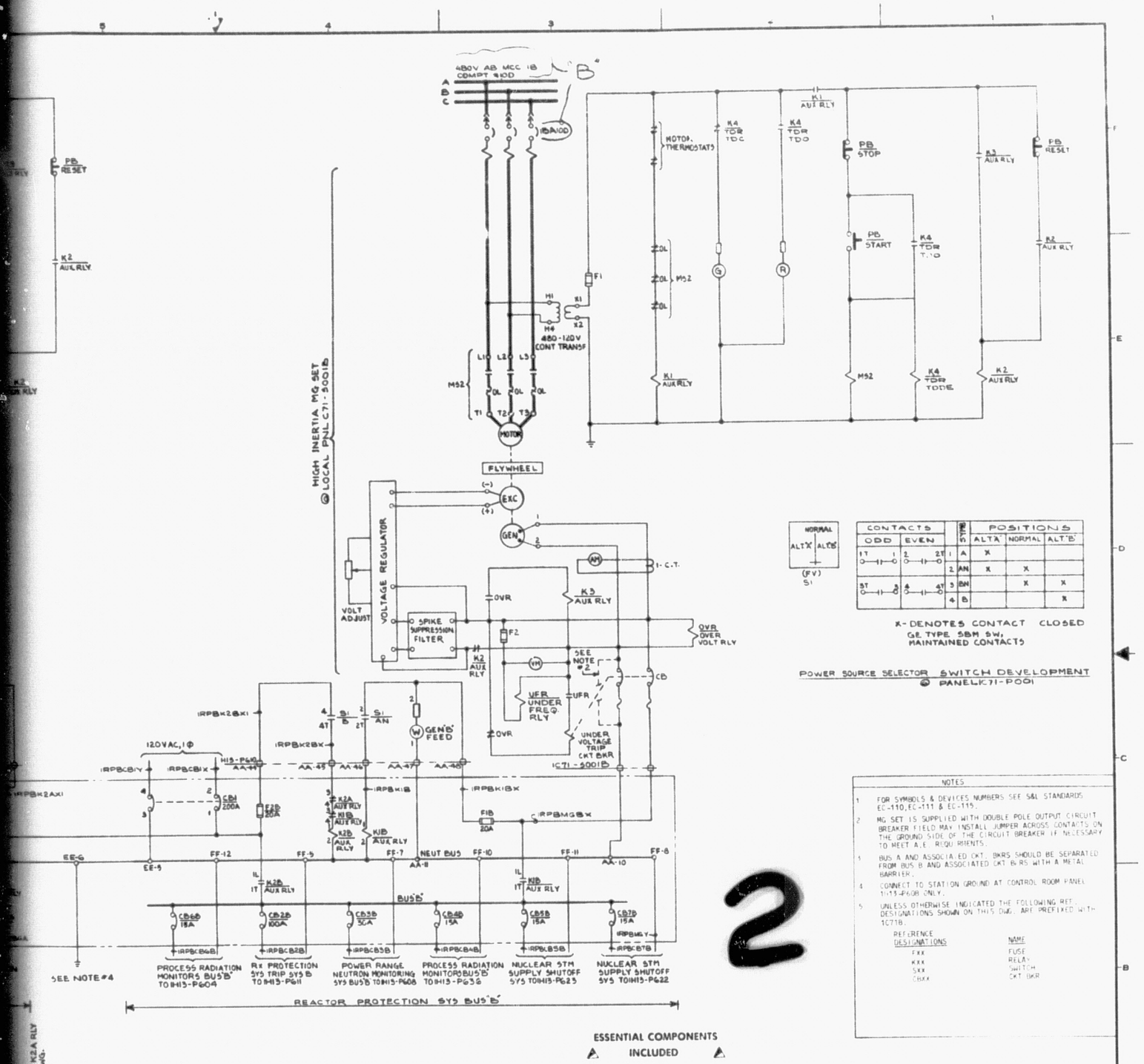
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-9

REACTOR PROTECTION SYSTEM ESD
(SHEET 12 of 16)


480V AB MCC 1A COMPT #12D
1AA12D
MOTOR THERMOSTATS
K1 AUX RLY
K4 TDR TDC
K4 TDR TDO
PB STOP
PB START
K3 AUX RLY
PB RESET
K2 AUX RLY
K4 TDR TDDE
M51
F1
480-120V CONT TRANSF.
MOTOR
FLYWHEEL
EXC
GEN
VOLT ADJUST
VOLTAGE REGULATOR
SPIKE SUPPRESSION FILTER
HIGH INERTIA MG SET @ LOCAL PNL C71-5001A
HIGH INERTIA MG SET @ LOCAL PNL C71-5001B
OVR
OVER VOLT RLY
UFR
UNDER FREQ. RLY
UNDER VOLTAGE TRIP CKT BKR
GEN'A' FEED
ALT FEED
120VAC, 1Φ
C71-5001A
C71-5001
IRPBMGAX
IRPBK1AX
IRPBK2AX
IRPBK2AXI
IRPBK2BXI
IRPBK2BX
IRPBK1A
IRPBK1B
IRPBCB1Y
IRPBCB1X
F1A 10A
F2A 30A
F2B 30A
CB1 200A
H13-P610
H13-P640
EE-4
EE-10
EE-8 NEUT BUS
EE-5
EE-2
EE-1
EE-6
FF-12
FF-5
FF-7
BUS "A"
BUS "B"
CB7A 15A
CB2A 100A
CB3A 30A
CB4A 15A
CB5A 15A
CB6A 15A
CB6B 15A
CB2B 100A
CB3B 30A
IRPBCB7A
IRPBCB2A
IRPBCB3A
IRPBCB4A
IRPBCB5A
IRPBCB6A
IRPBCB6B
IRPBCB2B
IRPBCB3B
NUCLEAR STM SUPPLY SHUTOFF SYS TOBH13-P623
RX PROTECTION SYS TRIP SYS A TOBH13-P609
POWER RANGE NEUTRON MONITORING SYS BUS A TOBH13-P608
PROCESS RADIATION MONITORS BUS 'A' TOBH13-P635
NUCLEAR STM SUPPLY SHUTOFF SYS TOBH13-P622
PROCESS RADIATION MONITORS BUS 'A' TOBH13-P604
SEE NOTE #4
PROCESS RADIATION MONITORS BUS 'B' TOBH13-P604
RX PROTECTION SYS TRIP SYS B TOBH13-P611
POWER RANGE NEUTRON MONITORING SYS BUS B TOBH13-P608
REACTOR PROTECTION SYS BUS "A"
REACTOR PROTECTION SY
INTLK GEN A FEED TH13 DWG.
SPARE
INTLK K2A RLY TH13 DWG.
INTLK GEN B FEED TH13 DWG.
INTLK K2B RLY TH13 DWG.
INTLK ALT FEED BUS A TH13 DWG.
INTLK ALT FEED BUS B TH13 DWG.
K1A
GE TYPE CR105 RLY @ PNL 1C71-P001
K1B
GE TYPE CR105 RLY @ PNL 1C71-P001
K2A
GE TYPE CR105 RLY @ PNL 1C71-P001
K2B
GE TYPE CR105 RLY @ PNL 1C71-P001

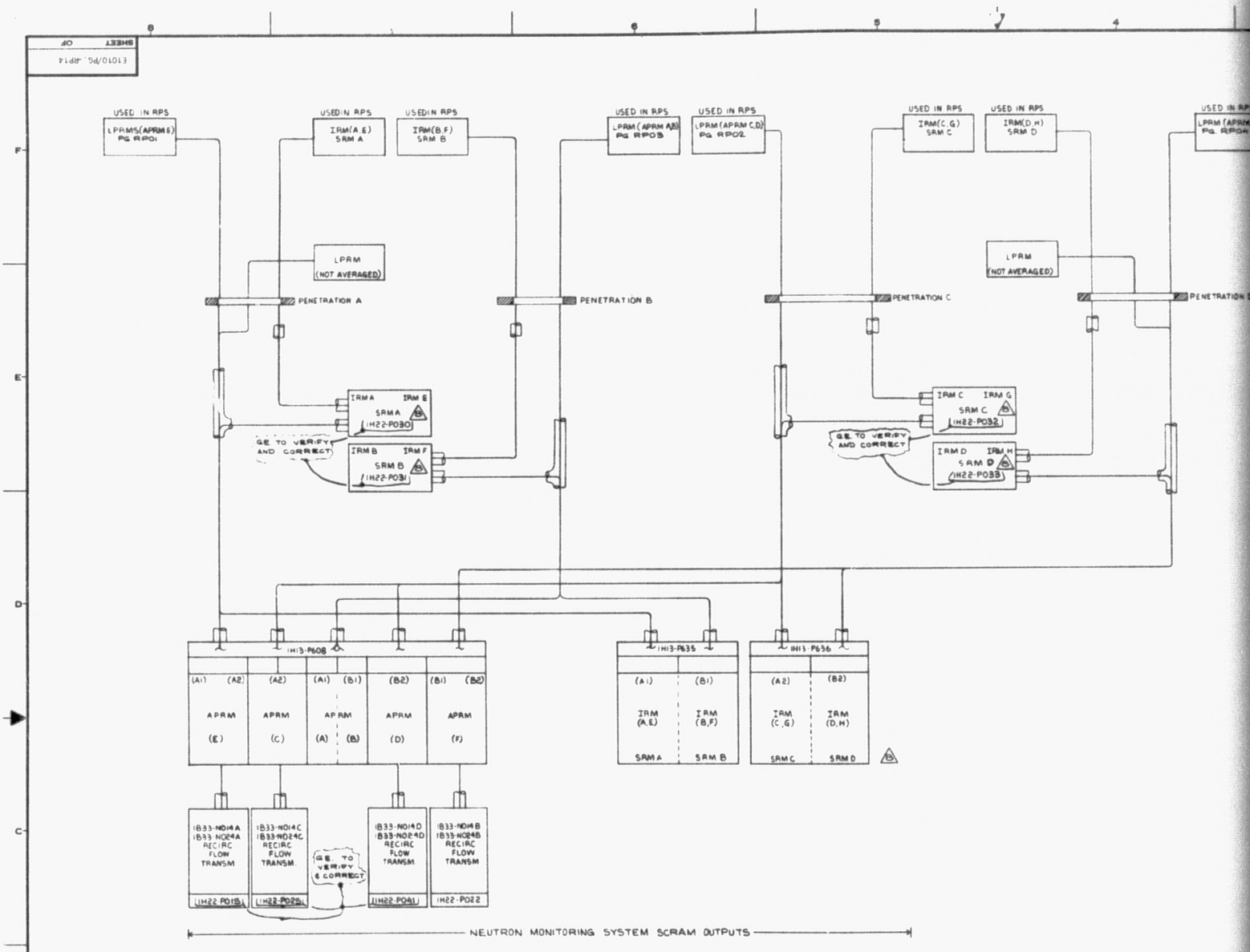


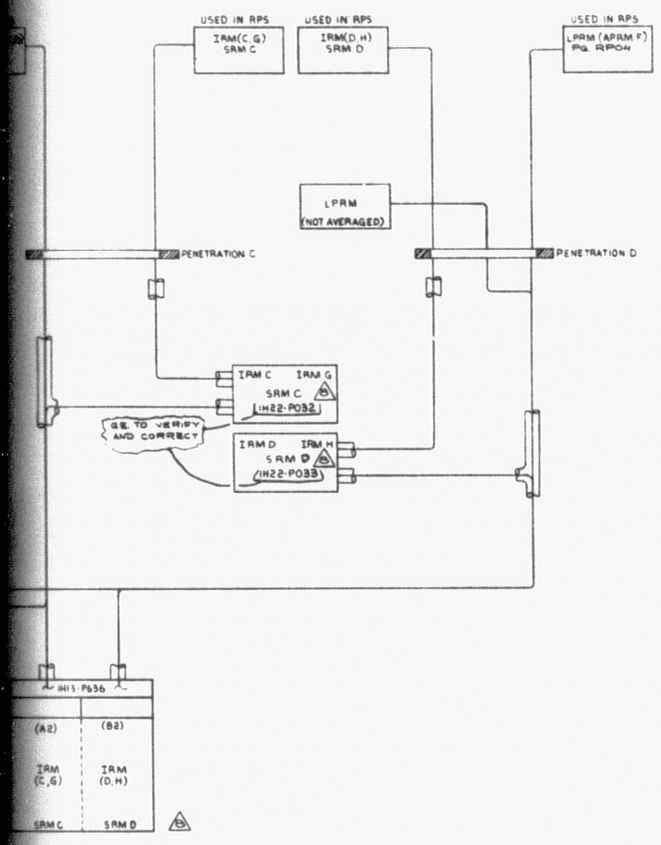
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-9

REACTOR PROTECTION SYSTEM ESD

(SHEET 13 of 16)


USED IN RPS
LPRMS(APRM E) PG RPO1
USED IN RPS
IRM(A,E) SRM A
USED IN RPS
IRM(B,F) SRM B
USED IN RPS
LPRM (APRM A,B) PG RPO3
USED IN RPS
LPRM (APRM C,D) PG RPO2
USED IN RPS
IRM(C,G) SRM C
USED IN RPS
IRM(D,H) SRM D
LPRM (NOT AVERAGED)
LPRM (NOT AVERAGED)
PENETRATION A
PENETRATION B
PENETRATION C
IRM A IRM E SRM A (1H22-P030)
IRM B IRM F SRM B (1H22-P031)
IRM C IRM G SRM C (1H22-P032)
IRM D IRM H SRM D (1H22-P033)
GE TO VERIFY AND CORRECT
GE TO VERIFY AND CORRECT
1H13-P608
1H13-P635
1H13-P636
(A1) (A2) APRM (E)
(A2) APRM (C)
(A1) (B1) APRM (A) (B)
(B2) APRM (D)
(B1) (B2) APRM (F)
(A1) IRM (A,E) SRM A
(B1) IRM (B,F) SRM B
(A2) IRM (C,G) SRM C
(B2) IRM (D,H) SRM D
1B33-N014A 1B33-N024A RECIRC FLOW TRANSM (1H22-P015)
1B33-N014C 1B33-N024C RECIRC FLOW TRANSM (1H22-P025)
1B33-N014D 1B33-N024D RECIRC FLOW TRANSM (1H22-P041)
1B33-N014B 1B33-N024B RECIRC FLOW TRANSM (1H22-P022)
GE TO VERIFY & CORRECT
NEUTRON MONITORING SYSTEM SCRAM OUTPUTS



NOTES (APPLY TO PG. RP14, RP15, RP16).

1. CABLE SEGREGATION SHOWN IS MANDATORY. INTERMEDIATE PULL BOXES MAY BE INSTALLED BY THE A.E. TO REDUCE THE NUMBER OF CONDUIT RUNS. IN NO CASE MAY THE A.E. GROUP CABLES WHICH ARE NOT SHOWN GROUPED ON THIS DRAWING.
2. ALL CONDUITS AND JUNCTION BOXES FOR REACTOR PROTECTION SYSTEM SHALL BE CONSPICUOUSLY IDENTIFIED AND USED FOR NO OTHER WIRING, EXCEPT AS SHOWN HEREON.
3. THE TRIP CHANNEL WIRING SEPARATION (SEPARATE RACEWAYS) SHALL BE MAINTAINED WITHIN PANELS 1H13-P609 & 1H13-P611.
4. POWER WIRING BETWEEN SCRAM CONTACTORS SHALL BE IN METALLIC CONDUIT.
5. NEUTRAL BUSES ARE ISOLATED FROM SYSTEM GROUND HERE.
6. ⟨—⟩ REPRESENTS THE SAME PENETRATION THROUGH DRYWELL WITH TRIP CHANNELS ISOLATED FROM EACH OTHER WITH METALLIC SEPARATION.
7. TRIP CHANNEL SEPARATION SHALL BE MAINTAINED TO THE SENSORS.
8. SRM'S ARRANGED TO RPS FOR CONVENIENCE ONLY.
9. ALL INTERCONNECTING CABLES BETWEEN PANELS 1H13-P609 AND 1H13-P611 TERMINAL BOARDS AA,BB,CC,DD & EE MUST BE RUN IN CONDUITS AS SHOWN.
10. THE INBOARD AND OUTBOARD ISOLATION VALVE CONTROL CABLES MUST BE SEPARATED FROM EACH OTHER IN ACCORDANCE WITH THE SEPARATION CRITERIA BUT MAY BE INTERMIXED WITH OTHER CONTROL CABLES PROVIDING THE CONDITIONS OF NOTE 9 ARE NOT VIOLATED.
11. FIELD WIRING TO SCRAM CONTACTORS SHALL BE RUN IN METALLIC CONDUIT TO THE CONTACTOR BOX.
12. PANEL WIRING TO VALVE CONTROL SWITCHES, INDICATORS AND LIGHTS SHALL BE BUNDLED OR RUN IN WIRING DUCTS SO AS TO SEPARATE WIRING FROM INBOARD AND OUTBOARD DEVICES.

ESSENTIAL COMPONENTS
INCLUDED

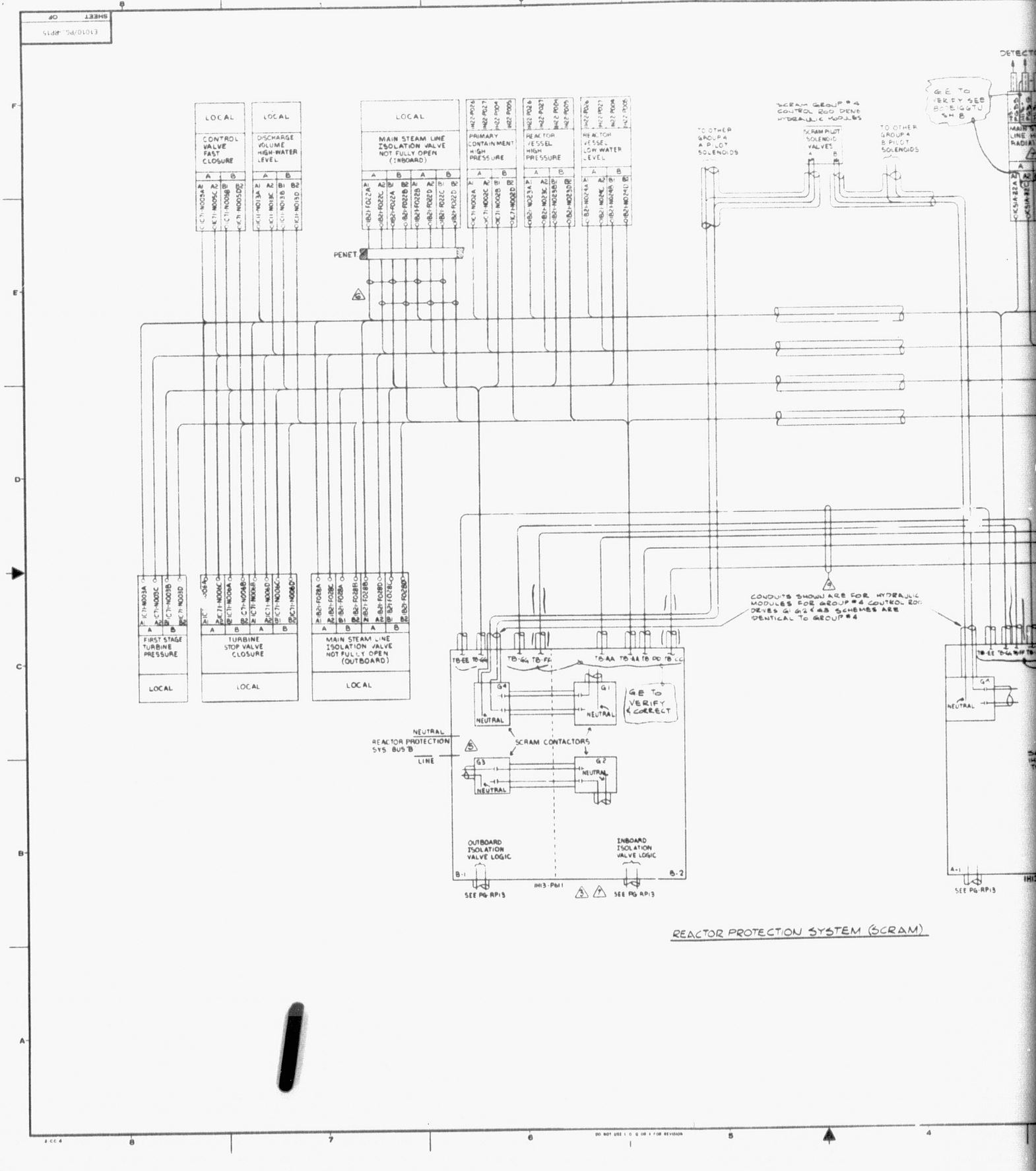
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

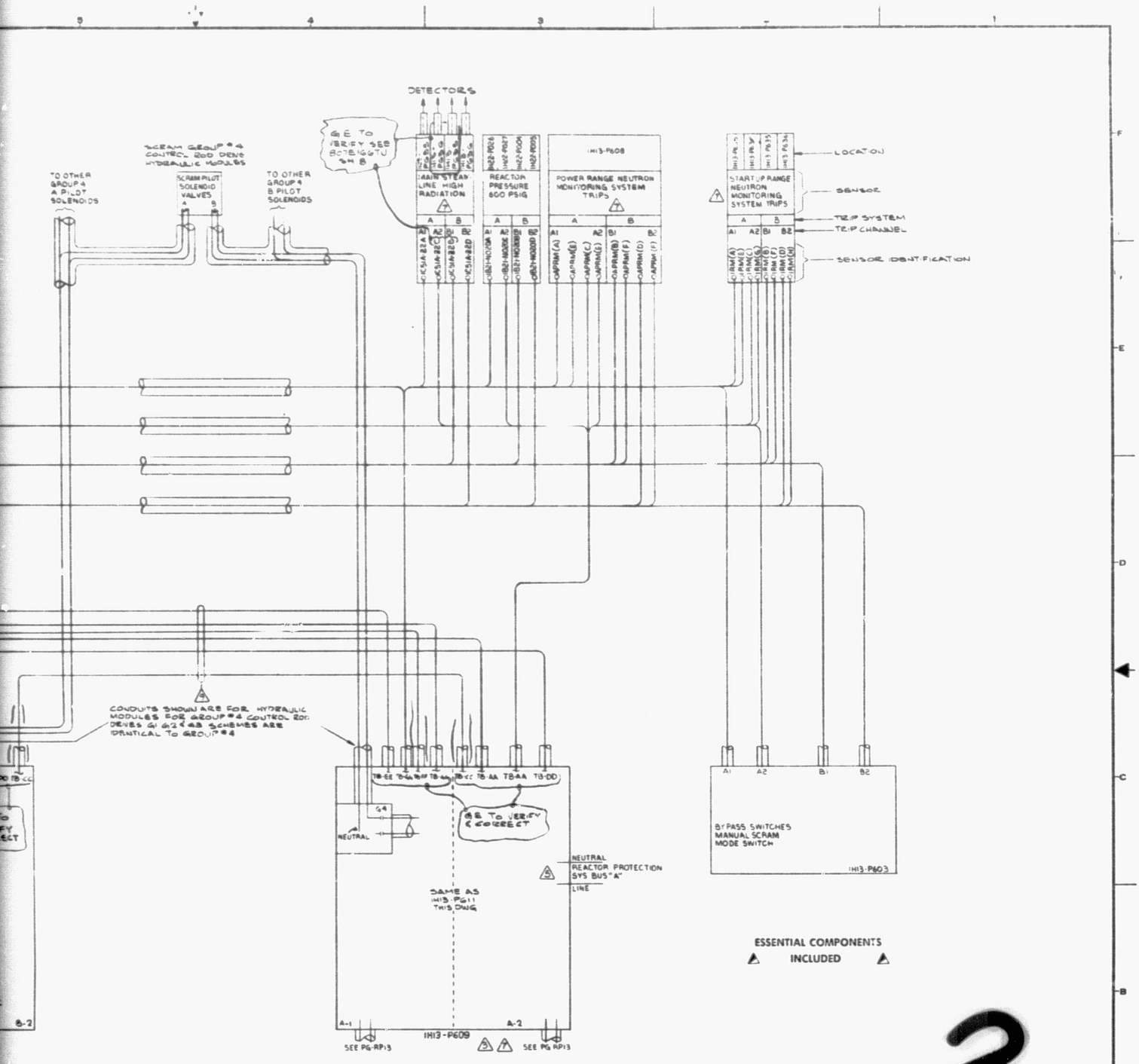
FIGURE 7.2-9

REACTOR PROTECTION SYSTEM ESD

(SHEET 14 of 16)



REACTOR PROTECTION SYSTEM (SCRAM)



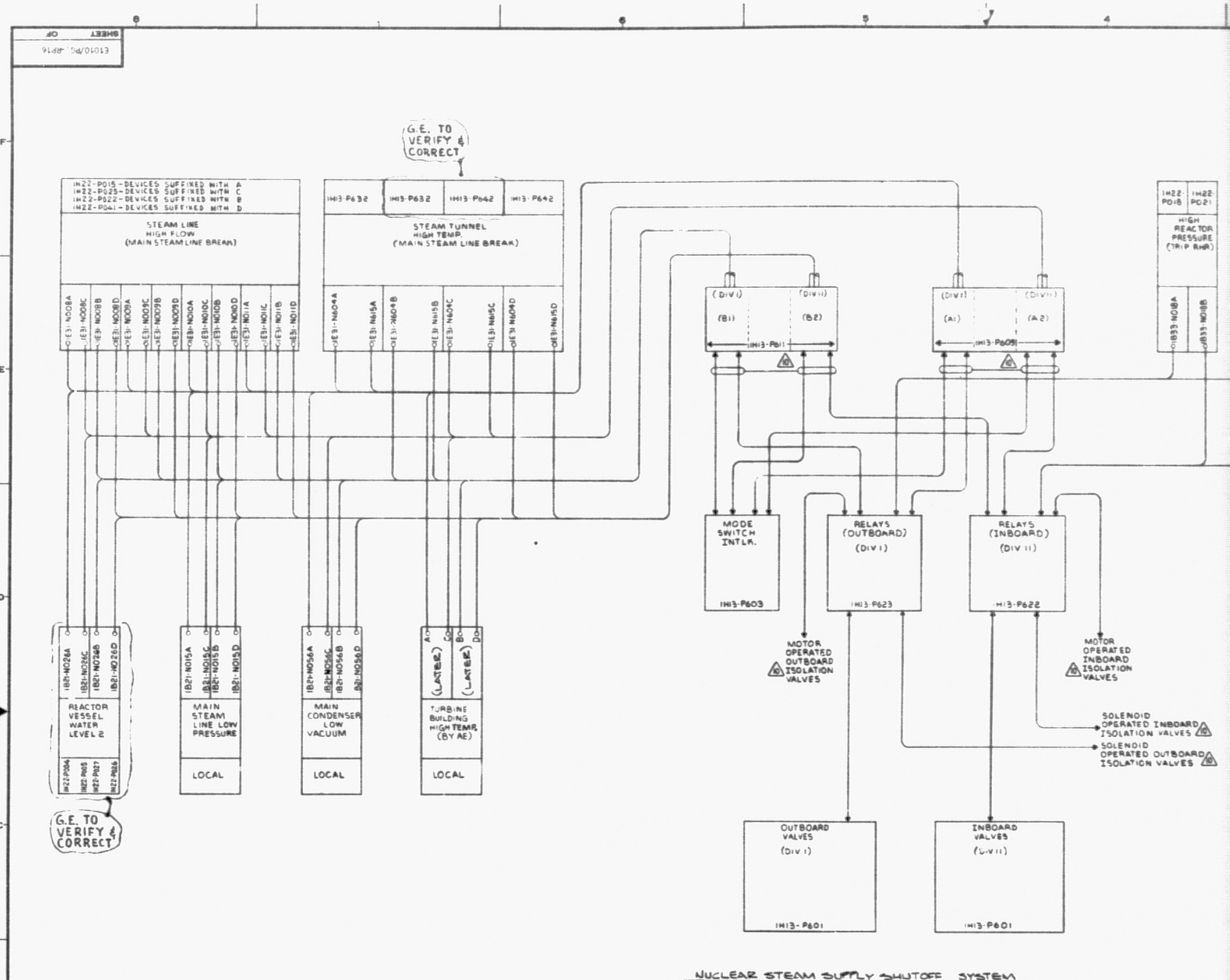
REACTOR PROTECTION SYSTEM (SCRAM)

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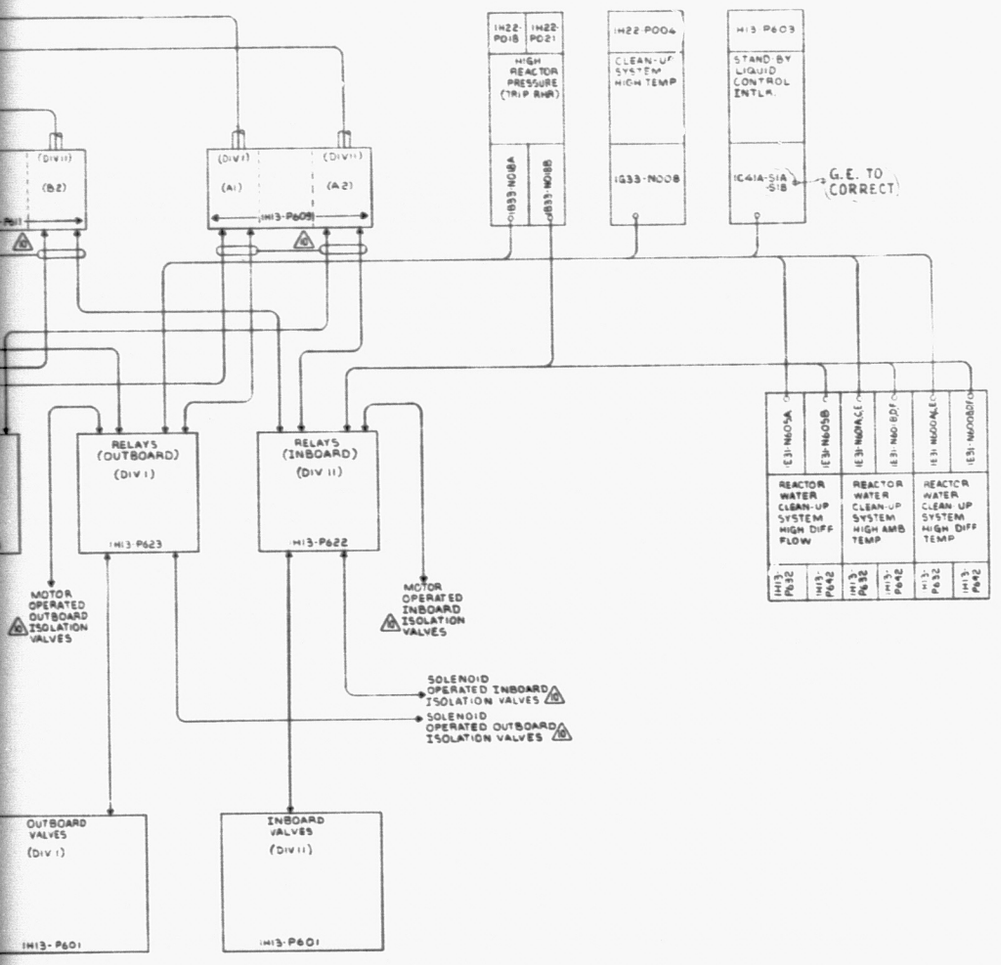
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-9

REACTOR PROTECTION SYSTEM ESD
(SHEET 15 of 16)



NUCLEAR STEAM SUPPLY SHUTOFF SYSTEM



STEAM SUPPLY SHUTOFF SYSTEM

ESSENTIAL COMPONENTS
INCLUDED

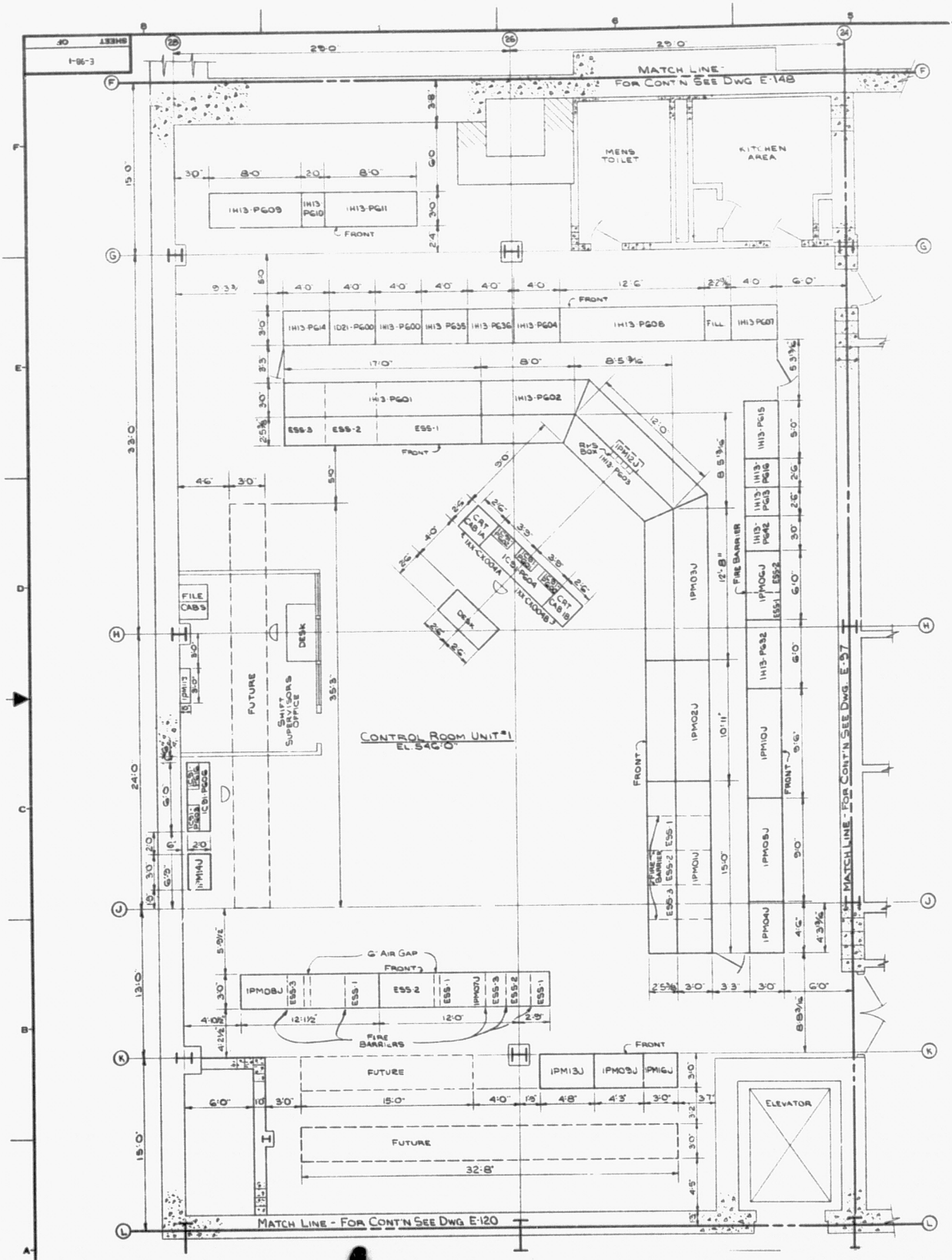
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FIGURE 7.2-9

REACTOR PROTECTION SYSTEM ESD

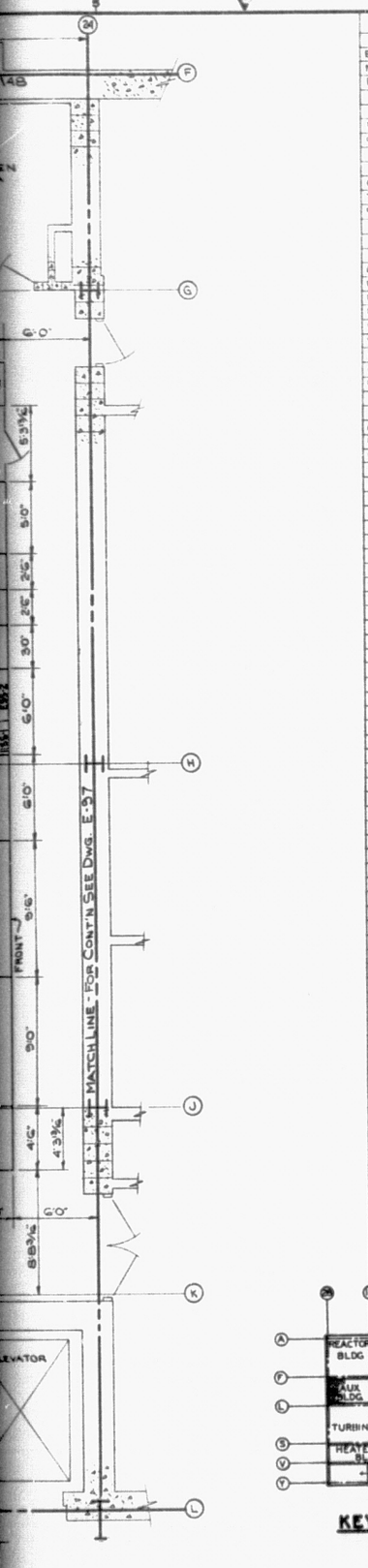
(SHEET 16 of 16)



KEY PLAN

PANEL & EQ

DESCRIPTION / SERVIC
EMERGENCY TRIP SYSTEM CABIN
MISC AUTOMATIC CONTROL CA
D E H CONTROL CABINET
ELECT TRANSDUCER POWER SU
BIOLOGICAL INSTRUMENTA
GENERAL & STATION AUX. PROTE
TURBINE SUPERVISORY PANE
STATION MW/MWHR TELEMET
69kV SUBSTATION RELAY PANE
Rx PROT SYS POWER DISTRIBUT
Rx PROT SYS M-G SET BUS A
Rx PROT SYS M-G SET BUS B
VISUAL ANNUNCIATOR INPUT CAB
VISUAL ANNUNCIATOR INPUT CA
VISUAL ANNUNCIATOR INPUT CA
OPERATORS CONSOLE
ON DEMAND LOG TYPEWRITER
ALARM TYPEWRITER
PERIODIC LOG TYPEWRITER
OPERATORS CONSOLE TABLE
PROGRAMMER TABLE (72 IN)
LOG TYPER TABLE (60 IN)
ANALOG INPUT CABINET 1A
ANALOG INPUT CABINET 1B
ANALOG INPUT CABINET 1C
DIGITAL INPUT CABINET 1A
DIGITAL INPUT CABINET 1B
DRUM CABINET
CENTRAL PROCESSOR CABINE
TAPE READER
TAPE PUNCH
INPUT/OUTPUT TYPEWRITER
BOP PERIODIC TYPEWRITER
AREA RADIATION MONITOR
120V. INSTR. PANEL 1A
120V. INSTR. PANEL 1B
120V. UNINTERRUPTIBLE PW
120V. COMPUTER DISTRIBUTIO
120V. UNINTERRUPTIBLE PO
120V. UNINTERRUPTIBLE PO

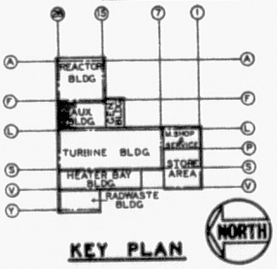


PANEL & EQUIPMENT LEGEND

DESCRIPTION / SERVICE	EQUIP NO	LOCATION	DWG NO	GRID SIZE
EMERGENCY TRIP SYSTEM CABINET	1PA01J	AUX EQUIPT RM	E-96-	
MISC AUTOMATIC CONTROL CABINETS	1PA02J	AUX EQUIPT RM	E-96-	
D.E.H. CONTROL CABINET	1PA03J	AUX EQUIPT RM	E-96-	
ELECT TRANSDUCER POWER SUPPLY CABINET	1PA06J	COMPUTER RM	E-96-	
SEISMOLOGICAL INSTRUMENTATION	1PA07J	AUX EQUIPT RM	E-96-	
GENERAL & STATION AUX. PROTECTION RELAY PNL	1PA10J	AUX EQUIPT RM	E-96-1	
TURBINE SUPERVISORY PANEL	1PA11J	AUX EQUIPT RM	E-96-1	
STATION MW/MWHR TELEMETRY PANEL	1PA12J	AUX EQUIPT RM	E-96-1	
69KV SUBSTATION RELAY PANEL	1PA16J	COMPUTER RM	E-96-1	
RX PROT SYS POWER DISTRIBUTION PANEL	1C71-P001	AUX EQUIPT RM	E-96-1	
RX PROT SYS M-G SET BUS A	1C71-S001A	AUX EQUIPT RM	E-96-1	
RX PROT SYS M-G SET BUS B	1C71-S001B	AUX EQUIPT RM	E-96-1	
VISUAL ANNUNCIATOR INPUT CABINET 1A	1PA04JA	AUX EQUIPT RM	E-96-1	
VISUAL ANNUNCIATOR INPUT CABINET 1B	1PA04JB	AUX EQUIPT RM	E-96-1	
VISUAL ANNUNCIATOR INPUT CABINET 1C	1PA04JC	AUX EQUIPT RM	E-96-1	
OPERATORS CONSOLE	1C91-P600	CONTROL RM	E-98-1	
ON DEMAND LOG TYPEWRITER	1C91-P601	CONTROL RM	E-98-1	
ALARM TYPEWRITER	1C91-P602	CONTROL RM	E-98-	
PERIODIC LOG TYPEWRITER	1C91-P603	CONTROL RM	E-98-	
OPERATORS CONSOLE TABLE (80 IN)	1C91-P604	CONTROL RM	E-98-1	
PROGRAMMER TABLE (72 IN)	1C91-P605	COMPUTER RM	E-96-1	
LOG TYPER TABLE (60 IN)	1C91-P606	CONTROL RM	E-98-1	
ANALOG INPUT CABINET 1A	1C91-P607A	COMPUTER RM	E-96-1	
ANALOG INPUT CABINET 1B	1C91-P607B	COMPUTER RM	E-96-1	
ANALOG INPUT CABINET 1C	1C91-P607C	COMPUTER RM	E-96-1	
DIGITAL INPUT CABINET 1A	1C91-P608A	COMPUTER RM	E-96-1	
DIGITAL INPUT CABINET 1B	1C91-P608B	COMPUTER RM	E-96-1	
DRUM CABINET	1C91-P610	COMPUTER RM	E-96-1	
CENTRAL PROCESSOR CABINET	1C91-P612	COMPUTER RM	E-96-1	
TAPE READER	1C91-P613	COMPUTER RM	E-96-1	
TAPE PUNCH	1C91-P614	COMPUTER RM	E-96-1	
INPUT/OUTPUT TYPEWRITER	1C91-P615	COMPUTER RM	E-96-1	
BOP PERIODIC TYPEWRITER	1C91-P616	CONTROL RM	E-98-1	
AREA RADIATION MONITOR CABINET	1D21-P600	CONTROL RM	E-98-	
120V. INSTR. PANEL 1A	1AP25EA	AUX EQUIPT RM	E-96-1	
120V. INSTR. PANEL 1B	1AP25EB	AUX EQUIPT RM	E-96-	
120V. UNINTERRUPTIBLE POWER PANEL	1AP2GEA	AUX EQUIPT RM	E-96-	
120V. COMPUTER DISTRIBUTION PANEL	1AP2GEB	AUX EQUIPT RM	E-96-	
120V. UNINTERRUPTIBLE POWER SUPPLY 1A	1AP27EA	AUX EQUIPT RM	E-96-	
120V. UNINTERRUPTIBLE POWER SUPPLY 1B	1AP27EB	AUX EQUIPT RM	E-96-	

PANEL & EQUIPMENT LEGEND

DESCRIPTION / SERVICE	EQUIP NO	LOCATION	DWG NO	GRID SIZE
PROCESS RADIATION RECORDERS PANEL	1H13-P600	CONTROL RM	E-98-1	
REACTOR CORE COOLING SYSTEM PANEL	1H13-P601	CONTROL RM	E-98-1	
REACTOR WTR CLEAN UP & RECIRC CONTROL PNL	1H13-P602	CONTROL RM	E-98-1	
REACTOR CONTROL PANEL	1H13-P603	CONTROL RM	E-98-1	
PROCESS RADIATION MONITORING INSTR. PANEL	1H13-P604	CONTROL RM	E-98-1	
TIP CONTROL & MONITORING CABINET	1H13-P607	CONTROL RM	E-98-1	
POWER RANGE NEUTRON MONITORING CABINET	1H13-P608	CONTROL RM	E-98-1	
TRIP SYSTEM 'A' REACTOR PROTECTION SYSTEM PNL	1H13-P609	CONTROL RM	E-98-1	
CONTROL ROD DRIVE TEST CABINET	1H13-P610	CONTROL RM	E-98-1	
TRIP SYSTEM 'B' REACTOR PROTECTION SYSTEM PNL	1H13-P611	CONTROL RM	E-98-1	
FEEDWATER & RECIRCULATION INSTRUMENT PANEL	1H13-P612	AUX EQUIPT RM	E-96-1	
PROCESS INSTRUMENTATION CABINET	1H13-P613	CONTROL RM	E-98-1	
NUCLEAR STEAM TEMPERATURE RECORDER PNL	1H13-P614	CONTROL RM	E-98-1	
CONTROL ROD POSITION INFORMATION CABINET	1H13-P615	CONTROL RM	E-98-1	
C.R.D. SELECTION RELAY INSTRUMENT PANEL	1H13-P616	CONTROL RM	E-98-1	
ESS 2 RHR PUMPS 1B & 1C RELAY PANEL	1H13-P618	AUX EQUIPT RM	E-96-1	
JET PUMP INSTRUMENTATION CABINET	1H13-P619	AUX EQUIPT RM	E-96-1	
ACIC SYSTEM RELAY PANEL	1H13-P621	AUX EQUIPT RM	E-96-1	
INBOARD PRIMARY CONTAINMENT ISOLATION RELAY PNL	1H13-P622	AUX EQUIPT RM	E-96-1	
OUTBOARD PRIMARY CONTAINMENT ISOLATION RELAY PNL	1H13-P623	AUX EQUIPT RM	E-96-1	
HPCS SYSTEM RELAY PANEL	1H13-P625	AUX EQUIPT RM	E-96-1	
AUTO-DEPRESSURIZATION SYSTEM 'A' RELAY PANEL	1H13-P628	AUX EQUIPT RM	E-96-1	
ESS 1 LPCS PUMP & RHR PUMP 1A RELAY PANEL	1H13-P629	AUX EQUIPT RM	E-96-1	
AUTO DEPRESSURIZATION SYSTEM 'B' RELAY PANEL	1H13-P631	AUX EQUIPT RM	E-96-1	
LEAK DETECTION PANEL 1A	1H13-P632	CONTROL RM	E-98-1	
REACTOR RECIRC ANALOG FLOW CONTROL CABINET	1H13-P634	AUX EQUIPT RM	E-96-1	
PROCESS RADIATION MONITORING CABINET 1A	1H13-P635	CONTROL RM	E-98-1	
PROCESS RADIATION MONITORING CABINET 1B	1H13-P636	CONTROL RM	E-98-1	
LEAK DETECTION PANEL 1B	1H13-P642	CONTROL RM	E-98-1	
ESS-1 FLAMMABILITY CONTROL SYSTEM PANEL 1A	1T49-P866	AUX EQUIPT RM	E-96-1	
ESS-2 FLAMMABILITY CONTROL SYSTEM PANEL 1B	1T49-P866	AUX EQUIPT RM	E-96-1	
ESS 1 PROMPT RELIEF TRIP CABINET 1A	1H13-P689	AUX EQUIPT RM	E-96-1	
ESS 2 PROMPT RELIEF TRIP CABINET 1B	1H13-P690	AUX EQUIPT RM	E-96-1	
MSIV LEAKAGE CONTROL SYSTEM PANEL 1A	1H13-P655	AUX EQUIPT RM	E-96-1	
MSIV LEAKAGE CONTROL SYSTEM PANEL 1B	1H13-P654	AUX EQUIPT RM	E-96-1	
GENERATOR & STATION AUXILIARY PANEL	1PM01J	CONTROL RM	E-98-1	
TURBINE-CONDENSER & AUXILIARIES PANEL	1PM02J	CONTROL RM	E-98-1	
FEEDWATER-HEATERS & AUXILIARIES PANEL	1PM03J	CONTROL RM	E-98-1	
GENERATOR & TRANSFORMER RECORDER PANEL	1PM04J	CONTROL RM	E-96-1	
STATION TOTALIZING PANEL	1PM05J	CONTROL RM	E-96-1	
LEAK DETECTION PANEL	1PM06J	CONTROL RM	E-98-1	
HVAC & STAND BY GAS TREATMENT PANEL	1PM07J	CONTROL RM	E-96-1	
STATION SERVICES PANEL	1PM08J	CONTROL RM	E-96-1	
FIRE PROTECTION & DELUGE VALVE CONTROL PANEL	1PM09J	CONTROL RM	E-96-1	
OFF GAS SYSTEM PANEL	1PM10J	CONTROL RM	E-98-1	
ACTUATION PNL FOR ENGINEERED SAFETY FEATURES STATUS PNL	1PM11J	CONTROL RM	E-98-1	
STATUS PNL FOR ENGINEERED SAFETY FEATURES	1PM12J	CONTROL RM	E-98-1	
EXCESS FLOW CHECK VALVES STATUS PANEL	1PM13J	CONTROL RM	E-98-1	
METEOROLOGICAL DATA OUTPUT TELETYPER	1PM14J	CONTROL RM	E-98-1	
345KV SWITCHYARD MIMIC BUS PANEL	1PM16J	CONTROL RM	E-98-1	



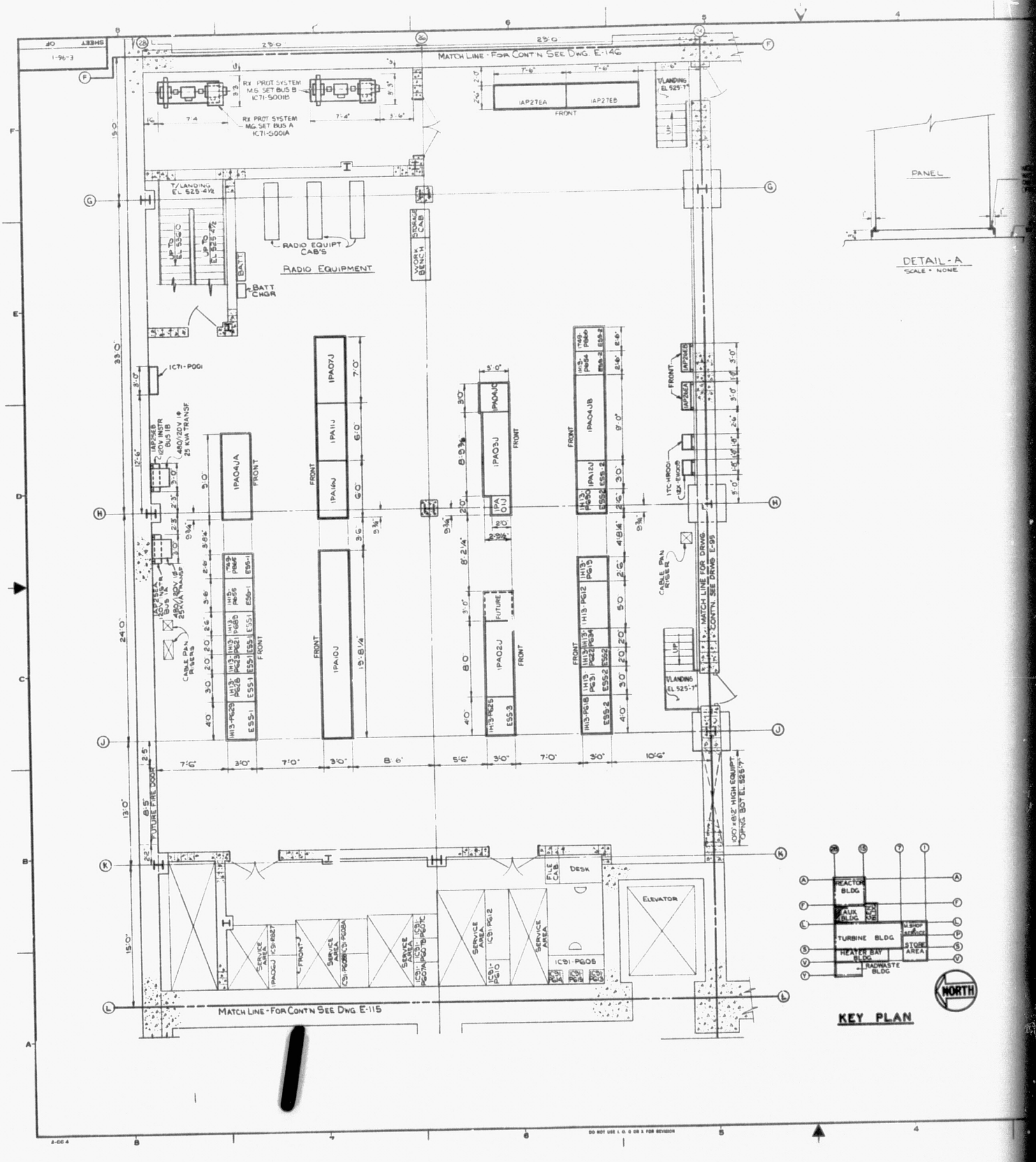
KEY PLAN

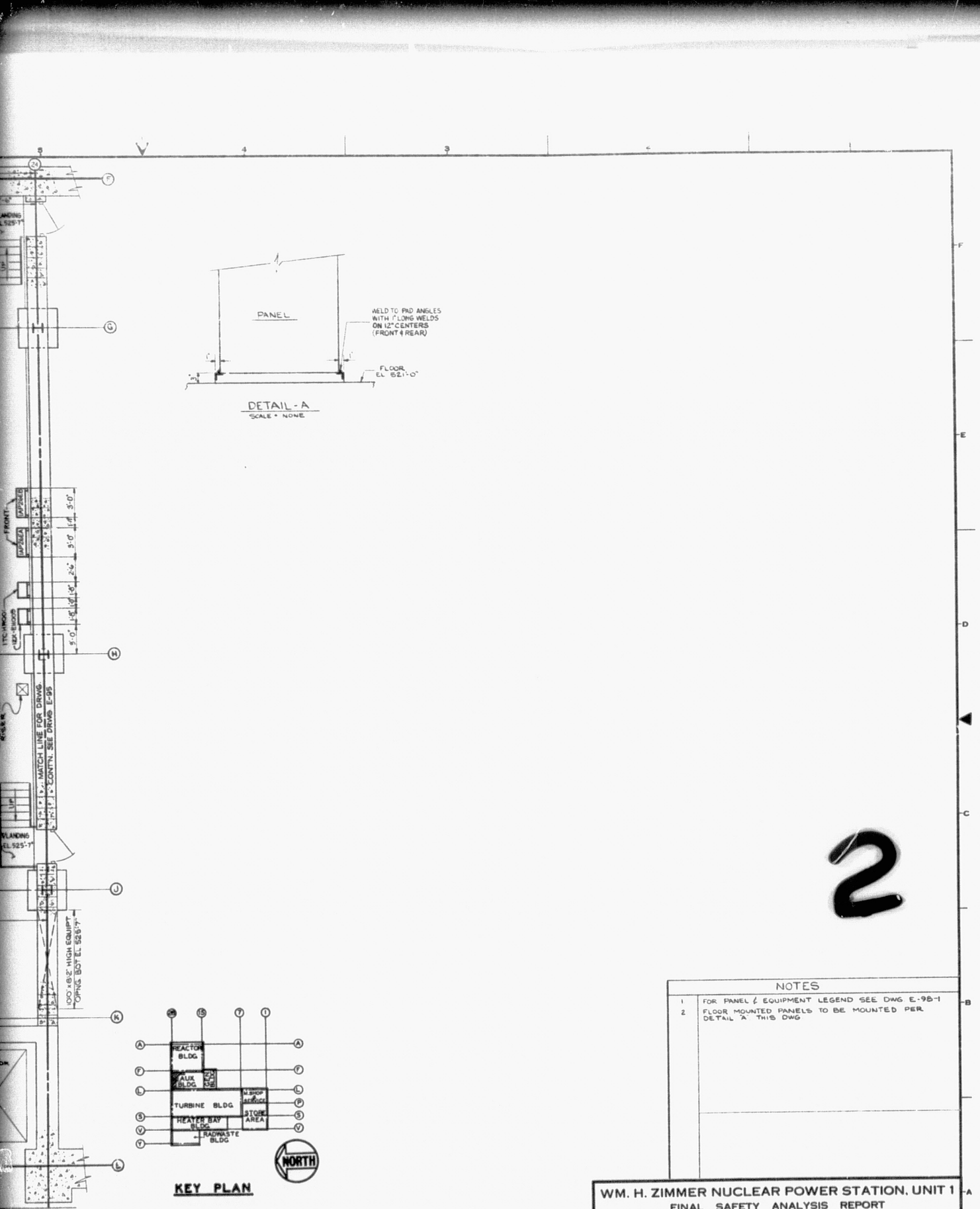
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-10

CONTROL ROOM LAYOUT


MATCH LINE - FOR CONT'N SEE DWG. E-146
Rx PROT SYSTEM M-G SET BUS B IC71-S001B
Rx PROT SYSTEM M-G SET BUS A IC71-S001A
1AP27EA
1AP27EB
FRONT
T/LANDING EL 525'-1"
T/LANDING EL 525'-4½"
UP TO EL 535'-0"
UP TO EL 525'-4½"
RADIO EQUIPT CAB'S
RADIO EQUIPMENT
WORK BENCH
STORAGE CAB
BATT
BATT CHGR
IC71-P001
1AP25EB
120V INSTR BUS 1B
480/120V 1Φ 25 KVA TRANSF
1AP25EA
120V INSTR BUS 1A
480/120V 1Φ 25KVA TRANSF
CABLE PAN RISERS
1PA04JA
1PA07J
1PA11J
1PA06J
1PA10J
1PA05J
1PA01J
1PA02J
1PA03J
1PA04JB
1PA12J
1PA13J
1PA14J
1PA15J
1PA16J
1PA17J
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1PA2375J
1PA



DETAIL - A
SCALE = NONE

KEY PLAN

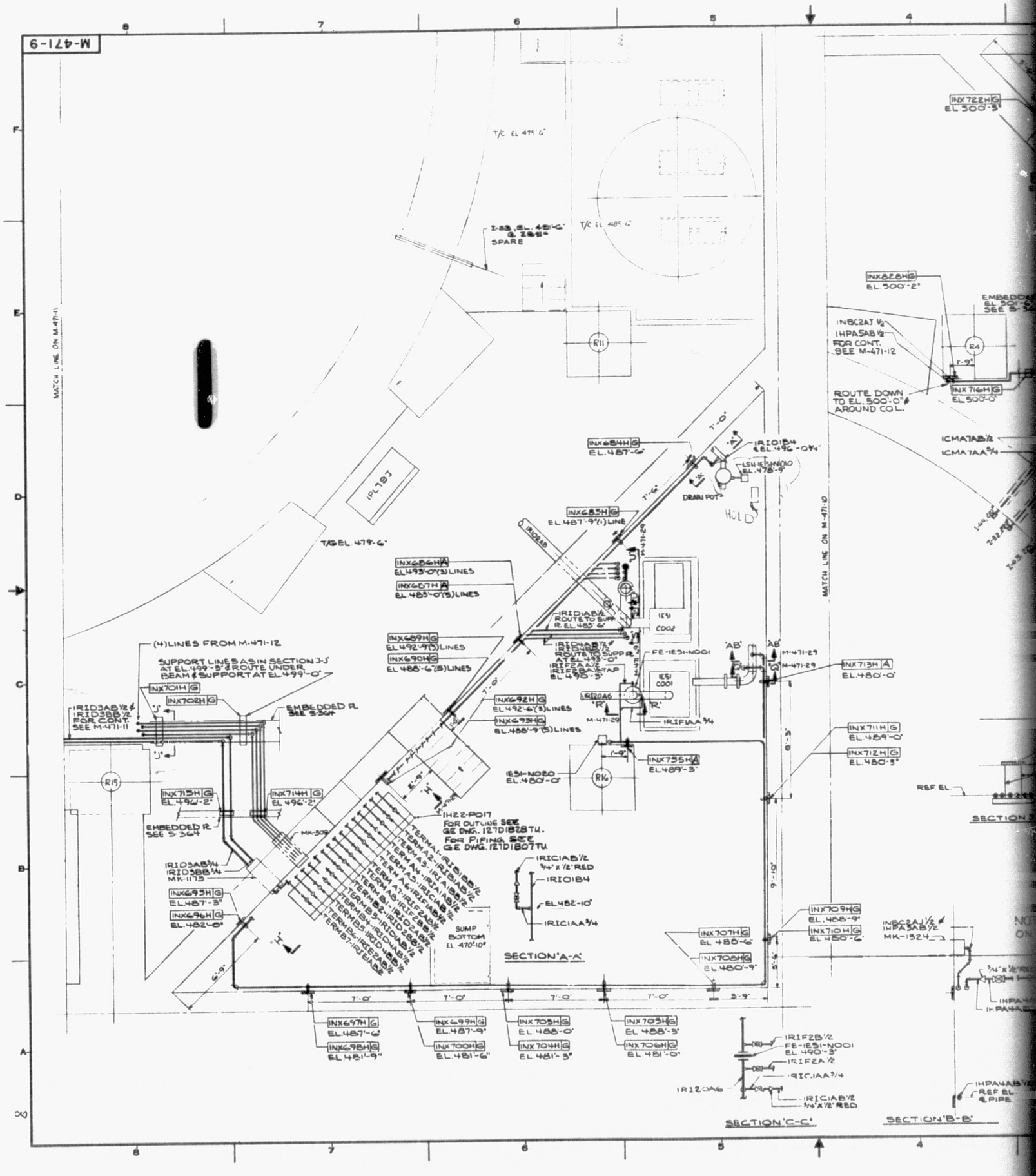
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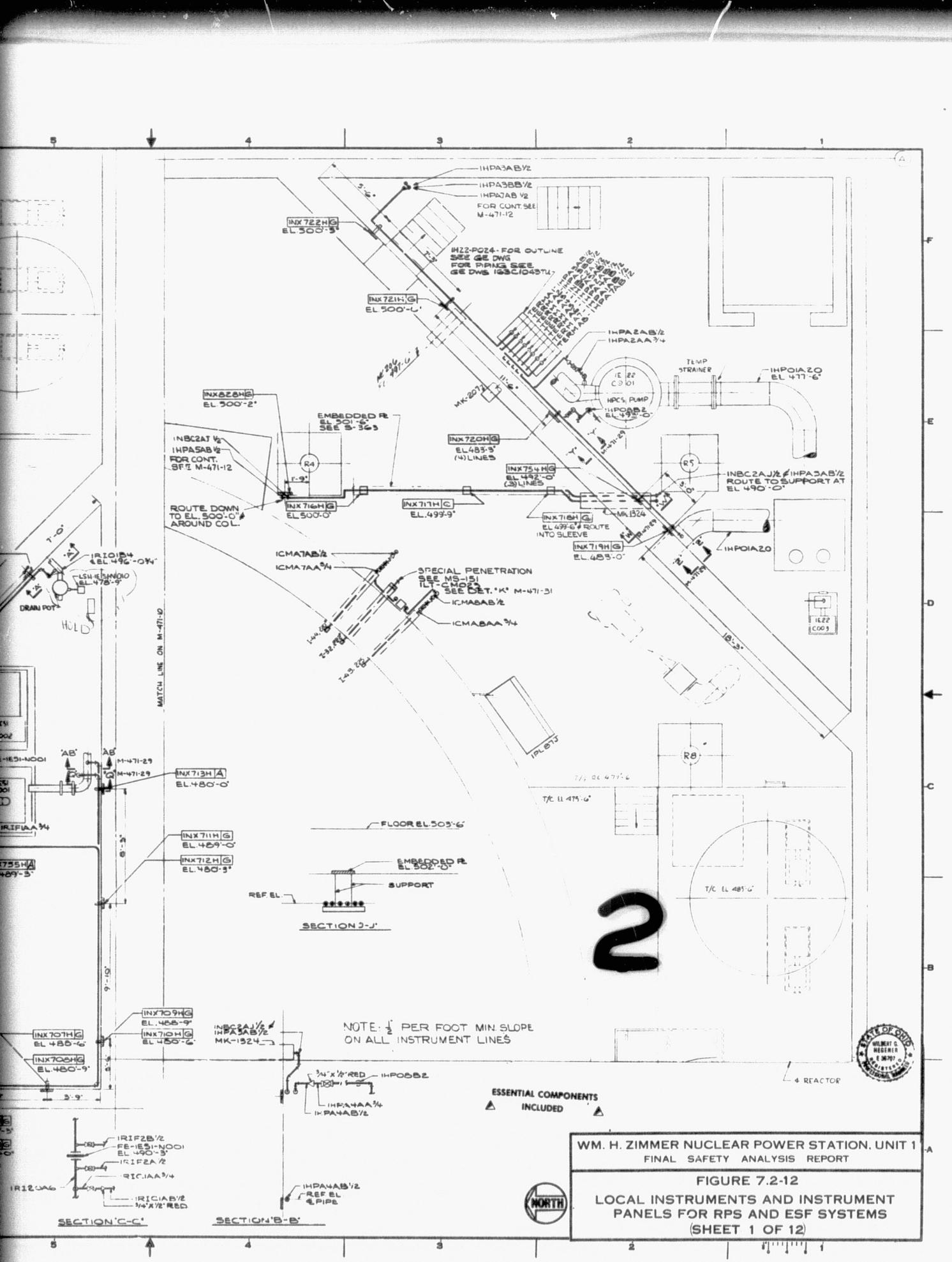
NOTES	
1	FOR PANEL & EQUIPMENT LEGEND SEE DWG E-98-1
2	FLOOR MOUNTED PANELS TO BE MOUNTED PER DETAIL 'A' THIS DWG

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-11

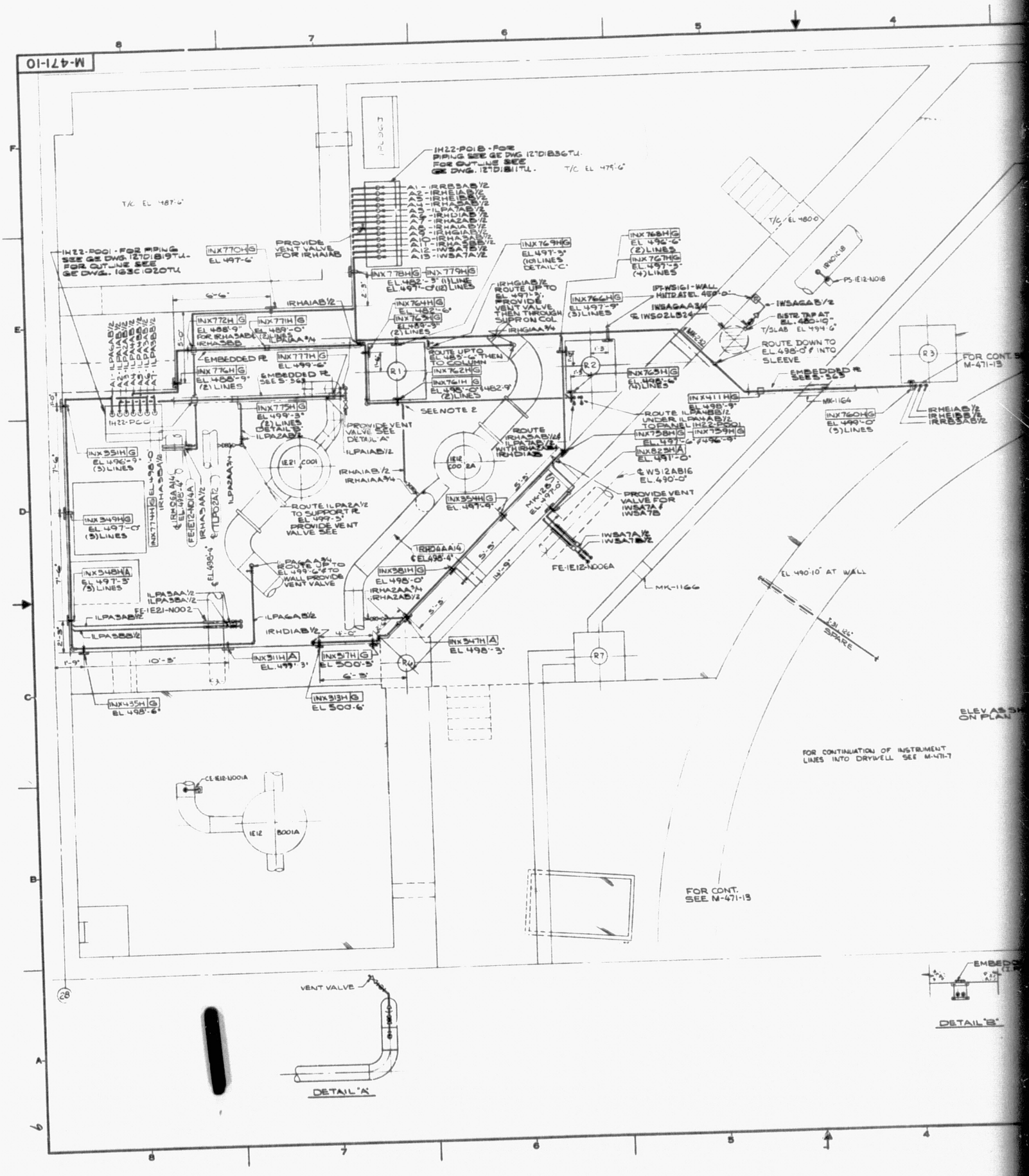
AUXILIARY EQUIPMENT ROOM LAYOUT

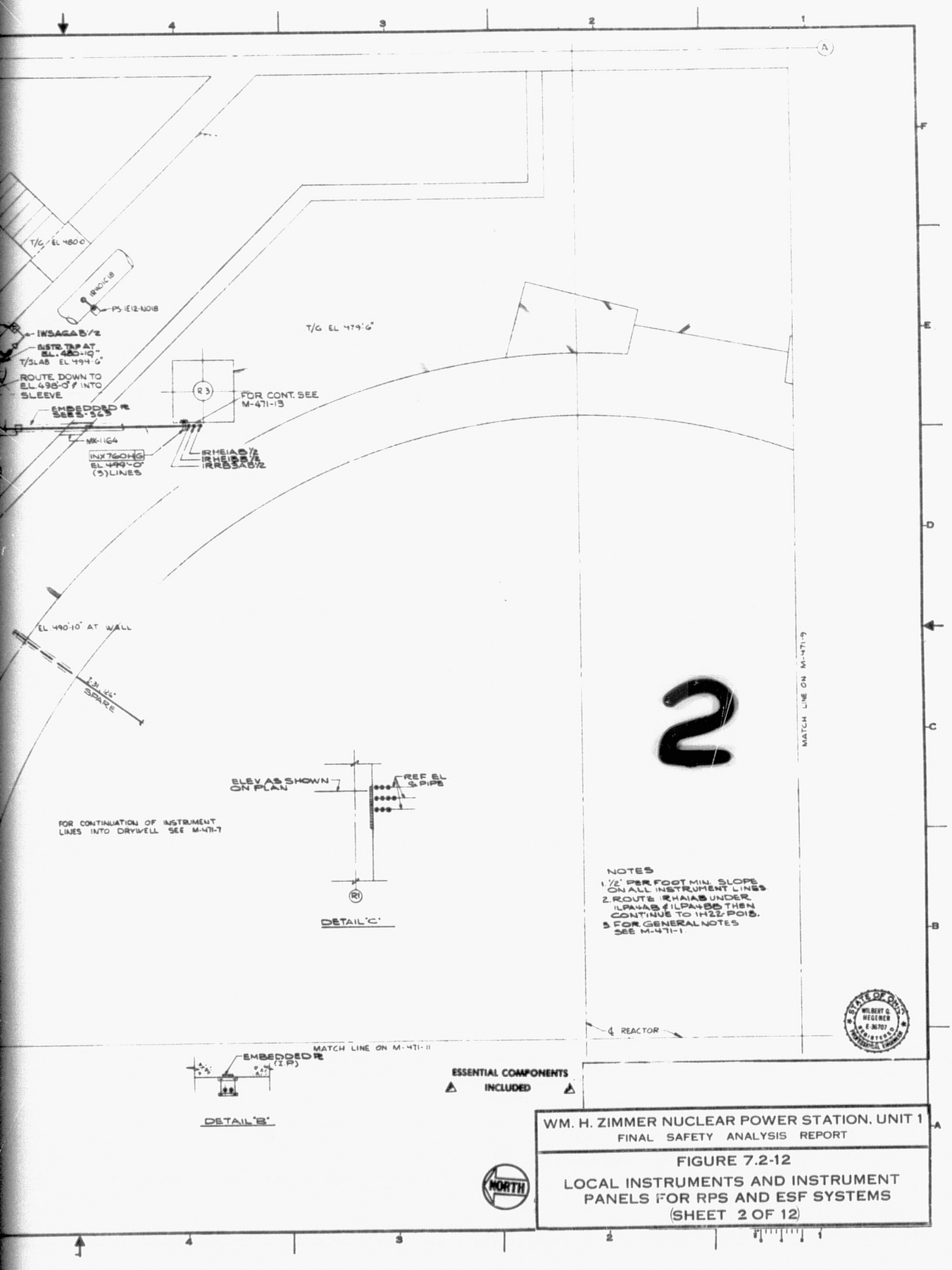

M-471-9
MATCH LINE ON M-471-11
MATCH LINE ON M-471-10
T/C EL 479'-6"
T/C EL 485'-6"
T/C EL 479'-6"
I-23, EL. 481'-6" @ 285° SPARE
R11
R4
R15
R16
IPL79J
INX722H G EL 500'-5"
INX828H G EL 500'-2"
INBC2AJ 1/2
IHPA5AB 1/2
FOR CONT. SEE M-471-12
ROUTE DOWN TO EL. 500'-0" AROUND COL.
INX716H G EL 500'-0"
ICMA7AB 1/2
ICMA7AA 3/4
INX684H G EL. 487'-6"
IRIO184 EL. 496'-0 3/4"
LSH IE-1-NO10 EL. 478'-9"
DRAIN POT
HOLD
INX685H G EL. 487'-9" (1) LINE
IMOX4B
INX686H A EL 493'-0" (3) LINES
INX687H A EL 485'-0" (5) LINES
IRIDIAB 1/2 ROUTE TO SUPP. R. EL 485'-6"
IRIDIBB 1/2 ROUTE TO SUPP. R. AT EL 493'-0"
IRIF2AJ 1/2 IRIF8AJ TAP EL 490'-3"
IE-1 C001
FE-1E51-N001
INX689H G EL 492'-9" (5) LINES
INX690H G EL 488'-6" (5) LINES
INX692H G EL 492'-6" (3) LINES
INX693H G EL 488'-9" (5) LINES
IRIF1AA 3/4
IE51-N020 EL 480'-0"
INX735H A EL 489'-3"
INX713H A EL 480'-0"
INX711H G EL 489'-0"
INX712H G EL 480'-9"
REF EL.
SECTION 3
(4) LINES FROM M-471-12
SUPPORT LINES AS IN SECTION J-J AT EL 499'-3" & ROUTE UNDER BEAM & SUPPORT AT EL 499'-0"
INX701H G
INX702H G
EMBEDDED R. SEE S-364
IRID3AB 1/2 IRID3BB 1/2 FOR CONT. SEE M-471-11
INX715H G EL 496'-2"
INX714H G EL 496'-2"
EMBEDDED R. SEE S-364
MK-309
IRID3AB 3/4 IRID3BB 3/4 MK-175
INX695H G EL 487'-3"
INX696H G EL 482'-0"
IH22-P017
FOR OUTLINE SEE GE DWG. 127D1828TU.
FOR PIPING, SEE GE DWG. 127D1807TU.
TERM A1-IRIE1BB 1/2
TERM A2-IRIE1BA 1/2
TERM A3-IRIE1AB 1/2
TERM A4-IRIE1AA 1/2
TERM A5-IRIC1AB 1/2
TERM A6-IRIF2AB 1/2
TERM A7-IRIF2BB 1/2
TERM B1-IRID2AB 1/2
TERM B2-IRID2BB 1/2
TERM B3-IRIC1AB 1/2
TERM B4-IRIE2AB 1/2
TERM B5-IRIE2BB 1/2
TERM B6-IRIE2BA 1/2
TERM B7-IRIE2AA 1/2
SUMP BOTTOM EL 470'-10"
IRICIAB 1/2 3/4" x 1/2" RED
IRIO184
EL 482'-10"
IRICIAA 3/4
SECTION 'A-A'
INX709H G EL. 488'-9"
INX710H G EL 480'-6"
INX707H G EL 488'-6"
INX708H G EL. 480'-9"
INBC2AJ 1/2
IHPA5AB 1/2
MK-1524
IHPA4
IHPA4AB 1/2
REF EL & PIPE
INX697H G EL 487'-6"
INX698H G EL 481'-9"
INX699H G EL 487'-9"
INX700H G EL 481'-6"
INX703H G EL 488'-0"
INX704H G EL 481'-3"
INX705H G EL 488'-3"
INX706H G EL 481'-0"
IRIF2B 1/2
FE-1E51-N001 EL 490'-3"
IRIF2A 1/2
IRICIAA 3/4
IR12DA6
IRICIAB 1/2 3/4" x 1/2" RED
SECTION 'C-C'
SECTION 'B-B'
7'-0"
6'-9"
5'-9"
9'-10"
8'-3"
1'-9"
1'-9"



WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

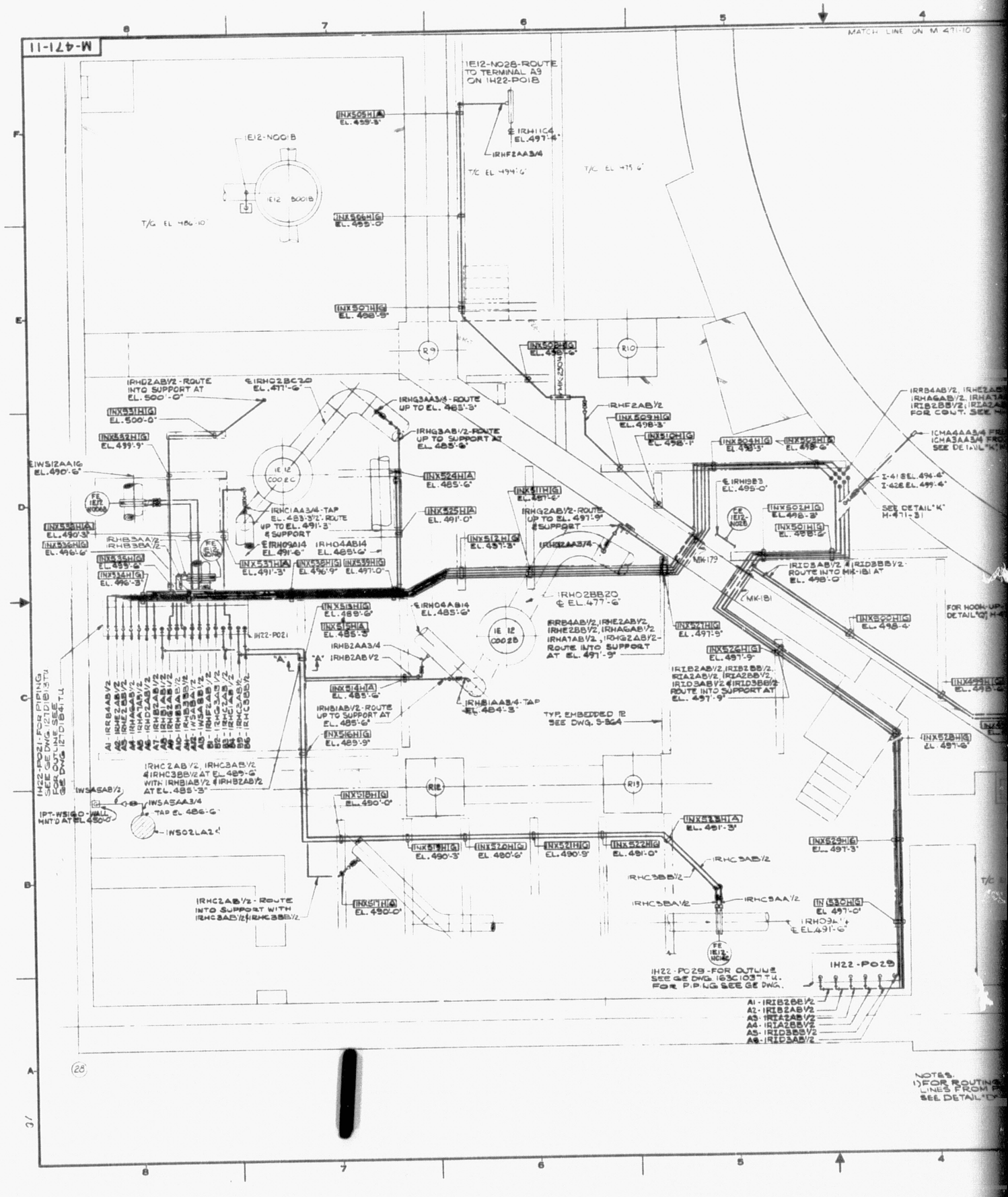
FIGURE 7.2-12
LOCAL INSTRUMENTS AND INSTRUMENT PANELS FOR RPS AND ESF SYSTEMS
(SHEET 1 OF 12)

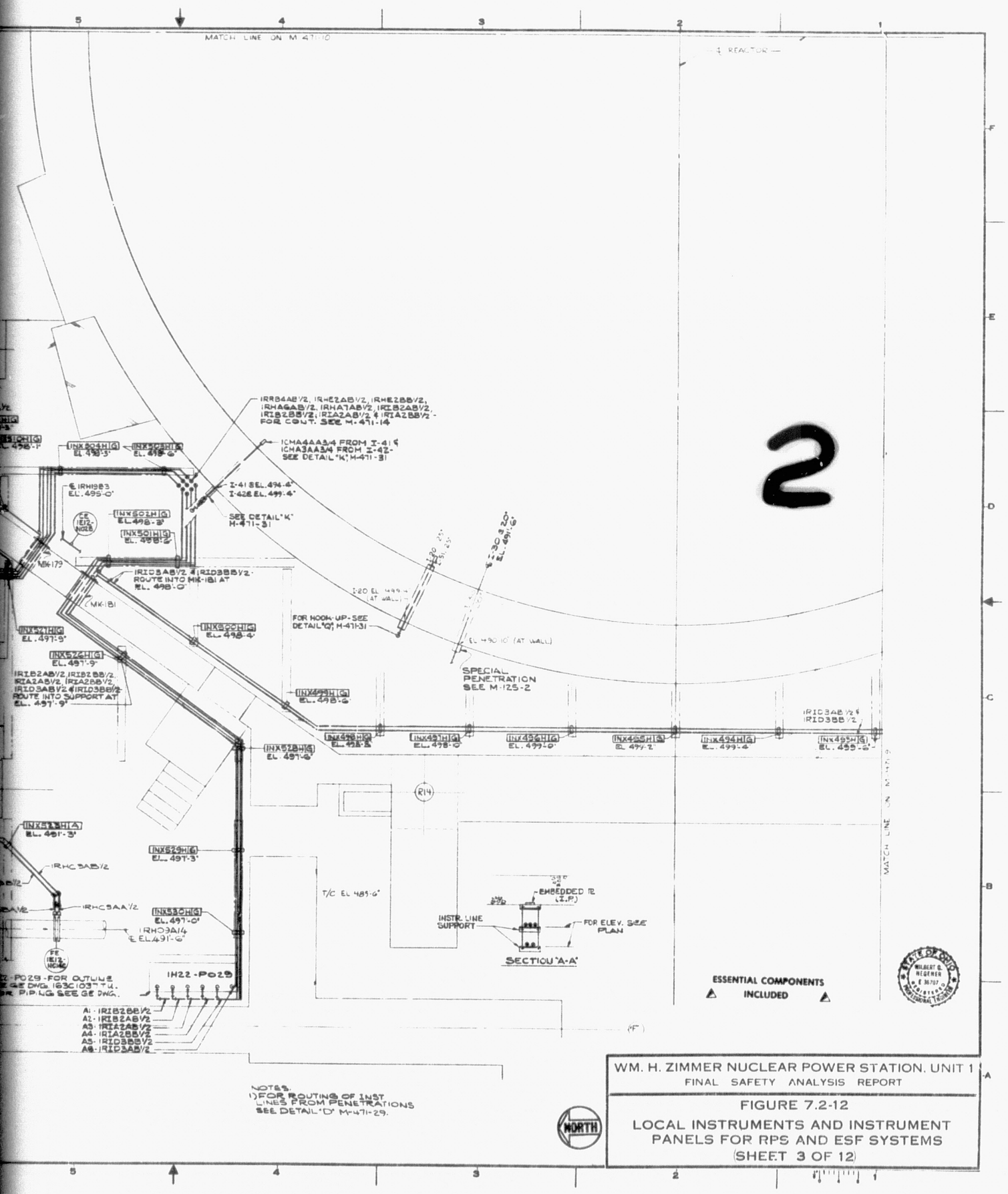

M-471-10
T/C EL 487'-6"
T/C EL 479'-6"
T/C EL 480'-0"
IH22-P018 - FOR PIPING SEE GE DWG. 12701B97TU. FOR OUTLINE SEE GE DWG. 12701B11TU.
IH22-P001 - FOR PIPING SEE GE DWG. 12701B19TU. FOR OUTLINE SEE GE DWG. 163C1020TU
IH22-PC01
INX770H G EL 497'-6"
PROVIDE VENT VALVE FOR IRHA1AB
INX778H G EL 482'-3" (1) LINE
INX779H G EL 497'-0" (12) LINES
INX769H G EL 497'-3" (10) LINES DETAIL 'C'
INX768H G EL 492'-6" (2) LINES
INX767H G EL 497'-3" (4) LINES
INX766H G EL 497'-9" (3) LINES
INX764H G EL 482'-6"
INX763 G EL 489'-3" (2) LINES
INX772H G EL 488'-9" FOR IRHA3AB
INX771H G EL 489'-0" (2) LINES ILPA1AA3/4
INX777H G EL 499'-6"
INX776H G EL 488'-9" (2) LINES
EMBEDDED PL SEE S-363
INX775H G EL 499'-3" (2) LINES DETAIL 'B'
INX762H G
INX761H G EL 495'-0" (2) LINES
482'-9"
SEE NOTE 2
INX765H G EL 498'-6" (4) LINES
INX411H G EL 498'-9"
INX760H G EL 499'-0" (5) LINES
INX759H G
INX758H G EL 497'-6"
INX825H A EL 491'-0"
INX351H G EL 496'-9" (5) LINES
INX349H G EL 497'-0" (5) LINES
INX348H A EL 497'-3" (5) LINES
INX774H G EL 498'-0"
IRHA3BA1/2
ILPA3AA1/2
ILPA3BA1/2
IRHA3AA1/2
ILPA3AB1/2
ILPA3BB1/2
IRHA3BA1/2
FE-1E12-N014A
EL 496'-4"
IE21 C001
IE12 C002A
IE12 B001A
IE12-C001A
ILPA1AB1/2
IRHA1AB1/2
IRHA1AA3/4
ILPA2AA3/4
ILPA2AB1/2
ROUTE ILPA2A1/2 TO SUPPORT R EL 499'-5" PROVIDE VENT VALVE SEE
PROVIDE VENT VALVE SEE DETAIL 'A'
ROUTE IRHA3AB1/2 & ILPA3AB1/2 WITH IRHD1AB
IRHD1AB1/2
IRHD4AA1/4 @ EL 498'-4"
ILPA4AA3/4 ROUTE UP TO EL 499'-6" & TO WALL PROVIDE VENT VALVE
INX358H G EL 498'-0"
IRHA2AA3/4
IRHA2AB1/2
INX354H G EL 497'-9"
MK-1165
MK-1164
MK-1166
@ W312AB16 EL 490'-0"
PROVIDE VENT VALVE FOR IWSA7A & IWSA7B
IWSA7A1/2
IWSA7B1/2
FE-1E12-N006A
ILPA3AA1/2
ILPA3BA1/2
FE-1E21-N002
ILPA3AB1/2
ILPA3BB1/2
IRHD1AB1/2
INX311H A EL 499'-3"
INX357H G EL 500'-5"
INX347H A EL 498'-3"
INX313H G EL 500'-6"
INX435H G EL 498'-6"
IRHA1AB1/2
IRHA1AA3/4
IRRB3AB1/2
IRHE1AB1/2
IRHE2BB1/2
IRRB3AB1/2
IRHG1AB1/2 ROUTE UP TO EL 497'-3" PROVIDE VENT VALVE THEN THROUGH SUPPRON COL
IRHG1AA3/4
IPT-WS1G1 - WALL MNTD AT EL 499'-0"
IWSA6AA3/4 & IWS02LB24
IWSA6AB1/2
ESTR. TAP AT EL. 480'-10"
T/SLAB EL 494'-6"
ROUTE DOWN TO EL 498'-0" & INTO SLEEVE
PS-1E12-N018
IRHG1AB
EMBEDDED PL SEE S-363
ROUTE ILPA4BB1/2 UNDER ILPA1AB1/2 TO PANEL IH22-P001
EL 490'-10" AT WALL
7'-3" LG. SPARE
FOR CONTINUATION OF INSTRUMENT LINES INTO DRYWELL SEE M-471-7
FOR CONT. SEE M-471-13
FOR CONT. SEE M-471-13
ELEV AS SH ON PLAN
VENT VALVE
DETAIL 'A'
DETAIL 'B'
EMBEDD (TYP)
A1 - IRRB5AB1/2
A2 - IRHE1AB1/2
A3 - IRHE2BB1/2
A4 - IRHA3BB1/2
A5 - ILPA1AB1/2
A6 - IRHD1AB1/2
A7 - IRHA2AB1/2
A8 - IRHA1AB1/2
A9 - IRHG1AB1/2
A10 - IRHA3AB1/2
A11 - IRHA3BB1/2
A12 - IWSA7B1/2
A13 - IWSA7A1/2
A1 - ILPA6AB1/2
A2 - ILPA1AB1/2
A3 - ILPA4BB1/2
A4 - ILPA4AB1/2
A5 - ILPA3AB1/2
A6 - ILPA3BB1/2
A7 - ILPA3BB1/2



WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-12
LOCAL INSTRUMENTS AND INSTRUMENT PANELS FOR RPS AND ESF SYSTEMS
(SHEET 2 OF 12)


M-471-11
MATCH LINE ON M-471-10
1E12-N028-ROUTE TO TERMINAL A9 ON 1H22-P018
1E12-N001B
1E12 B001B
T/G EL 486'-10"
T/C EL 494'-6"
T/C EL 475'-6"
INX505H|A EL. 499'-3"
INX506H|G EL. 495'-0"
INX507H|G EL. 498'-3"
INX502H|G EL. 498'-3"
INX509H|G EL. 498'-3"
INX510H|G EL. 498'-1"
INX504H|G EL. 498'-3"
INX508H|A EL. 498'-6"
INX501H|G EL. 498'-3"
INX550H|G EL. 499'-9"
INX551H|G EL. 500'-0"
IRHD2AB1/2 - ROUTE INTO SUPPORT AT EL. 500'-0"
IRHG3AA3/4 - ROUTE UP TO EL. 485'-3"
IRHG3AB1/2 - ROUTE UP TO SUPPORT AT EL. 485'-6"
IRHF2AB1/2
IRRB4AB1/2, IRHE2AB1/2, IRHA6AB1/2, IRHA1AB1/2, IRIB2BB1/2, IRIA2AB1/2 FOR CONT. SEE M-471-11
ICHA4AA3/4 FROM ICHA3AA3/4 SEE DETAIL "K"
I-418 EL. 494'-4"
I-428 EL. 499'-4"
SEE DETAIL "K" M-471-31
IEWS12AA1G EL. 490'-6"
IRHC1AA3/4 - TAP EL. 483'-3 1/2" - ROUTE UP TO EL. 491'-3" & SUPPORT
IRHB3AA1/2
IRHB3BA1/2
IRH04AB14 EL. 489'-6"
IRH09AB14 EL. 491'-6"
INX553H|A EL. 490'-3"
INX536H|G EL. 496'-6"
INX535H|G EL. 495'-6"
INX534H|G EL. 496'-3"
INX554H|A EL. 491'-3"
INX538H|G EL. 496'-9"
INX539H|G EL. 497'-0"
INX525H|A EL. 491'-0"
INX524H|A EL. 485'-6"
INX511H|G EL. 497'-6"
IRHG2AB1/2 - ROUTE UP TO EL. 491'-9" & SUPPORT
IRHG2AA3/4
INX512H|G EL. 491'-3"
INX502H|G EL. 498'-3"
INX503H|G EL. 498'-2"
IRID3AB1/2 & IRID3BB1/2 - ROUTE INTO MK-181 AT EL. 498'-0"
MK-179
MK-181
IRH02BB20 @ EL. 477'-6"
INX515H|G EL. 489'-6"
INX514H|A EL. 485'-3"
IRH04AB14 EL. 485'-6"
IRRB4AB1/2, IRHE2AB1/2, IRHE2BB1/2, IRHA6AB1/2, IRHA1AB1/2, IRHG2AB1/2 - ROUTE INTO SUPPORT AT EL. 491'-9"
INX521H|G EL. 497'-9"
INX520H|G EL. 498'-4"
INX522H|G EL. 497'-9"
IRIB2AB1/2, IRIB2BB1/2, IRIA2AB1/2, IRIA2BB1/2, IRID3AB1/2 & IRID3BB1/2 - ROUTE INTO SUPPORT AT EL. 497'-9"
IRHB2AA3/4
IRHB2AB1/2
IRHB1AA3/4 - TAP EL. 484'-3"
IRHB1AB1/2 - ROUTE UP TO SUPPORT AT EL. 485'-6"
INX516H|G EL. 489'-9"
TYP. EMBEDDED 12 SEE DWG. S-504
IH22-P021
IH22-P021 - FOR PIPING SEE GE DWG 121D813 TU. FOR OUTLINE SEE GE DWG 121D1841 TU.
A1 - IRRB4AB1/2
A2 - IRHE2AB1/2
A3 - IRHA6AB1/2
A4 - IRHA1AB1/2
A5 - IRHG2AB1/2
A6 - IRHB2AB1/2
A7 - IRHB1AB1/2
A8 - IRHB3AB1/2
A9 - IRHB3BB1/2
B1 - IRHG3AB1/2
B2 - IRHC1AB1/2
B3 - IRHC3AB1/2
B4 - IRHC3BB1/2
IRHC2AB1/2, IRHC3AB1/2 & IRHC3BB1/2 AT EL. 489'-6" WITH IRHB1AB1/2 & IRHB2AB1/2 AT EL. 485'-3"
IWSA5AB1/2
IWSA5AA3/4
TAP EL. 486'-6"
IPT-WSIG0 - WALL MNT'D AT EL. 450'-0"
IWS02LA2
INX518H|G EL. 490'-0"
INX517H|G EL. 490'-3"
INX519H|G EL. 480'-6"
INX523H|G EL. 490'-9"
INX522H|G EL. 491'-0"
INX513H|A EL. 491'-3"
INX529H|G EL. 497'-3"
IRHC3AB1/2
IRHC3BB1/2
IRHC3BA1/2
IRHC3AA1/2
IRHD3A1
@ EL. 491'-6"
IN 530H|G EL 497'-0"
IRHC2AB1/2 - ROUTE INTO SUPPORT WITH IRHC3AB1/2 & IRHC3BB1/2
INX527H|A EL. 450'-0"
IH22-P029 - FOR OUTLINE SEE GE DWG. 183C103 TU. FOR P.P.NG SEE GE DWG.
IH22-P029
A1 - IRIB2BB1/2
A2 - IRIB2AB1/2
A3 - IRIA2AB1/2
A4 - IRIA2BB1/2
A5 - IRID3BB1/2
A6 - IRID3AB1/2
NOTES.
1) FOR ROUTING LINES FROM P SEE DETAIL "D"
28

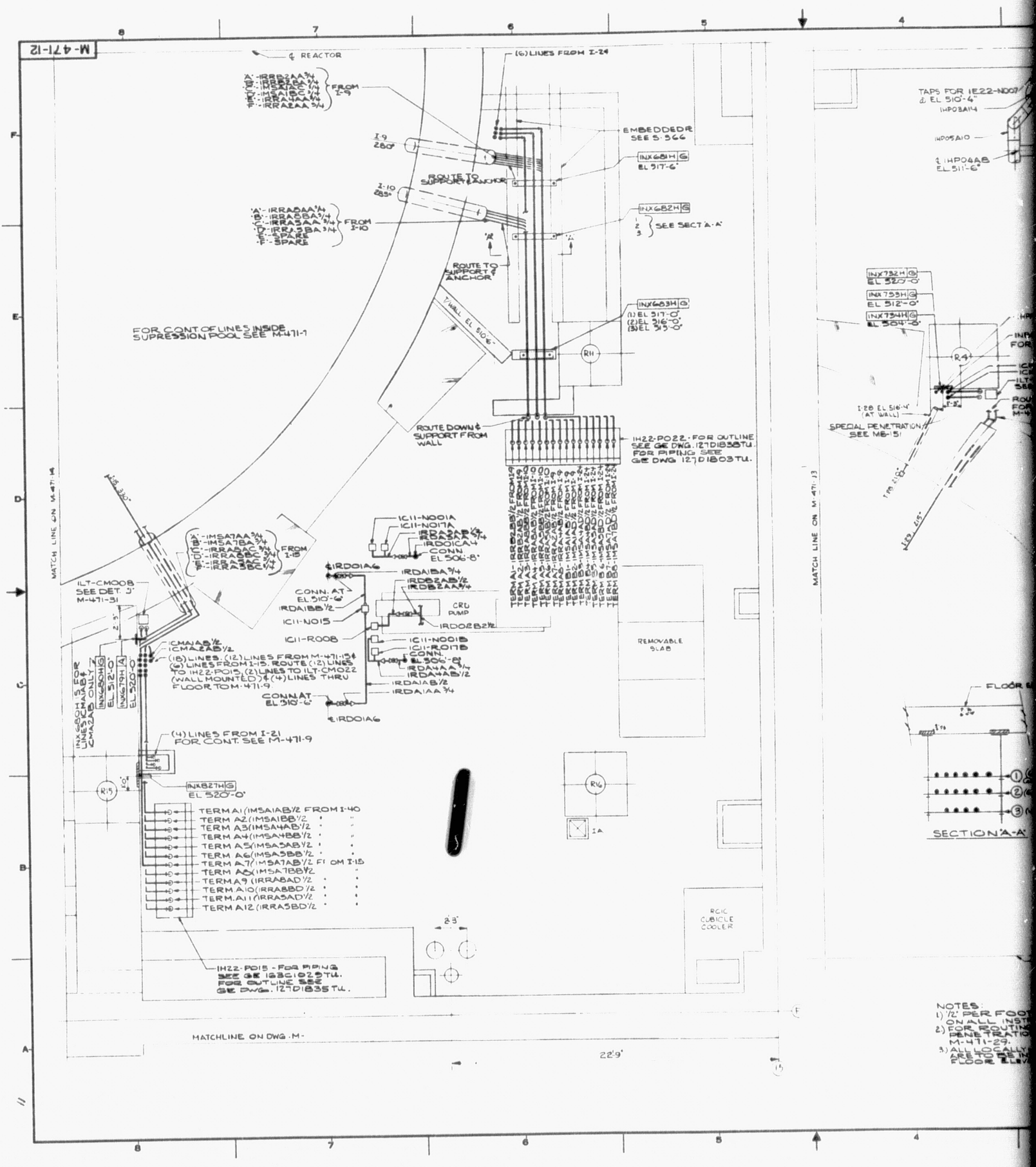


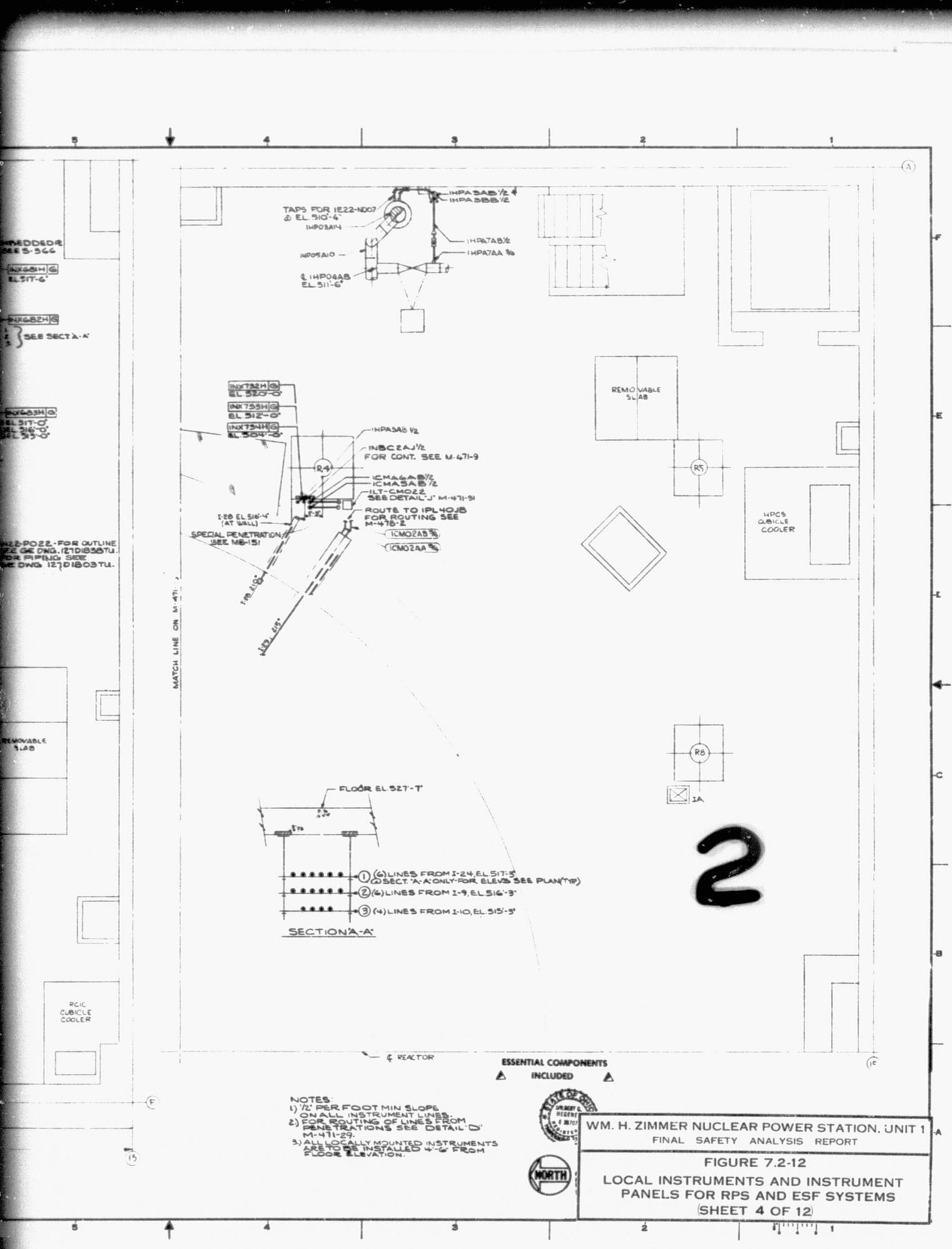
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-12

LOCAL INSTRUMENTS AND INSTRUMENT PANELS FOR RPS AND ESF SYSTEMS (SHEET 3 OF 12)

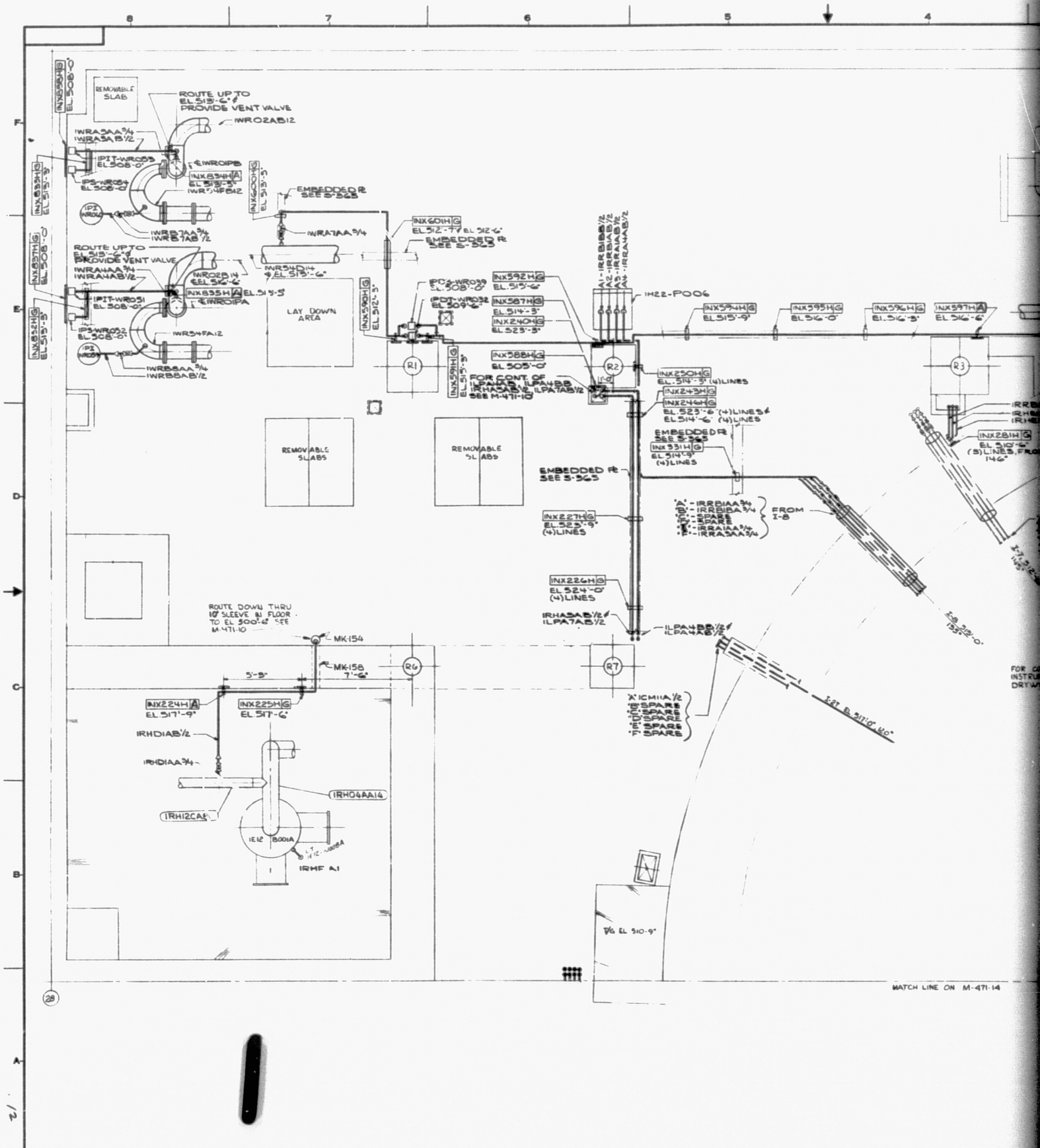

M-471-12
℄ REACTOR
(6) LINES FROM I-24
'A'-IRRB3AA 3/4
'B'-IRRB3BA 3/4
'C'-IMSA1BC 3/4
'D'-IRRA4AA 3/4
'E'-IRRA2AA 3/4
'F'-SPARE
FROM I-9
I-9 280°
I-10 285°
EMBEDDED SEE S-366
INX68H G EL 517'-6"
ROUTE TO SUPPORT & ANCHOR
'A'-IRRA8AA 3/4
'B'-IRRA8BA 3/4
'C'-IRRA3AA 3/4
'D'-IRRA3BA 3/4
'E'-SPARE
'F'-SPARE
FROM I-10
INX68ZH G
1
2
3
SEE SECT A-A
R2
ROUTE TO SUPPORT & ANCHOR
INX68JH G
(1) EL 517'-0"
(2) EL 516'-0"
(3) EL 515'-0"
7" WALL EL 510'-6"
R1
FOR CONT OF LINES INSIDE SUPRESSION POOL SEE M-471-1
ROUTE DOWN & SUPPORT FROM WALL
1H22-P022 - FOR OUTLINE SEE GE DWG. 127D1838TU. FOR PIPING SEE GE DWG 127D1803TU.
TERM A1 - IRRB2BB 1/2 FROM I-9
TERM A2 - IRRB2AB 1/2 FROM I-9
TERM A3 - IRRA8AB 1/2 FROM I-10
TERM A4 - IRRA8BB 1/2 FROM I-10
TERM A5 - IRRA3AB 1/2 FROM I-9
TERM A6 - IRRA3BB 1/2 FROM I-9
TERM A7 - IRRA2AB 1/2 FROM I-9
TERM A8 - IRRA2BB 1/2 FROM I-9
TERM A9 - IMSA1AD 1/2 FROM I-9
TERM A10 - IMSA1BD 1/2 FROM I-9
TERM A11 - IMSA4AD 1/2 FROM I-24
TERM A12 - IMSA4BD 1/2 FROM I-24
TERM B1 - IMSA1AD 1/2 FROM I-9
TERM B2 - IMSA1BD 1/2 FROM I-9
TERM B3 - IMSA4AD 1/2 FROM I-24
TERM B4 - IMSA4BD 1/2 FROM I-24
TERM B5 - IMSA5AD 1/2 FROM I-24
TERM B6 - IMSA5BD 1/2 FROM I-24
TERM B7 - IMSA7AD 1/2 FROM I-15
TERM B8 - IMSA7BD 1/2 FROM I-15
MATCH LINE ON M-471-14
MATCH LINE ON M-471-13
TAPS FOR 1E22-N007 & EL 510'-4"
1HP03A14
1HP05A10
℄ 1HP04AB EL 511'-6"
INX73ZH G EL 520'-0"
INX73JH G EL 512'-0"
INX73KH G EL 504'-6"
R4
I-28 EL 516'-4" (AT WALL)
SPECIAL PENETRATION SEE M8-151
I-28 EL 515'
'A'-IMSA7AA 3/4
'B'-IMSA7BA 3/4
'C'-IRRA5AC 3/4
'D'-IRRA5BC 3/4
'E'-IRRA3BC 3/4
'F'-SPARE
FROM I-15
IC11-N001A
IC11-N017A
IRRA2AB 3/4
IRDA1CA 1/2
CONN EL 506'-8"
IRDA1A6
IRDA1BA 3/4
IRDB2AB 1/2
IRDB2AA 3/4
CONN AT EL 510'-6"
IRDA1BB 1/2
IC11-N015
IC11-R008
CRD PUMP
IRDO2B2 1/2
REMOVABLE SLAB
ILT-CM008 SEE DET. 'J' M-471-31
ICMA1AB 1/2
ICMA2AB 1/2
(18) LINES, (12) LINES FROM M-471-15 & (6) LINES FROM I-15, ROUTE (12) LINES TO 1H22-P015, (2) LINES TO ILT-CM022 (WALL MOUNTED) & (4) LINES THRU FLOOR TO M-471-9
INX68CH, J FOR LINE 1CMA2B ONLY
INX68CH G EL 512'-0"
INX67CH A EL 520'-0"
IC11-N001B
IC11-R017B
CONN EL 504'-8"
IRDA4AA 3/4
IRDA4AB 1/2
IRDA1AB 1/2
IRDA1AA 3/4
CONN AT EL 510'-6"
IRDO1A6
(4) LINES FROM I-21 FOR CONT. SEE M-471-9
INX68ZH G EL 520'-0"
TERM A1 (IMSA1AB 1/2 FROM I-40
TERM A2 (IMSA1BB 1/2 "
TERM A3 (IMSA4AB 1/2 "
TERM A4 (IMSA4BB 1/2 "
TERM A5 (IMSA5AB 1/2 "
TERM A6 (IMSA5BB 1/2 "
TERM A7 (IMSA7AB 1/2 FROM I-15
TERM A8 (IMSA7BB 1/2 "
TERM A9 (IRRA8AD 1/2 "
TERM A10 (IRRA8BD 1/2 "
TERM A11 (IRRA5AD 1/2 "
TERM A12 (IRRA5BD 1/2 "
1H22-P015 - FOR PIPING SEE GE 183C1029TU. FOR OUTLINE SEE GE DWG. 127D1835TU.
IA
RCIC CUBICLE COOLER
SECTION A-A
FLOOR EL
NOTES:
1) 1/2 PER FOOT ON ALL INST
2) FOR ROUTING PENETRATION M-471-29.
3) ALL LOCALLY ARE TO BE IN FLOOR ELEV
MATCHLINE ON DWG. M-
22'9"

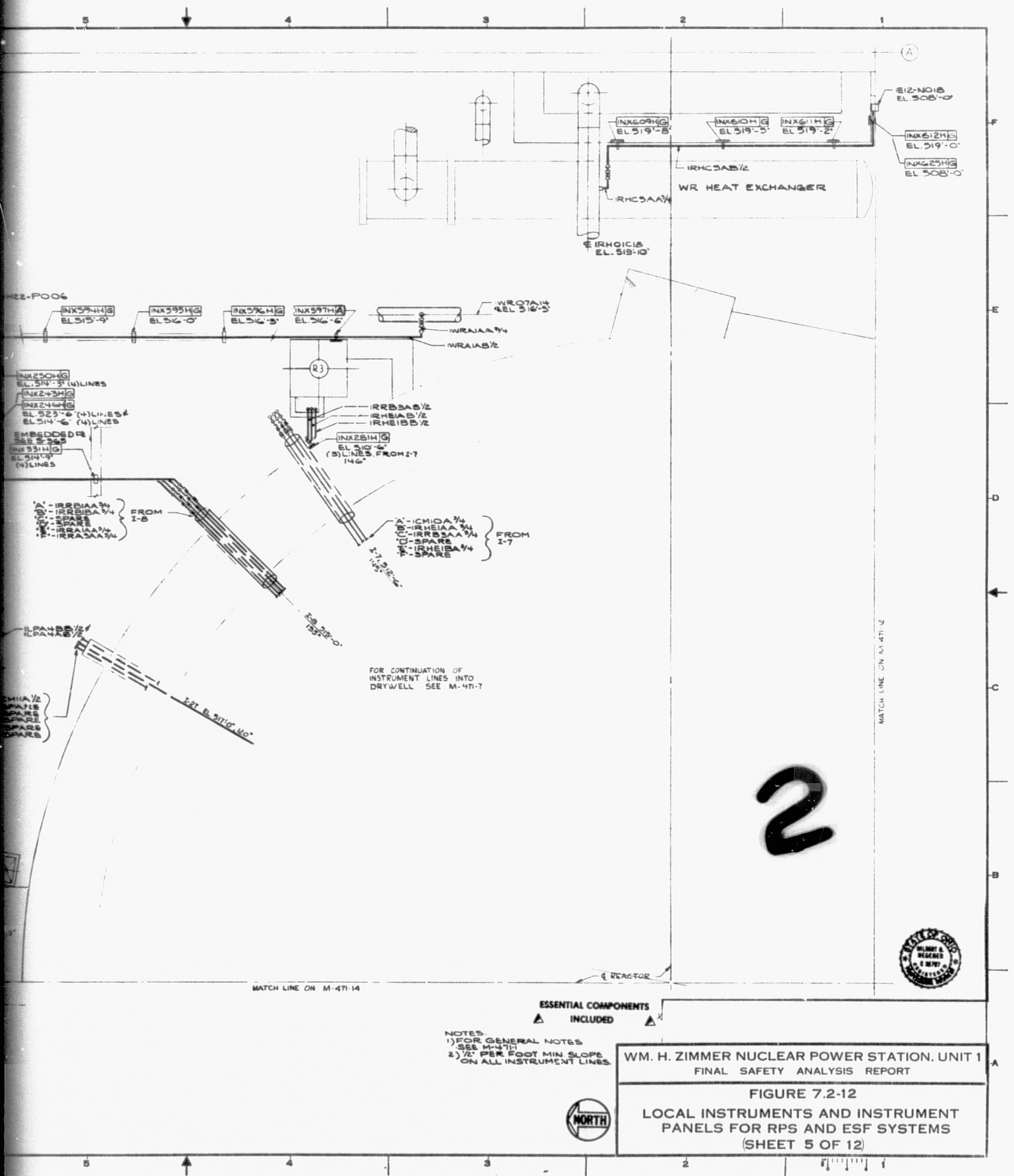


NOTES:
1) 1/2" PER FOOT MIN SLOPE ON ALL INSTRUMENT LINES.
2) FOR ROUTING OF LINES FROM PENETRATIONS SEE DETAIL 'D' M-471-29.
3) ALL LOCALLY MOUNTED INSTRUMENTS ARE TO BE INSTALLED 4'-6" FROM FLOOR ELEVATION.

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-12
LOCAL INSTRUMENTS AND INSTRUMENT PANELS FOR RPS AND ESF SYSTEMS
(SHEET 4 OF 12)


REMOVABLE SLAB
ROUTE UP TO EL 513'-6" & PROVIDE VENT VALVE
IWR02AB12
IWRA3AA¾
IWRA3AB½
IPIT-WR055 EL 508'-0"
IPS-WR054 EL 508'-0"
EIWR01PB
INX634H/A EL 513'-5"
IWR01AF812
IPI WR054
IWRB7AA¾
IWRB7AB½
INX634H/G EL 515'-5"
INX637H/G EL 508'-0"
ROUTE UP TO EL 515'-6" & PROVIDE VENT VALVE
IWRA4AA¾
IWRA4AB½
IPIT-WR051 EL 508'-0"
IPS-WR052 EL 508'-0"
IWR02D14 @ EL 516'-6"
INX635H/A EL 515'-5"
EIWR01PA
IWR54FA12
IPI WR052
IWRB8AA¾
IWRB8AB½
INX632H/G EL 515'-5"
LAY DOWN AREA
INX600H/G EL 513'-5"
EMBEDDED PL SEE S-363
IWRA7AA¾
IWR54D14 @ EL 515'-6"
INX601H/G EL 512'-7" EL 512'-6"
EMBEDDED PL SEE S-363
INX590H/G EL 512'-3"
EPD4-WR039 EL 508'-0"
EPDT-WR032 EL 509'-6"
INX592H/G EL 515'-6"
INX587H/G EL 514'-3"
INX240H/G EL 523'-3"
INX591H/G EL 515'-3"
INX588H/G EL 505'-0"
FOR CONT OF ILPA4BB, ILPA4AB½, IRHA5AB½, ILPA7AB½ SEE M-471-10
R1
R2
R3
IH22-P006
A1-IRRB1BB½
A2-IRRB1AB½
A3-IRRA1BB½
A4-IRRA1AB½
INX594H/G EL 515'-9"
INX595H/G EL 516'-0"
INX596H/G EL 516'-3"
INX597H/A EL 516'-6"
INX250H/G EL 514'-3" (4)LINES
INX243H/G
INX246H/G EL 523'-6" (4)LINES & EL 514'-6" (4)LINES
EMBEDDED PL SEE S-363
INX331H/G EL 514'-9" (4)LINES
INX281H/G EL 510'-6" (9)LINES, FROM 146°
REMOVABLE SLABS
REMOVABLE SLABS
EMBEDDED PL SEE S-363
INX227H/G EL 523'-9" (4)LINES
'A'-IRRB1AA¾
'B'-IRRB1BA¾
'C'-SPARE
'D'-SPARE
'E'-IRRA1AA¾
'F'-IRRA5AA¾
FROM I-8
INX224H/G EL 524'-0" (4)LINES
IRHA5AB½
ILPA7AB½
ILPA4BB½
ILPA4AB½
R4
R7
ROUTE DOWN THRU 10" SLEEVE IN FLOOR TO EL 500'-6" SEE M-471-10
MK-154
MK-158 7'-6"
5'-9"
INX224H/A EL 517'-9"
INX225H/G EL 517'-6"
IRHD1AB½
IRHD1AA¾
IRH04AA14
IRH12CA8
IRHF A1
'A' ICM11A½
'B' SPARE
'C' SPARE
'D' SPARE
'E' SPARE
'F' SPARE
T/G EL 510'-9"
MATCH LINE ON M-471-14
8
7
6
5
4
F
E
D
C
B
A
28



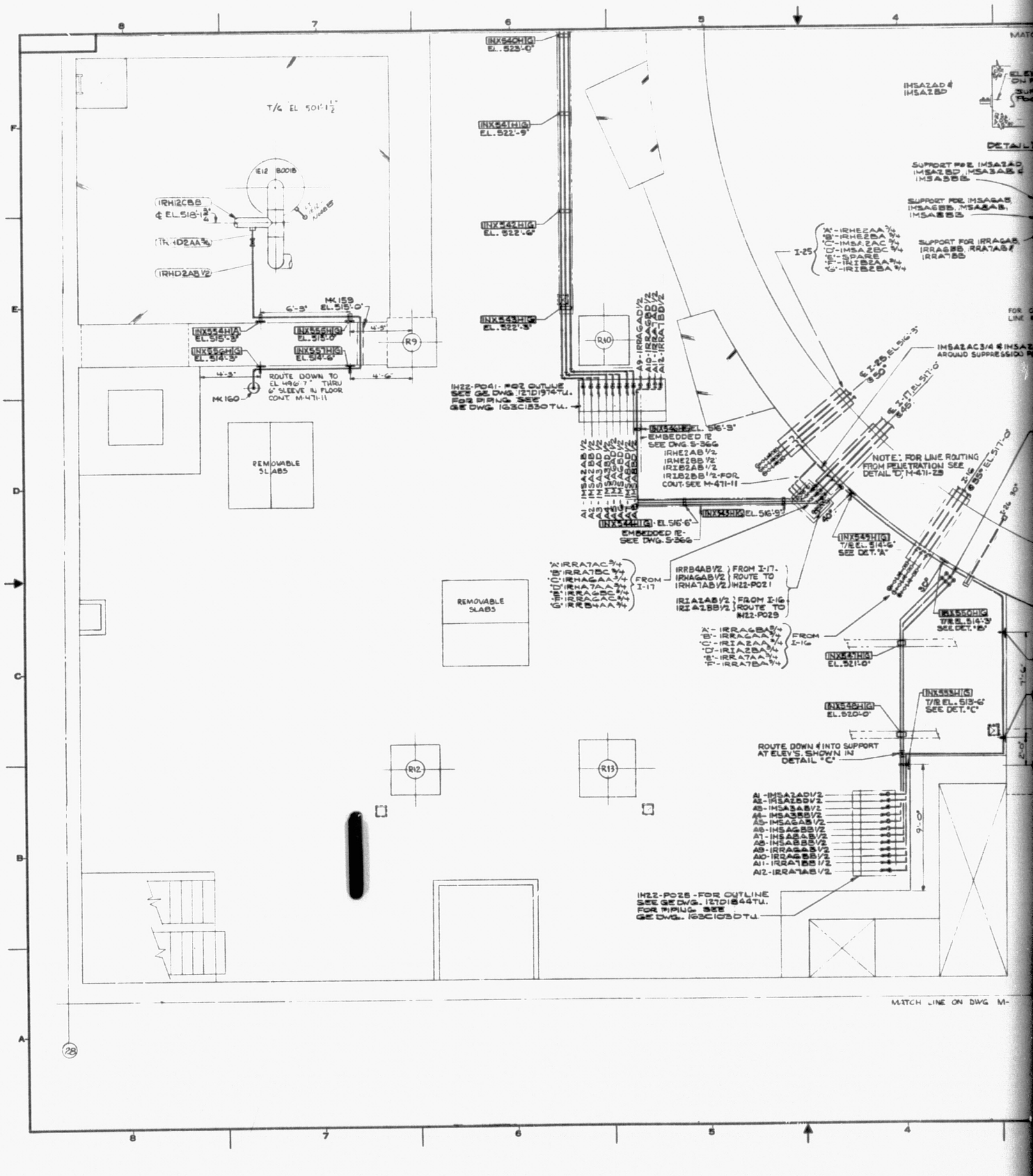
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

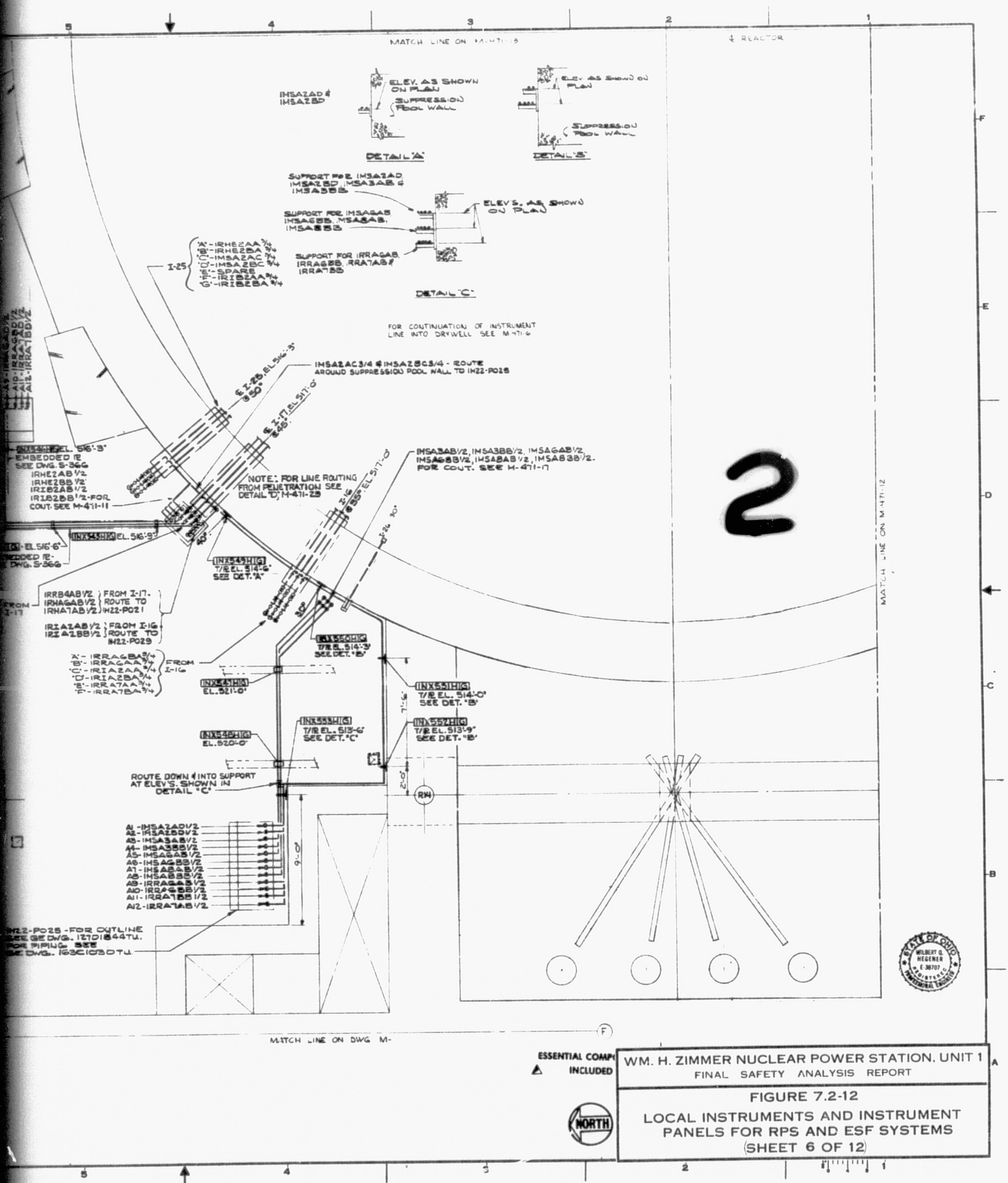
NOTES:
1) FOR GENERAL NOTES SEE M-471-1
2) 1/2" PER FOOT MIN SLOPE ON ALL INSTRUMENT LINES.

NORTH

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-12
LOCAL INSTRUMENTS AND INSTRUMENT PANELS FOR RPS AND ESF SYSTEMS
(SHEET 5 OF 12)

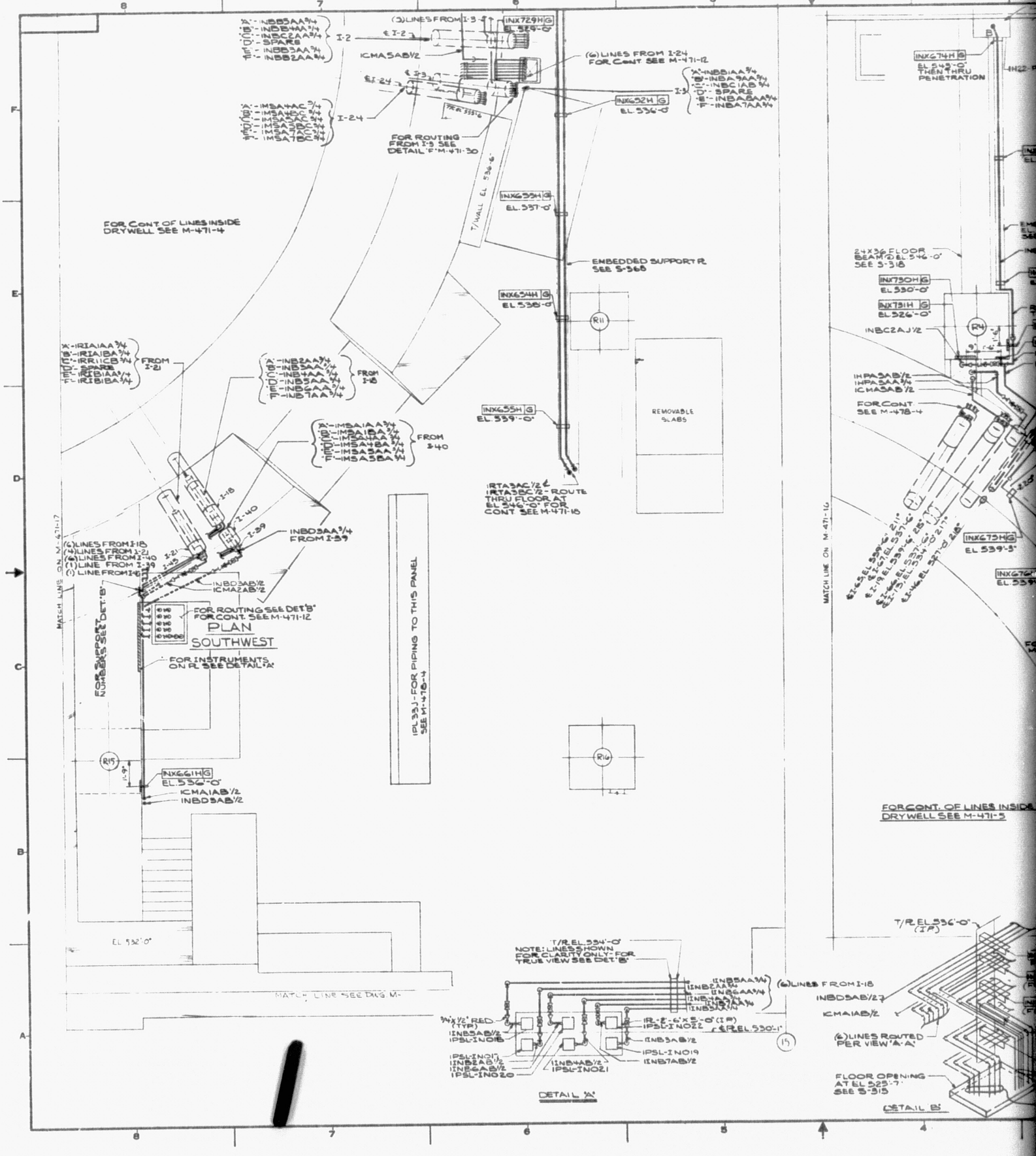

T/G EL 501'-1½"
IE12 (BOD1B)
IRH12CB8
℄ EL 518'-12¾"
TR 1D2AA¾
IRHD2AB½
MK 159
EL 515'-0"
6'-3"
INX544H(A)
EL 515'-9"
INX546H(A)
EL 515'-0"
INX545H(A)
EL 514'-9"
INX547H(A)
EL 514'-6"
4'-3"
4'-6"
ROUTE DOWN TO EL 496'-7" THRU 6" SLEEVE IN FLOOR CONT. M-471-11
MK 160
REMOVABLE SLABS
R9
R10
R12
R13
INX540H(A)
EL. 523'-0"
INX541H(A)
EL. 522'-9"
INX542H(A)
EL. 522'-6"
INX543H(A)
EL. 522'-3"
IH22-P041 - FOR OUTLINE SEE GE DWG. 127D1974 TU. FOR PIPING SEE GE DWG. 163C1830 TU.
INX548H(A) EL. 516'-3" EMBEDDED 12" SEE DWG. S-366
IRHE2AB½
IRHE2BB½
IR182AB½
IR182BB½ - FOR CONT. SEE M-471-11
INX543H(A) EL. 516'-9"
INX544H(A) EL. 516'-6" EMBEDDED 12" SEE DWG. S-366
IMSA2AB½
IMSA2BB½
IMSA3AB½
IMSA3BB½
IRRAGAB½
IRRAGBB½
IRRA7AB½
IRRA7BB½
A1
A2
A3
A4
A5
A6
A7
A8
A9
A10
A11
A12
I-25
'A' - IRHE2AA¾
'B' - IRHE2BA¾
'C' - IMSA2AC¾
'D' - IMSA2BC¾
'E' - SPARE
'F' - IR182AA¾
'G' - IR182BA¾
SUPPORT FOR IRRAGAB, IRRAGBB, RRA7AB & IRRA7BB
SUPPORT FOR IMSA2AD IMSA2BD IMSA3AB & IMSA3BB
SUPPORT FOR IMSAGAB IMSAGBB, IMSA8AB, IMSA8BB
IMSA2AD & IMSA2BD
DETAIL
FOR C LINE
IMSA2AC3/4 & IMSA2 AROUND SUPPRESSION P
EL 516'-3"
EL 517'-0"
EL 517'-0"
NOTE: FOR LINE ROUTING FROM PENETRATION SEE DETAIL 'D' M-471-29
INX545H(A) T/B EL. 514'-6" SEE DET. 'A'
'A' IRRA7AC¾
'B' IRRA7BC¾
'C' IRHAGAA¾
'D' IRHA7AA¾
'E' IRRAGBC¾
'F' IRRB4AA¾
FROM I-17
IRRB4AB½ } FROM I-17.
IRHAGAB½ } ROUTE TO
IRHA7AB½ } IH22-P021
IRIA2AB½ } FROM I-16
IRIA2BB½ } ROUTE TO IH22-P029
'A' - IRRAGBA¾
'B' - IRRAGAA¾
'C' - IRIA2AA¾
'D' - IRIA2BA¾
'E' - IRRA7AA¾
'F' - IRRA7BA¾
FROM I-16
INX550H(A) T/B EL. 514'-3" SEE DET. 'B'
INX541H(A) EL. 521'-0"
INX555H(A) T/B EL. 513'-6" SEE DET. 'C'
INX540H(A) EL. 520'-0"
ROUTE DOWN ℄ INTO SUPPORT AT ELEV'S. SHOWN IN DETAIL 'C'
A1 - IMSA2AD½
A2 - IMSA2BD½
A3 - IMSA3AB½
A4 - IMSA3BB½
A5 - IMSA8AB½
A6 - IMSA8BB½
A7 - IMSA8AB½
A8 - IMSA8BB½
A9 - IRRAGAB½
A10 - IRRAGBB½
A11 - IRRA7BB½
A12 - IRRA7AB½
9'-0"
IH22-P025 - FOR OUTLINE SEE GE DWG. 127D1844 TU. FOR PIPING SEE GE DWG. 163C1050 TU.
MATCH LINE ON DWG M-
8
7
6
5
4
F
E
D
C
B
A
28

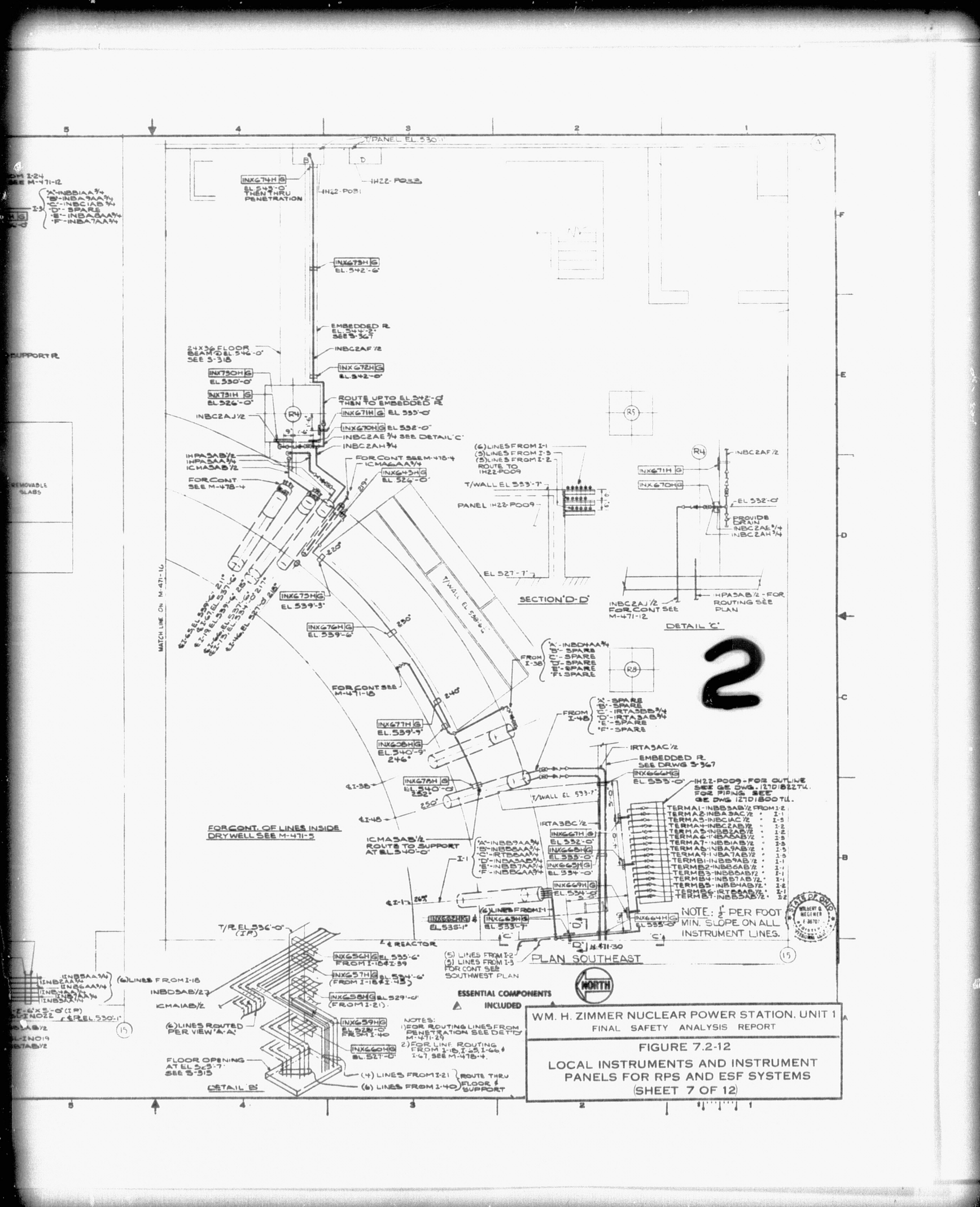


ESSENTIAL COMPONENTS
▲ INCLUDED

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-12
LOCAL INSTRUMENTS AND INSTRUMENT PANELS FOR RPS AND ESF SYSTEMS
(SHEET 6 OF 12)

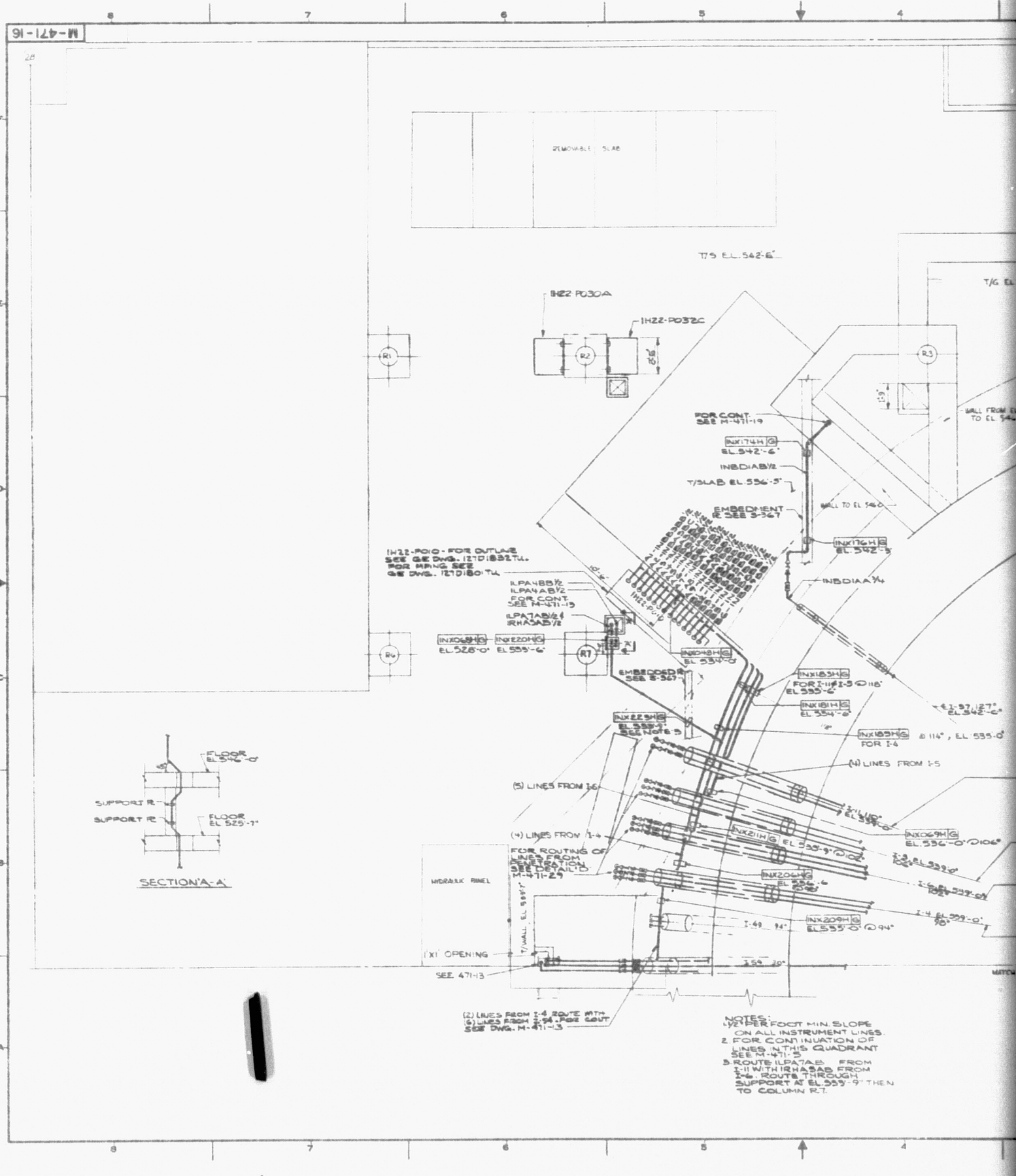

(3) LINES FROM I-3
INX729H G
EL 565'-0"
I-2
I-24
I-3
ICMA5AB 1/2
(6) LINES FROM I-24
FOR CONT SEE M-471-12
INX652H G
EL 536'-0"
I-13
FOR ROUTING FROM I-3 SEE DETAIL 'F' M-471-30
T/WALL EL 536'-6"
INX655H G
EL 557'-0"
FOR CONT OF LINES INSIDE DRYWELL SEE M-471-4
EMBEDDED SUPPORT R SEE S-368
INX654H G
EL 538'-0"
R11
REMOVABLE SLABS
INX655H G
EL 559'-0"
IRTA3AC 1/2
IRTA3BC 1/2 - ROUTE THRU FLOOR AT EL 546'-0" FOR CONT SEE M-471-16
FROM I-21
FROM I-16
FROM I-40
I-18
I-40
I-39
INBD3AA 3/4 FROM I-39
(6) LINES FROM I-18
(6) LINES FROM I-21
(6) LINES FROM I-40
(1) LINE FROM I-39
(1) LINE FROM I-16
INBD3AB 1/2
ICMA2AB 1/2
FOR ROUTING SEE DET 'B'
FOR CONT SEE M-471-12
PLAN
SOUTHWEST
FOR INSTRUMENTS ON R SEE DETAIL 'A'
FOR SUPPORT NUMBERS SEE DET 'B'
IPL 333J - FOR PIPING TO THIS PANEL SEE M-478-4
R15
INX661H G
EL 536'-0"
ICMA1AB 1/2
INBD3AB 1/2
R16
EL 532'-0"
MATCH LINE SEE DWG M-
MATCH LINE ON M-471-17
MATCH LINE ON M-471-16
INX674H B
EL 543'-0" THEN THRU PENETRATION
24X36 FLOOR BEAM @ EL 546'-0" SEE S-318
INX730H G
EL 530'-0"
INX731H G
EL 526'-0"
R4
INBC2AJ 1/2
INPA3AB 1/2
INPA3AA 3/4
ICMA3AB 1/2
FOR CONT SEE M-478-4
INX673H G
EL 539'-3"
INX676H
EL 539'
FOR CONT. OF LINES INSIDE DRYWELL SEE M-471-5
T/R EL 536'-0" (TP)
T/R EL 534'-0"
NOTE: LINES SHOWN FOR CLARITY ONLY. FOR TRUE VIEW SEE DET 'B'
(6) LINES FROM I-18
INBD5AB 1/2
ICMA1AB 1/2
(6) LINES ROUTED PER VIEW 'A-A'
IR-2-6"X2-0" (TP)
IPSL-IN022
T/R EL 530'-1"
15
3/4"X 1/2" RED (TYP)
INBD5AB 1/2
IPSL-IN018
IPSL-IN017
INBD6AB 1/2
INBD6AB 1/2
IPSL-IN020
INBD4AB 1/2
IPSL-IN021
INBD3AB 1/2
IPSL-IN019
INBD7AB 1/2
DETAIL 'A'
FLOOR OPENING AT EL 525'-7" SEE S-315
DETAIL B

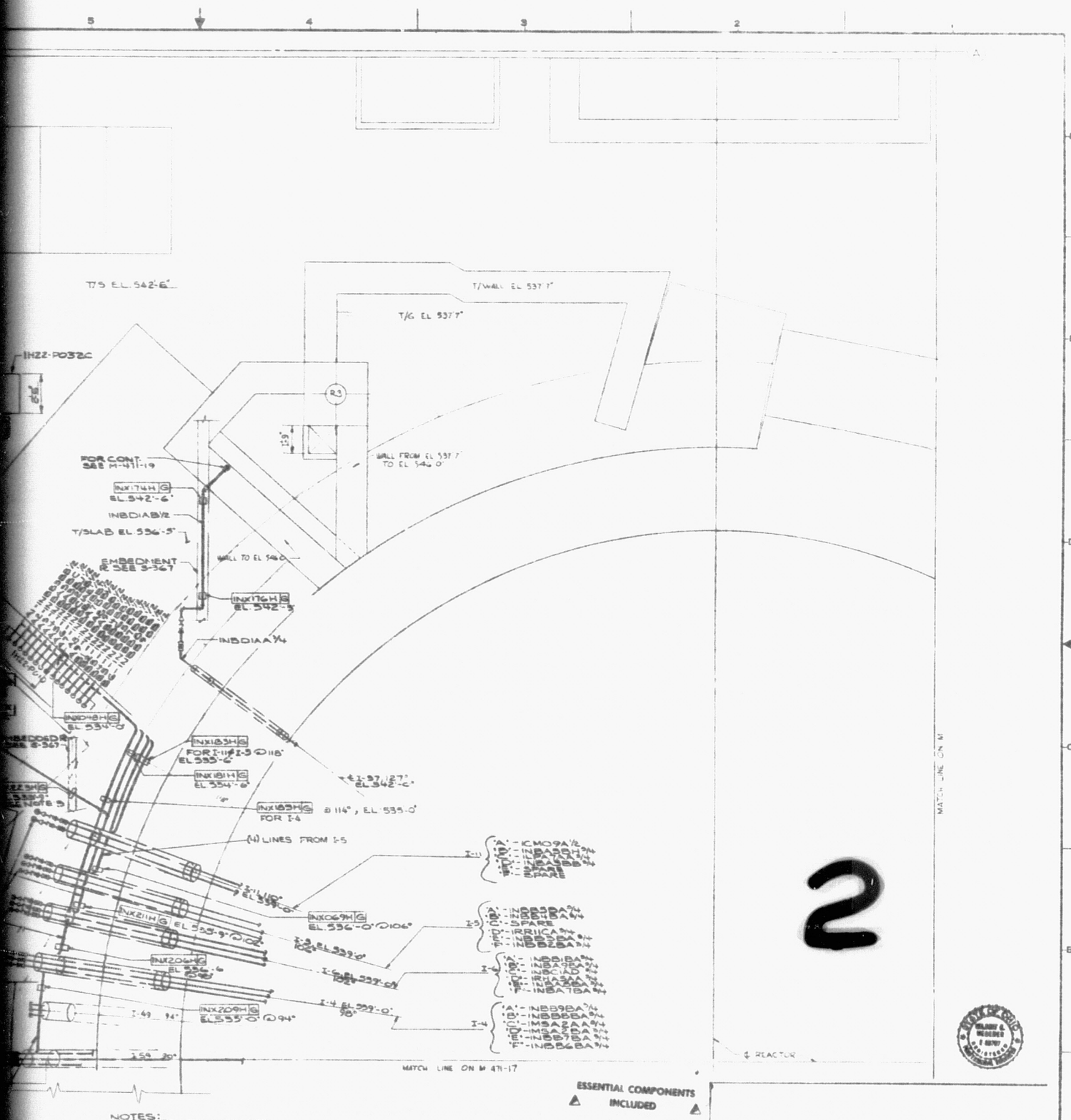


WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-12
LOCAL INSTRUMENTS AND INSTRUMENT PANELS FOR RPS AND ESF SYSTEMS
(SHEET 7 OF 12)

M-471-16


REMOVABLE SLAB
T/S EL. 542'-6"
1H22-P030A
1H22-P032C
R1
R2
R3
R4
R7
FOR CONT. SEE M-471-19
INX174H G
EL. 542'-6"
INBDIAB½
T/SLAB EL. 536'-5"
EMBEDMENT SEE S-547
INX176H G
EL. 542'-3"
INBDIAA¾
1H22-P010 - FOR OUTLINE SEE GE DWG. 127D1832TU. FOR MPNS SEE GE DWG. 127D1801TU.
ILPA4BB½
ILPA4AB½
FOR CONT. SEE M-471-19
ILPA7AB½ & IRHA3AB½
INX104H G
EL. 528'-0"
INX120H G
EL. 559'-6"
INX048H G
EL. 534'-0"
EMBEDDED SEE S-547
INX183H G
FOR I-11
EL. 555'-6"
INX181H G
EL. 554'-0"
INX229H G
EL. 559'-3"
SEE NOTE 5
INX185H G
FOR I-4
@ 114°, EL. 535'-0"
(4) LINES FROM I-5
(5) LINES FROM I-6
(4) LINES FROM I-4
FOR ROUTING OF LINES FROM PENETRATION SEE DETAIL D M-471-29
INX211H G EL. 539'-9"
INX069H G
EL. 536'-0"
INX206H G
EL. 556'-6"
INX209H G
EL. 555'-0"
HYDRAULIC PANEL
T/WALL EL. 549'-9"
1'X1' OPENING
SEE 471-13
(2) LINES FROM I-4 ROUTE WITH (6) LINES FROM I-5 & I-6 FOR EGUT SEE DWG. M-471-13
FLOOR EL. 542'-0"
SUPPORT R
SUPPORT R
FLOOR EL. 525'-7"
SECTION A-A
NOTES:
1. ½" PER FOOT MIN. SLOPE ON ALL INSTRUMENT LINES.
2. FOR CONTINUATION OF LINES IN THIS QUADRANT SEE M-471-5
3. ROUTE ILPA7AB FROM I-11 W/ IRHA3AB FROM I-6. ROUTE THROUGH SUPPORT AT EL. 559'-9" THEN TO COLUMN R7.

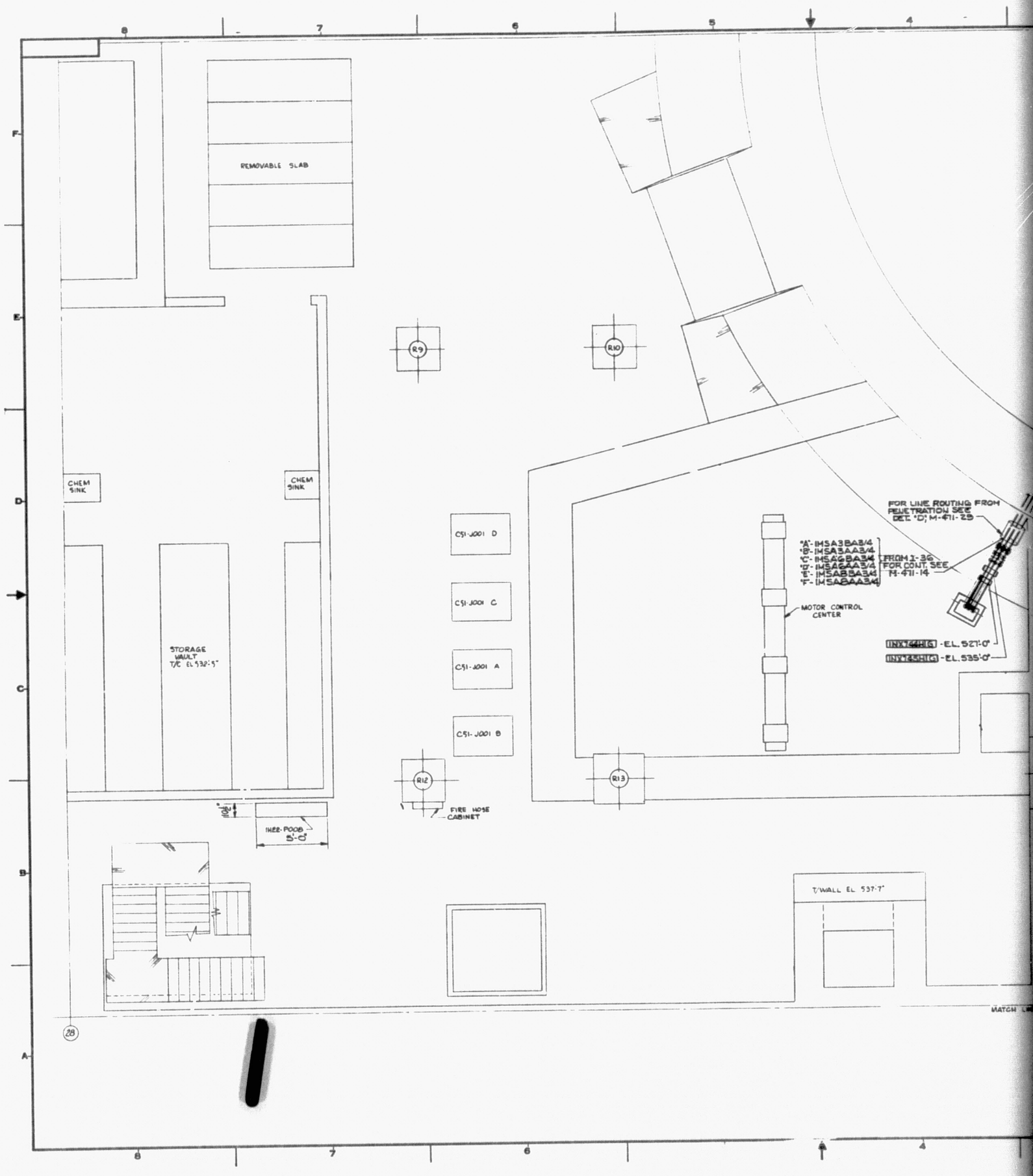


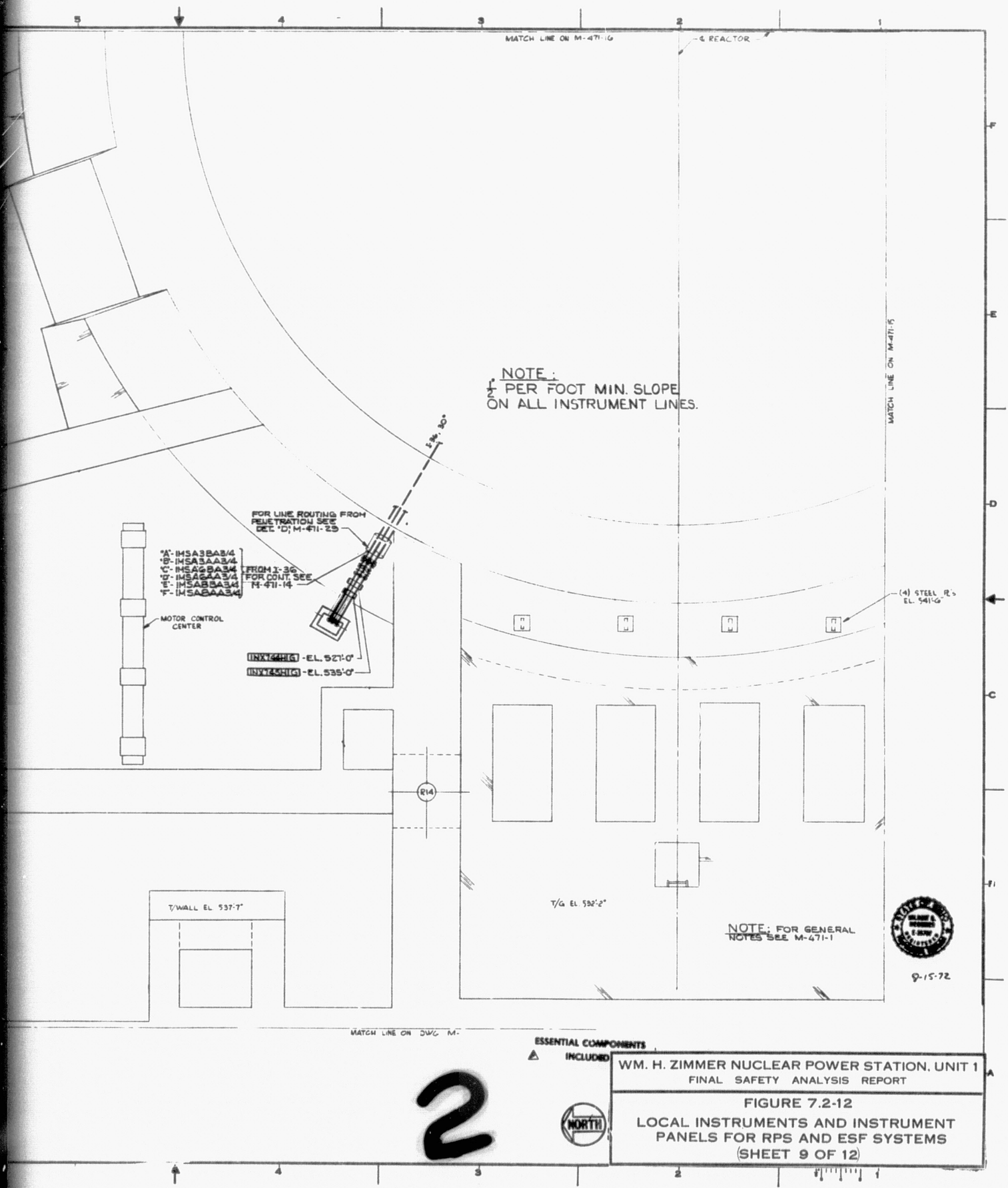
2

NOTES:
1. SLOPE 1/4" PER FOOT MIN. SLOPE ON ALL INSTRUMENT LINES.
2. FOR CONTINUATION OF LINES N THIS QUADRANT SEE M-471-3.
3. ROUTE I-11 PIPTAGE FROM I-11 WITH I-9 ASAB FROM I-6. ROUTE THROUGH SUPPORT AT EL. 535'-9" THEN TO COLUMN R-7.

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-12
LOCAL INSTRUMENTS AND INSTRUMENT PANELS FOR RPS AND ESF SYSTEMS
(SHEET 8 OF 12)

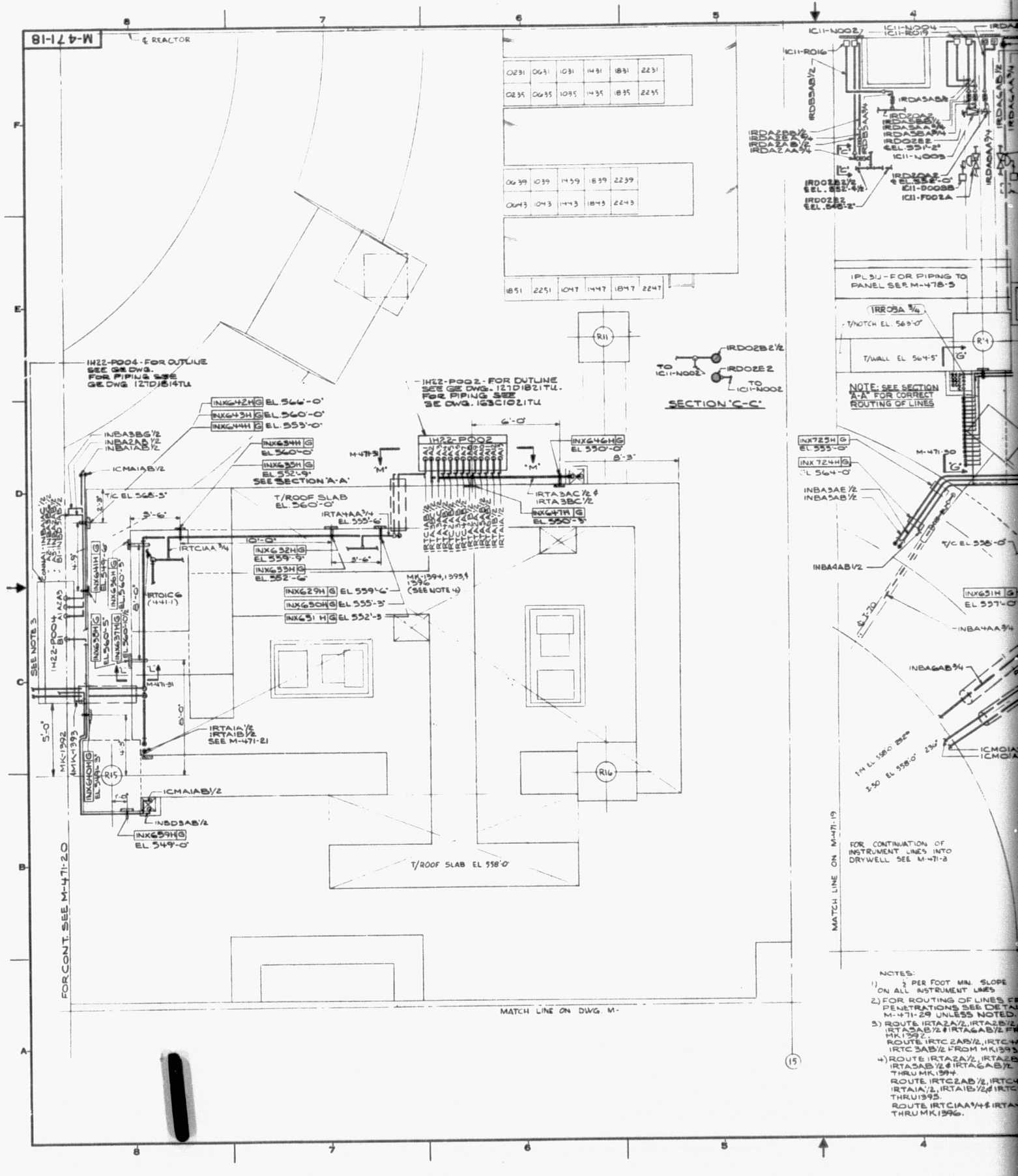

REMOVABLE SLAB
R9
R10
CHEM SINK
CHEM SINK
C51-J001 D
C51-J001 C
C51-J001 A
C51-J001 B
STORAGE VAULT T/C EL 532'-5"
R12
R13
FIRE HOSE CABINET
INST. POOB 5'-0"
FOR LINE ROUTING FROM PENETRATION SEE DET. "D" M-471-29
"A"- IMSA3BA3/4
"B"- IMSA3AA3/4
"C"- IMSA6BA3/4
"D"- IMSA6AA3/4
"E"- IMSAB5A3/4
"F"- IMSAB4A3/4
FROM J-36 FOR CONT. SEE M-471-14
MOTOR CONTROL CENTER
INSTRUMENT - EL. 527'-0"
INSTRUMENT - EL. 535'-0"
T/WALL EL 537'-7"
MATCH LINE
28
8
7
6
5
4
F
E
D
C
B
A

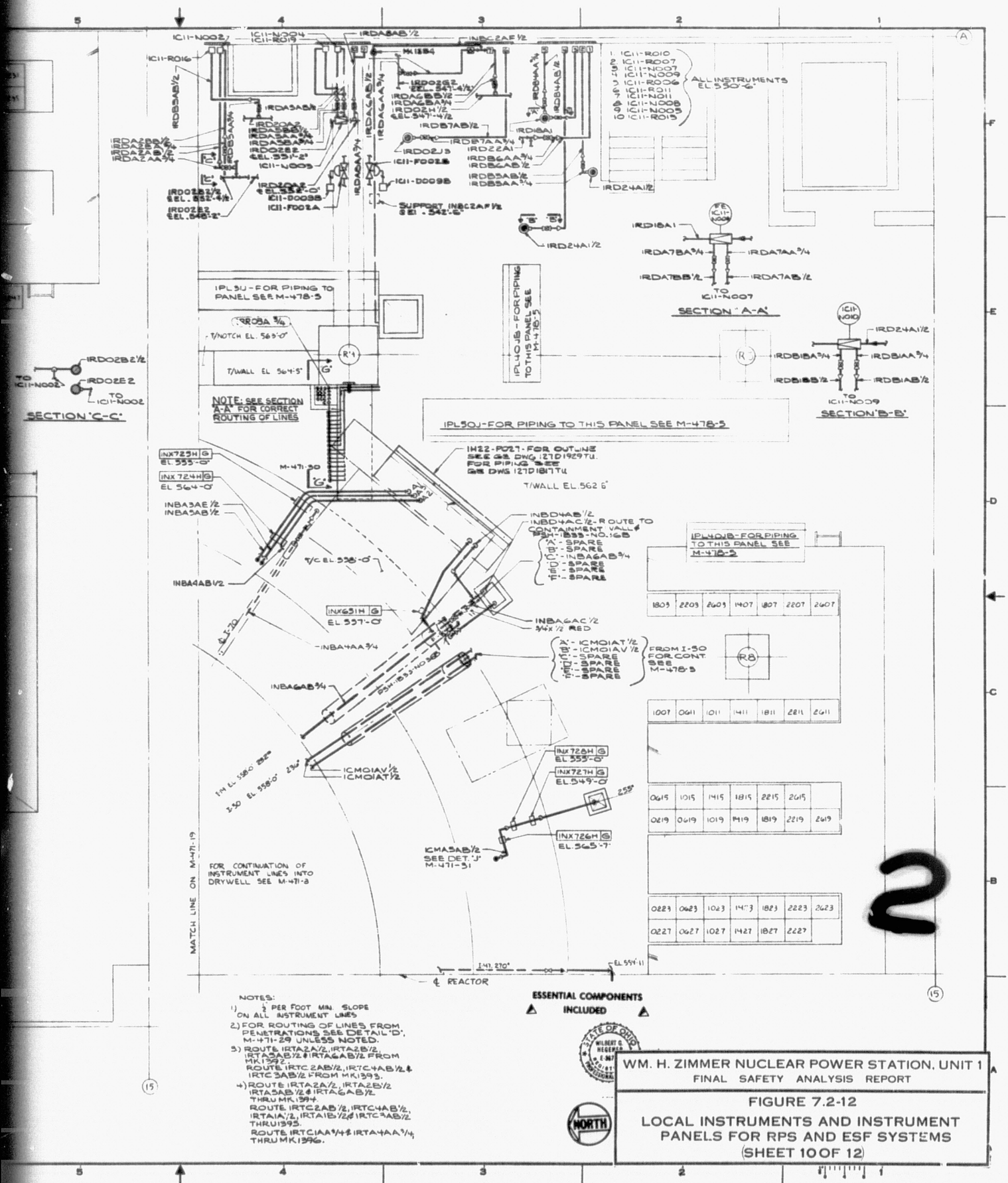


WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-12
LOCAL INSTRUMENTS AND INSTRUMENT
PANELS FOR RPS AND ESF SYSTEMS
(SHEET 9 OF 12)

2


M-471-18
℄ REACTOR
0231 0631 1031 1431 1831 2231
0235 0635 1035 1435 1835 2235
0639 1039 1439 1839 2239
0643 1043 1443 1843 2243
1851 2251 1047 1447 1847 2247
IC11-N002
IC11-N004
IC11-R019
IC11-R016
IRDA3AB½
IRDA3AB¾
IRDA2BB½
IRDA2AB½
IRDA2AA¾
IRDA3BB¾
IRDA3AA¾
IRDA3BA¾
IRDO2E2
℄EL. 551'-2"
IC11-N003
IRDO2B2½
℄EL. 552'-0"
IRDO2B2½
℄EL. 552'-4½"
IRDO2E2
℄EL. 546'-2"
IC11-D003B
IC11-F002A
IRDA2AB¾
IRDA3AA¾
IPL311 - FOR PIPING TO PANEL SEE M-478-3
IRR03A ¾
T/NOTCH EL. 563'-0"
T/WALL EL 564'-5"
R14
G
NOTE: SEE SECTION A-A FOR CORRECT ROUTING OF LINES
INX725H G EL. 555'-0"
INX 724H G EL 564'-0"
M-471-30
INBA3AE½
INBA3AB½
T/C EL 558'-0"
INBA4AB½
INX631H G EL 557'-0"
INBA4AA¾
INBA6AB¾
IC.M01A
IC.M01A
1"H EL 558'-0" 2'-0"
3'-0"
MATCH LINE ON M-471-19
FOR CONTINUATION OF INSTRUMENT LINES INTO DRYWELL SEE M-471-2
IRDO2B2½
TO IC11-N002
IRDO2E2
TO IC11-N002
SECTION 'C-C'
1H22-P002 - FOR OUTLINE SEE GE DWG. FOR PIPING SEE GE DWG. 12TD1814TU
1H22-P002 - FOR OUTLINE SEE GE DWG. - 12TD1821TU. FOR PIPING SEE GE DWG. 163C1021TU
1H22-P002
6'-0"
8'-3"
INX642H G EL. 566'-0"
INX643H G EL. 560'-0"
INX644H G EL. 553'-0"
INX634H G EL 560'-0"
INX635H G EL 552'-9"
SEE SECTION 'A-A'
INBA3BG½
INBA2AB½
INBA1AB½
IC.MA1AB½
T/C EL 568'-5"
8'-3"
3'-6"
4'-5"
8'-0"
6'-0"
5'-0"
T/ROOF SLAB EL. 560'-0"
IRTA4AA¾ EL 555'-6"
IRTC1AA ¾
10'-0"
3'-6"
INX632H G EL 559'-9"
INX633H G EL 552'-6"
INX646H G EL 550'-0"
INX647H G EL 550'-3"
IRTA3AC ½ ℄ IRTA3BC ½
IRTC1AB½ IRTC1AC½ IRTC1AD½ IRTC1AE½ IRTC1AF½ IRTC1AG½ IRTC1AH½ IRTA2AA½ IRTA2AB½ IRTA2AC½ IRTA2AD½ IRTA1AA½ IRTA1AB½ IRTA1AC½ IRTA1AD½
MK-1394, 1395, ℄ 1396 (SEE NOTE 4)
INX629H G EL 559'-6"
INX630H G EL 555'-3"
INX631 H G EL 552'-3
IRTC1C6 (441-1)
INX634H G EL 549'-6"
INX636H G EL 560'-5"
INX635H G EL 560'-10"
INX637H G EL 560'-10"
INX630H G EL 560'-5"
IH22-P004 A1 A2 A3 B1
SEE NOTE 3
M-471-31
5'-0"
MK-1392 MK-1393
INX640H G EL 549'-3"
R15
R16
R11
IRTA1A½ IRTA1B½ SEE M-471-21
IC.MA1AB½
IN8D3AB½
INX659H G EL 549'-0"
T/ROOF SLAB EL 558'-0"
FOR CONT. SEE M-471-20
MATCH LINE ON DWG. M-
NOTES:
1) ¼ PER FOOT MIN. SLOPE ON ALL INSTRUMENT LINES
2) FOR ROUTING OF LINES FR PENETRATIONS SEE DETA M-471-29 UNLESS NOTED
3) ROUTE IRTA2A½, IRTA2B½, IRTA3AB½ ℄ IRTA6AB½ FR MK 1392. ROUTE IRTC 2AB½, IRTC 3AB½ FROM MK 1393
4) ROUTE IRTA2A½, IRTA2B IRTA3AB½ ℄ IRTA6AB½ THRU MK 1394. ROUTE IRTC2AB½, IRTC IRTA1A½, IRTA1B½ ℄ IRTC THRU 1395. ROUTE IRTC1AA¾ ℄ IRTA THRU MK 1396.



NOTES:

1) ½ PER FOOT MIN. SLOPE ON ALL INSTRUMENT LINES
2) FOR ROUTING OF LINES FROM PENETRATIONS, SEE DETAIL 'D', M-471-29 UNLESS NOTED.
3) ROUTE IRTA2A½, IRTA2B½, IRTA5AB½ & IRTA6AB½ FROM MK.1392. ROUTE IRTC2AB½, IRTC4AB½ & IRTC3AB½ FROM MK.1393.
4) ROUTE IRTA2A½, IRTA2B½ IRTA5AB½ & IRTA6AB½ THRU MK.1394. ROUTE IRTC2AB½, IRTC4AB½, IRTA1A½, IRTA1B½ & IRTC3AB½ THRU 1395. ROUTE IRTC1AA¾ & IRTA4AA¾ THRU MK.1396.

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-12
LOCAL INSTRUMENTS AND INSTRUMENT PANELS FOR RPS AND ESF SYSTEMS
(SHEET 10 OF 12)

M-471-19

FILTER TRAIN

T/S 566'-0"

R1 R2 R3 R6 R7

FOR CONT. SEE M-471-16

T/WALL EL. 55

IRHA4AB½
IRHA4AA¾

INX162H|G
EL. 554'-0"

PROVIDE VENT VALVE

A4-INBD1AB½
A3-INBA2BB½
A2-INBA3AG½
A1-INBA1BC½

IN22-P005 - FOR OUTLINE SEE GE DWG. 127D1833. FOR PIPING SEE GE DWG. 127D1815TU.

INX155H|G EL. 556'-6" 137°
INX154H|G EL. 554'-9"

INBA3AG½
INBA3AF¾

T/C EL. 556'-0"

INX801H|G EL. 562'-6" 128°

ROUT TO E

INX626H|G EL. 555'-6" 135°
INBA2BB½
INBA2BA¾

FOR ROUTING OF LINE FROM PENETRATION SEE DETAIL 'D' M-471-29

102°

NOTE: ½" PER FOOT ON ALL INST

1PL40JA

1PL49JA

3007	3407	3807	4207	3003	3403

1LP02A12
1LPA4BA¾
1LPA4BB½
1LP02B10
1LPA4AB½
1LPA4AA¾

FOR CONT. OF 1LPA4BB & 1LPA4AB SEE M-471-16

INX140H|A EL. 550'-5" (2) LINES

INX595H|A EL. 555'-6"

DROP DOWN ROUTE THROUGH SUPPORT EL. 550'-5"

3011	3411	3811	4211	4611	
3015	3415	3815	4215	4615	

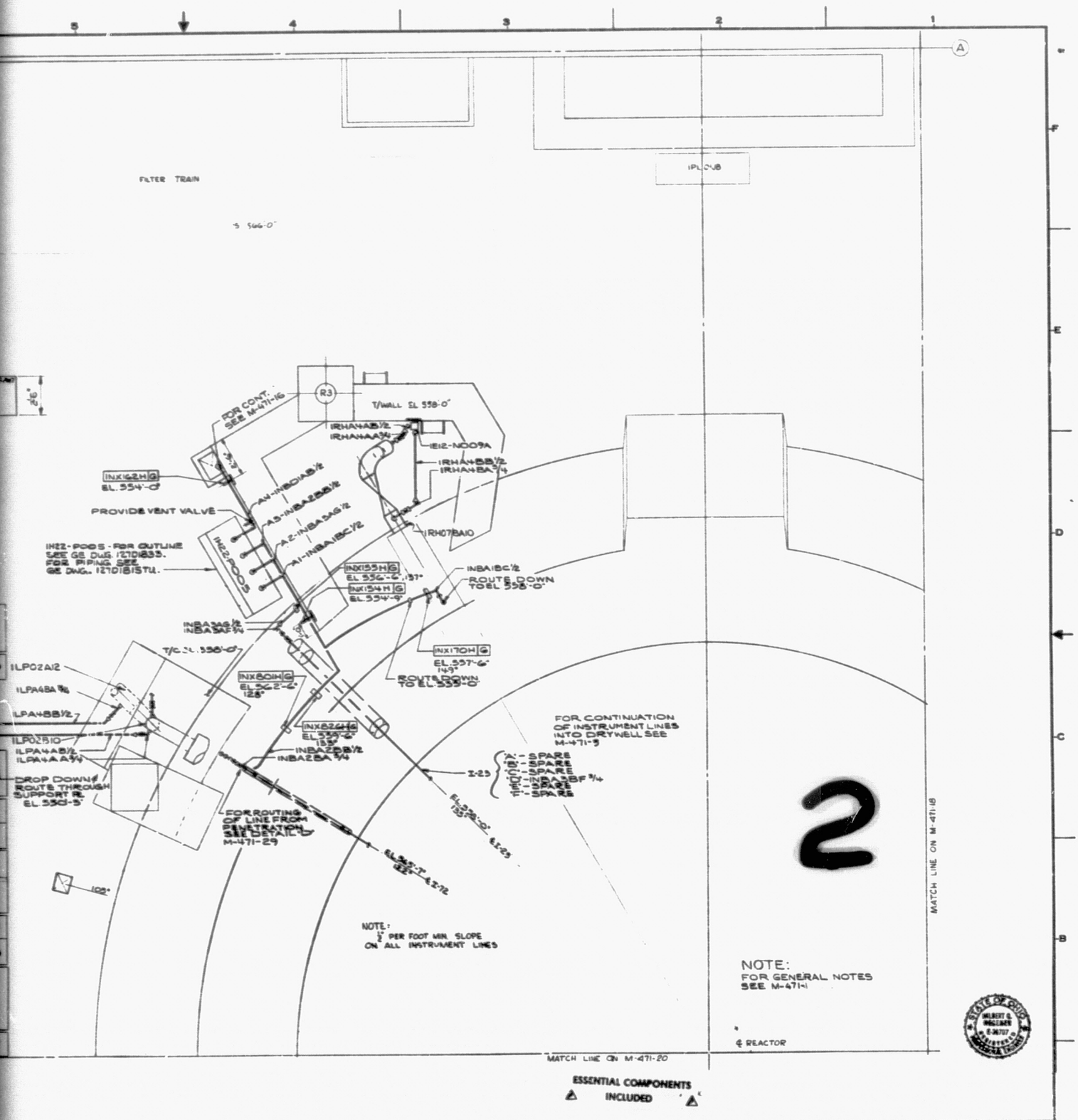
3019	3419	3819	4219	4619	5019
3023	3423	3823	4223	4623	5023

2627	3027	3427	3827	4227	4627	5027

REMOVABLE SLABS

8 7 6 5 4

F E D C B A

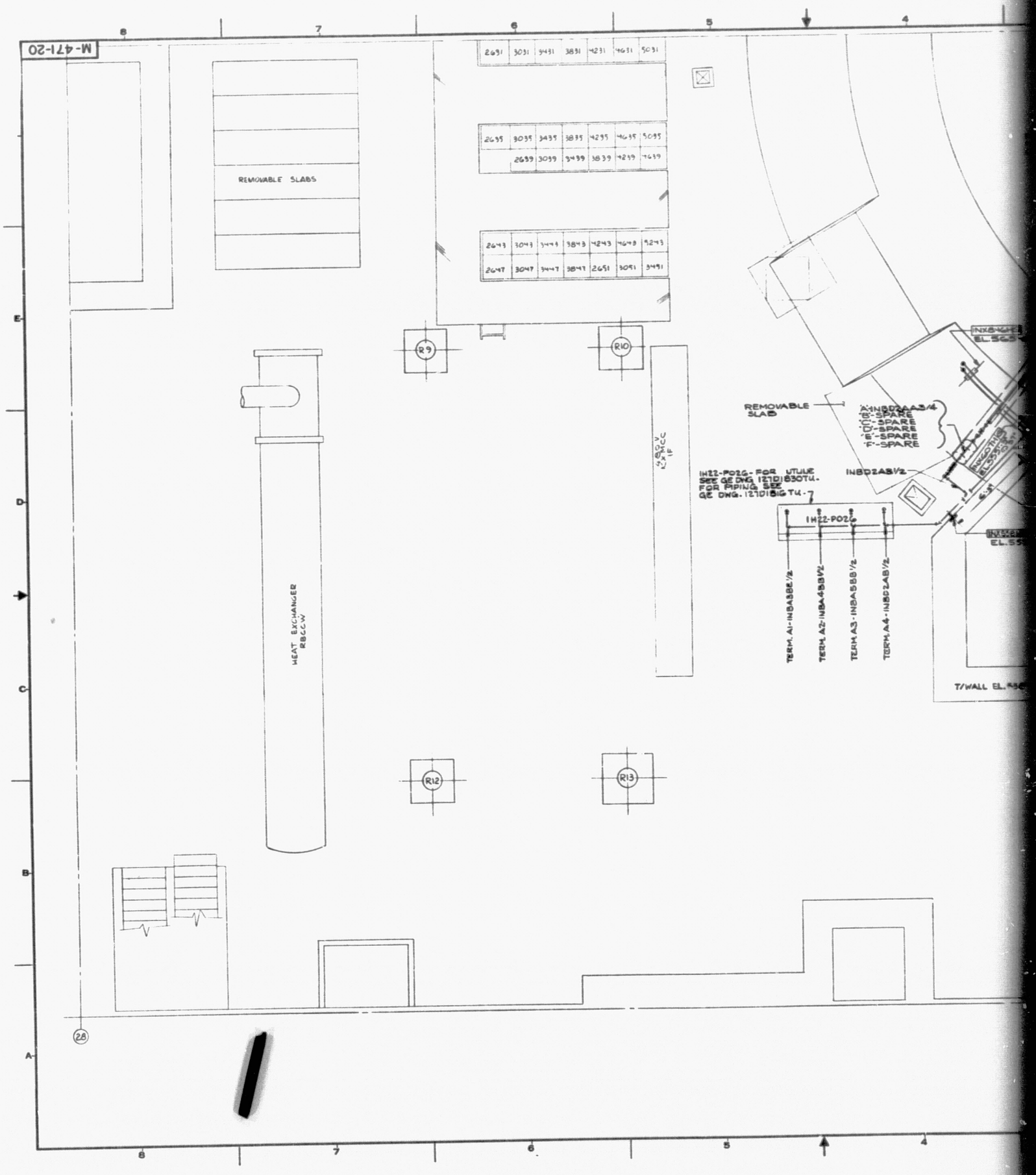


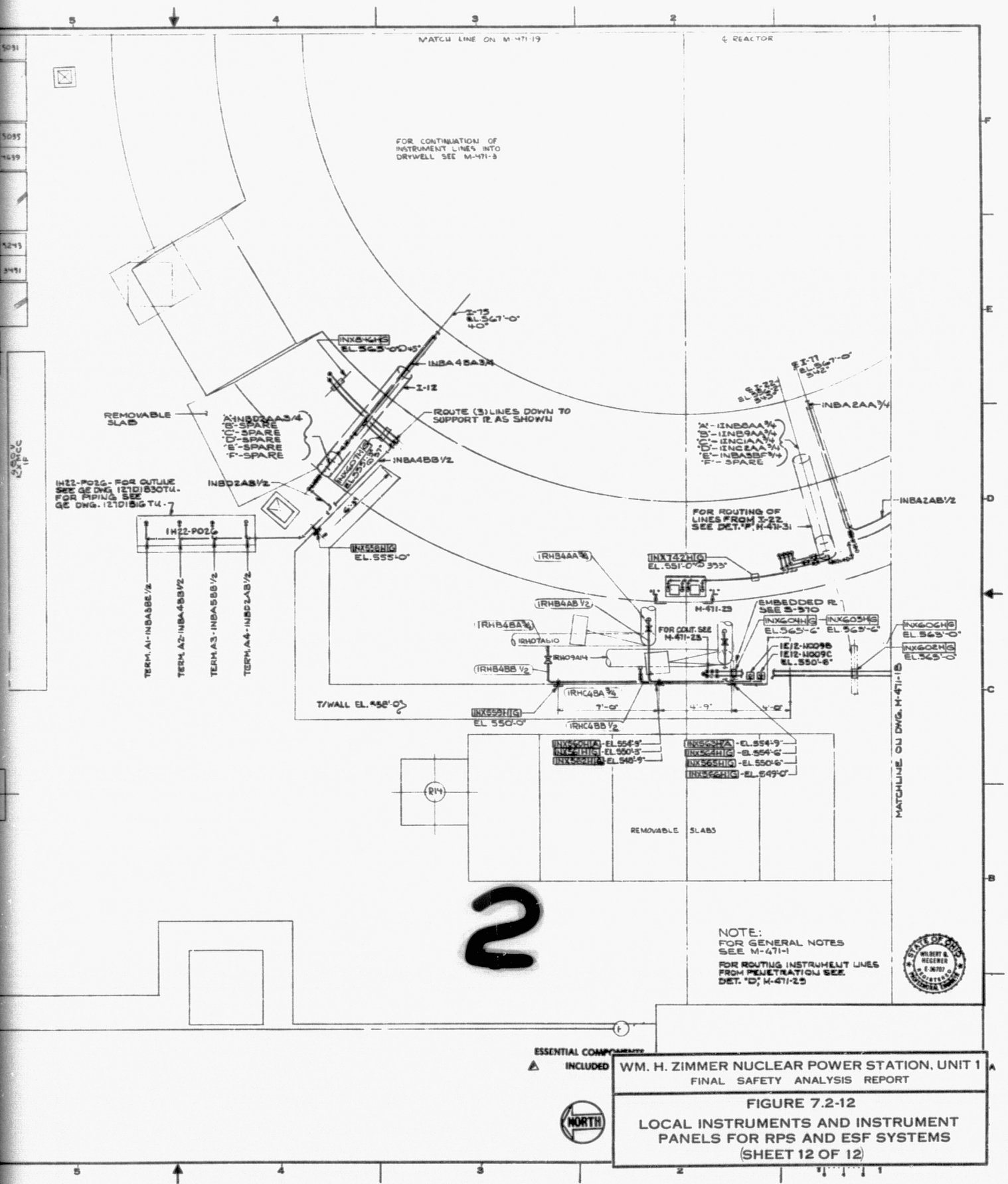
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-12

LOCAL INSTRUMENTS AND INSTRUMENT PANELS FOR RPS AND ESF SYSTEMS (SHEET 11 OF 12)

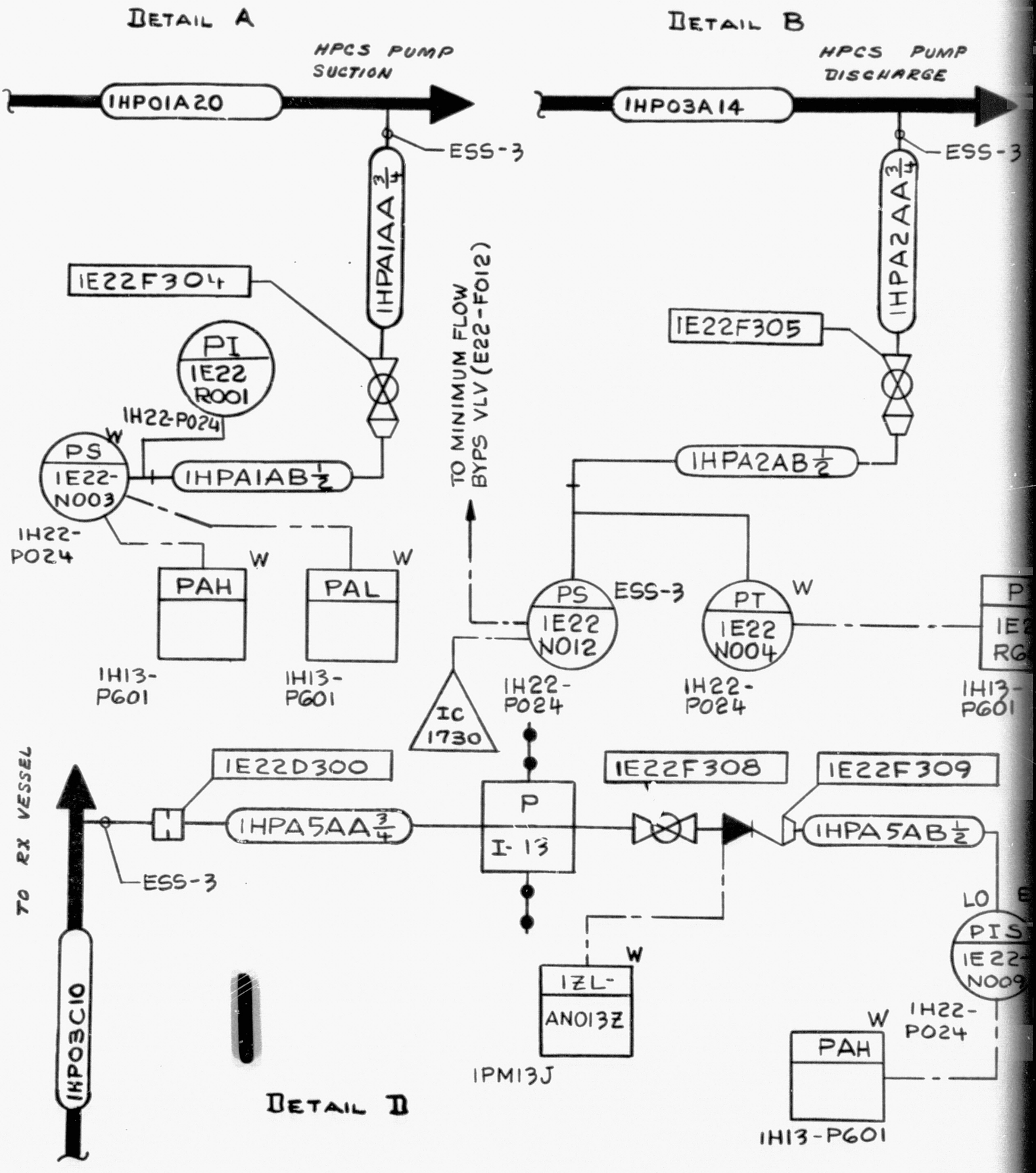
M-471-20

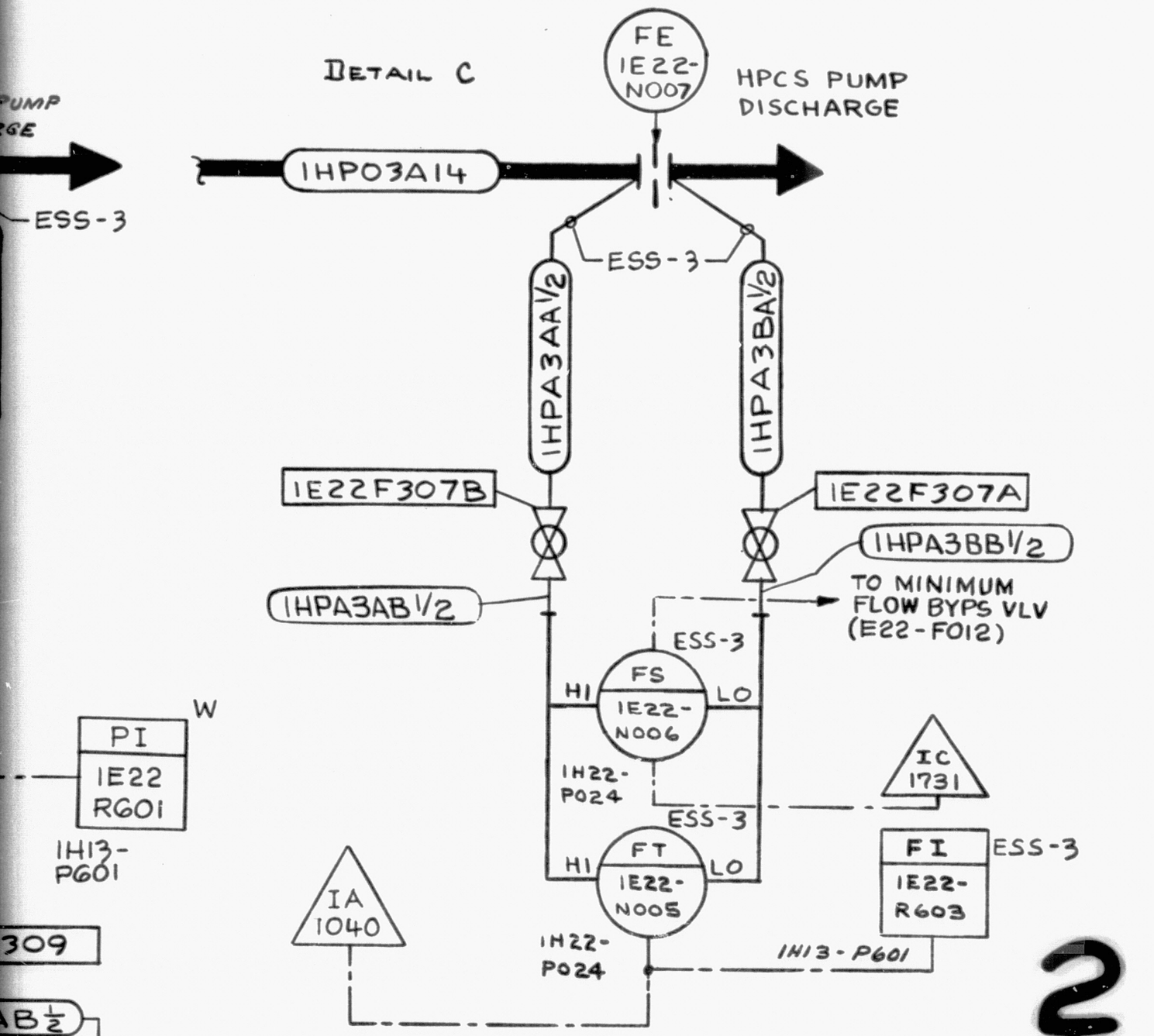

REMOVABLE SLABS
2631 3031 3431 3831 4231 4631 5031
2635 3035 3435 3835 4235 4635 5035
2639 3039 3439 3839 4239 4639
2643 3043 3443 3843 4243 4643 5243
2647 3047 3447 3847 2651 3051 3451
R9
R10
R12
R13
HEAT EXCHANGER RBCCW
REMOVABLE SLAB
A-INBD2AA3/4
B-SPARE
C-SPARE
D-SPARE
E-SPARE
F-SPARE
INBD2AB1/2
IH22-P022- FOR UTILITY SEE GE DWG 121D1830TU. FOR PIPING SEE GE DWG. 121D1816TU-7
IH22-P022
TERM. A1-INBA88E1/2
TERM A2-INBA48B1/2
TERM A3-INBA58B1/2
TERM A4-INBD2AB1/2
T/WALL EL.
28
A
B
C
D
E
8
7
6
5
4



WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.2-12
LOCAL INSTRUMENTS AND INSTRUMENT PANELS FOR RPS AND ESF SYSTEMS
(SHEET 12 OF 12)


DETAIL A
DETAIL B
HPCS PUMP SUCTION
HPCS PUMP DISCHARGE
1HP01A20
1HP03A14
ESS-3
ESS-3
1HPA1AA 3/4
1HPA2AA 3/4
1E22F304
1E22F305
PI 1E22 R001
1H22-P024
PS 1E22-N003
W
1HPA1AB 1/2
1HPA2AB 1/2
TO MINIMUM FLOW BYPS VLV (E22-F012)
1H22-P024
PAH
W
PAL
W
1H13-P601
1H13-P601
PS ESS-3
1E22 N012
PT W
1E22 N004
1H22-P024
1H22-P024
1H13-P601
IC 1730
1E22D300
1E22F308
1E22F309
TO RX VESSEL
1HP03C10
1HPA5AA 3/4
P
I-13
1HPA5AB 1/2
ESS-3
LO
PIS
1E22-N009
1ZL-AN013Z
W
1IPM13J
1H22-P024
W
PAH
1H13-P601
DETAIL D



ESSENTIAL COMPONENTS

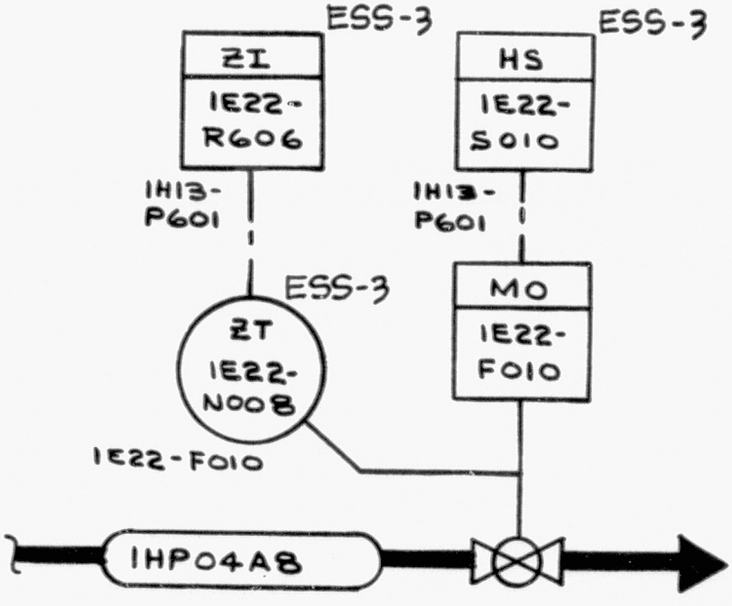
INCLUDED

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-2A

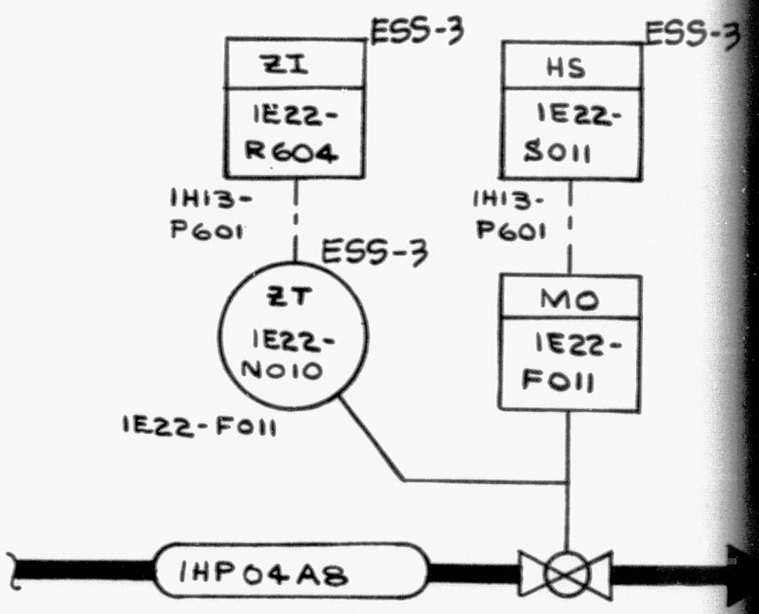
HIGH PRESSURE CORE SPRAY SYSTEM C&ID
(SHEET 1 of 2)

DETAIL A

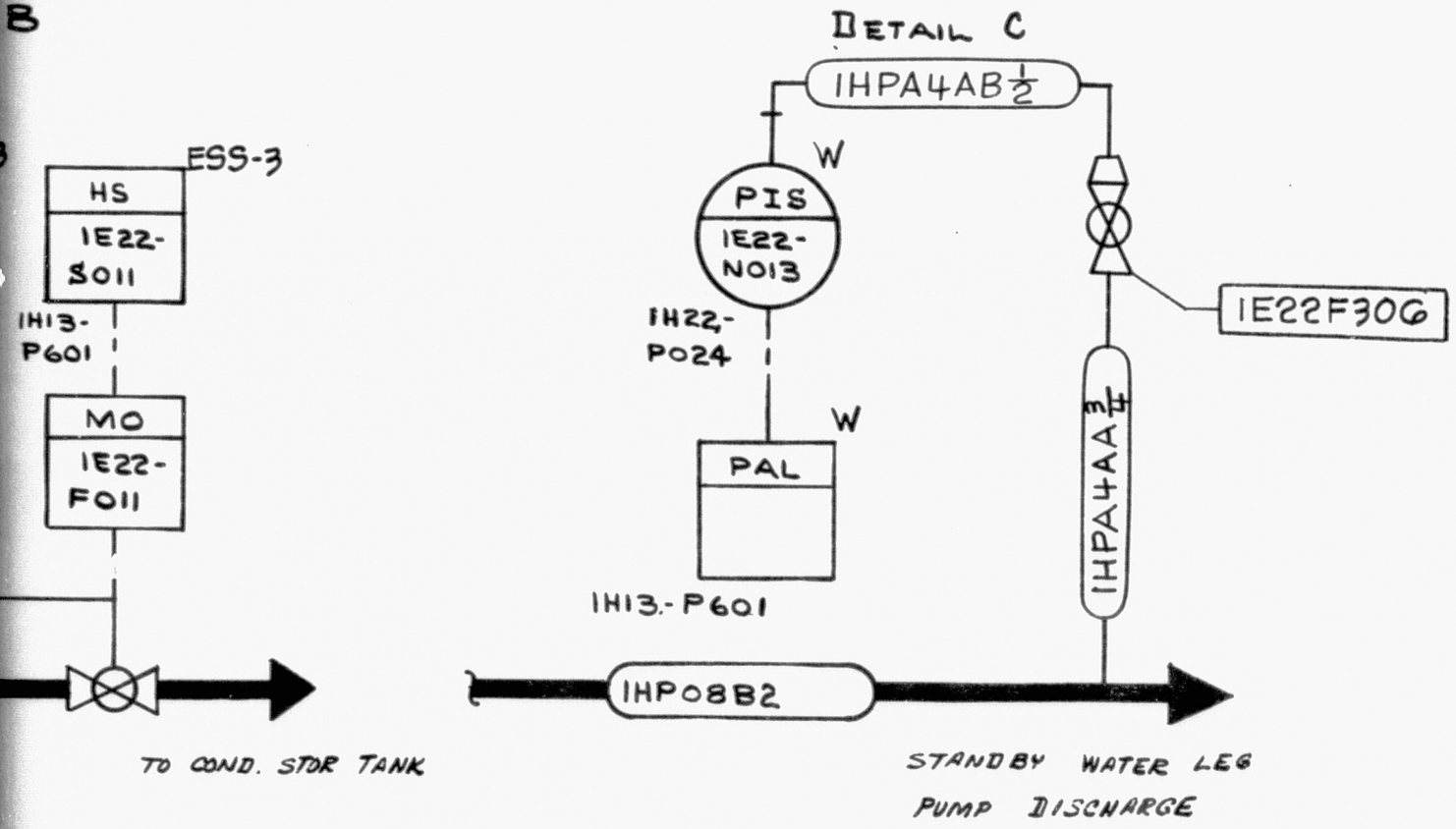


TO COND STOR. TANK

DETAIL B



TO COND. S

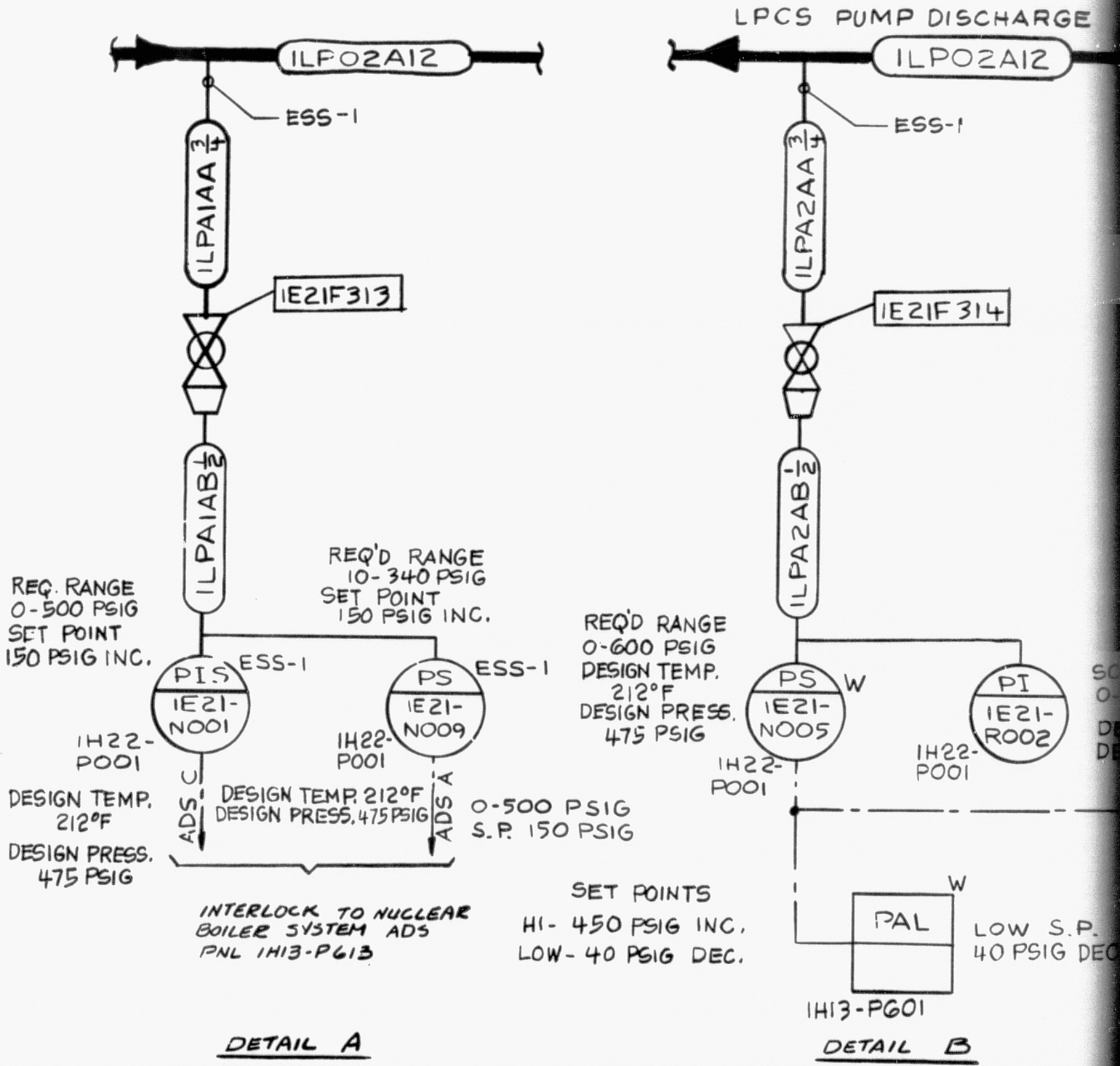


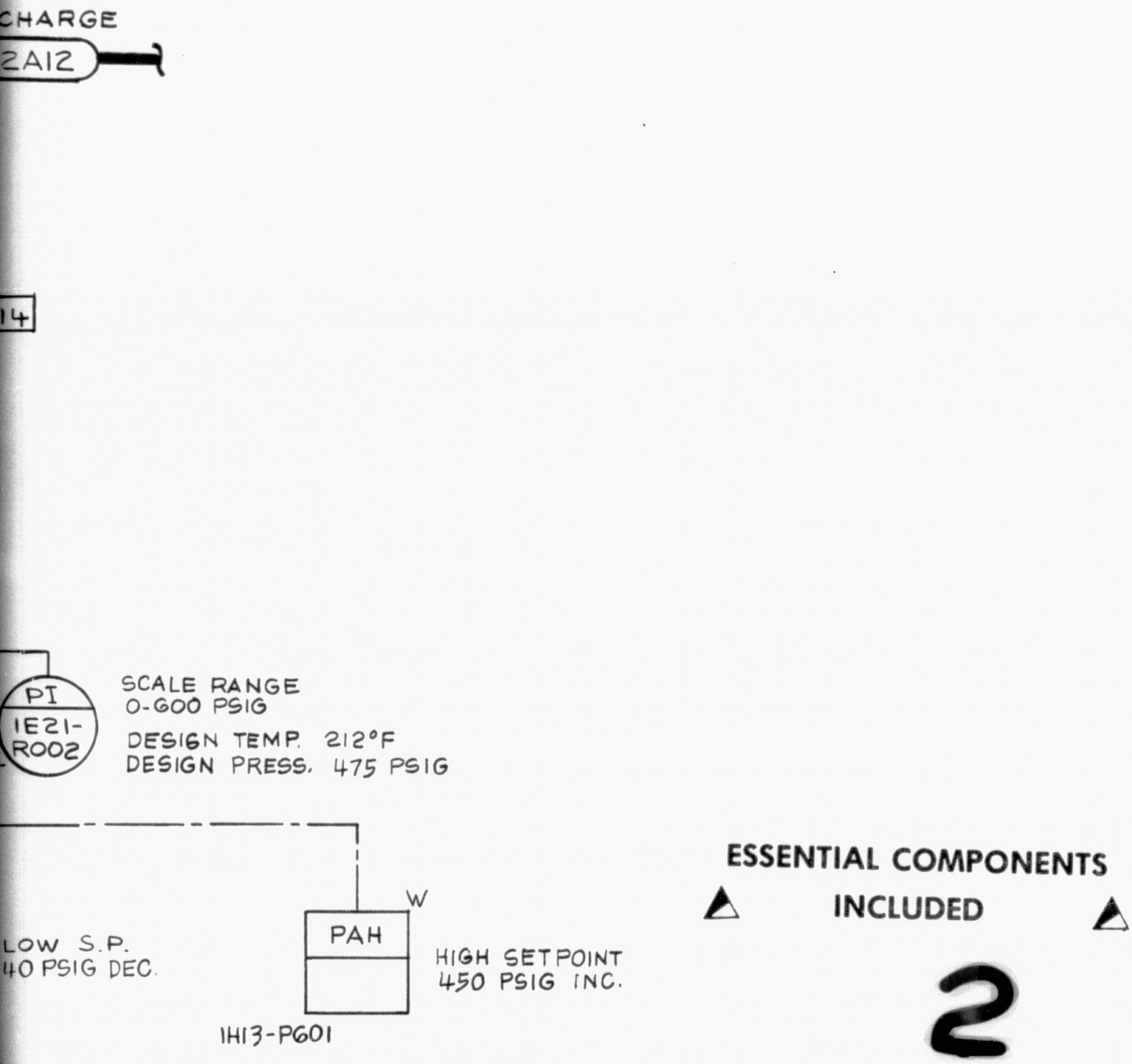
ESSENTIAL COMPONENTS

▲ INCLUDED ▲

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-2A HIGH PRESSURE CORE SPRAY SYSTEM C&ID (SHEET 2 of 2)

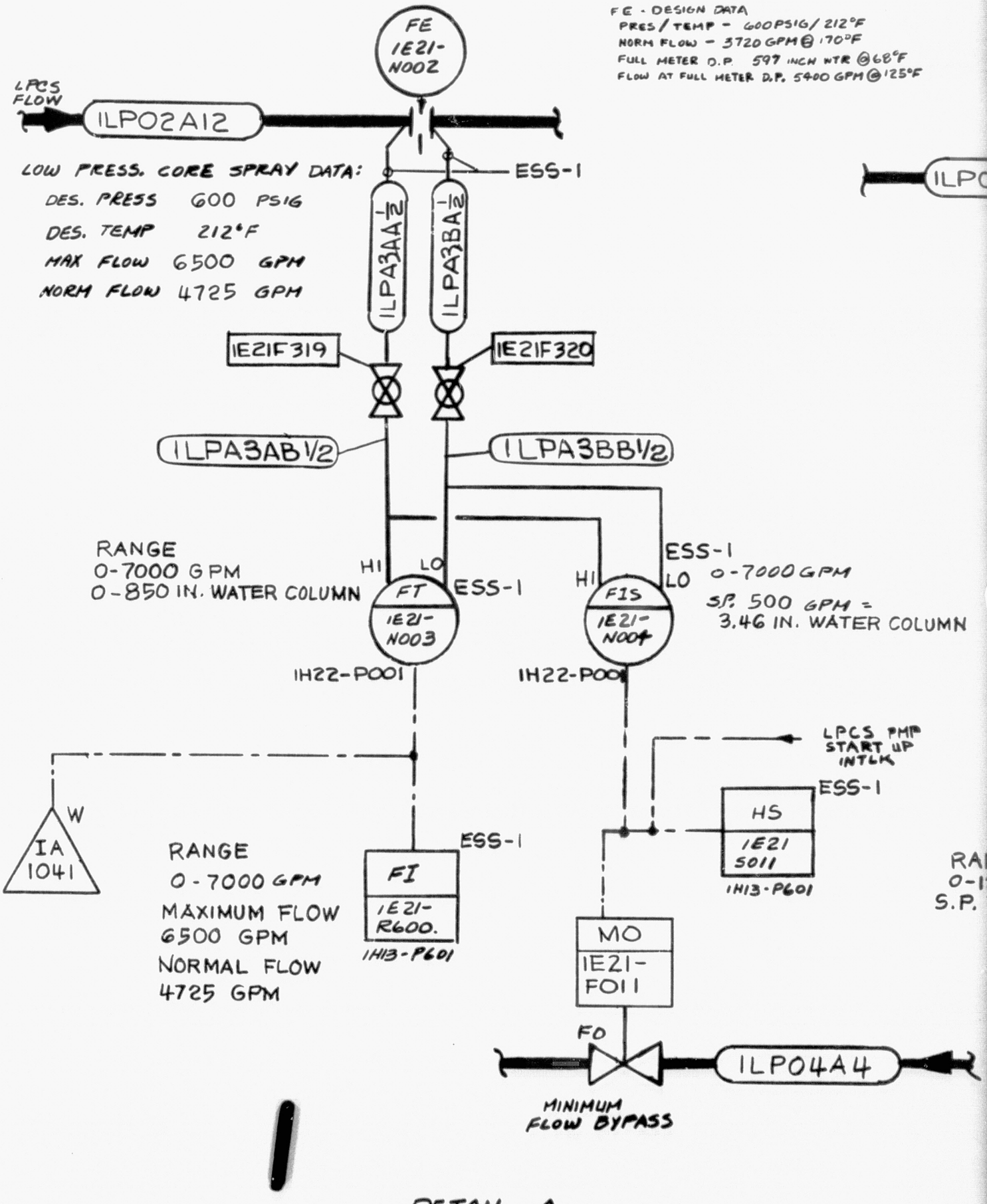

1LP02A12
ESS-1
1LPA1AA 3/4
1E21F313
1LPA1AB 1/2
REQ. RANGE
0-500 PSIG
SET POINT
150 PSIG INC.
REQ'D RANGE
10-340 PSIG
SET POINT
150 PSIG INC.
PIS
1E21-
N001
ESS-1
PS
1E21-
N009
ESS-1
1H22-
P001
1H22-
P001
DESIGN TEMP.
212°F
DESIGN PRESS.
475 PSIG
ADS U
DESIGN TEMP. 212°F
DESIGN PRESS. 475 PSIG
ADS A
0-500 PSIG
S.P. 150 PSIG
INTERLOCK TO NUCLEAR
BOILER SYSTEM ADS
PNL 1H13-P613
DETAIL A
LPCS PUMP DISCHARGE
1LP02A12
ESS-1
1LPA2AA 3/4
1E21F314
1LPA2AB 1/2
REQ'D RANGE
0-600 PSIG
DESIGN TEMP.
212°F
DESIGN PRESS.
475 PSIG
PS
1E21-
N005
W
PI
1E21-
R002
1H22-
P001
1H22-
P001
SET POINTS
HI- 450 PSIG INC.
LOW- 40 PSIG DEC.
W
PAL
LOW S.P.
40 PSIG DEC
1H13-P601
DETAIL B



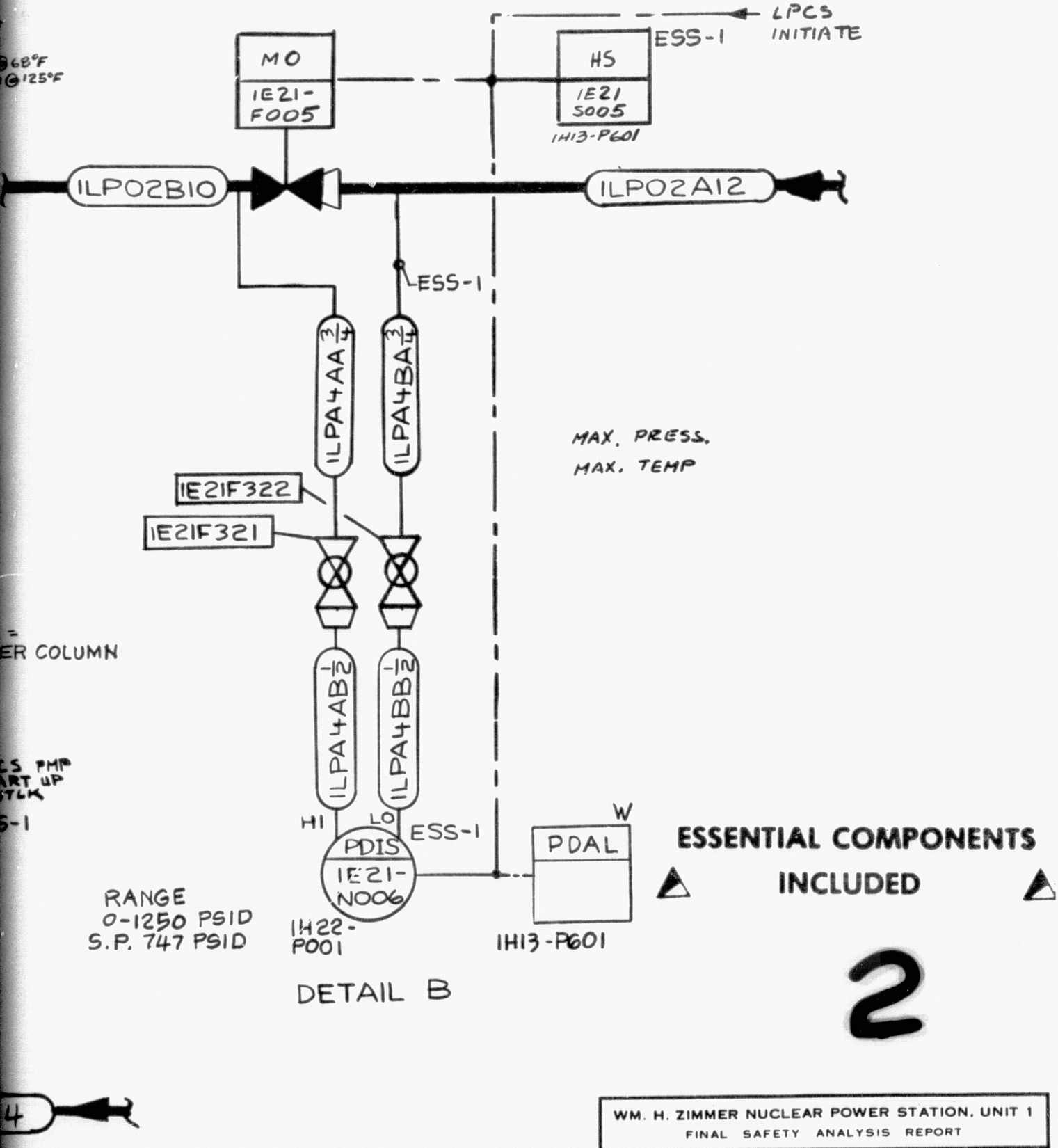
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-7A

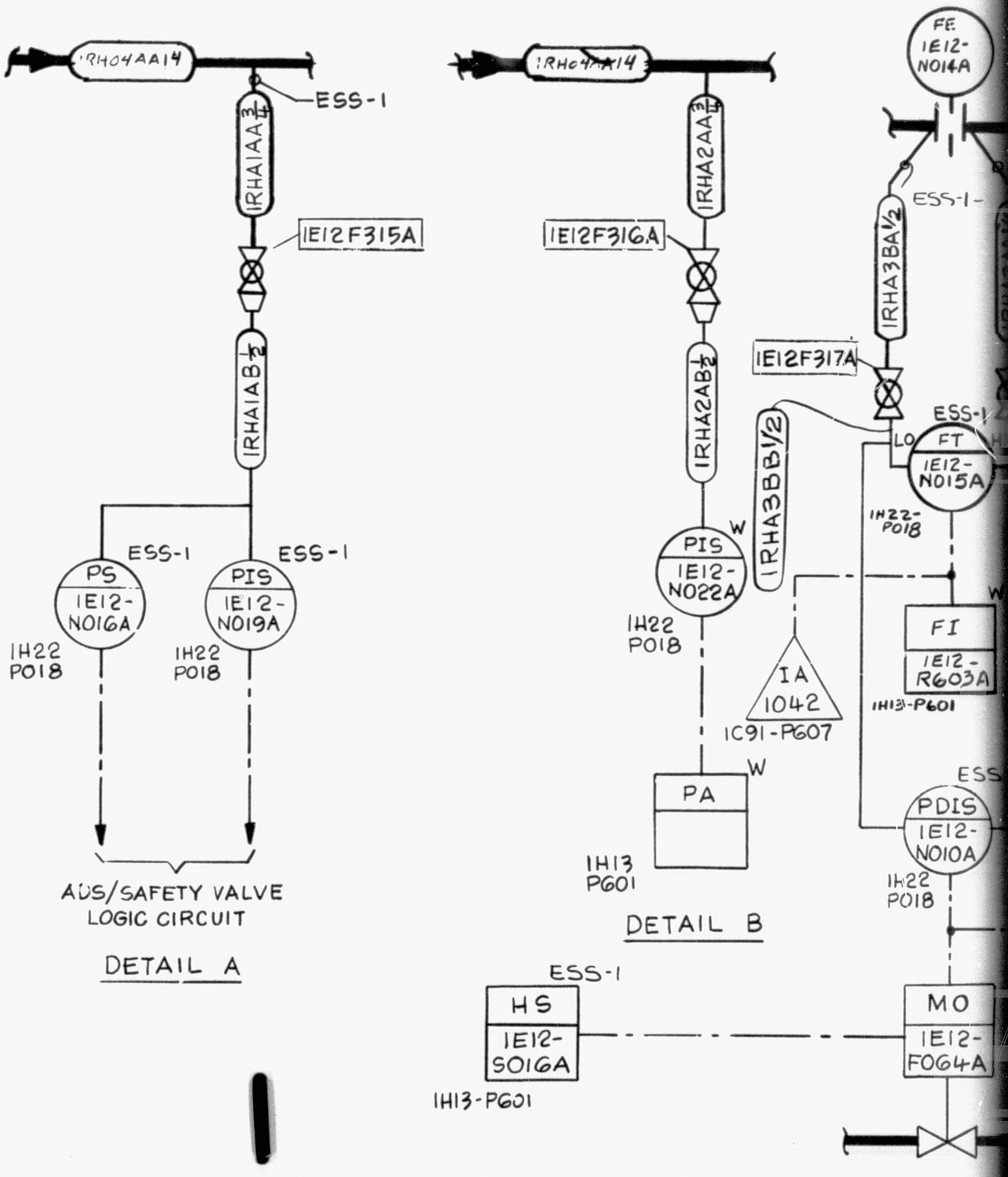
LOW PRESSURE CORE SPRAY SYSTEM C&ID
(SHEET 1 of 2)

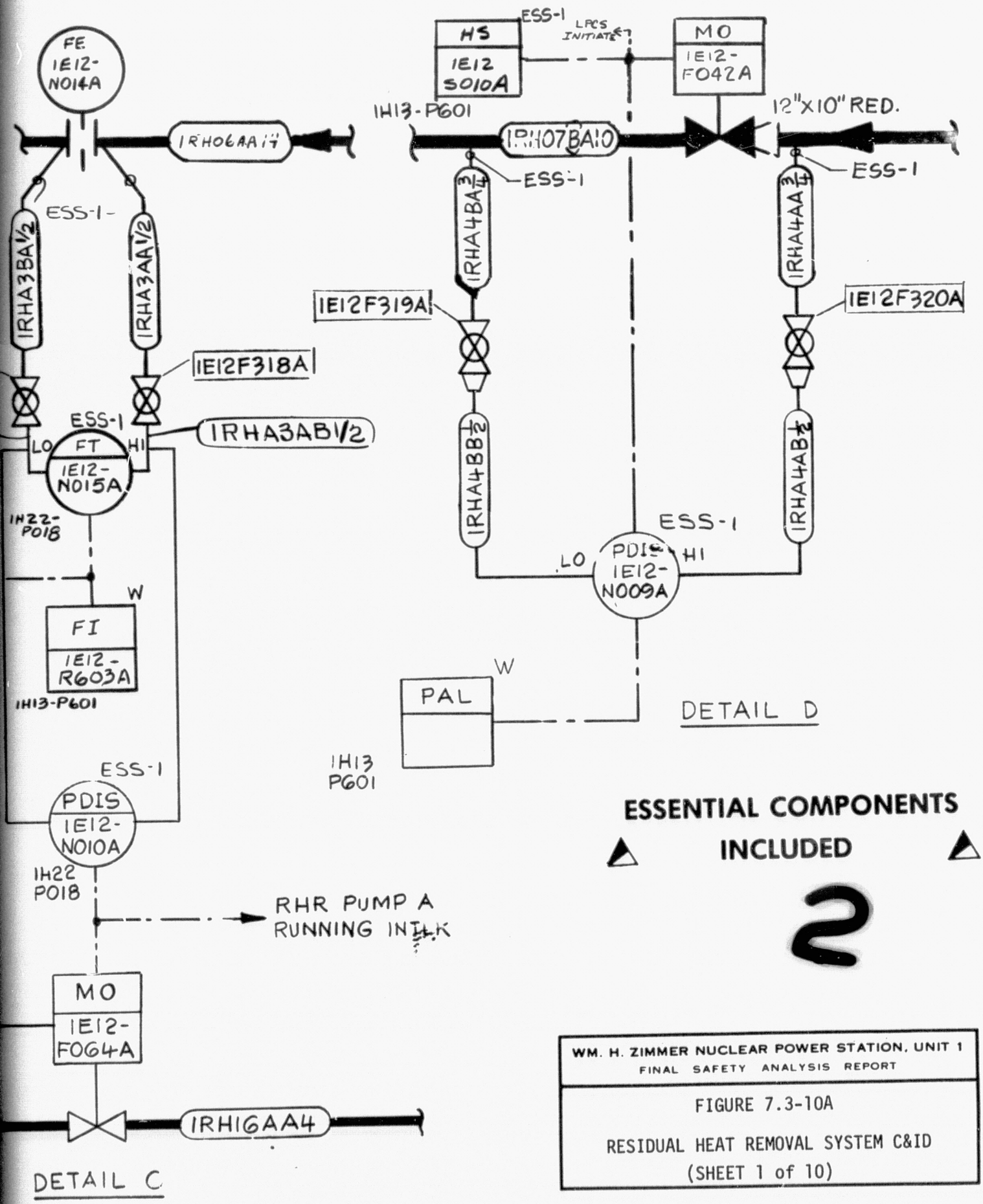

FE
1E21-
N002
FE - DESIGN DATA
PRES / TEMP - 600PSIG / 212°F
NORM FLOW - 3720 GPM @ 170°F
FULL METER D.P. 597 INCH WTR @ 68°F
FLOW AT FULL METER D.P. 5400 GPM @ 125°F
LPCS FLOW
1LP02A12
LOW PRESS. CORE SPRAY DATA:
DES. PRESS 600 PSIG
DES. TEMP 212°F
MAX FLOW 6500 GPM
NORM FLOW 4725 GPM
ESS-1
1LPA3AA 1/2
1LPA3BA 1/2
1E21F319
1E21F320
1LPA3AB 1/2
1LPA3BB 1/2
RANGE
0-7000 GPM
0-850 IN. WATER COLUMN
HI
LO
FT
1E21-
N003
ESS-1
1H22-P001
HI
LO
FIS
1E21-
N004
ESS-1
0-7000 GPM
S.P. 500 GPM =
3.46 IN. WATER COLUMN
1H22-P001
LPCS PMP START UP INTLK
ESS-1
HS
1E21
5011
1H13-P601
W
IA
1041
RANGE
0-7000 GPM
MAXIMUM FLOW
6500 GPM
NORMAL FLOW
4725 GPM
ESS-1
FI
1E21-
R600.
1H13-P601
MO
1E21-
F011
FO
1LP04A4
MINIMUM FLOW BYPASS

DETAIL A



WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-7A LOW PRESSURE CORE SPRAY SYSTEM C&ID (SHEET 2 of 2)


1RH04AA14
ESS-1
1RHA1AA 3/4
1E12F315A
1RHA1AB 1/2
ESS-1
PS
1E12-N016A
1H22 P018
ESS-1
PIS
1E12-N019A
1H22 P018
AUS/SAFETY VALVE LOGIC CIRCUIT
DETAIL A
1RH04AA14
1RHA2AA 3/4
1E12F316A
1RHA2AB 1/2
1RHA3BB 1/2
PIS
1E12-N022A
W
1H22 P018
PA
W
1H13 P601
DETAIL B
FE
1E12-N014A
ESS-1
1RHA3BA 1/2
1E12F317A
ESS-1
LO
FT
1E12-N015A
1H22-P018
FI
1E12-R603A
1H13-P601
W
IA
1042
1C91-P607
ESS
PDIS
1E12-N010A
1H22 P018
ESS-1
HS
1E12-S016A
1H13-P601
MO
1E12-F064A
DETAIL

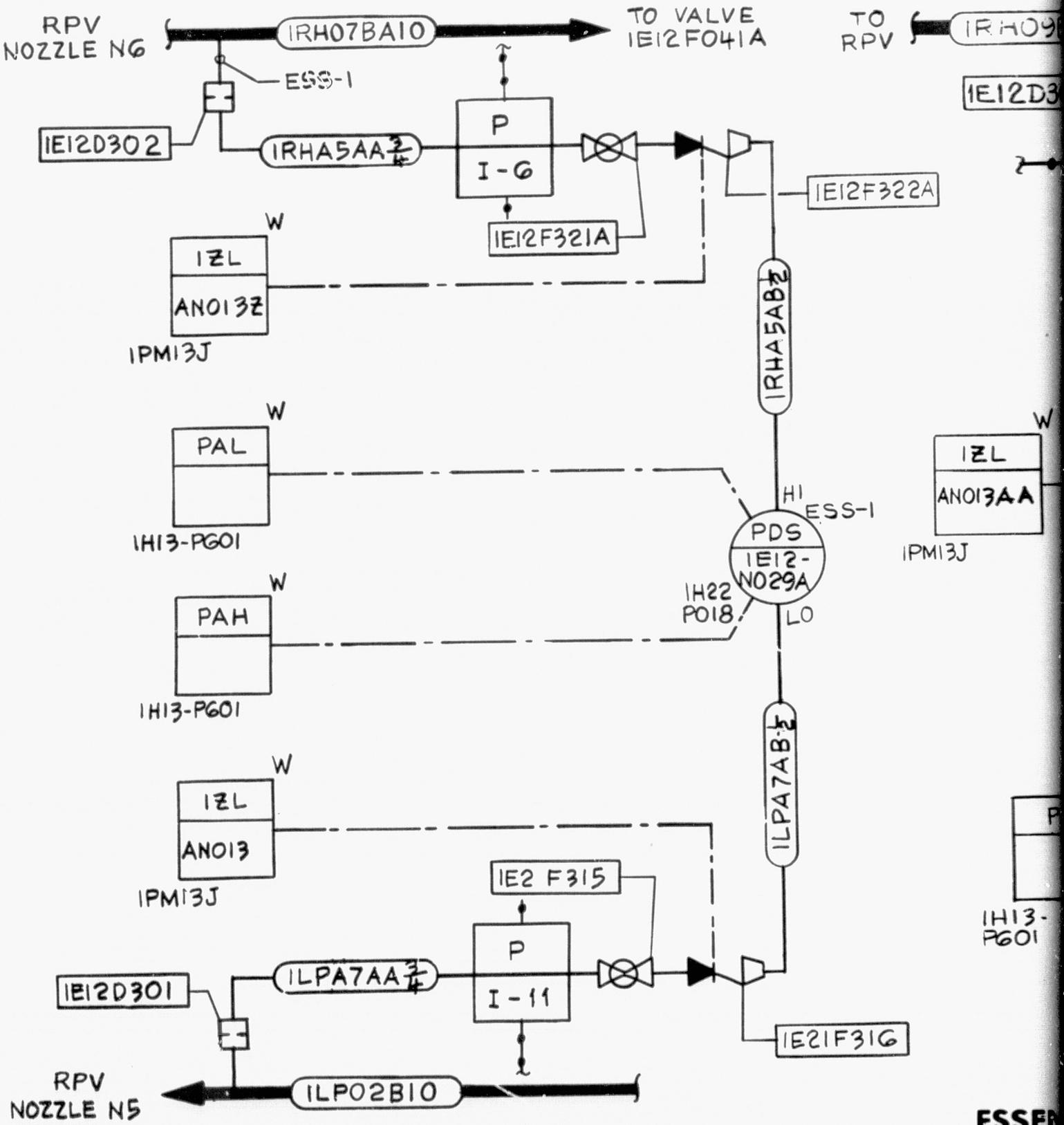


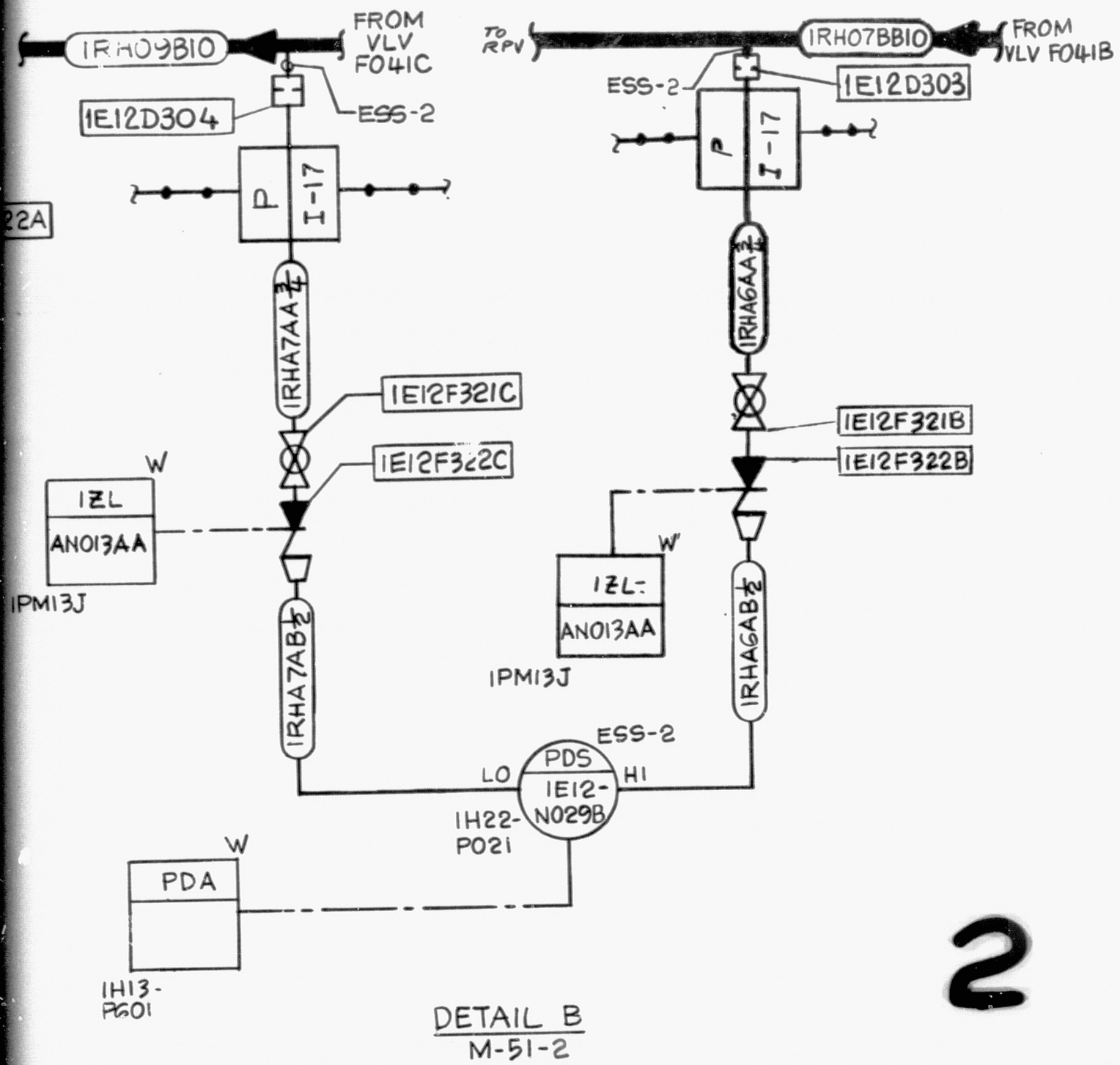
ESSENTIAL COMPONENTS

INCLUDED

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-10A RESIDUAL HEAT REMOVAL SYSTEM C&ID (SHEET 1 of 10)


RPV
NOZZLE N6
1RH07BA10
TO VALVE
1E12F041A
TO
RPV
ESS-1
1E12D302
1RHA5AA¾
P
I-G
1E12F321A
1E12F322A
W
1ZL
AN013Z
1PM13J
1RHA5AB¾
PAL
1H13-PG01
HI
ESS-1
PDS
1E12-
N029A
1H22
P018
LO
1ZL
AN013AA
1PM13J
PAH
1H13-PG01
1ILPA7AB¾
1ZL
AN013
1PM13J
1E2 F315
P
I-11
1E12D301
1ILPA7AA¾
1E21F316
RPV
NOZZLE N5
1LP02B10
DETAIL A
M-51-1



DETAIL B
M-51-2

2

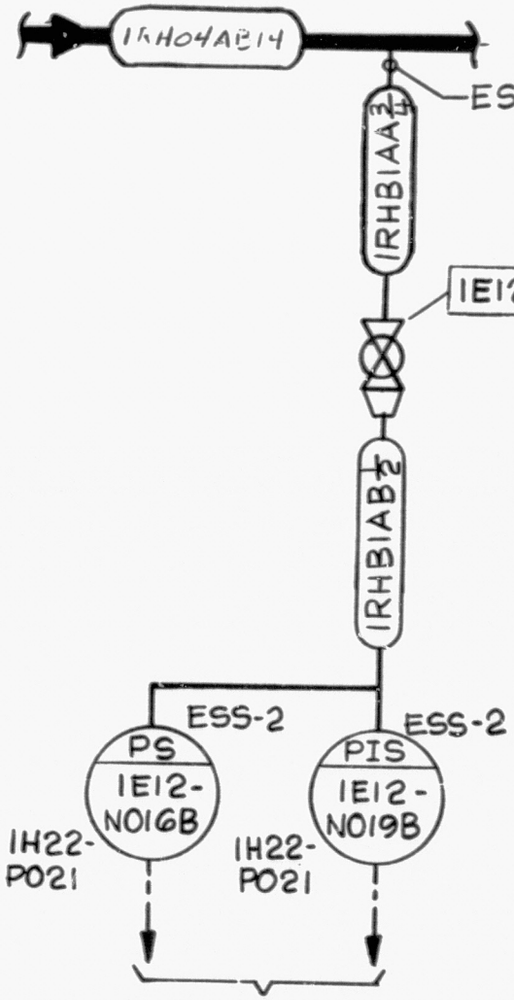
ESSENTIAL COMPONENTS

▲ **INCLUDED** ▲

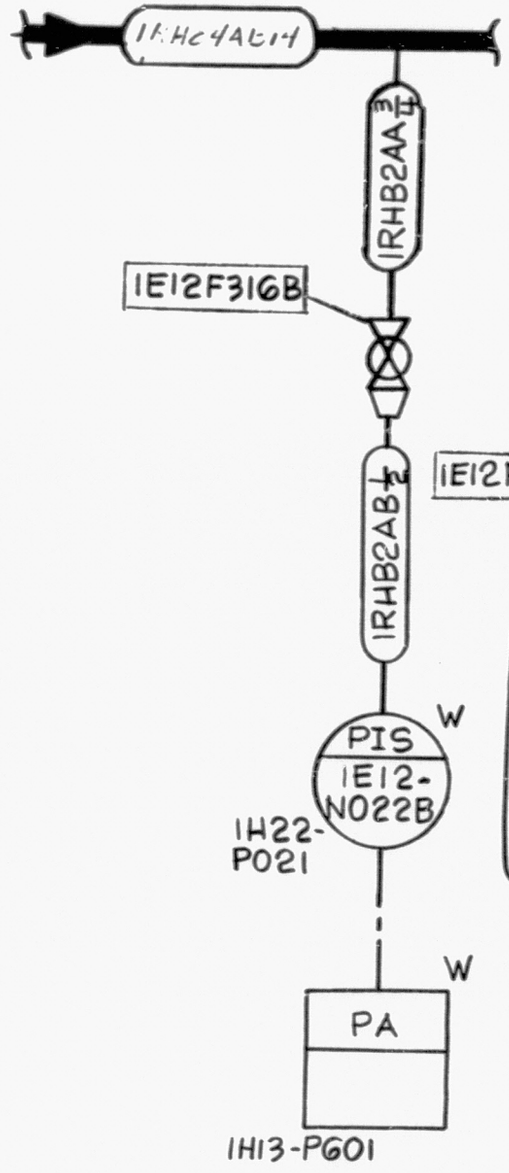
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-10A

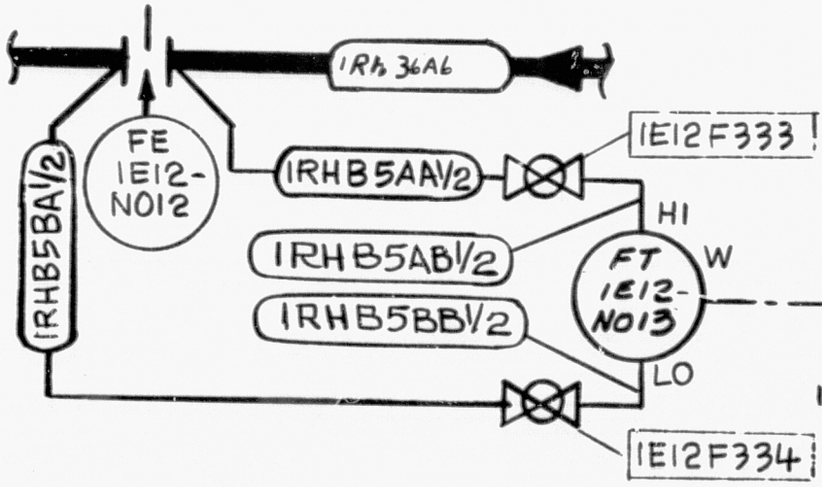
RESIDUAL HEAT REMOVAL SYSTEM C&ID
(SHEET 2 of 10)



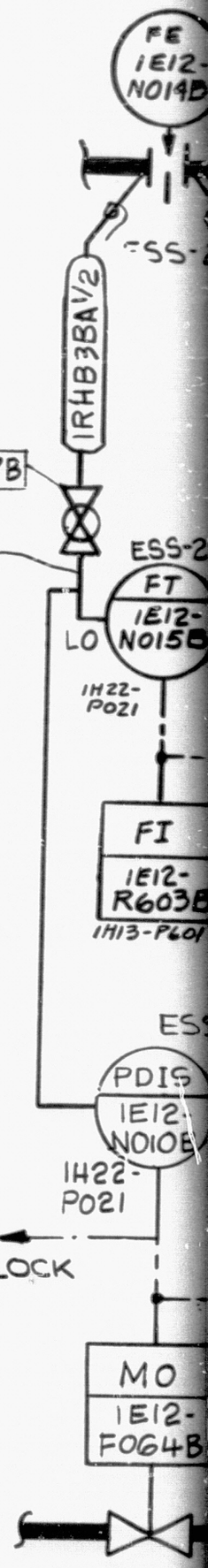
DETAIL A



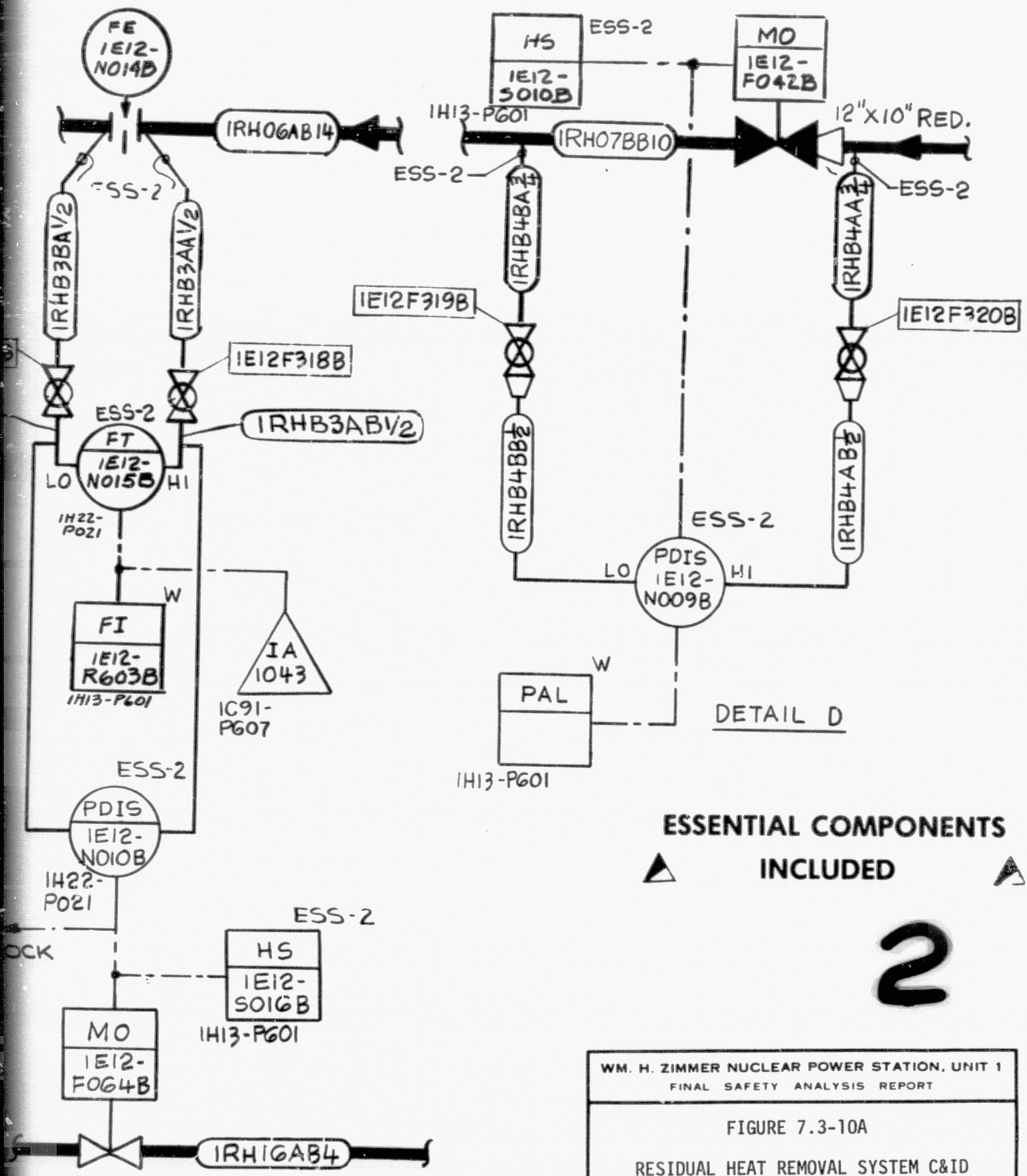
DETAIL B



DETAIL E



DETAIL

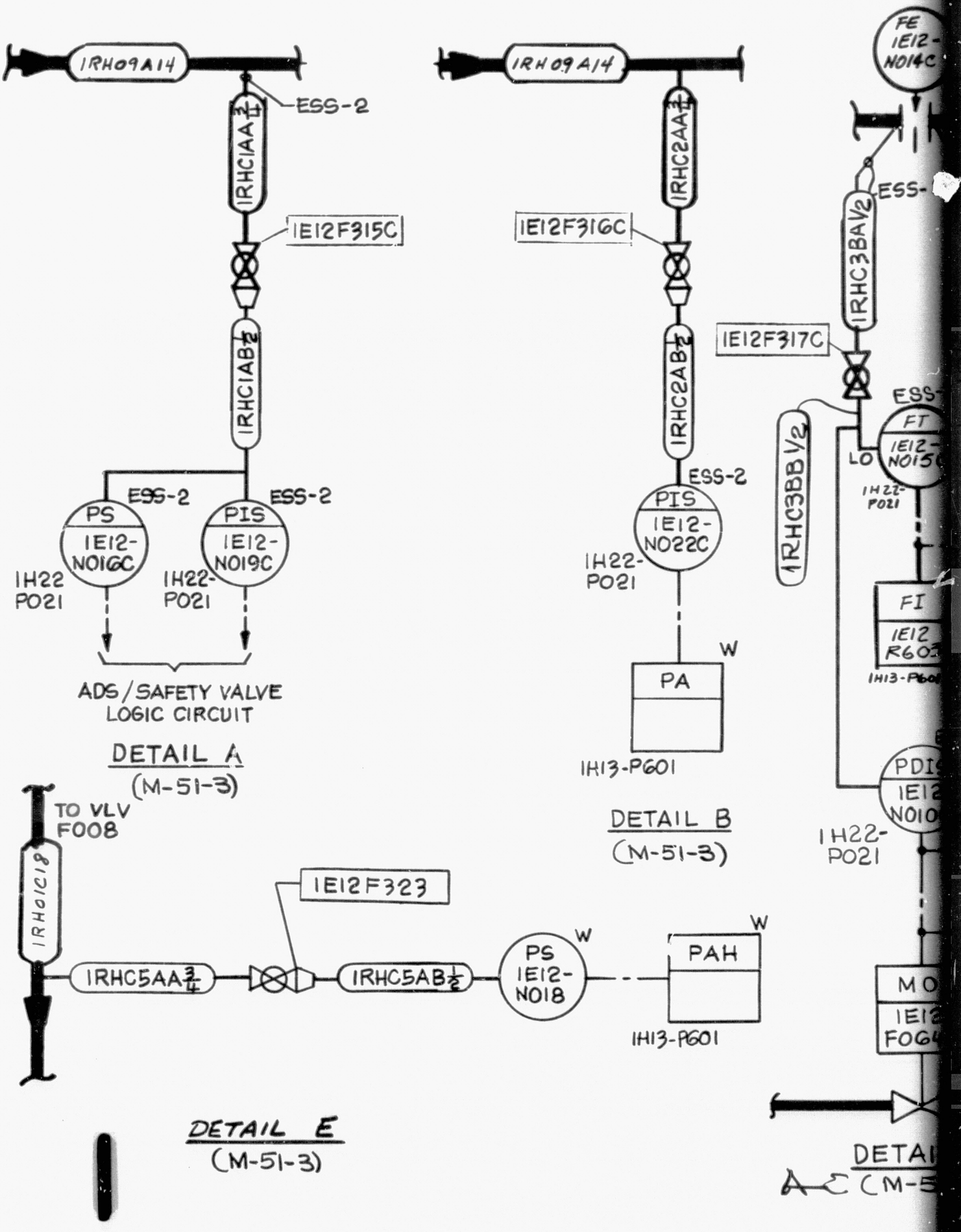


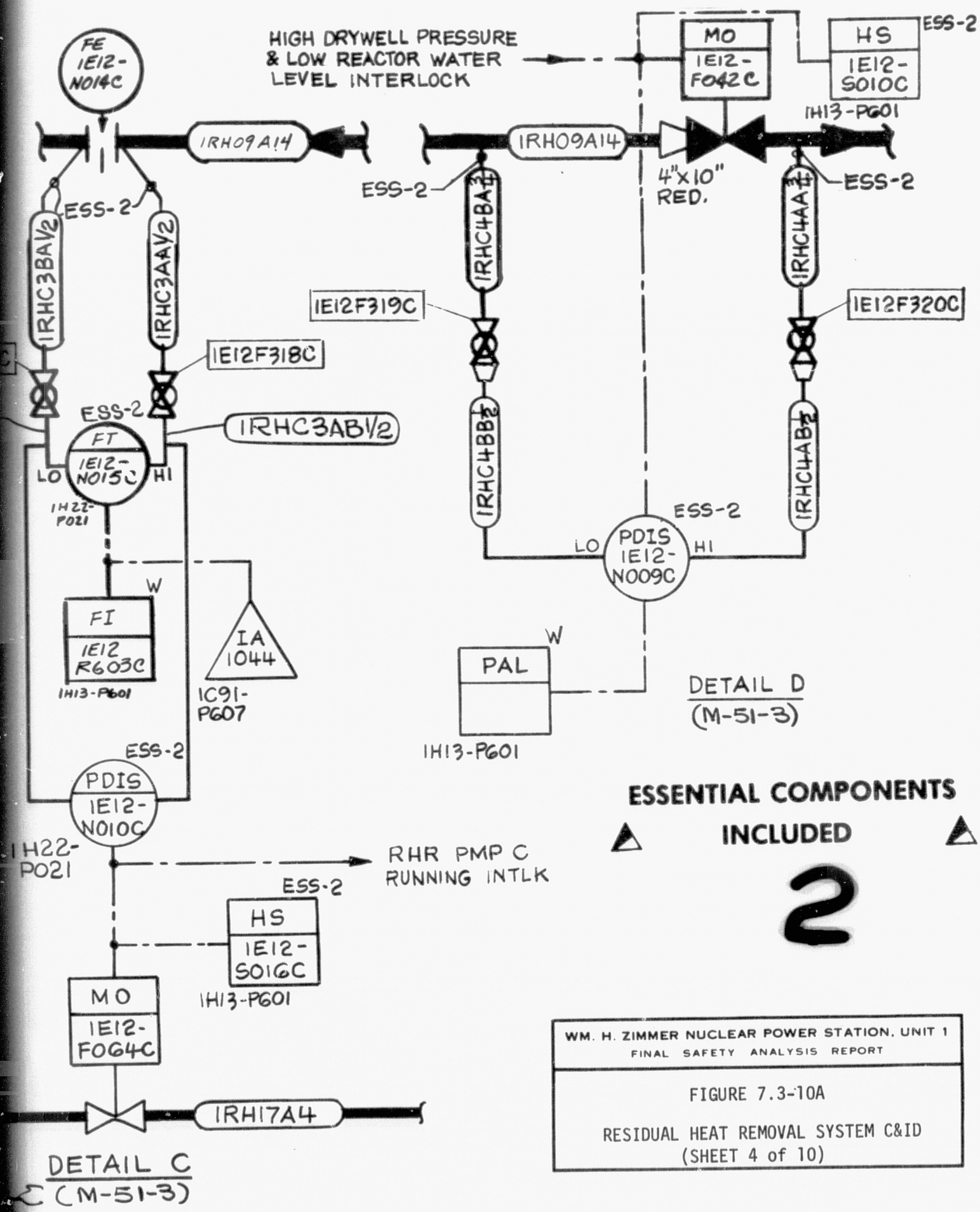
ESSENTIAL COMPONENTS

INCLUDED

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-10A RESIDUAL HEAT REMOVAL SYSTEM C&ID (SHEET 3 of 10)


1RH09A14
ESS-2
1RHC1AA¾
1E12F315C
1RHC1AB½
ESS-2
PS
1E12-N016C
1H22-P021
ESS-2
PIS
1E12-N019C
1H22-P021
ADS/SAFETY VALVE LOGIC CIRCUIT
DETAIL A
(M-51-3)
1RH09A14
1RHC2AA¾
1E12F316C
1RHC2AB½
ESS-2
PIS
1E12-N022C
1H22-P021
W
PA
1H13-P601
DETAIL B
(M-51-3)
FE
1E12-N014C
ESS-
1RHC3BA½
1E12F317C
1RHC3BB½
LO
ESS-
FT
1E12-N015
1H22-P021
FI
1E12
1H13-P60
PDI
1E12
N010
1H22-P021
TO VLV F008
1RH01C18
1E12F323
1RHC5AA¾
1RHC5AB½
PS
1E12-N018
W
PAH
W
1H13-P601
MO
1E12
FOG
DETAIL E
(M-51-3)
DETAI
(M-5

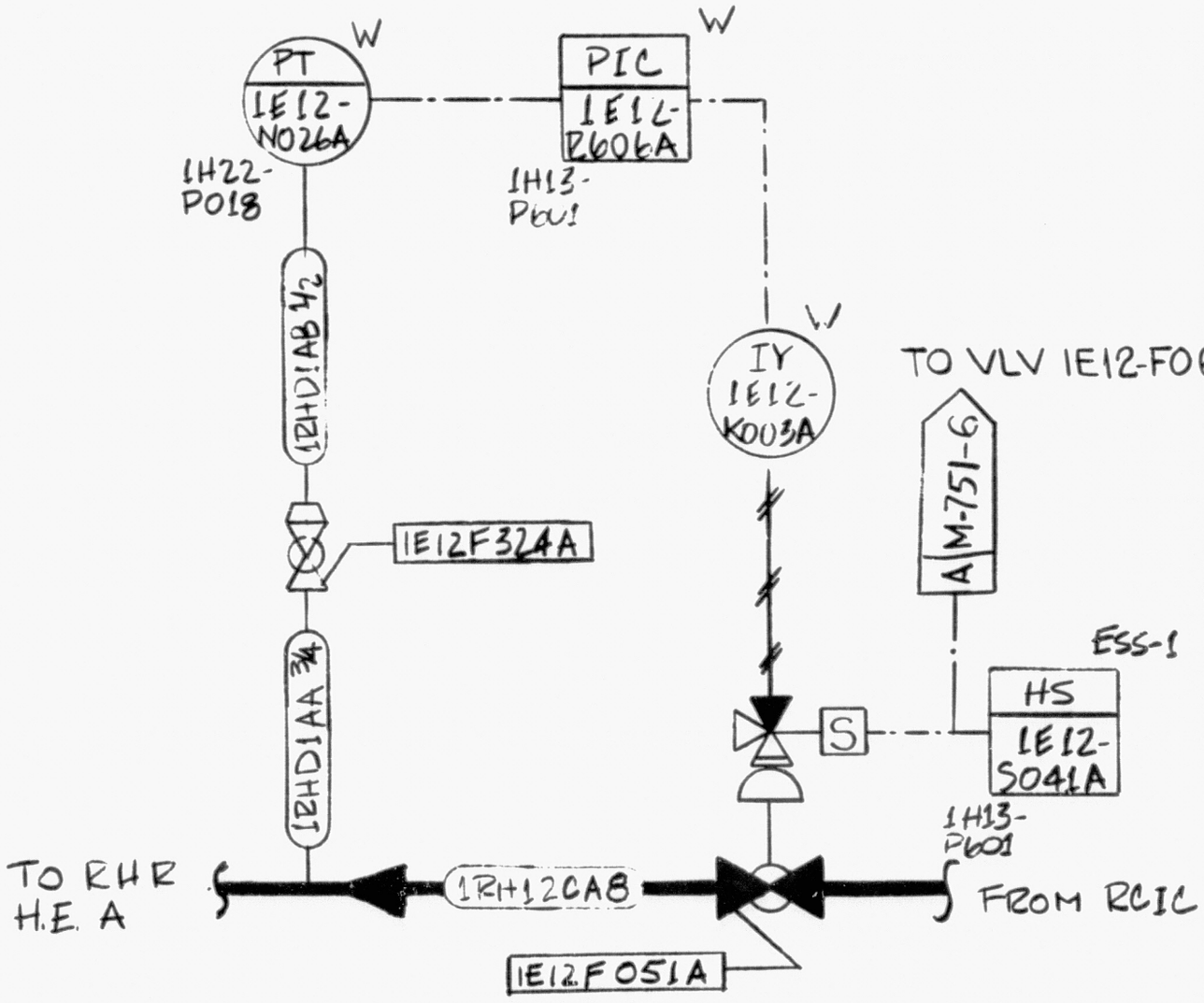


ESSENTIAL COMPONENTS

INCLUDED

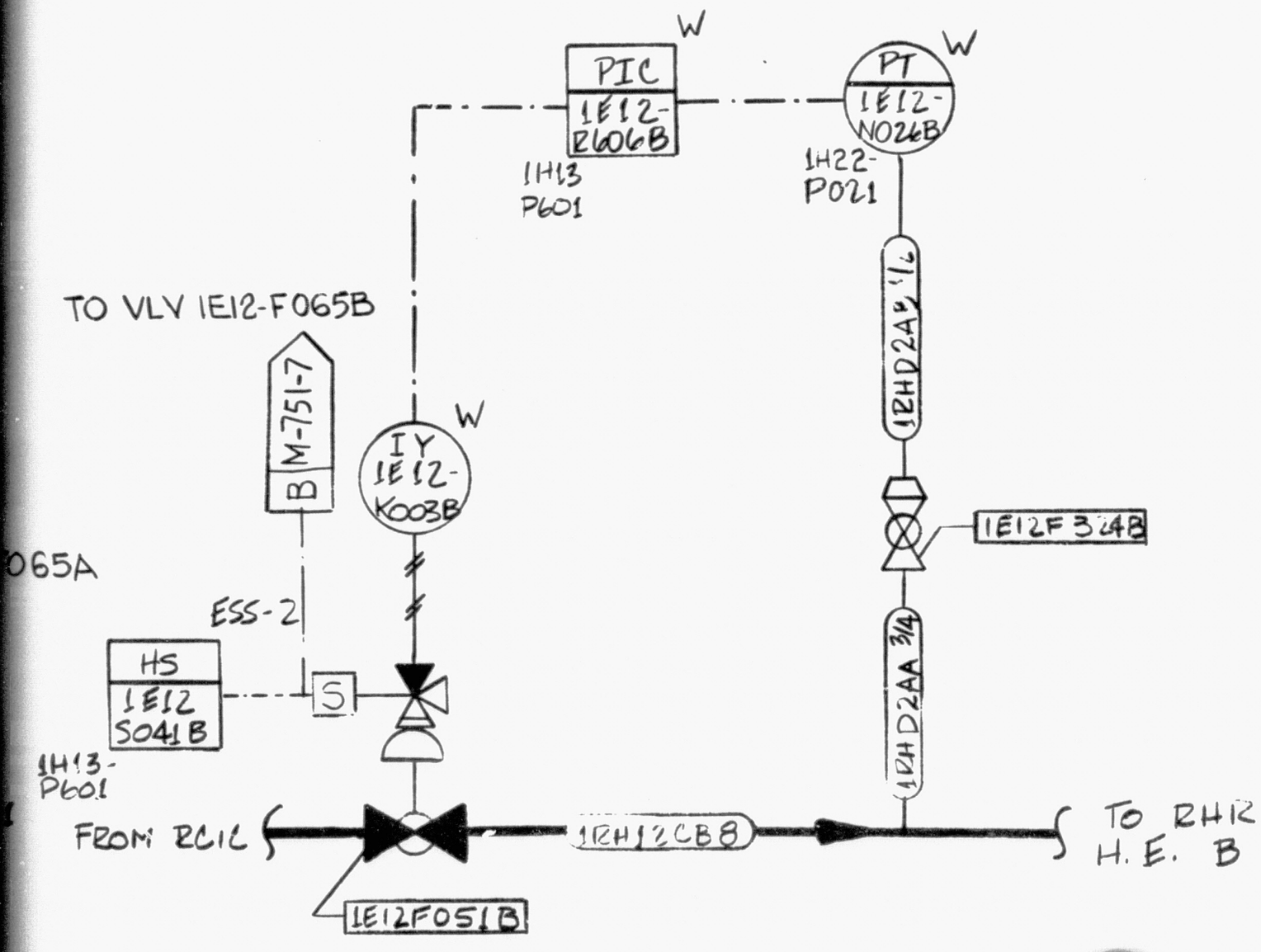
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-10A RESIDUAL HEAT REMOVAL SYSTEM C&ID (SHEET 4 of 10)



DETAIL A

(M-51-4)



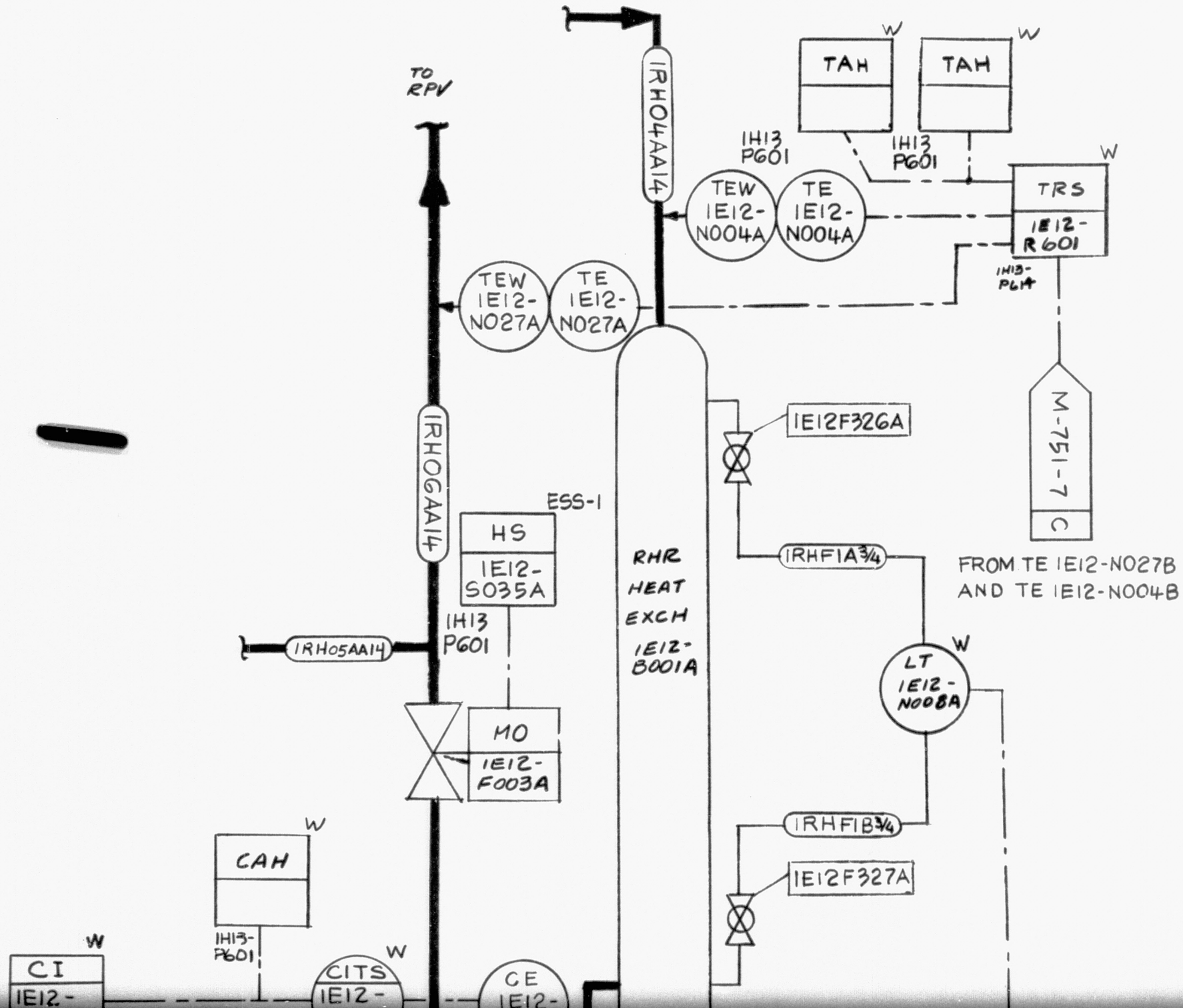
DETAIL B
(M-51-4)

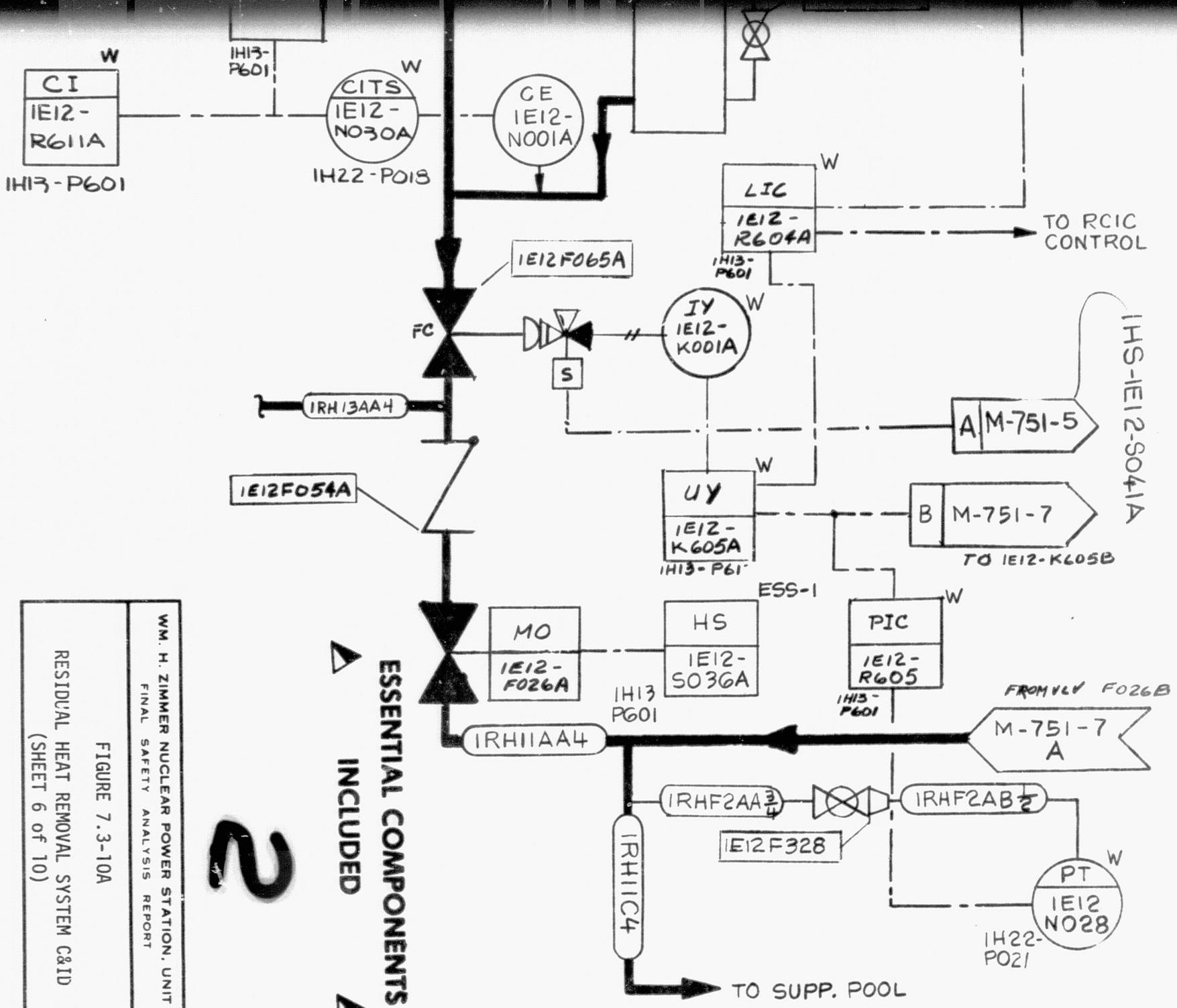
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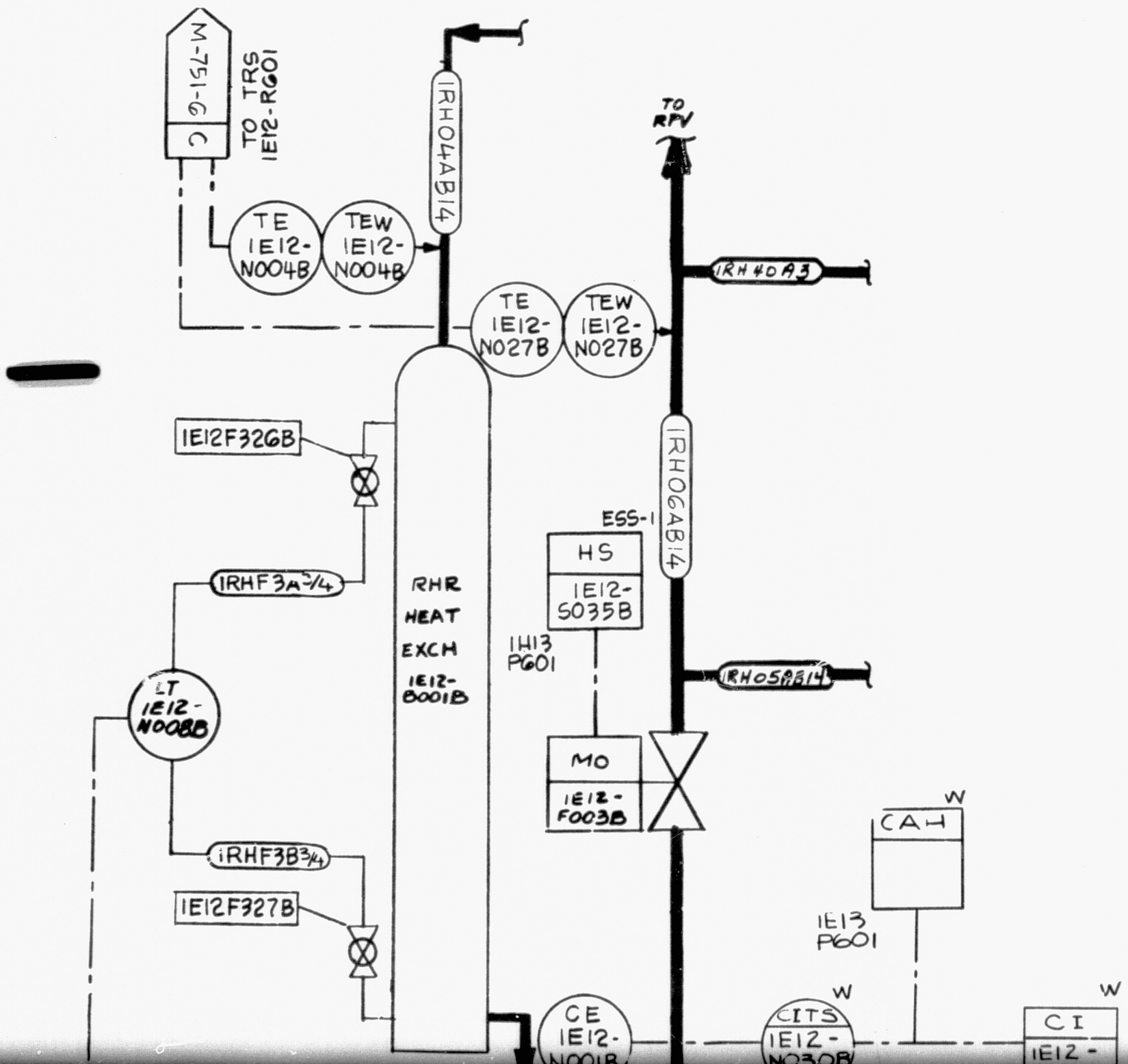
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-10A

RESIDUAL HEAT REMOVAL SYSTEM C&ID
(SHEET 5 of 10)


TO RPV
1RH04AA14
TAH
W
TAH
W
1H13 P601
1H13 P601
TRS
W
1E12-R601
1H13-P614
TEW 1E12-N004A
TE 1E12-N004A
TEW 1E12-N027A
TE 1E12-N027A
M-751-7 C
FROM TE 1E12-N027B AND TE 1E12-N004B
1E12F326A
1RHF1A 3/4
1RH06AA14
ESS-1
HS 1E12-S035A
1H13 P601
1RH05AA14
RHR HEAT EXCH 1E12-B001A
LT 1E12-N008A
W
MO 1E12-F003A
1RHF1B 3/4
1E12F327A
CAH
W
1H13-P601
CI
W
1E12-
CITS
W
1E12-
CE
1E12-

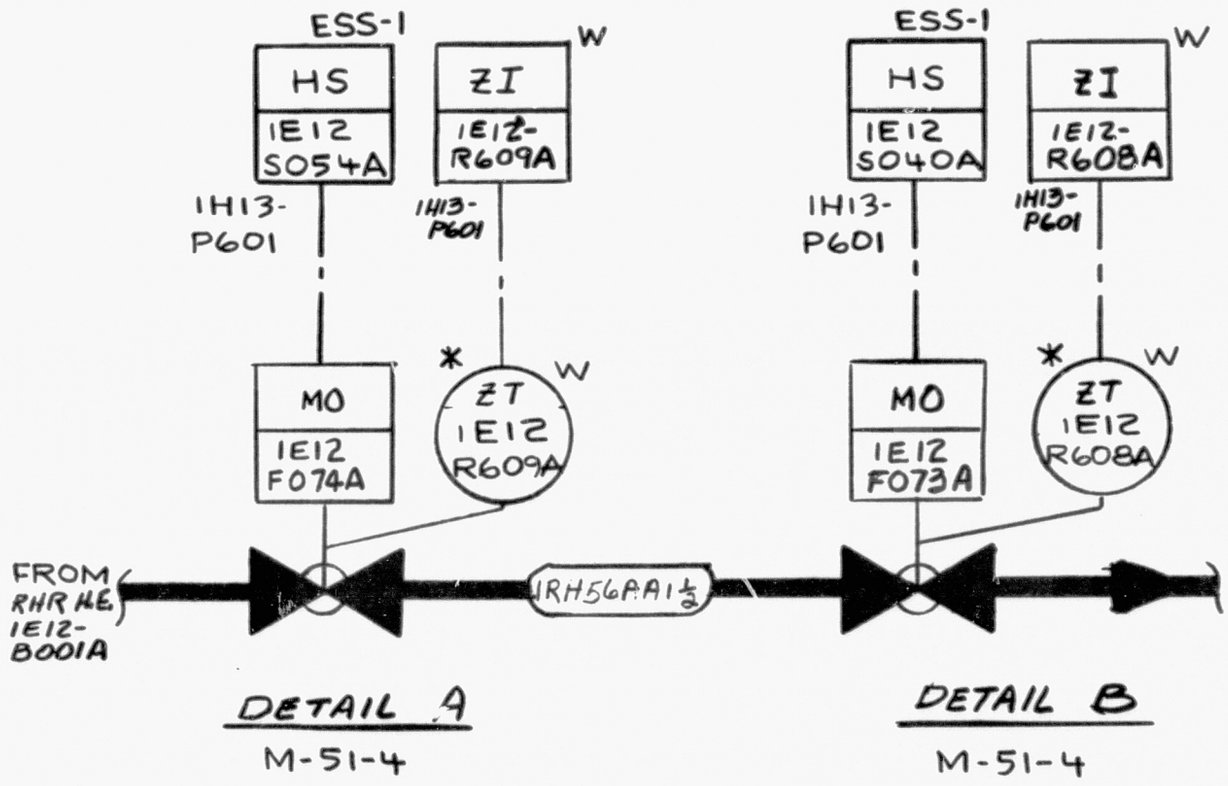

CI
1E12-R611A
1H13-P601
W
1H13-P601
CITS
1E12-N030A
1H22-P018
W
CE
1E12-N001A
LIC
1E12-R604A
1H13-P601
W
TO RCIC CONTROL
1E12F065A
FC
S
IY
1E12-K001A
W
1RH13AA4
A M-751-5
1HS-1E12-S041A
1E12F054A
UY
1E12-K605A
1H13-P61
W
B M-751-7
TO 1E12-K605B
ESS-1
MO
1E12-F026A
HS
1E12-S036A
1H13 P601
PIC
1E12-R605
1H13-P601
W
FROM VLV F026B
M-751-7 A
1RH11AA4
1RHF2AA 3/4
1RHF2AB 1/2
1E12F328
1RH11C4
PT
1E12 N028
W
1H22-P021
TO SUPP. POOL
ESSENTIAL COMPONENTS INCLUDED
2
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-10A
RESIDUAL HEAT REMOVAL SYSTEM C&ID
(SHEET 6 of 10)


M-751-G
C
TO TRS
1E12-R601
TE
1E12-
N004B
TEW
1E12-
N004B
1RH04AB14
TO
RPV
1RH40A3
TE
1E12-
N027B
TEW
1E12-
N027B
1E12F326B
1RHF3A3/4
RHR
HEAT
EXCH
1E12-
B001B
ESS-1
HS
1E12-
S035B
1H13
P601
1RH06AB14
1RH05AB14
LT
1E12-
N008B
MO
1E12-
F003B
1RHF3B3/4
1E12F327B
W
CAH
1E13
P601
W
CE
1E12-
N001B
W
CITS
1E12-
N030B
W
CI
1E12-

ESSENTIAL COMPONENTS INCLUDED

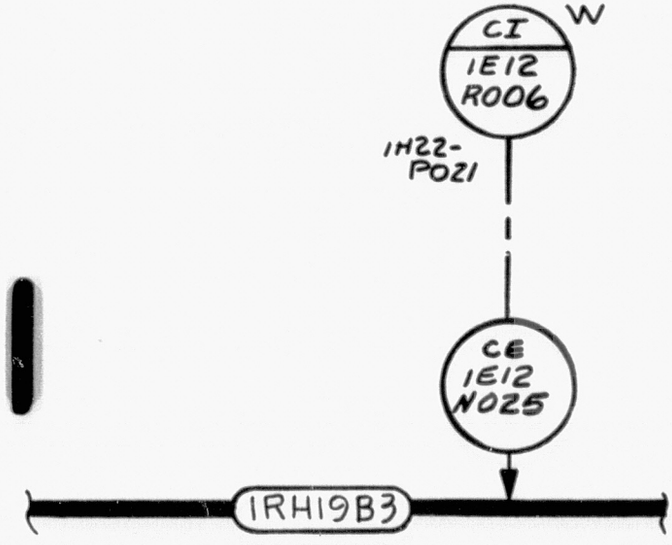
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-10A RESIDUAL HEAT REMOVAL SYSTEM C&ID (SHEET 7 of 10)

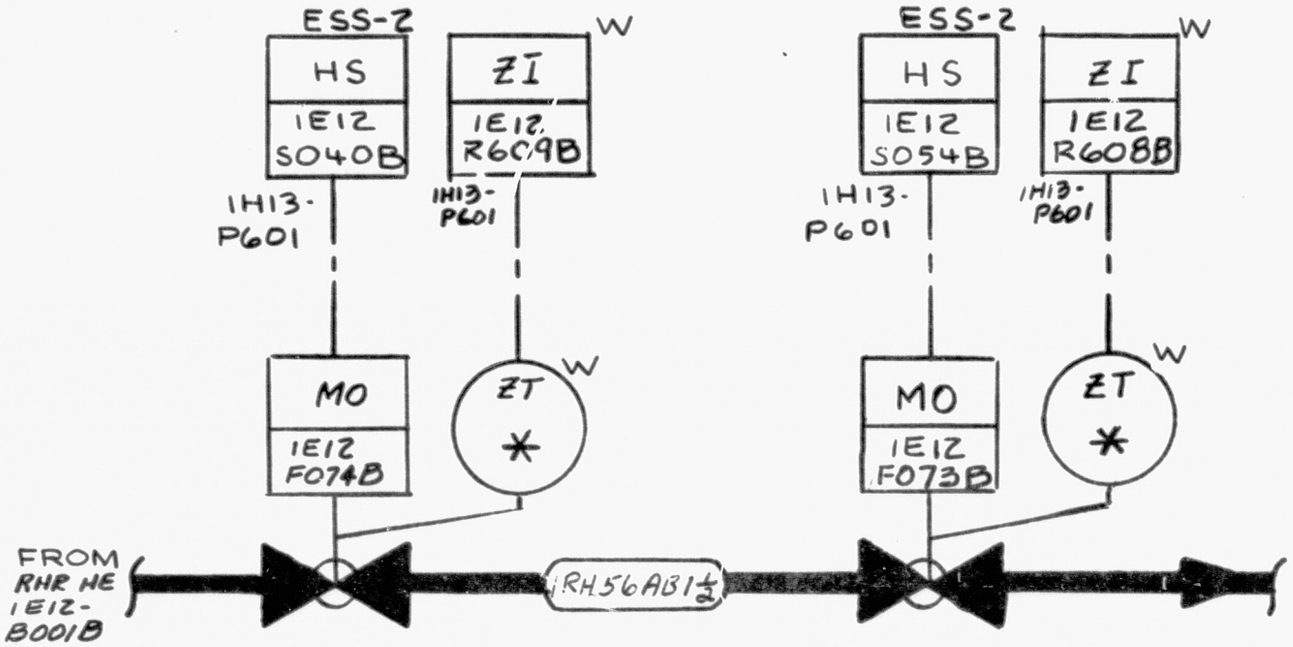


DETAIL A
M-51-4

DETAIL B
M-51-4



DETAIL E
M-51-2



DETAIL C

M-51-4

DETAIL D

M-51-4

NOTE:

* INDICATES FURNISHED ON ASSOCIATED EQUIPMENT

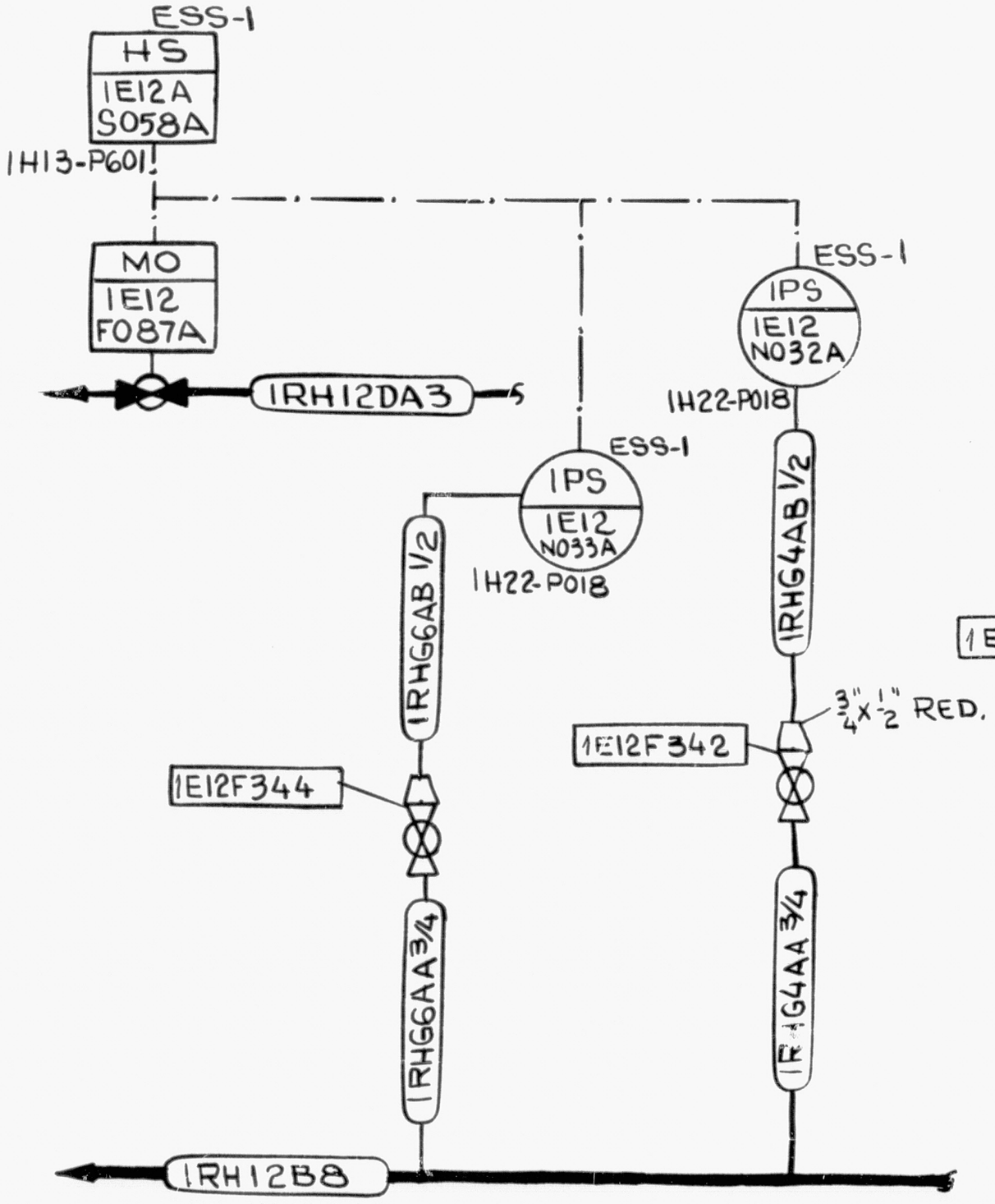
ESSENTIAL COMPONENTS

INCLUDED

2

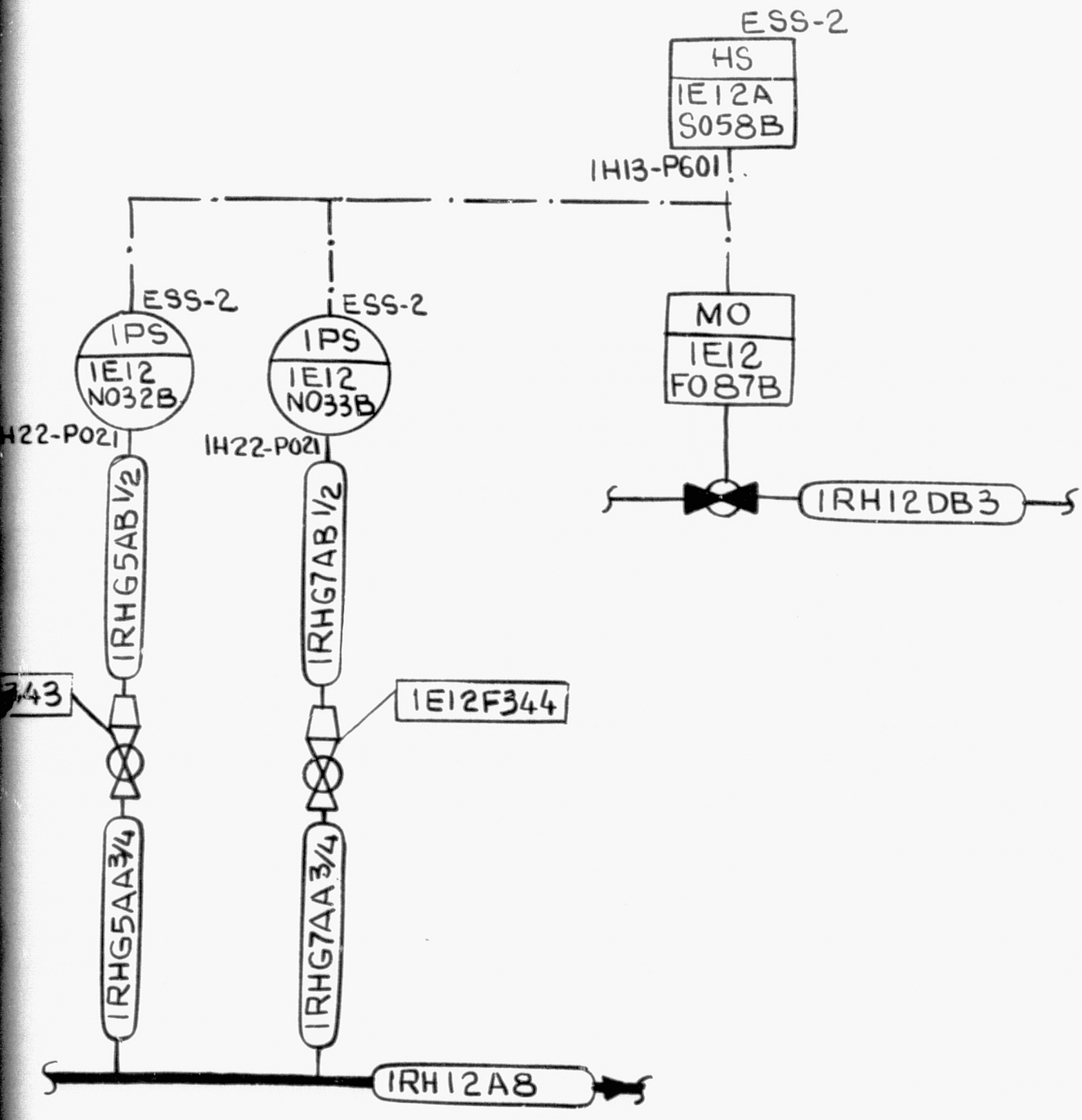
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-10A RESIDUAL HEAT REMOVAL SYSTEM C&ID (SHEET 8 of 10)

2



DETAIL A

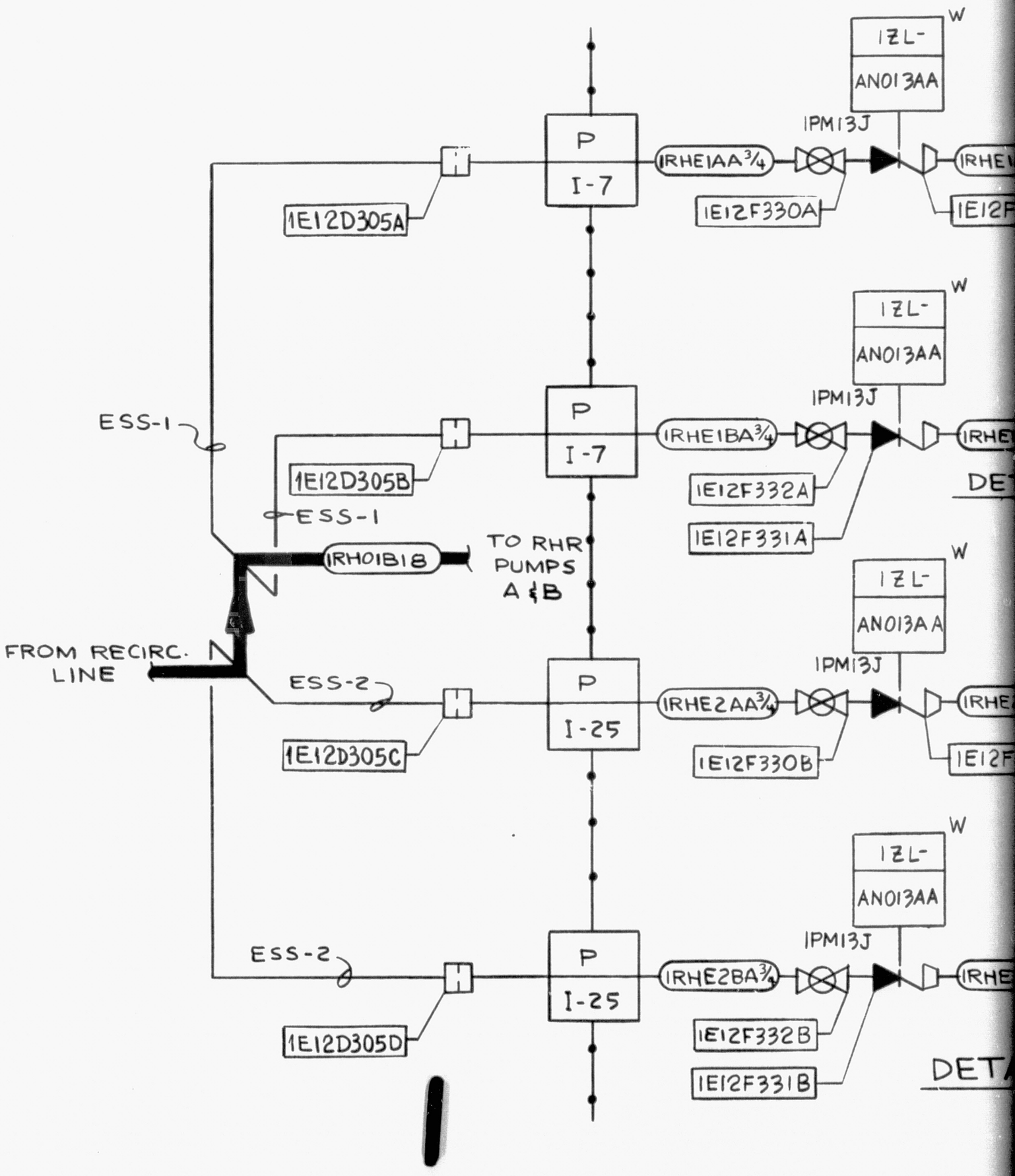
(M-51-4)

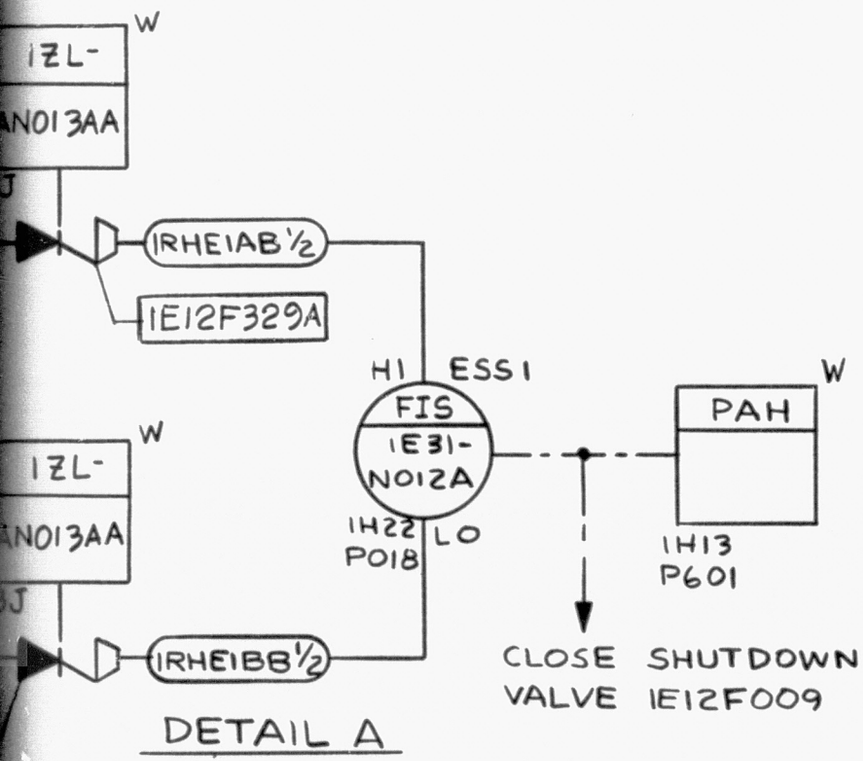


DETAIL B

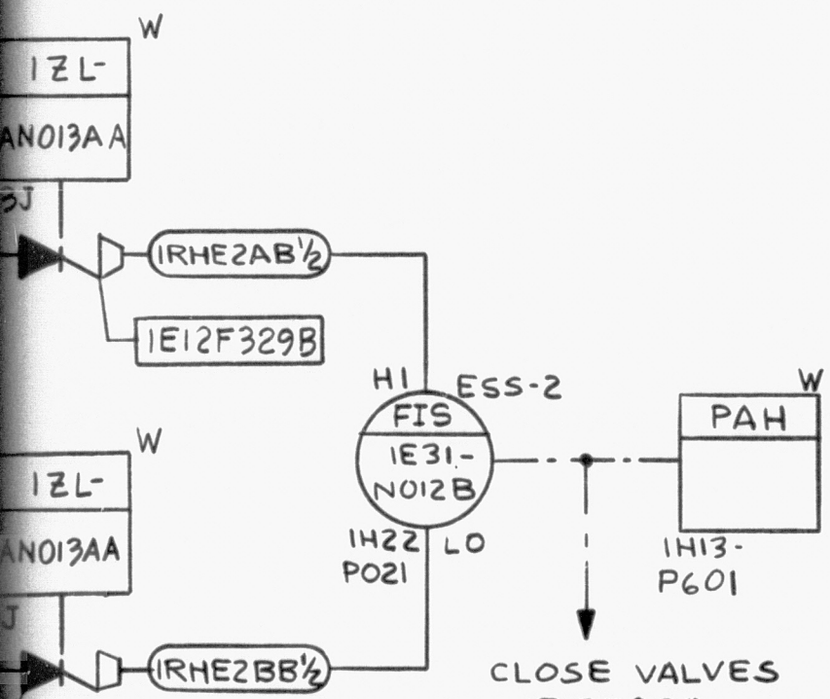
(M-51-4)

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-10A RESIDUAL HEAT REMOVAL SYSTEM C&ID (SHEET 9 of 10)


1ZL-
AN013AA
W
1PM13J
P
I-7
1RHE1AA3/4
1E12F330A
1E12D305A
1E12F
1ZL-
AN013AA
W
1PM13J
P
I-7
1RHE1BA3/4
1E12F332A
1E12F331A
1E12D305B
ESS-1
ESS-1
1RH01B18
TO RHR
PUMPS
A & B
FROM RECIRC.
LINE
1ZL-
AN013AA
W
1PM13J
P
I-25
1RHE2AA3/4
1E12F330B
ESS-2
1E12D305C
1E12F
1ZL-
AN013AA
W
1PM13J
P
I-25
1RHE2BA3/4
1E12F332B
1E12F331B
ESS-2
1E12D305D



DETAIL A



DETAIL B

ESSENTIAL COMPONENTS

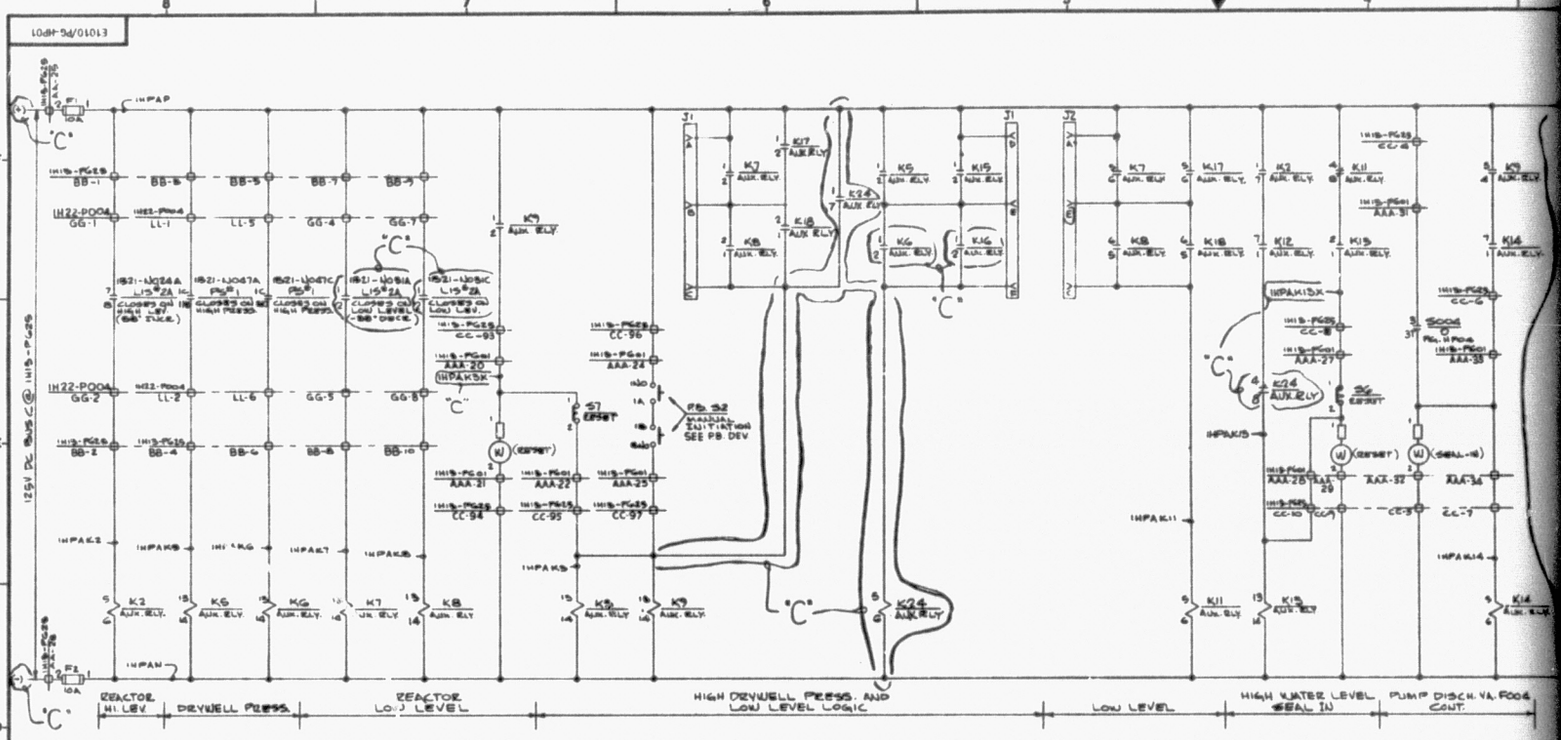
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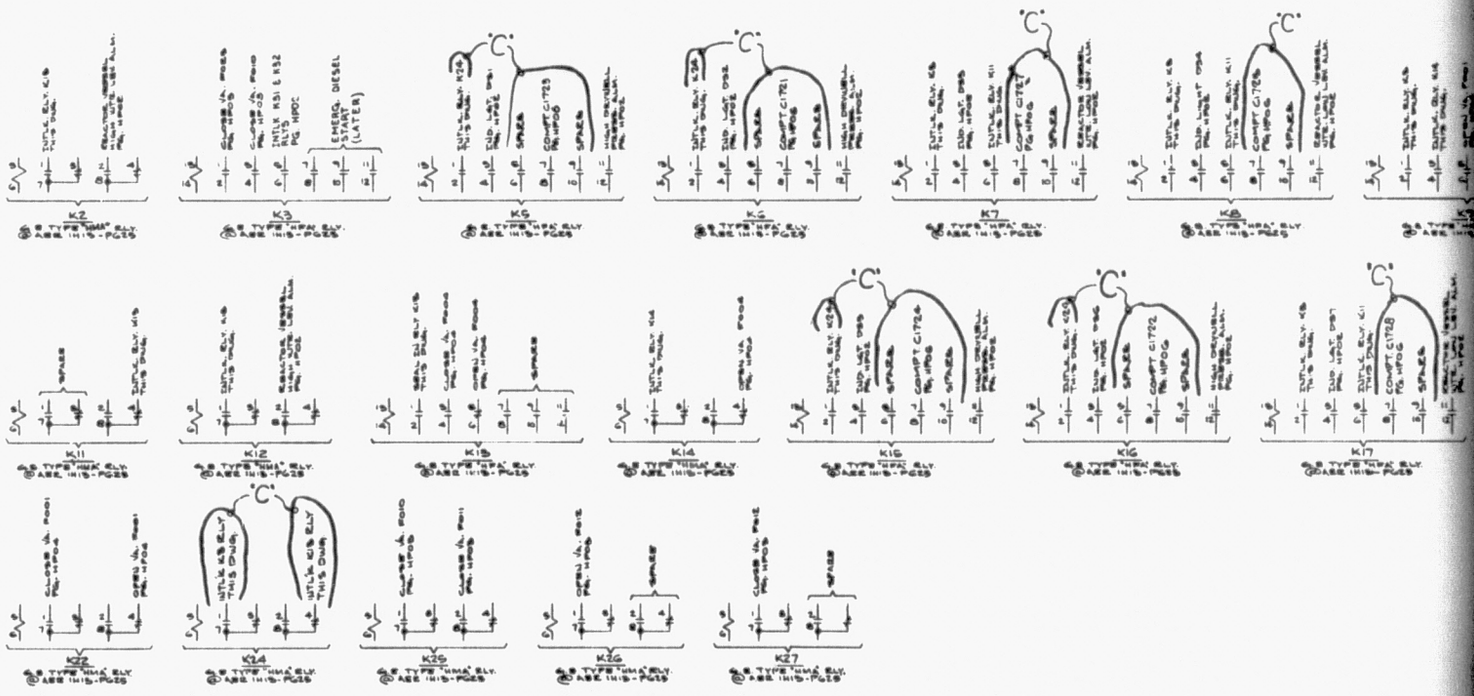
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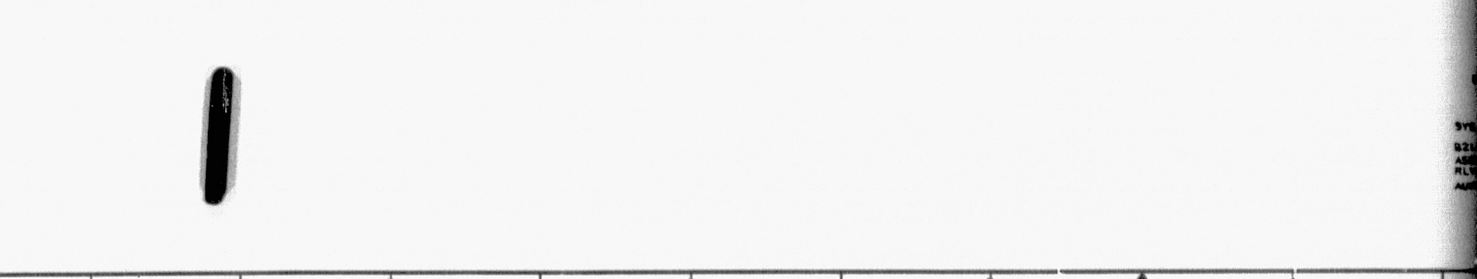
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-10A

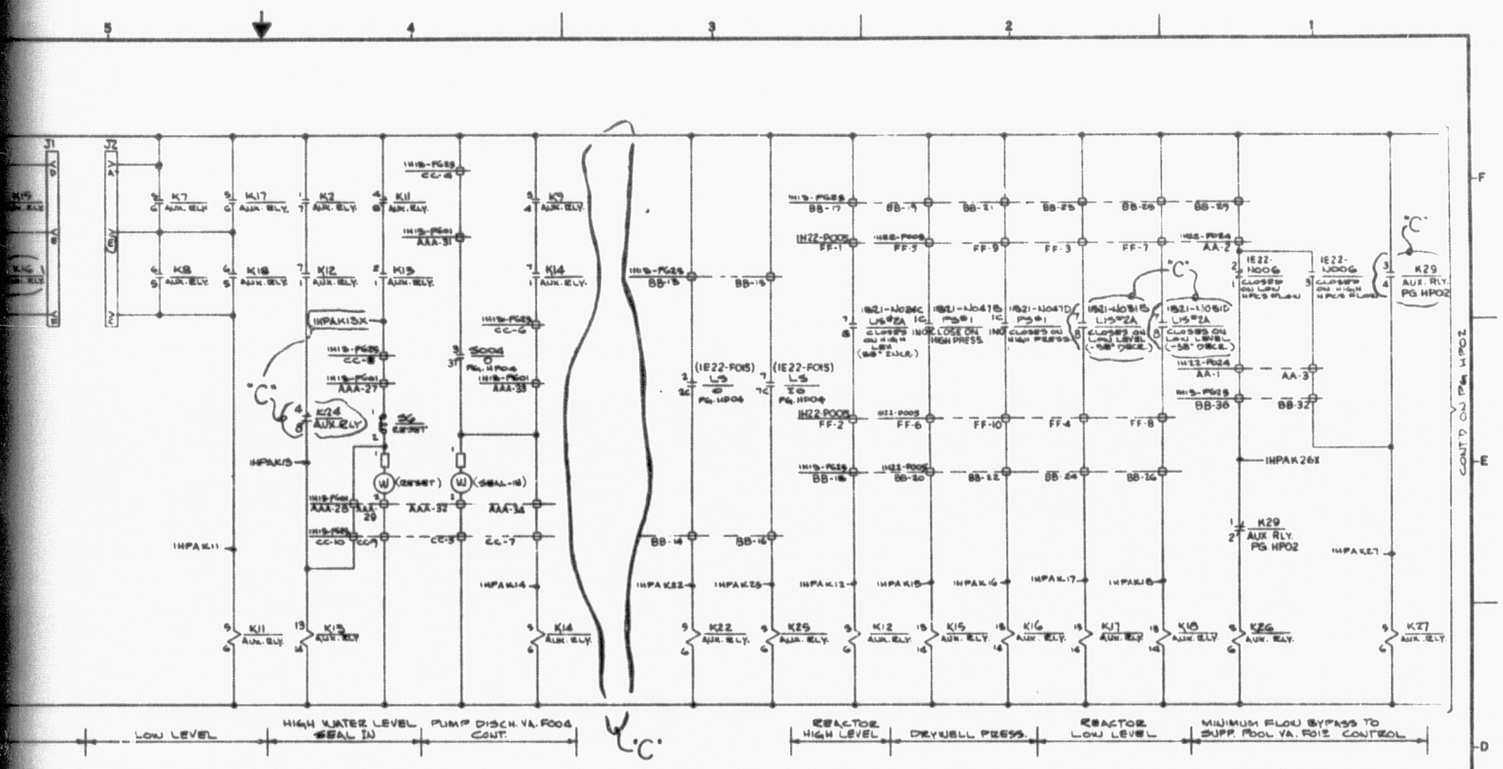
RESIDUAL HEAT REMOVAL SYSTEM C&ID
(SHEET 10 of 10)

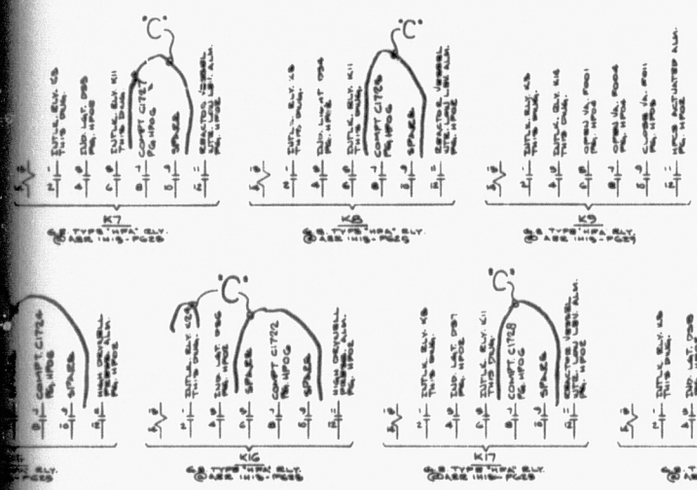

REACTOR HI. LEV
DRYWELL PRESS.
REACTOR LOW LEVEL
HIGH DRYWELL PRESS. AND LOW LEVEL LOGIC
LOW LEVEL
HIGH WATER LEVEL SEAL IN
PUMP DISCH. VA. FOOG CONT.

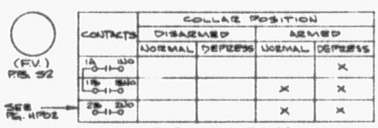












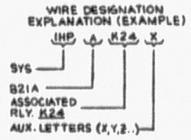
CUTLER HAMMER COLLAR PUSHBUTTON SW. TYPE 10ESOT

PUSH BUTTON DEVELOPMENT

	NOTES
1	FOR SYMBOL & DEVICE NO'S SEE SIL STANDARDS EC-110, EC-111 & EC-113.
2	UNLESS OTHERWISE INDICATED, ALL DEVICE DESIGNATIONS ARE PREFIXED WITH E22A.
4	DO NOT CONNECT SEAL IN FOR THROTTLE TYPE VALVES.
5	INTRA PANEL PROCESS INSTRUMENTATION (4-20 MA) SIGNAL LEADS SHALL BE BUNDLED & ROUTED SEPARATELY FROM AC & DC POWER WIRING.

ESSENTIAL COMPONENTS INCLUDED

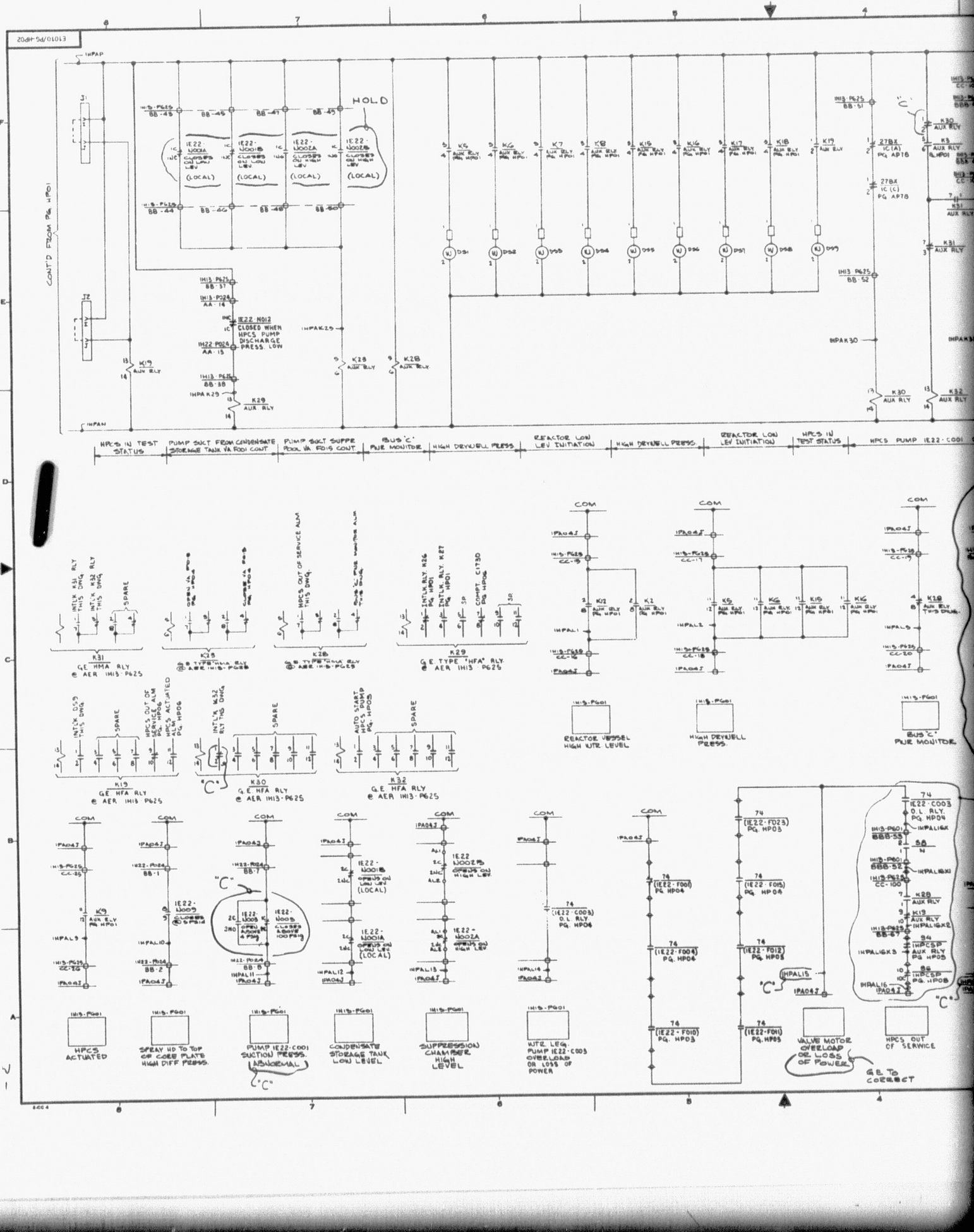
WIRE DESIGNATION EXPLANATION (EXAMPLE)

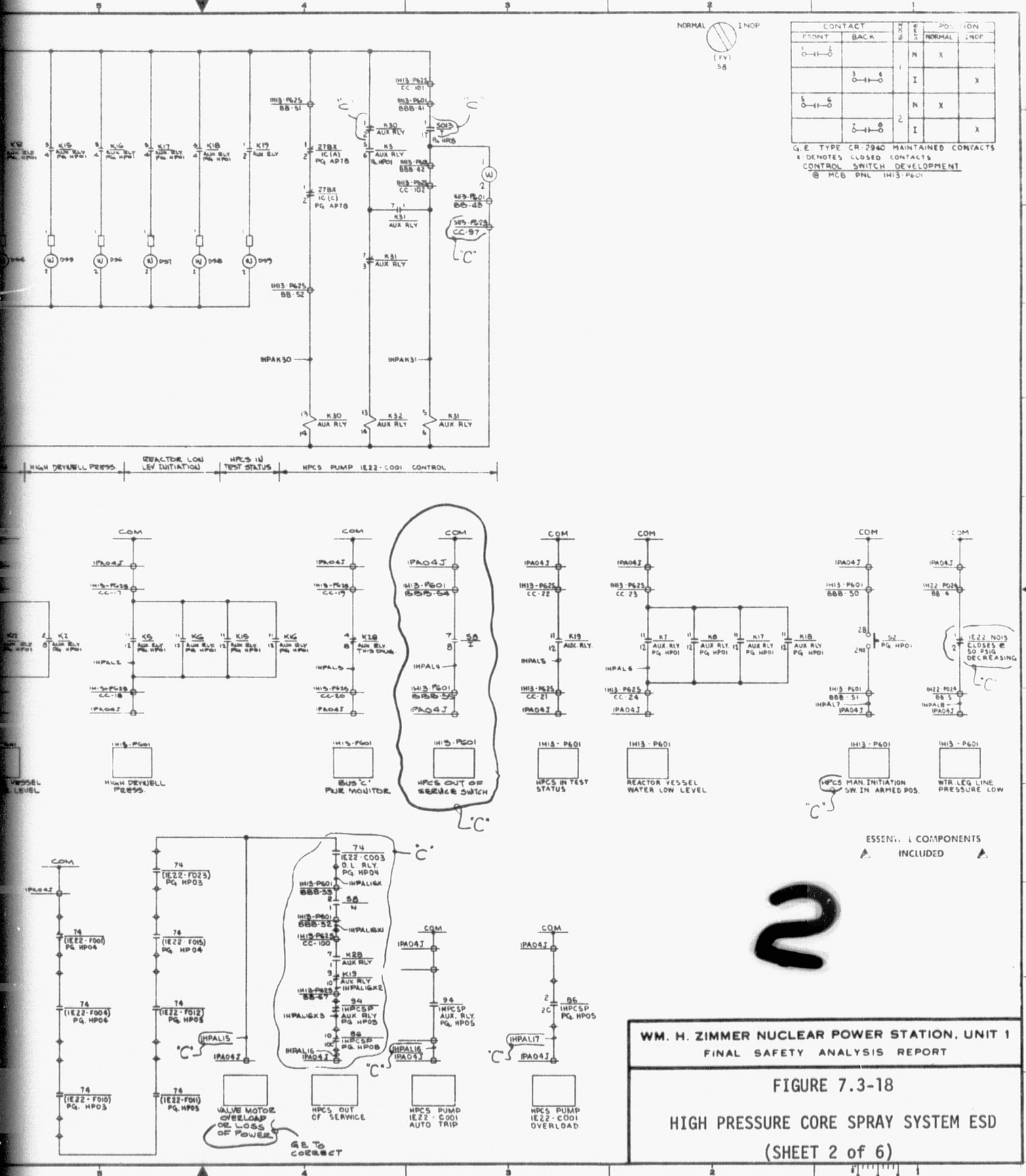


WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-18

HIGH PRESSURE CORE SPRAY SYSTEM ESD
(SHEET 1 of 6)


HOLD
CONT'D FROM PG. HP01
HPCS IN TEST STATUS
PUMP SUCT FROM CONDENSATE STORAGE TANK VA FOO1 CONT
PUMP SUCT SUPPR POOL VA FO15 CONT
BUS 'C' PWR MONITOR
HIGH DRYWELL PRESS
REACTOR LOW LEV INITIATION
HIGH DRYWELL PRESS
REACTOR LOW LEV INITIATION
HPCS IN TEST STATUS
HPCS PUMP IE22-C001
K31 GE HMA RLY @ AER 1H13-P625
K28 G.E. TYPE HMA RLY @ AER 1H13-P625
K29 G.E. TYPE "HFA" RLY @ AER 1H13-P625
K19 G.E. HFA RLY @ AER 1H13-P625
K30 G.E. HFA RLY @ AER 1H13-P625
K32 G.E. HFA RLY @ AER 1H13-P625
REACTOR VESSEL HIGH WTR. LEVEL
HIGH DRYWELL PRESS.
BUS 'C' PWR MONITOR
HPCS ACTUATED
SPRAY HD TO TOP OF CORE PLATE HIGH DIFF PRESS.
PUMP IE22-C001 SUCTION PRESS. ABNORMAL
CONDENSATE STORAGE TANK LOW LEVEL
SUPPRESSION CHAMBER HIGH LEVEL
WTR. LEG. PUMP IE22-C003 OVERLOAD OR LOSS OF POWER
VALVE MOTOR OVERLOAD OR LOSS OF POWER
HPCS OUT OF SERVICE
GE TO CORRECT



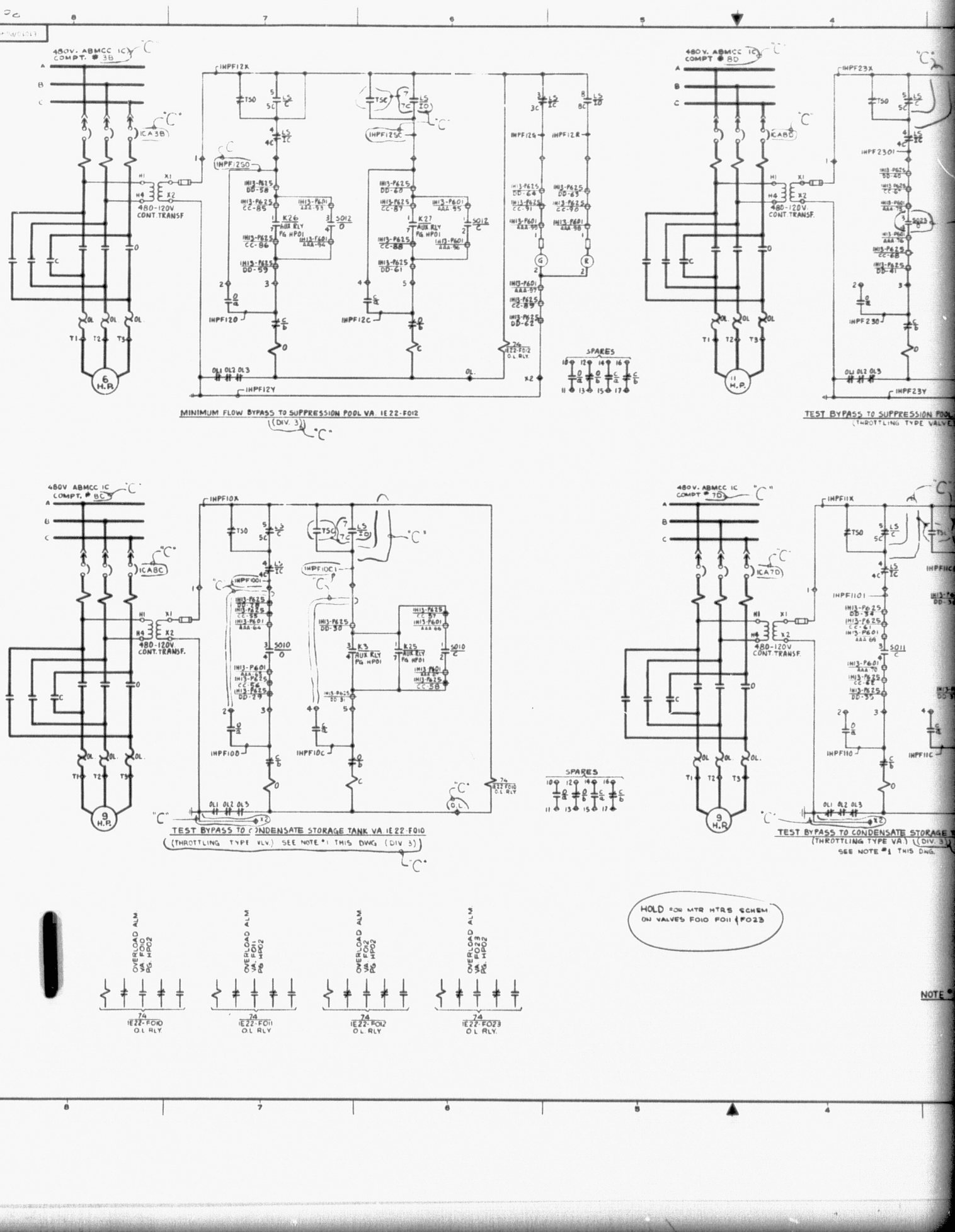
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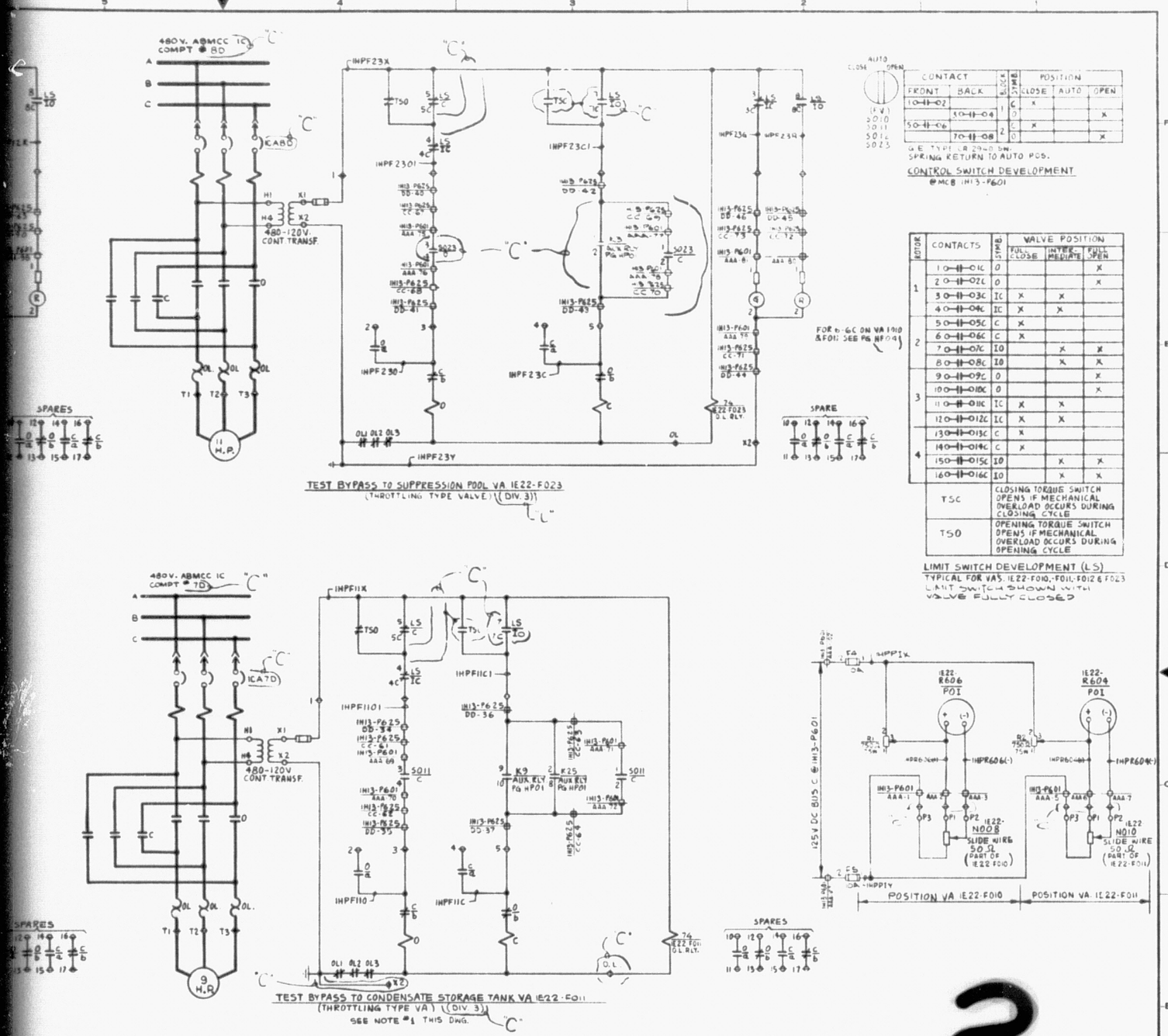
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-18

HIGH PRESSURE CORE SPRAY SYSTEM ESD

(SHEET 2 of 6)


480V. ABMCC 1C COMPT. # 3B
ICA3B
480-120V CONT. TRANSF
6 H.P.
1HPF12X
1HPF12Y
1HPF12Z0
1HPF12C
1HPF12S0
1HPF12S
1HPF12R
MINIMUM FLOW BYPASS TO SUPPRESSION POOL VA. 1E22-F012
(DIV. 3)
480V. ABMCC 1C COMPT # 8D
ICA8D
11 H.P.
1HPF23X
1HPF23Y
1HPF2301
1HPF230
TEST BYPASS TO SUPPRESSION POOL
(THROTTLING TYPE VALVE)
480V ABMCC 1C COMPT. # 8C
ICA8C
9 H.P.
1HPF10X
1HPF10Y
1HPF1001
1HPF10C1
1HPF10D
1HPF10C
TEST BYPASS TO CONDENSATE STORAGE TANK VA 1E22-F010
(THROTTLING TYPE VLV.) SEE NOTE *1 THIS DWG (DIV 3)
480V. ABMCC 1C COMPT # 7D
ICA7D
9 H.R.
1HPF11X
1HPF11Y
1HPF1101
1HPF110
1HPF11C
TEST BYPASS TO CONDENSATE STORAGE T
(THROTTLING TYPE VA.) (DIV. 3)
SEE NOTE #1 THIS DWG.
SPARES
OVERLOAD ALM VA. F010 PB HP02
OVERLOAD ALM VA. F011 PB HP02
OVERLOAD ALM VA. F012 PB HP02
OVERLOAD ALM VA. F023 PB HP02
74 1E22-F010 O.L RLY
74 1E22-F011 O.L RLY
74 1E22-F012 O.L RLY
74 1E22-F023 O.L RLY
HOLD FOR MTR HTRS SCHEM ON VALVES F010 F011 F023
NOTE *



CONTACT		BLOCK	SYMB	POSITION		
FRONT	BACK			CLOSE	AUTO	OPEN
10	02	1	C	X		
	04		O			X
50	06	2	C	X		
	08		O			X

G.E. TYPE CR 2940 SW.
SPRING RETURN TO AUTO POS.

CONTROL SWITCH DEVELOPMENT
@MCB (IN13-P601)

ROTOR	CONTACTS	SYMB	VALVE POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1 0 — 01C	O			X
	2 0 — 02C	O			X
	3 0 — 03C	IC	X	X	
	4 0 — 04C	IC	X	X	
2	5 0 — 05C	C	X		
	6 0 — 06C	C	X		
	7 0 — 07C	IO		X	X
	8 0 — 08C	IO		X	X
3	9 0 — 09C	O			X
	10 0 — 10C	O			X
	11 0 — 11C	IC	X	X	
	12 0 — 12C	IC	X	X	
4	13 0 — 13C	C	X		
	14 0 — 14C	C	X		
	15 0 — 15C	IO		X	X
	16 0 — 16C	IO		X	X
TSC		CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE			
TSO		OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE			

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VA'S. 1E22-F010, -F011, F012 & F023
LIMIT SWITCH SHOWN WITH VALVE FULLY CLOSED

HOLD FOR MTR HTRS SCHEM ON VALVES F010 F011 & F023

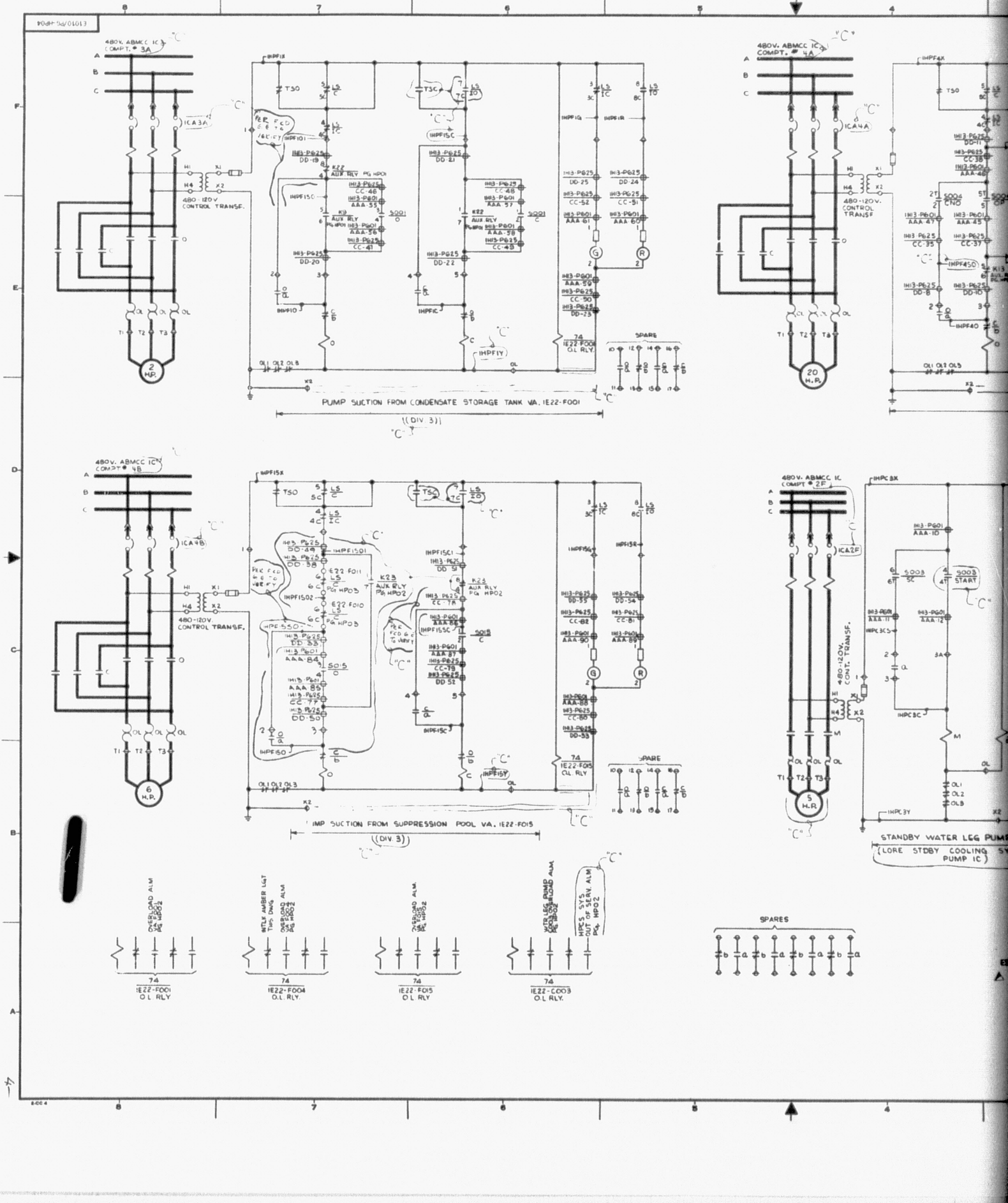
ESSENTIAL COMPONENTS
INCLUDED

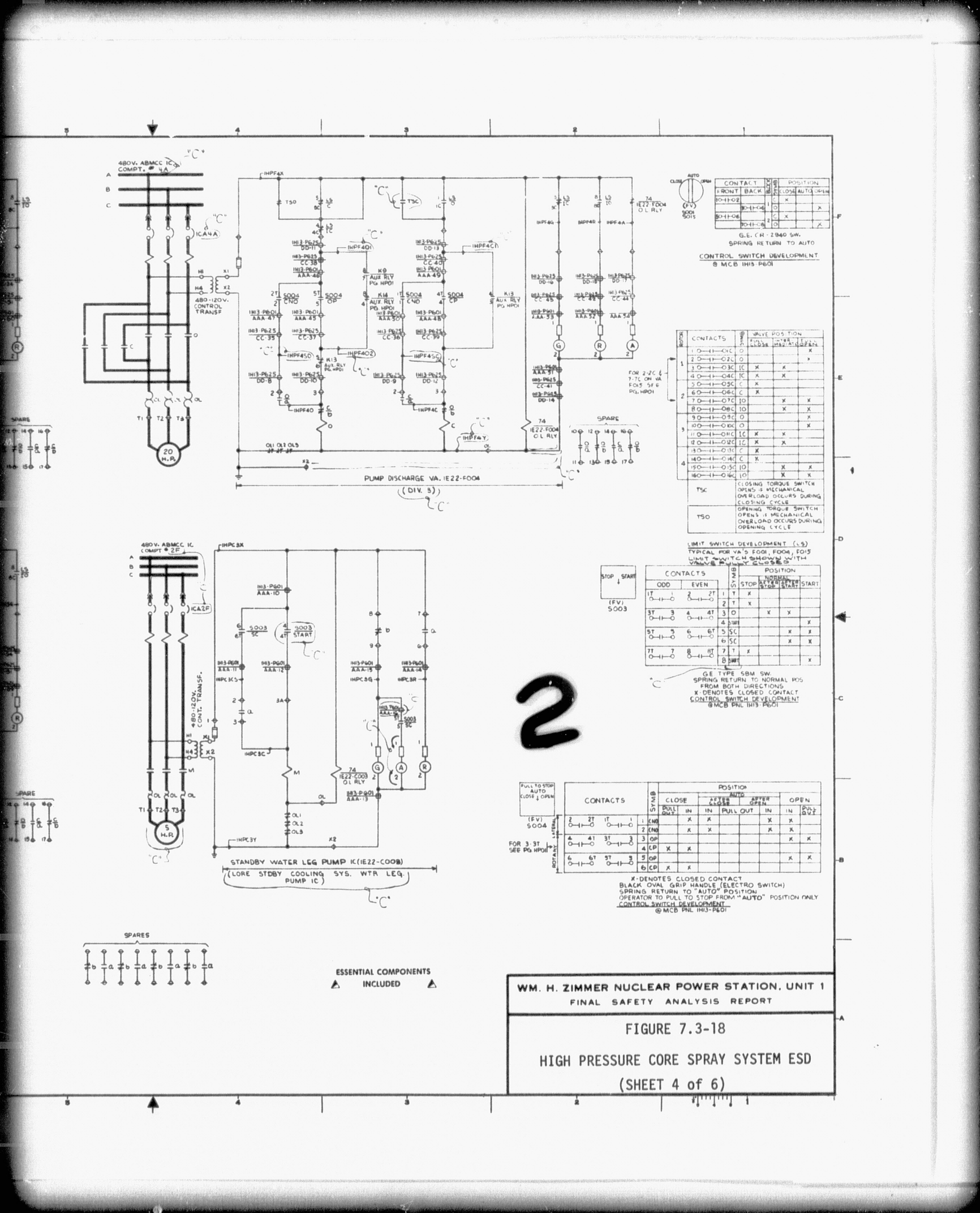
NOTE #1
VALVE POSITION INDICATORS LOCATED IN CONTROL ROOM, INDICATE POSITION OF THESE VALVES

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-18

HIGH PRESSURE CORE SPRAY SYSTEM ESD
(SHEET 3 of 6)


480V. ABMCC IC COMPT. # 3A
480-120V. CONTROL TRANSF.
2 H.P.
PUMP SUCTION FROM CONDENSATE STORAGE TANK VA. 1E22-F001
480V. ABMCC IC COMPT. # 4A
20 H.P.
480V. ABMCC IC COMPT # 4B
6 H.P.
IMP SUCTION FROM SUPPRESSION POOL VA. 1E22-F015
480V. ABMCC IC COMPT # 2F
5 H.P.
STANDBY WATER LEG PUMP
SPARE
SPARES
OVERLOAD ALM
WTLK AMBER LGT TRPS DNAG
OVERLOAD ALM
OVERLOAD ALM
WTR LEG PUMP OVERLOAD ALM
HPCS SYS. OUT OF SERV. ALM
1E22-F001 O.L. RLY
1E22-F004 O.L. RLY.
1E22-F015 O.L RLY
1E22-C003 O.L RLY.

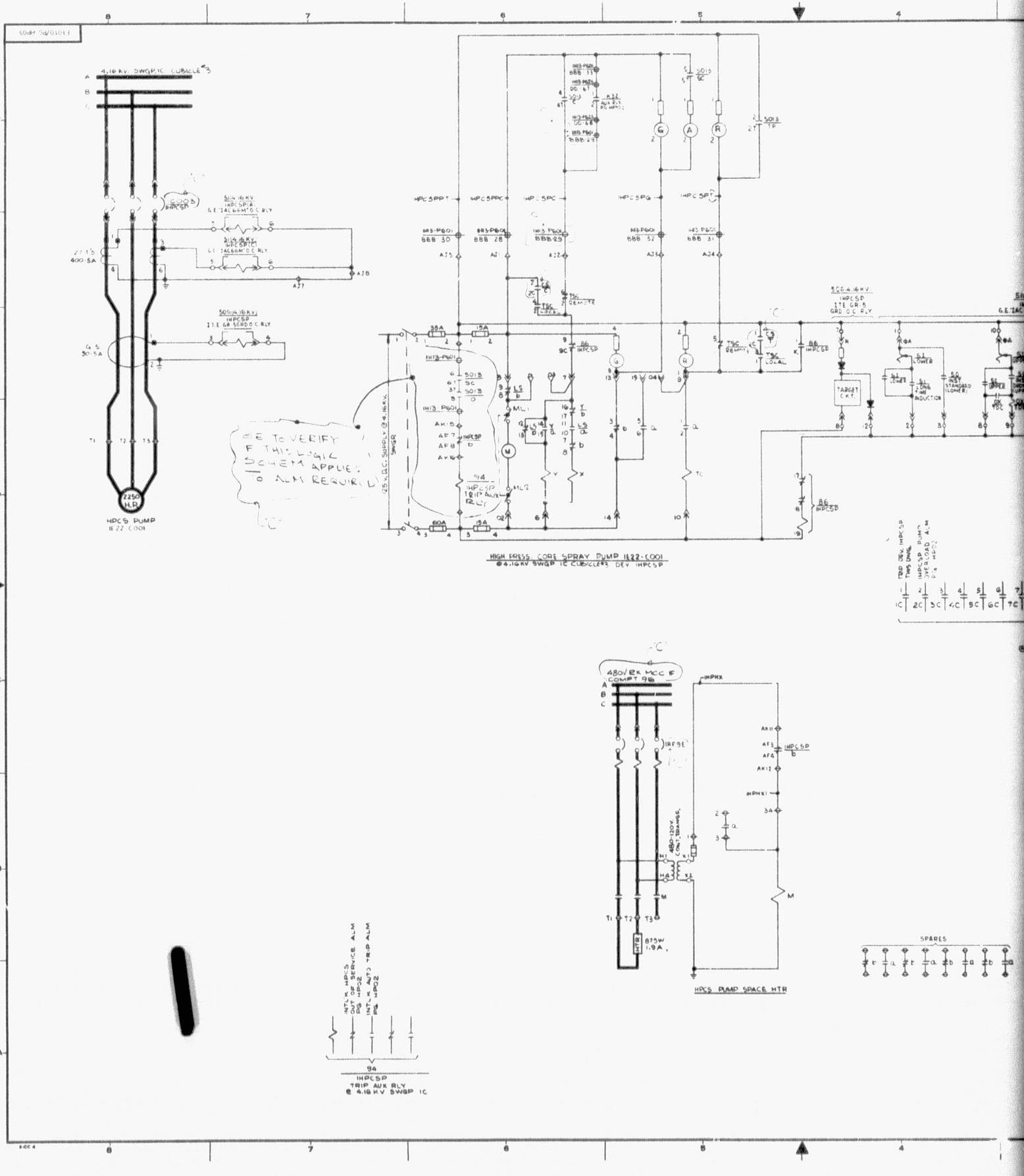


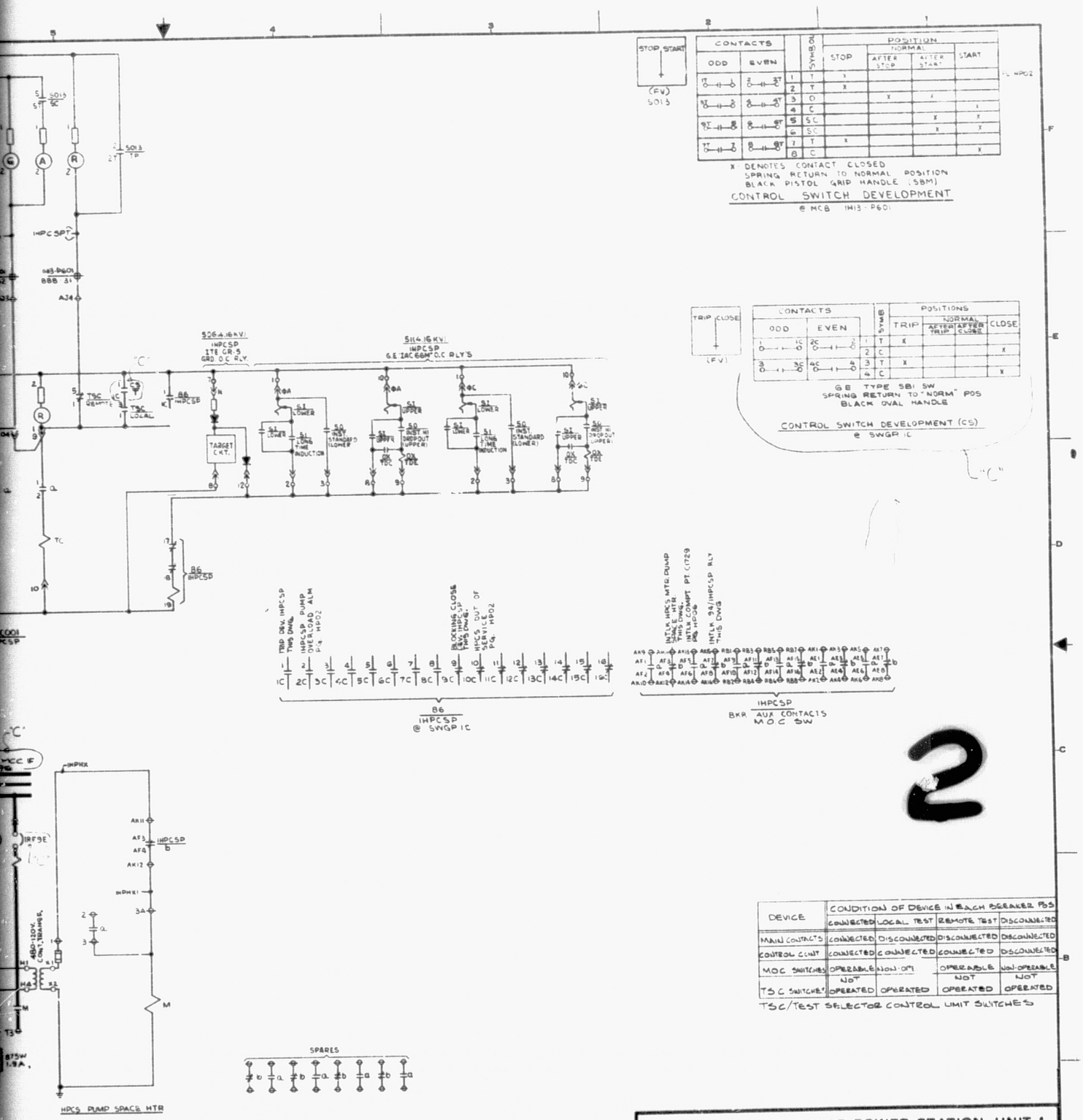
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-18

HIGH PRESSURE CORE SPRAY SYSTEM ESD

(SHEET 4 of 6)


4.16 KV SWGR IC CUBICLE #3
HPCS PUMP
1E22-C001
HIGH PRESS CORE SPRAY PUMP 1E22-C001
@4.16KV SWGR IC CUBICLES, DEV 1HPCSP
480V EK MCC E
COMPT 9B
HPCS PUMP SPACE HTR
SPARES
94
1HPCSP
TRIP AUX RLY
@ 4.16 KV SWGR IC



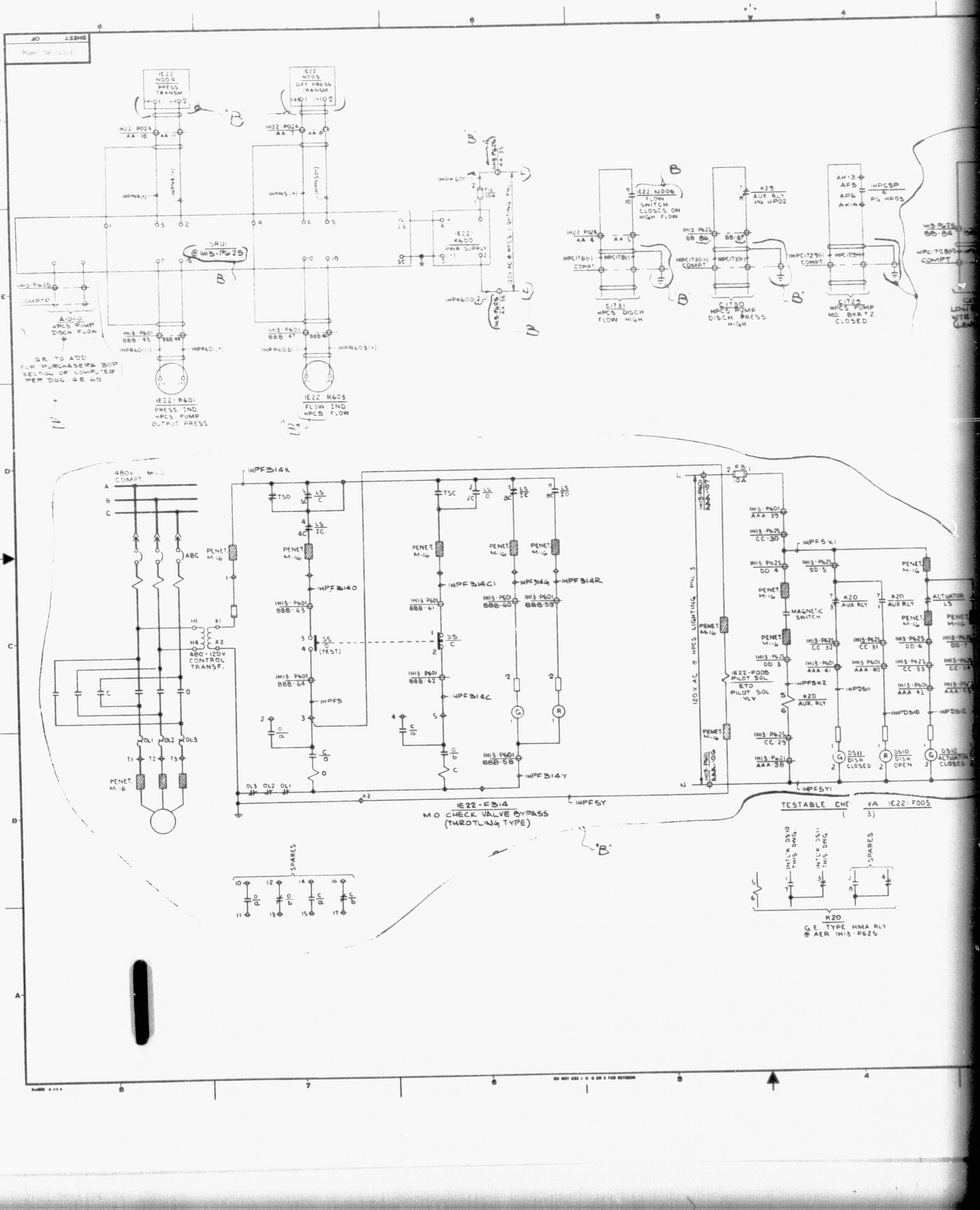
DEVICE	CONDITION OF DEVICE IN EACH BREAKER POS			
	CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTACTS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CKT	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

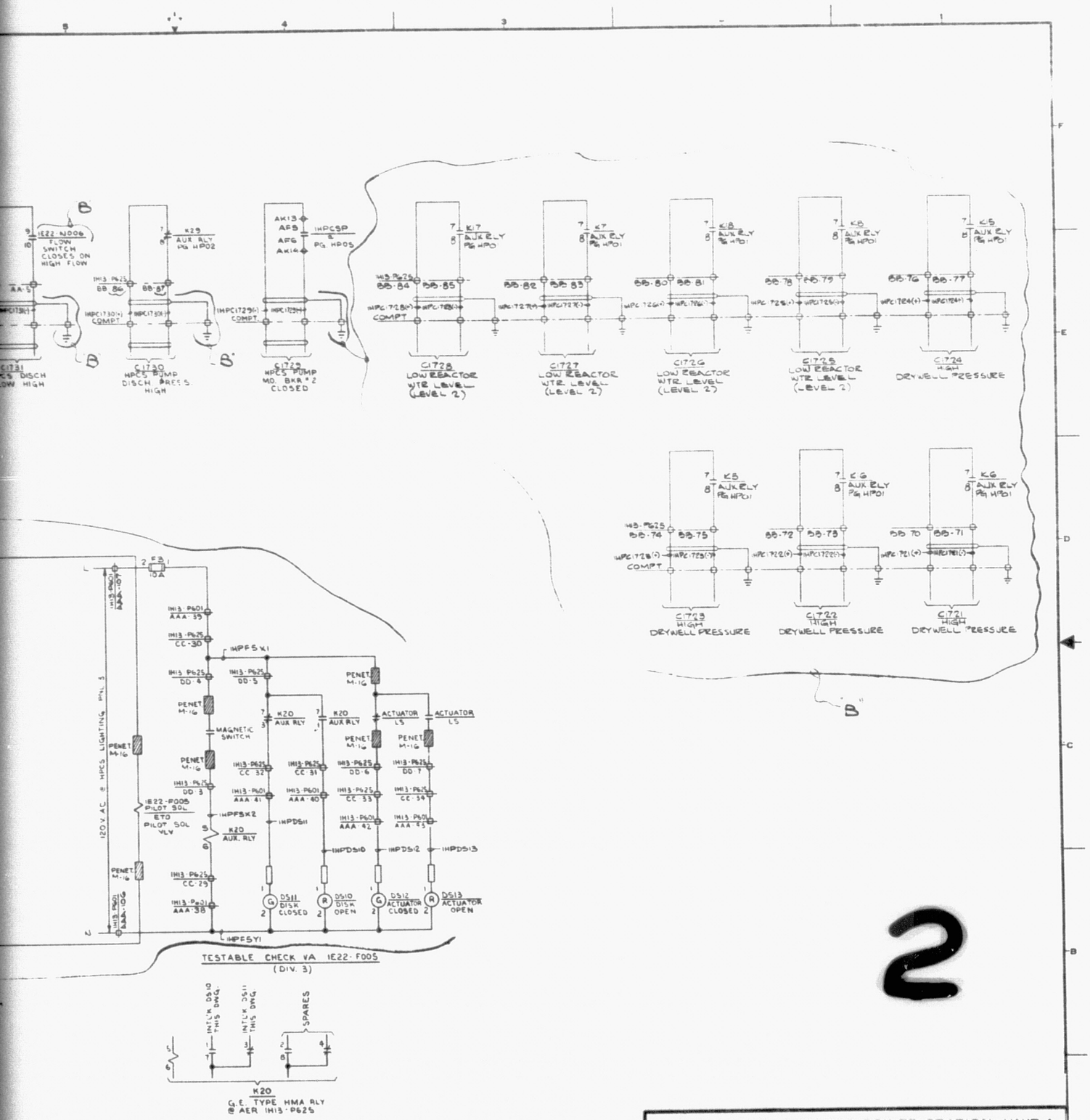
TSC/TEST SELECTOR CONTROL LIMIT SWITCHES

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-18

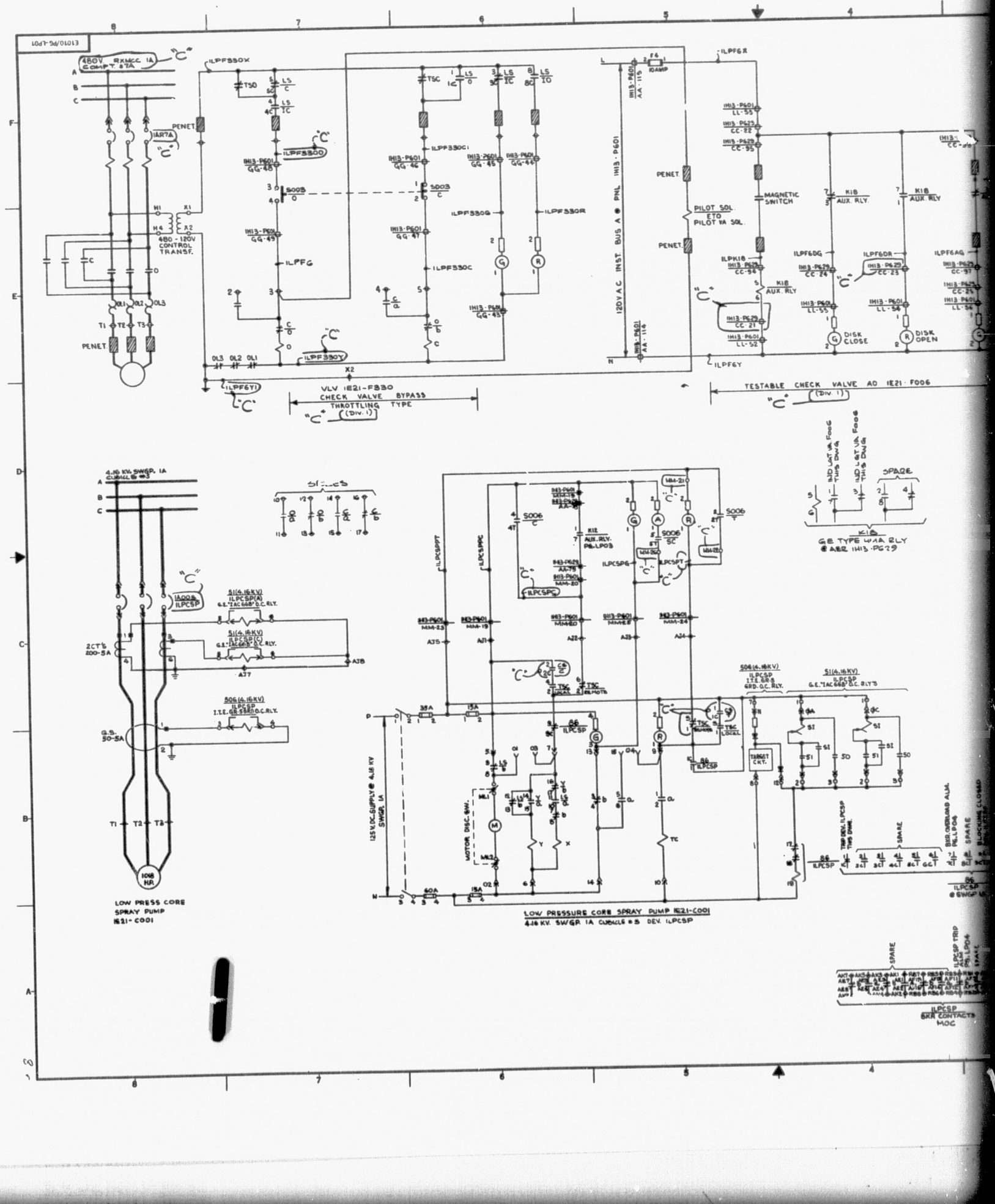
HIGH PRESSURE CORE SPRAY SYSTEM ESD
(SHEET 5 of 6)

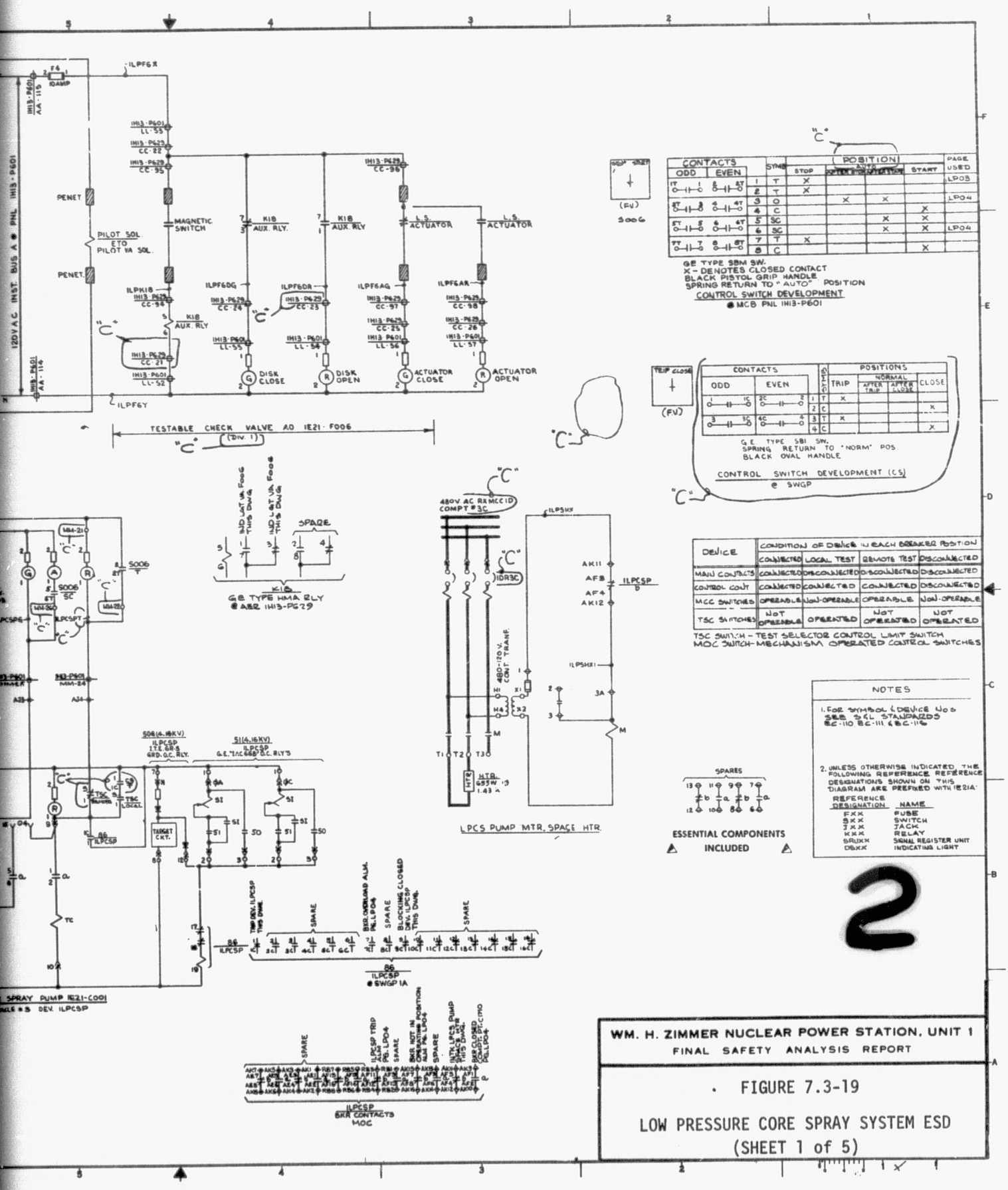

SHEET 40
1E22 N004 PRESS TRANSM
1E22 N005 DIFF PRESS TRANSM
SRU1 @ IH13-P625
1E22 K600 PWR SUPPLY
1E22 N006 FLOW SWITCH CLOSES ON HIGH FLOW
K29 AUX RLY PG HP02
C1731 HPCS DISCH FLOW HIGH
C1730 HPCS PUMP DISCH PRESS HIGH
C1729 HPCS PUMP MO. BKR #2 CLOSED
A1010 HPCS PUMP DISCH FLOW
GE TO ADD FOR PURCHASERS BOP SECTION OF COMPUTER PER DOC GE 69
1E22-R601 PRESS IND HPCS PUMP OUTPUT PRESS
1E22 R603 FLOW IND HPCS FLOW
480v M.C.C. COMPT
480-120V CONTROL TRANSF.
120 V AC @ HPCS LIGHTING PNL 3
1E22-F314 M.O. CHECK VALVE BYPASS (THROTLING TYPE)
1E22-F005 PILOT SOL ETO PILOT SOL VLV
K20 AUX RLY
DS11 DISK CLOSED
DS10 DISK OPEN
DS12 ACTUATOR CLOSED
MAGNETIC SWITCH
SPARES
INTLK DS10 THIS DWG.
INTLK DS11 THIS DWG.
K20 G.E. TYPE HMA RLY @ AER IH13-P625
TESTABLE CHE VA 1E22-F005 3)



2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-18 HIGH PRESSURE CORE SPRAY SYSTEM ESD (SHEET 6 of 6)


480V RXMCC 1A COMPT. 87A
ILPF330X
1AR7A
480 - 120V CONTROL TRANSF.
ILPF330O
ILPF330C
ILPF330G
ILPF330R
ILPF330Y
ILPF6G
ILPF6Y
ILPF6YI
120V A.C. INST. BUS A @ PNL. 1H13-P601
PILOT SOL. ETO PILOT VA SOL.
MAGNETIC SWITCH
K18 AUX. RLY.
DISK CLOSE
DISK OPEN
VLV 1E21-F330 CHECK VALVE BYPASS THROTTLING TYPE (DIV. 1)
TESTABLE CHECK VALVE AO 1E21-F006 (DIV. 1)
4.16 KV. SWGR. 1A CUBICLE #3
1A008 ILPCSP
2CT'S 200-5A
G.S. 50-5A
108 HP.
LOW PRESS CORE SPRAY PUMP 1E21-C001
SPARE
GE TYPE HEA RLY @ A&R 1H13-P629
125 V.D.C. SUPPLY @ 4.16 KV SWGR. 1A
MOTOR DISC. SW.
LOW PRESSURE CORE SPRAY PUMP 1E21-C001
4.16 KV. SWGR. 1A CUBICLE #5 DEV. ILPCSP
ILPCSP 6KR CONTACTS MOC

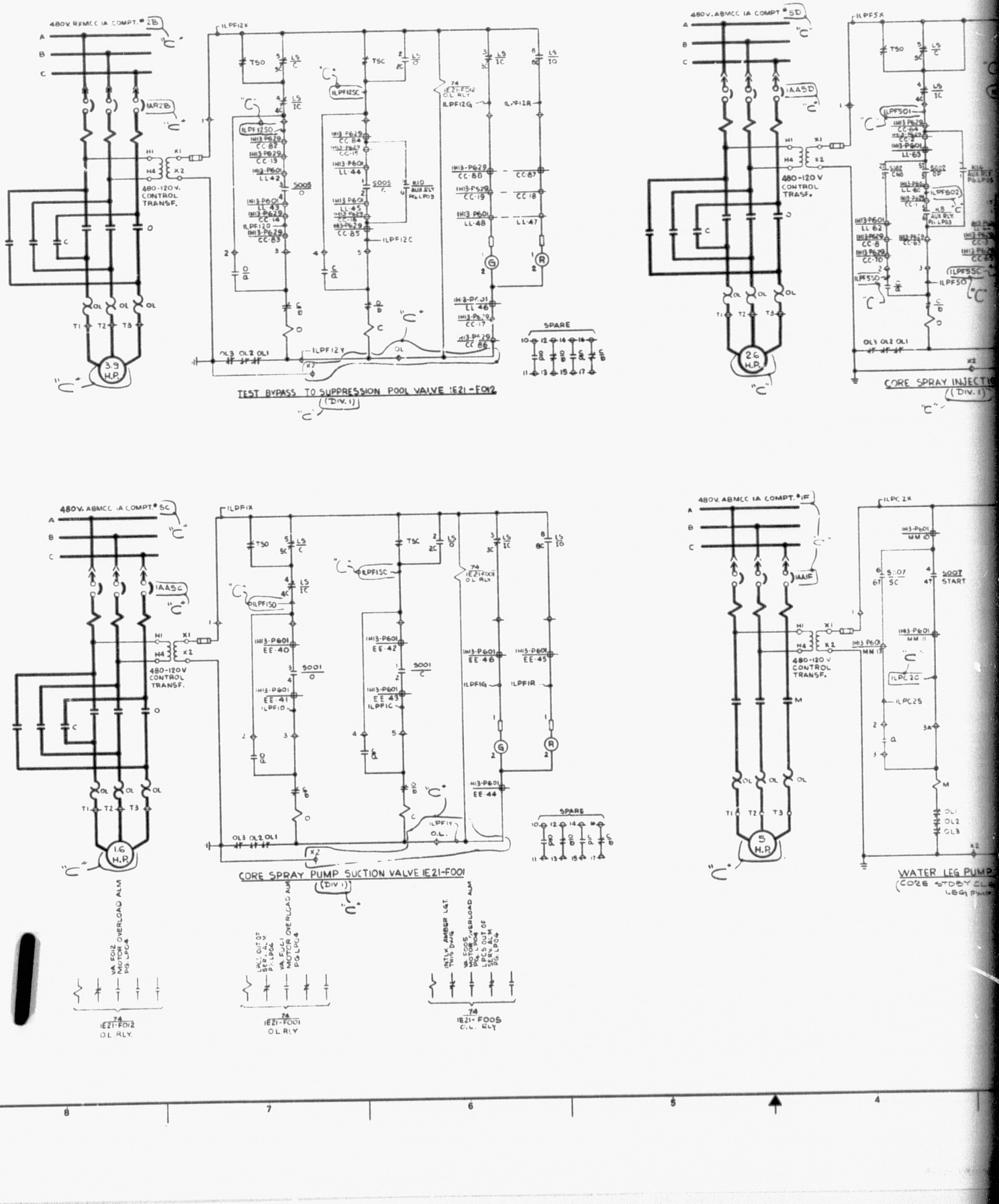


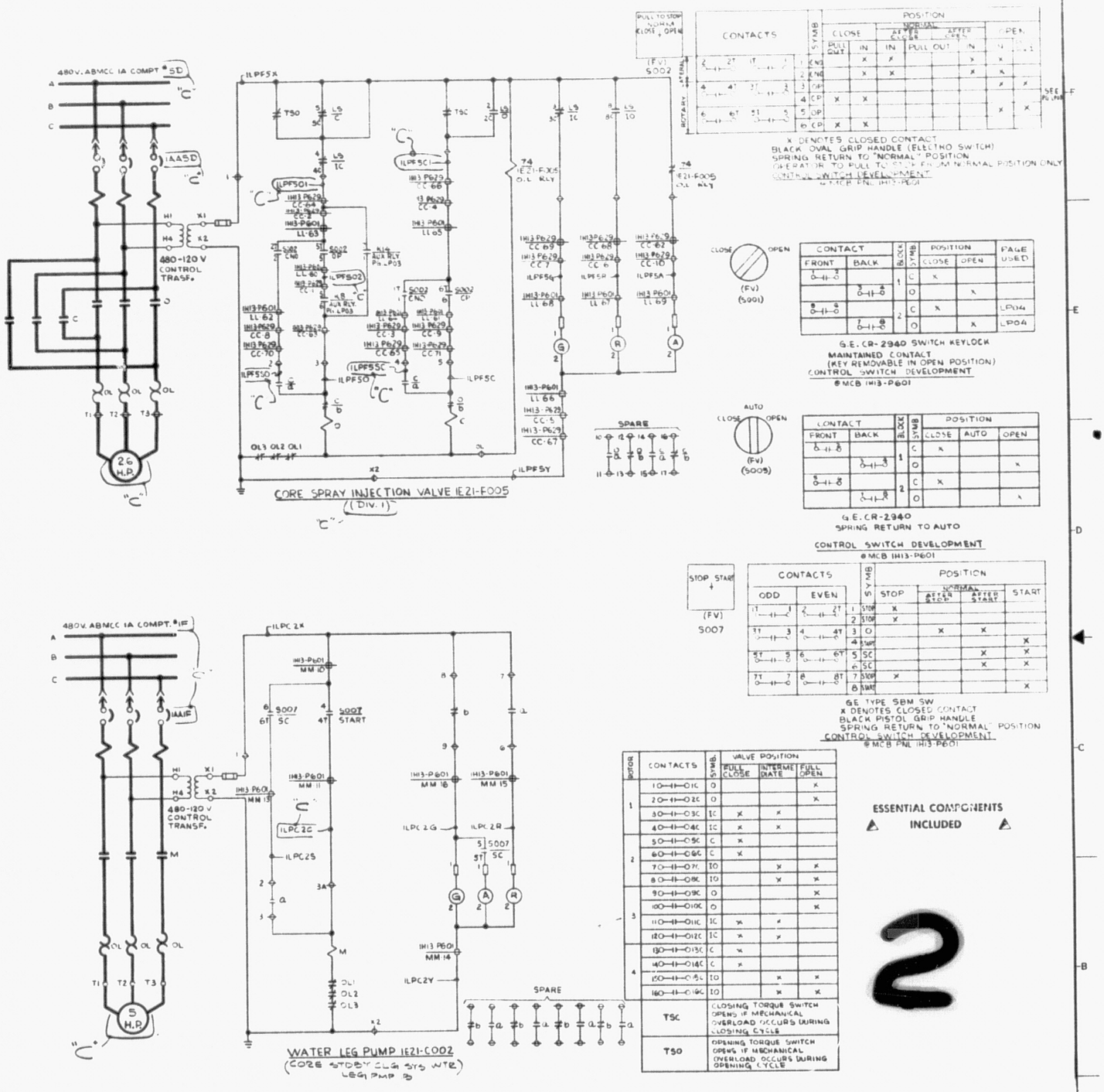
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-19

LOW PRESSURE CORE SPRAY SYSTEM ESD
(SHEET 1 of 5)


480V. RXMCC 1A COMPT.# 2B
1AR2B
480-120V. CONTROL TRANSF.
3.9 H.P.
TEST BYPASS TO SUPPRESSION POOL VALVE 1E21-F012
(DIV. 1)
480V. ABMCC 1A COMPT.# 5D
1AA5D
480-120 V CONTROL TRASF.
2G H.P.
CORE SPRAY INJECTI
(DIV. 1)
480V. ABMCC 1A COMPT.# 5C
1AA5C
480-120V CONTROL TRANSF.
1.6 H.P.
CORE SPRAY PUMP SUCTION VALVE 1E21-F001
(DIV 1)
480V. ABMCC 1A COMPT.# 1E
1AA1E
480-120 V CONTROL TRANSF.
5 H.P.
WATER LEG PUMP
SPARE
74 1E21-F012 O.L. RLY.
74 1E21-F001 O.L. RLY
74 1E21-F005 O.L. RLY



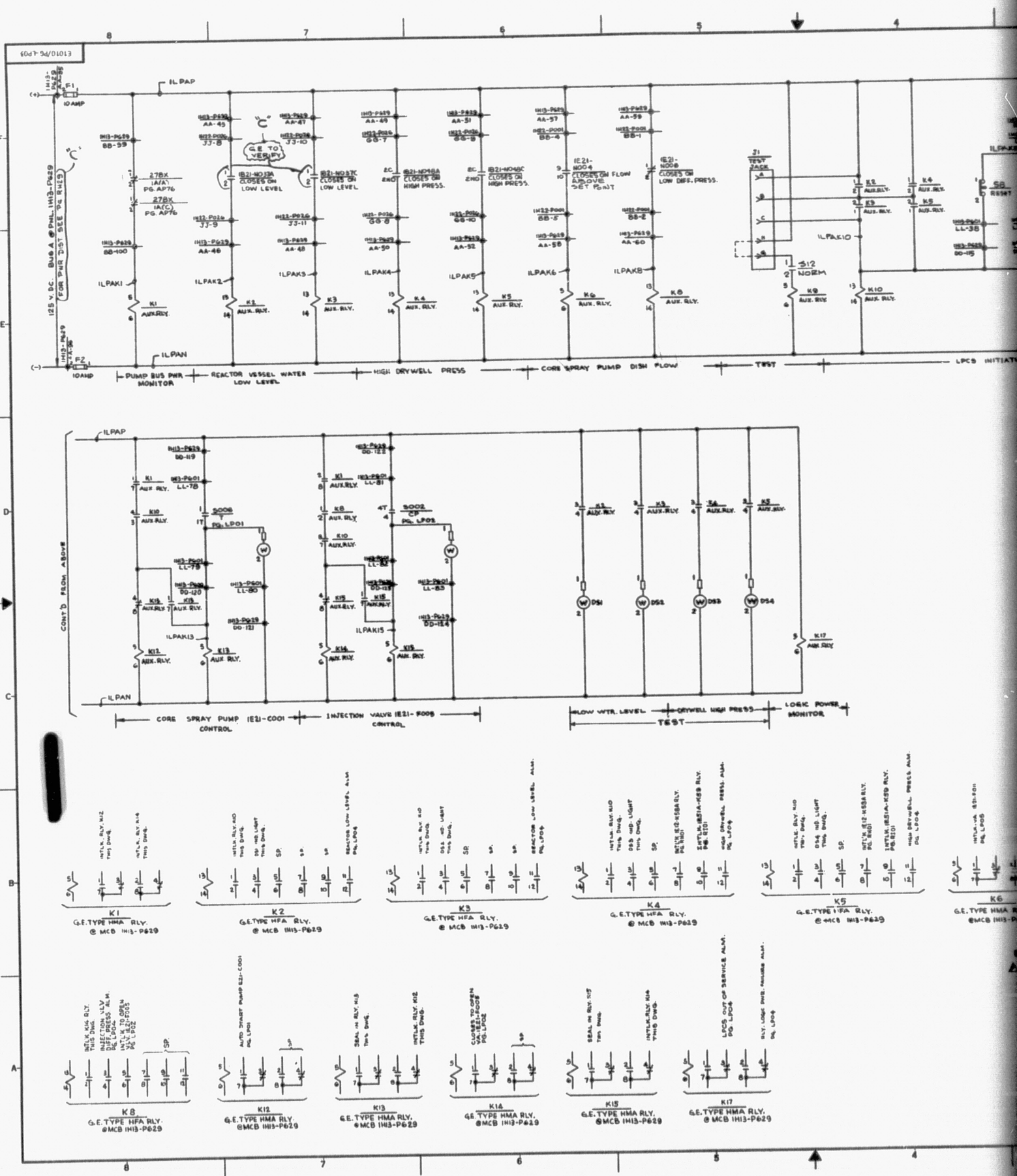
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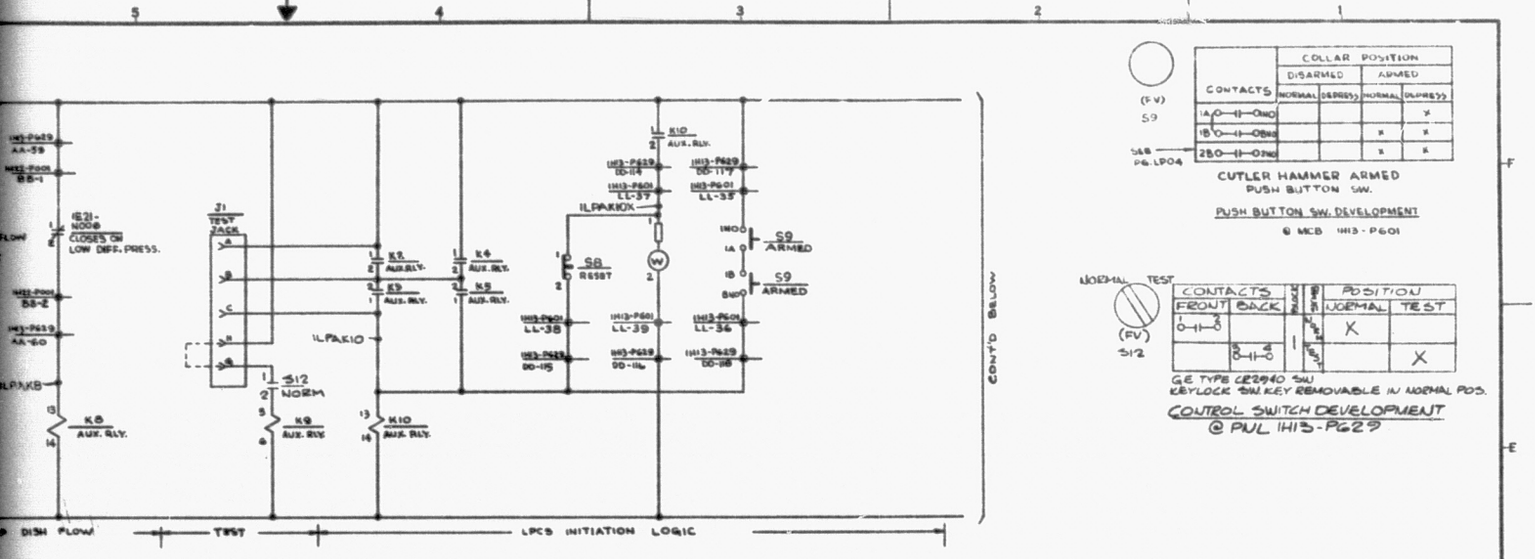
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

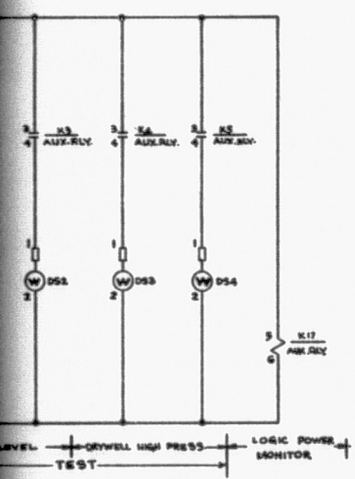
FIGURE 7.3-19

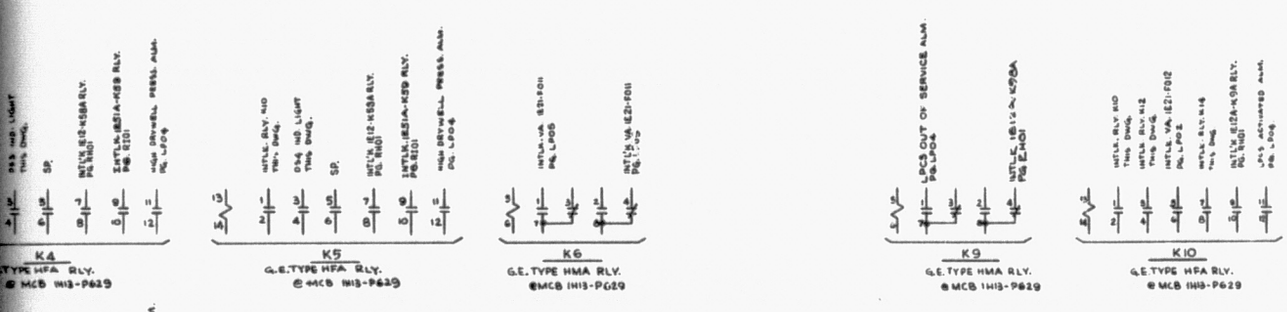
LOW PRESSURE CORE SPRAY SYSTEM ESD

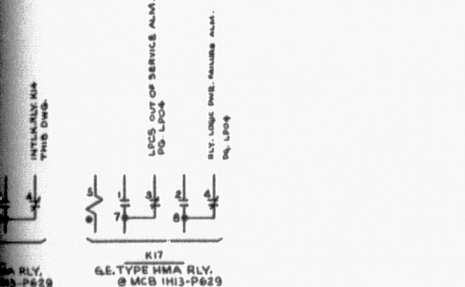
(SHEET 2 of 5)


E1010/Pg 4-P09
ILPAP
ILPAN
10 AMP
125 V. DC. BUS A @ PNL 1H13-P629
(FOR PWR DIST SEE 'PG' R415)
PUMP BUS PWR MONITOR
REACTOR VESSEL WATER LOW LEVEL
HIGH DRYWELL PRESS
CORE SPRAY PUMP DISH FLOW
TEST
LPCS INITIATI
GE TO VERIFY
CLOSES ON LOW LEVEL
CLOSES ON HIGH PRESS.
CLOSES ON LOW DIFF. PRESS.
CLOSES ON FLOW ABOVE SET POINT
CONT'D FROM ABOVE
CORE SPRAY PUMP IE21-C001 CONTROL
INJECTION VALVE IE21-F005 CONTROL
LOW WTR. LEVEL
DRYWELL HIGH PRESS
LOGIC POWER MONITOR
K1 G.E.TYPE HMA RLY. @ MCB 1H13-P629
K2 G.E.TYPE HFA RLY. @ MCB 1H13-P629
K3 G.E.TYPE HFA RLY. @ MCB 1H13-P629
K4 G.E.TYPE HFA RLY. @ MCB 1H13-P629
K5 G.E.TYPE HFA RLY. @ MCB 1H13-P629
K6 G.E.TYPE HMA RLY. @MCB 1H13-P629
K8 G.E.TYPE HFA RLY. @MCB 1H13-P629
K12 G.E.TYPE HMA RLY. @MCB 1H13-P629
K13 G.E.TYPE HMA RLY. @MCB 1H13-P629
K14 G.E.TYPE HMA RLY. @MCB 1H13-P629
K15 G.E.TYPE HMA RLY. @MCB 1H13-P629
K17 G.E.TYPE HMA RLY. @ MCB 1H13-P629









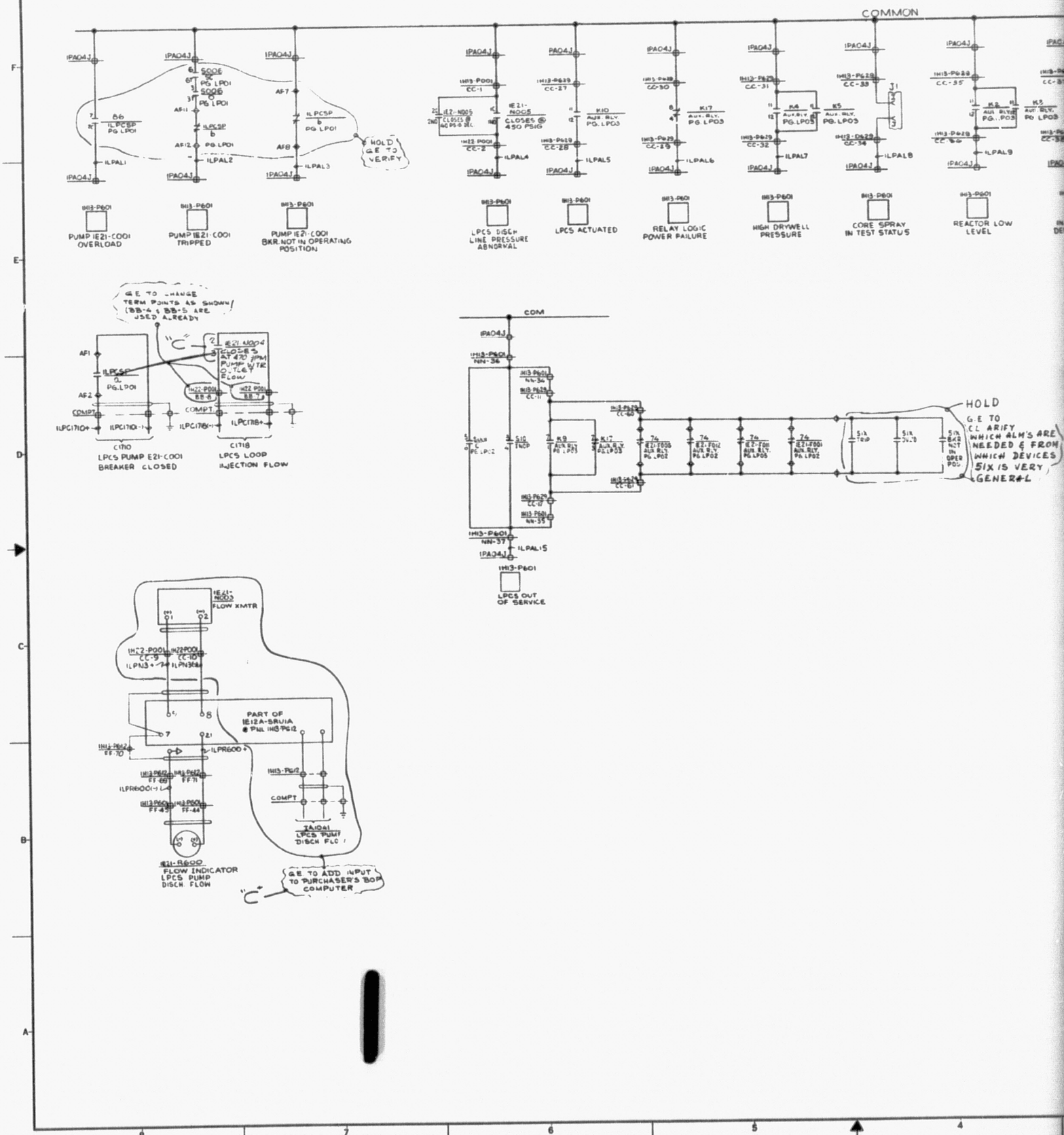
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

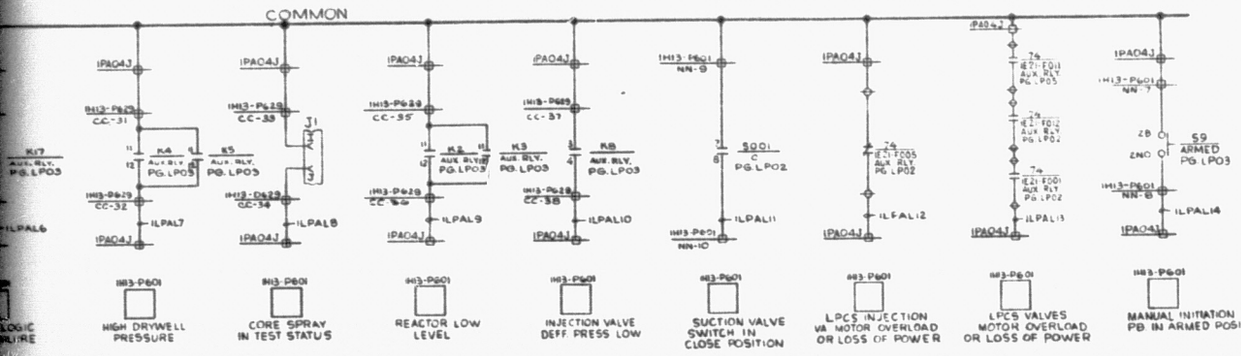
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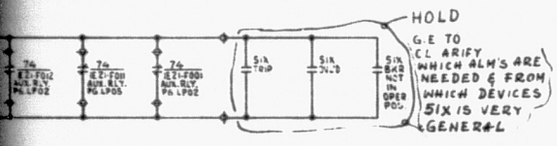
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

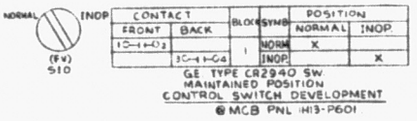
FIGURE 7.3-19

LOW PRESSURE CORE SPRAY SYSTEM ESD
(SHEET 3 of 5)


COMMON
1PA04J
1H13-P601
PUMP 1E21-C001 OVERLOAD
PUMP 1E21-C001 TRIPPED
PUMP 1E21-C001 BKR NOT IN OPERATING POSITION
HOLD GE TO VERIFY
LPCS DISCH LINE PRESSURE ABNORMAL
LPCS ACTUATED
RELAY LOGIC POWER FAILURE
HIGH DRYWELL PRESSURE
CORE SPRAY IN TEST STATUS
REACTOR LOW LEVEL
GE TO CHANGE TERM POINTS AS SHOWN (BB-4 & BB-5 ARE USED ALREADY)
LPCS PUMP E21-C001 BREAKER CLOSED
LPCS LOOP INJECTION FLOW
COM
LPCS OUT OF SERVICE
HOLD
G.E TO CLARIFY WHICH ALM'S ARE NEEDED & FROM WHICH DEVICES SIX IS VERY GENER#L
1E41-N003
FLOW XMTR
PART OF 1E12A-BRUIA @ PNL 1H13-P612
1E21-R600
FLOW INDICATOR LPCS PUMP DISCH FLOW
GE TO ADD INPUT TO PURCHASER'S BOP COMPUTER







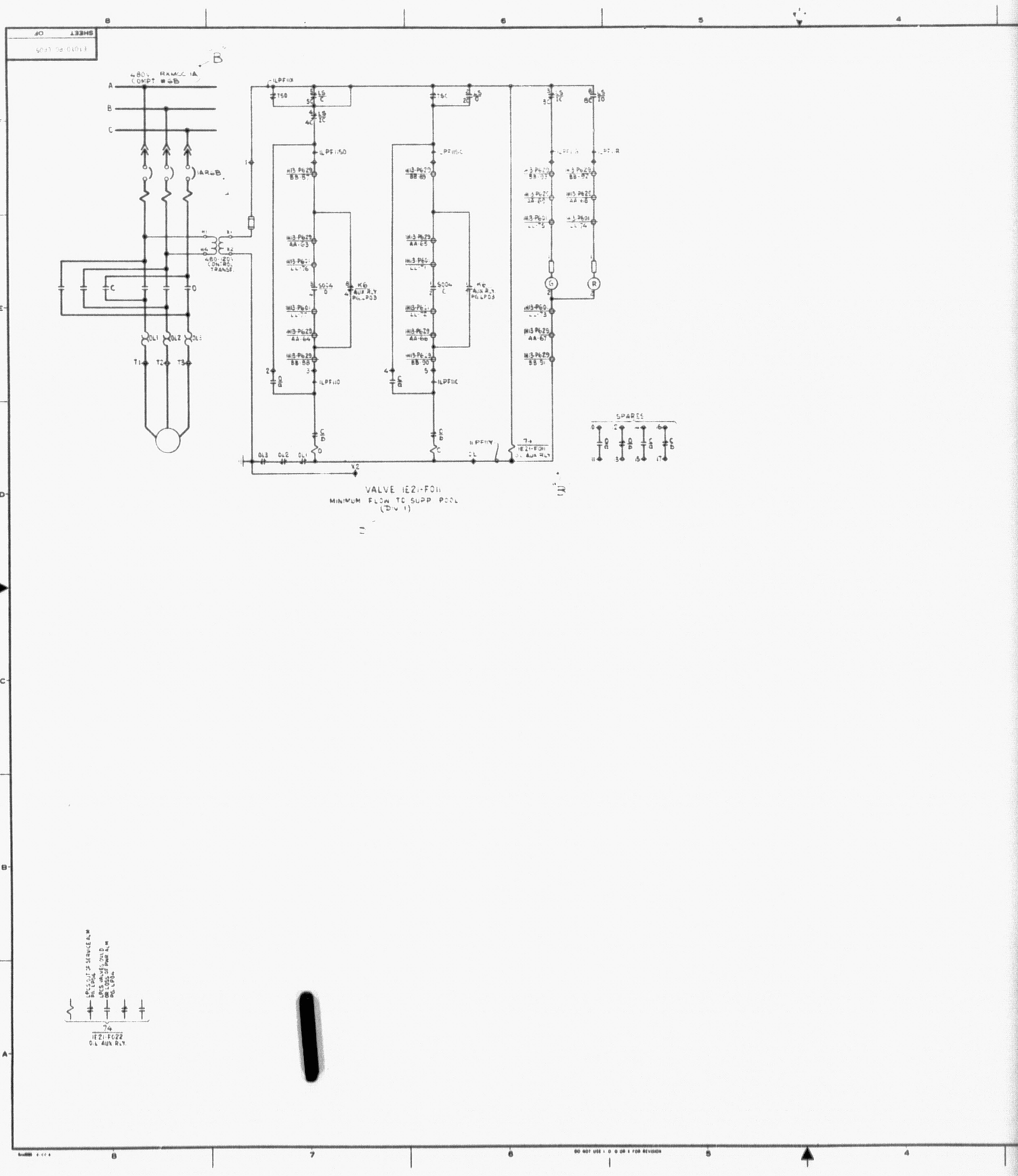
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-19

LOW PRESSURE CORE SPRAY SYSTEM ESD
(SHEET 4 of 5)


480V RAMOC 1A
COMPT #6B
A
B
C
1ARGB
480-120V CONTROL TRANSF.
OL1
OL2
OL3
T1
T2
T3
1LPF110
1LPF150
1LPF160
1LPF170
1LPF180
1LPF190
1LPF1A0
1LPF1B0
1LPF1C0
1LPF1H
1LPF1K
1LPF1L
1LPF1M
1LPF1N
1LPF1P
1LPF1R
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T10000
SPARES
VALVE 1E21-F011
MINIMUM FLOW TO SUPP POOL
(DIV 1)
74
1E21-F022
OL AUX RLY.
DO NOT USE 1 0 0 OR 1 FOR REVISION



CONTACTS		BLOCK	SWITCH	POSITION		
FRONT	BACK			CLOSE	AUTO	OPEN
10-(1-02		1	C	×		
	30-(1-04		O			×
50-(1-06		2	C	×		
	70-(1-08		O			×

G.E. CR-2940
SPRING RETURN TO AUTO

CONTROL SWITCH DEVELOPMENT
@ MCB 1H13-P601

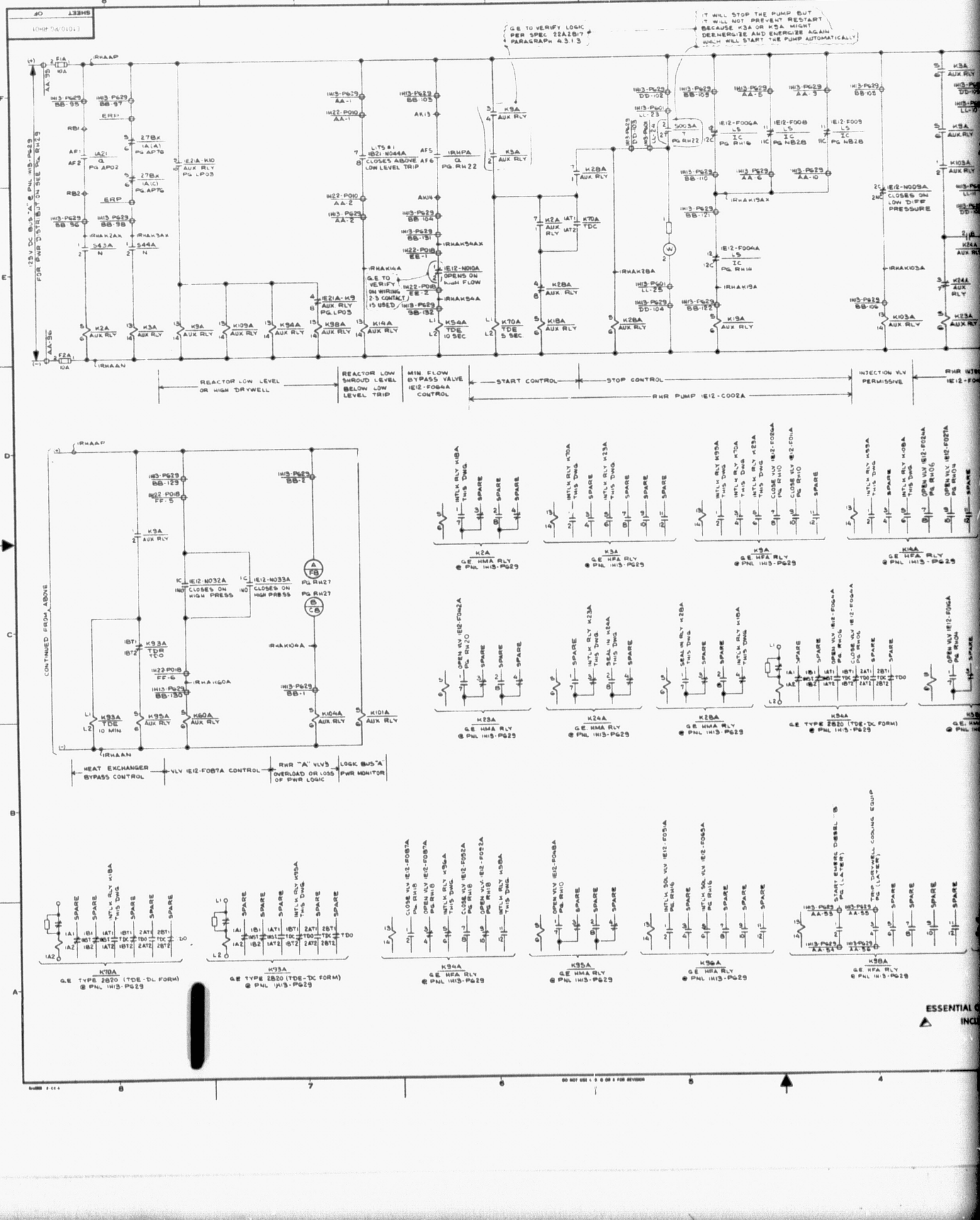
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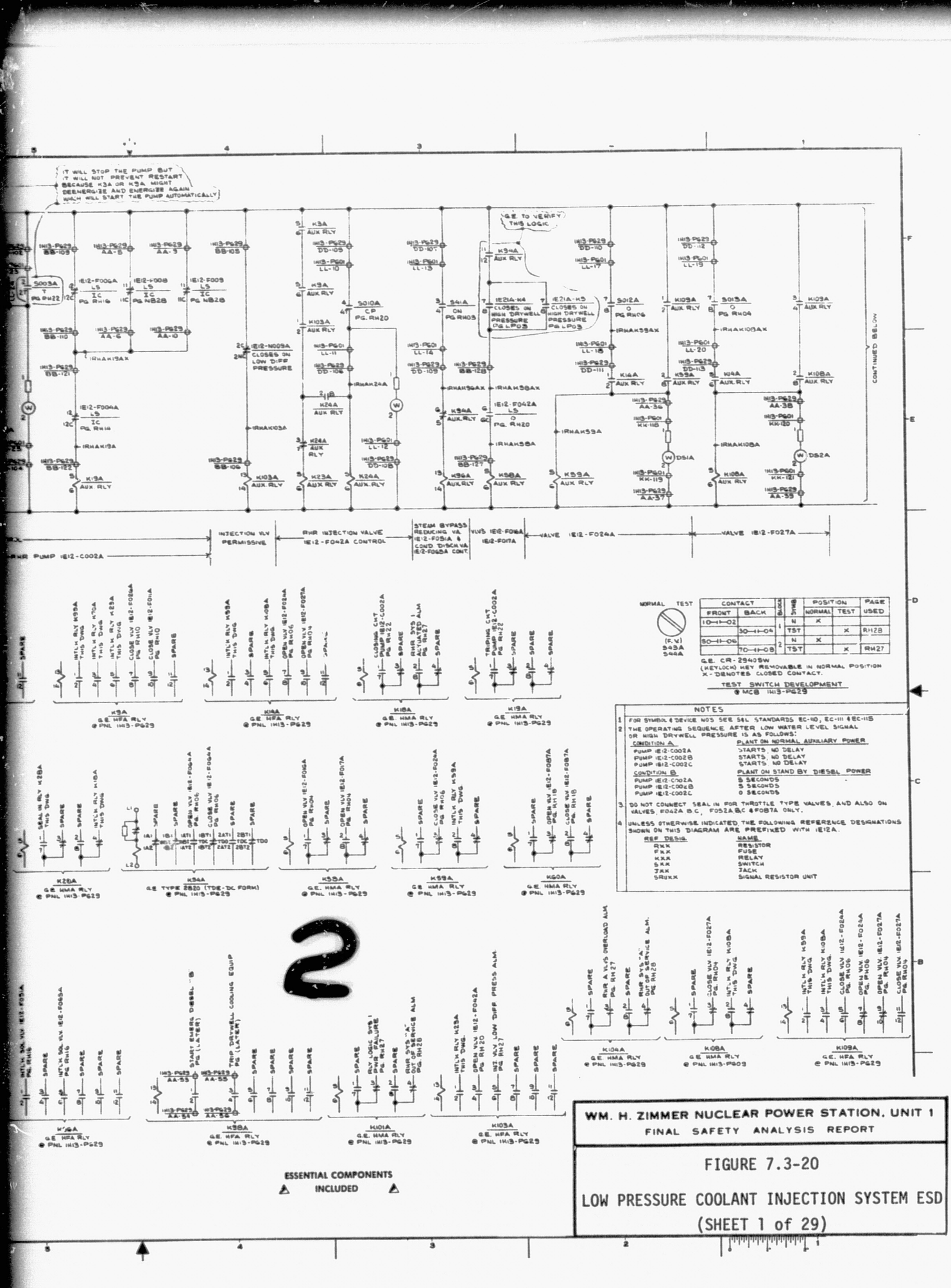
ESSENTIAL COMPONENTS
INCLUDED

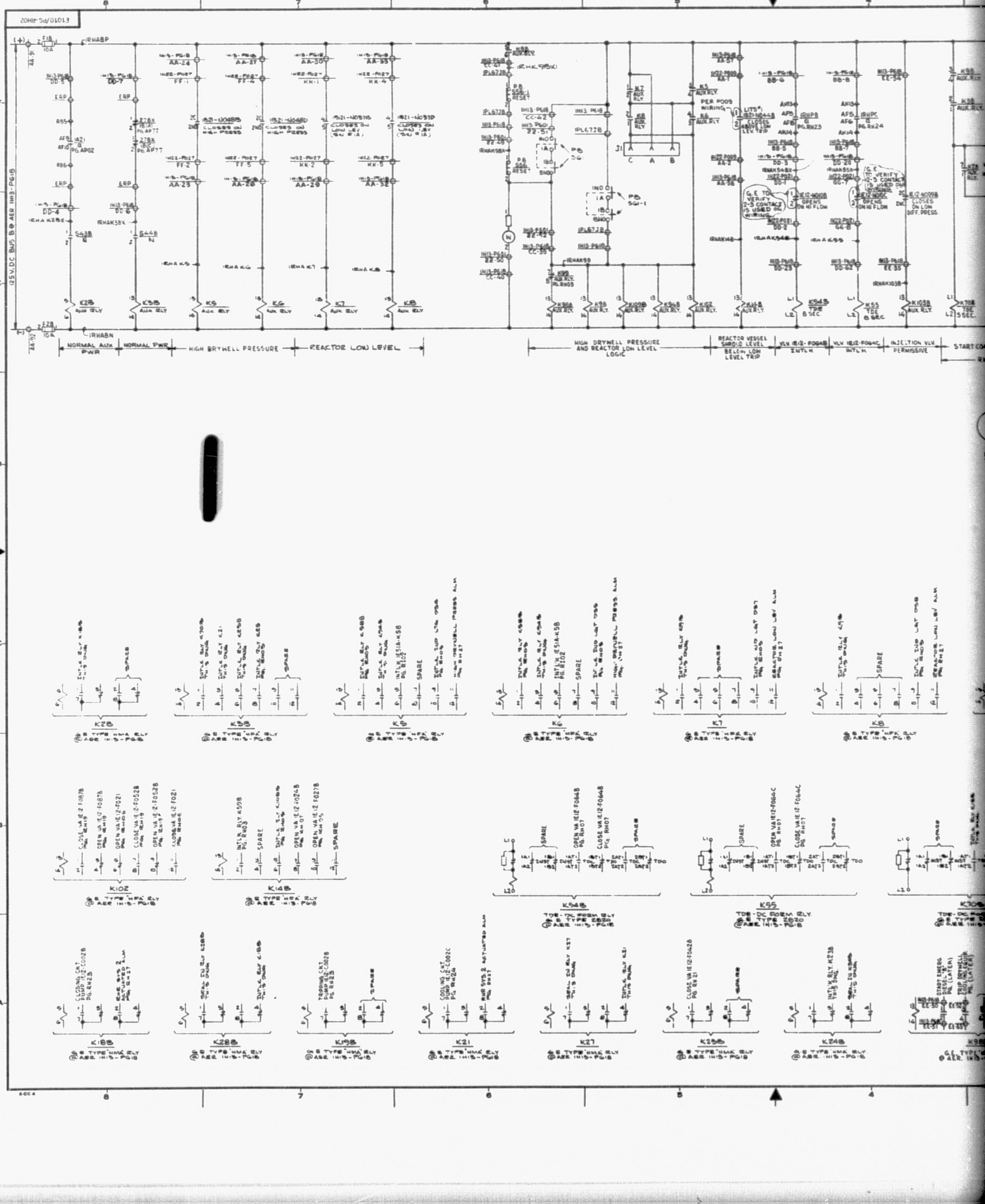
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

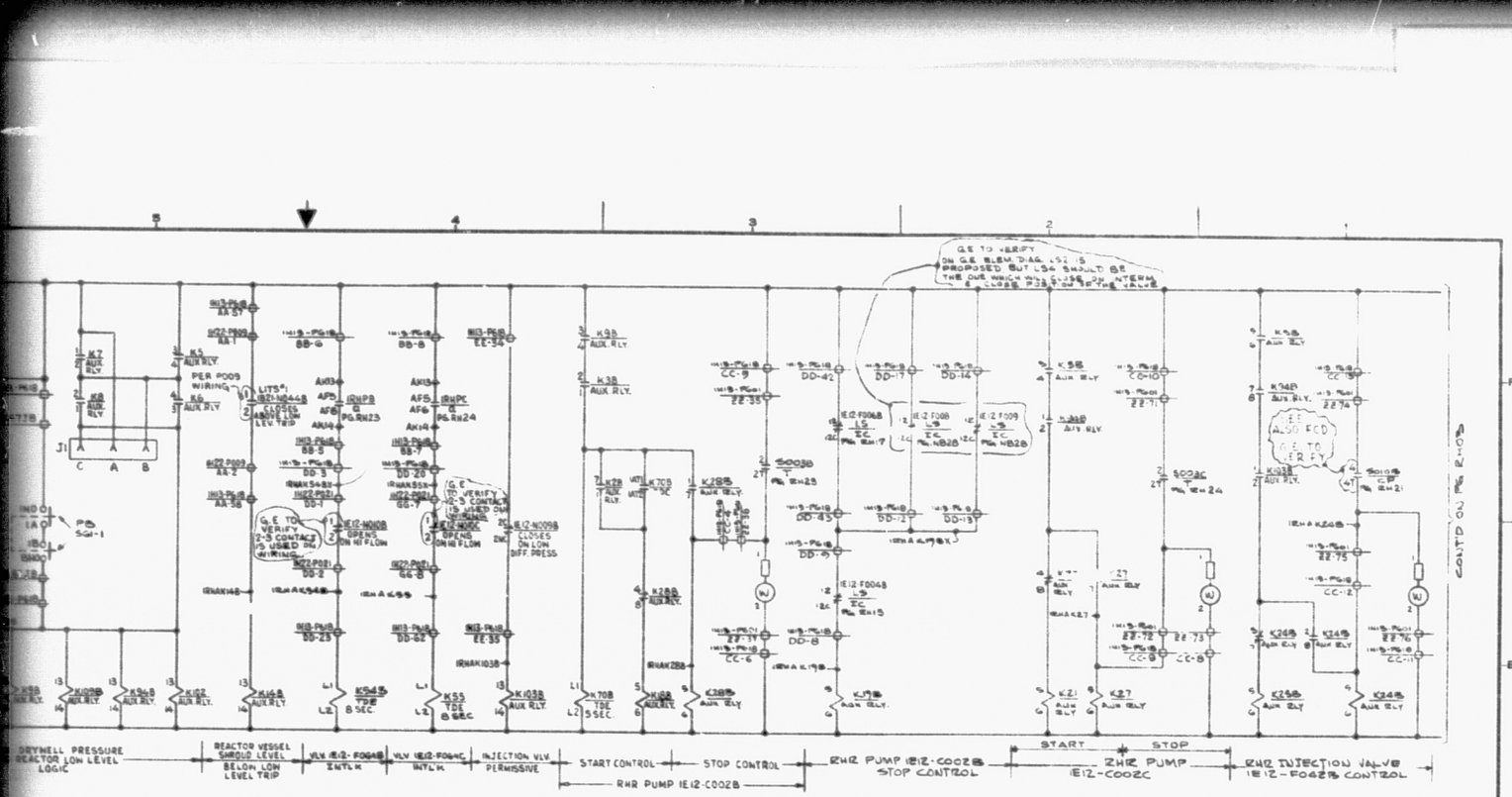
FIGURE 7.3-19

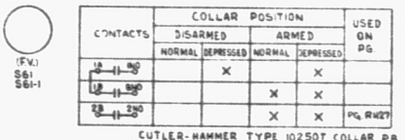
LOW PRESSURE CORE SPRAY SYSTEM ESD
(SHEET 5 of 5)


SHEET OF
G.E. TO VERIFY LOGIC PER SPEC. 22A2817 PARAGRAPH 4.3.1.3
IT WILL STOP THE PUMP BUT IT WILL NOT PREVENT RESTART BECAUSE K3A OR K9A MIGHT DEENERGIZE AND ENERGIZE AGAIN WHICH WILL START THE PUMP AUTOMATICALLY
125V DC BUS "A" FOR PWR DISTR BUS ON SEE PNL RH29
IRHAAP
IRHAAN
REACTOR LOW LEVEL OR HIGH DRYWELL
REACTOR LOW SHROUD LEVEL BELOW LOW LEVEL TRIP
MIN. FLOW BYPASS VALVE IE12-F064A CONTROL
START CONTROL
STOP CONTROL
RHR PUMP IE12-C002A
INJECTION VLV PERMISSIVE
CONTINUED FROM ABOVE
HEAT EXCHANGER BYPASS CONTROL
VLV IE12-F087A CONTROL
RHR "A" VLVS OVERLOAD OR LOSS OF PWR LOGIC
LOGIC BUS "A" PWR MONITOR
K2A GE HMA RLY @ PNL 1H13-P629
K3A GE HFA RLY @ PNL 1H13-P629
K9A GE HFA RLY @ PNL 1H13-P629
K14A GE HFA RLY @ PNL 1H13-P629
K23A GE HMA RLY @ PNL 1H13-P629
K24A GE HMA RLY @ PNL 1H13-P629
K28A GE HMA RLY @ PNL 1H13-P629
K34A GE TYPE 2820 (TDE-DC FORM) @ PNL 1H13-P629
K70A GE TYPE 2820 (TDE-DL FORM) @ PNL 1H13-P629
K93A GE TYPE 2820 (TDE-DC FORM) @ PNL 1H13-P629
K94A GE HFA RLY @ PNL 1H13-P629
K95A GE HMA RLY @ PNL 1H13-P629
K96A GE HFA RLY @ PNL 1H13-P629
K98A GE HFA RLY @ PNL 1H13-P629
ESSENTIAL
INCL


IT WILL STOP THE PUMP BUT IT WILL NOT PREVENT RESTART BECAUSE K3A OR K9A MIGHT DEENERGIZE AND ENERGIZE AGAIN, WHICH WILL START THE PUMP AUTOMATICALLY
G.E. TO VERIFY THIS LOGIC
CONTINUED BELOW
INJECTION VLV PERMISSIVE
RHR INJECTION VALVE 1E12-F042A CONTROL
STEAM BYPASS REDUCING VA 1E12-F051A & COND TO SCA VA 1E12-F065A CONT
VLVS 1E12-F088A 1E12-F017A
VALVE 1E12-F024A
VALVE 1E12-F027A
RHR PUMP 1E12-C002A
NORMAL TEST
(F.W.) 5443A 5444A
CONTACT FRONT BACK
BLOCK
SYMB
POSITION NORMAL TEST
PAGE USED
10-11-02
30-11-04
50-11-06
70-11-08
GE CR-2940SW (KEYLOCK) KEY REMOVABLE IN NORMAL POSITION X-DENOTES CLOSED CONTACT.
TEST SWITCH DEVELOPMENT @ MCB 1H13-P629
NOTES
1. FOR SYMBOL & DEVICE NOS SEE S&L STANDARDS EC-110, EC-111 & EC-115
2. THE OPERATING SEQUENCE AFTER LOW WATER LEVEL SIGNAL OR HIGH DRYWELL PRESSURE IS AS FOLLOWS:
CONDITION A. PLANT ON NORMAL AUXILIARY POWER
PUMP 1E12-C002A STARTS, NO DELAY
PUMP 1E12-C002B STARTS, NO DELAY
PUMP 1E12-C002C STARTS, NO DELAY
CONDITION B. PLANT ON STAND BY DIESEL POWER
PUMP 1E12-C002A 5 SECONDS
PUMP 1E12-C002B 5 SECONDS
PUMP 1E12-C002C 0 SECONDS
3. DO NOT CONNECT SEAL IN FOR THROTTLE TYPE VALVES, AND ALSO ON VALVES, F042A B,C, F052A,B,C & F087A ONLY.
4. UNLESS OTHERWISE INDICATED, THE FOLLOWING REFERENCE DESIGNATIONS SHOWN ON THIS DIAGRAM ARE PREFIXED WITH 1E12A.
REF DESIG. NAME
RXX RESISTOR
FXX FUSE
KXX RELAY
SXX SWITCH
JXX JACK
SRUXX SIGNAL RESISTOR UNIT
2
ESSENTIAL COMPONENTS INCLUDED
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-20
LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 1 of 29)


125V DC BUS B
NORMAL AUX PWR
NORMAL PWR
HIGH DRYWELL PRESSURE
REACTOR LOW LEVEL
HIGH DRYWELL PRESSURE AND REACTOR LOW LEVEL LOGIC
REACTOR VESSEL SHROUD LEVEL BELOW LOW LEVEL TRIP
VLV 1E12-F004B INTLK
VLV 1E12-F004C INTLK
INJECTION VLV. PERMISSIVE
START CO
K28 AUX RLY
K38 AUX RLY
K5 AUX RLY
K6 AUX RLY
K7 AUX RLY
K8 AUX RLY
K45 TDR 8 SEC.
K55 TDR 8 SEC.
K108 AUX. RLY.
K188
K288
K198
K21
K27
K238
K248
K102
K148
K548
K55
K308
K98





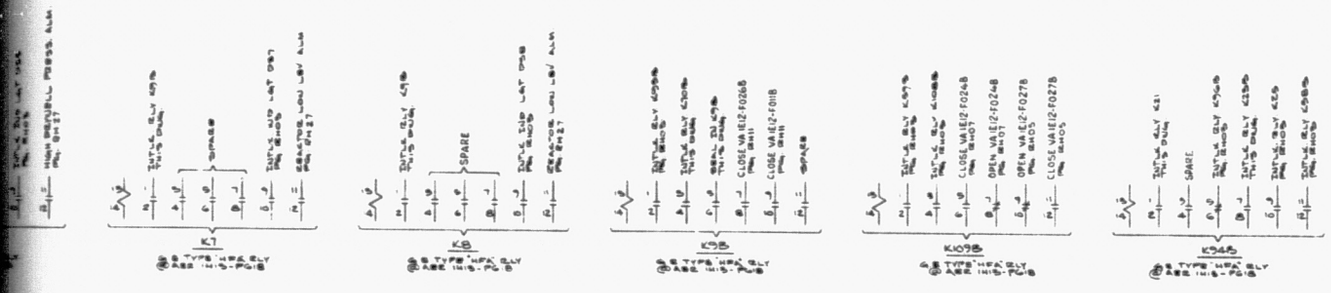
CONTACTS	COLLAR POSITION				USED ON PG.
	DISARMED		ARMED		
	NORMAL	DEPRESSED	NORMAL	DEPRESSED	
14 90		X		X	
12 150			X	X	
23 230			X	X	PG RH27

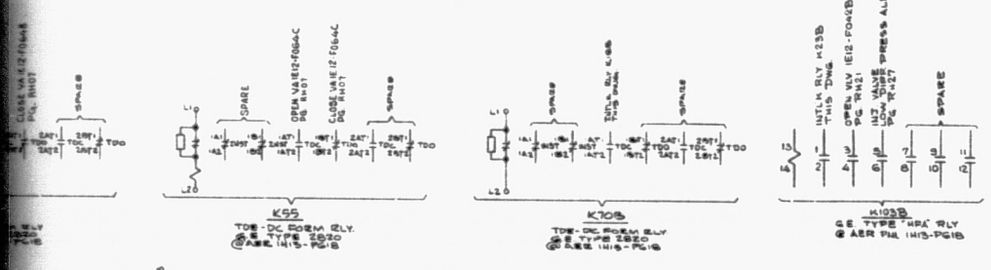
CUTLER-HAMMER TYPE 10250T COLLAR P.B.
X-DENOTES CLOSED CONTACT.
PUSHBUTTON DEVELOPMENT.
S61 @ MCB PNL 1H13-P601
S61-1 @ PL6738

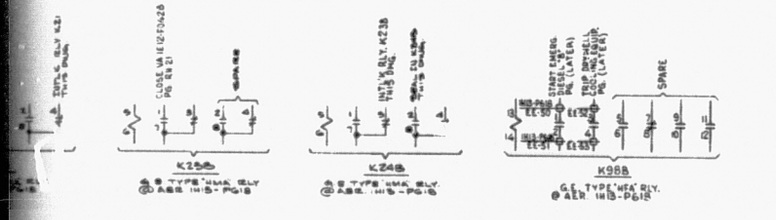


CONTACT		RANK		POSITION		USED ON PG.
FRONT	REAR			NORMAL	TEST	
1	5	1	N	X		
	6		TST		X	RH28
3	7	2	N	X		
	8		TST		X	RH21

G.E. CR 2940 BN
(KEYLOCK) KEY REMOVABLE IN NORMAL POSITION
TEST SWITCH DEVELOPMENT
@ MCB 1H13-P613







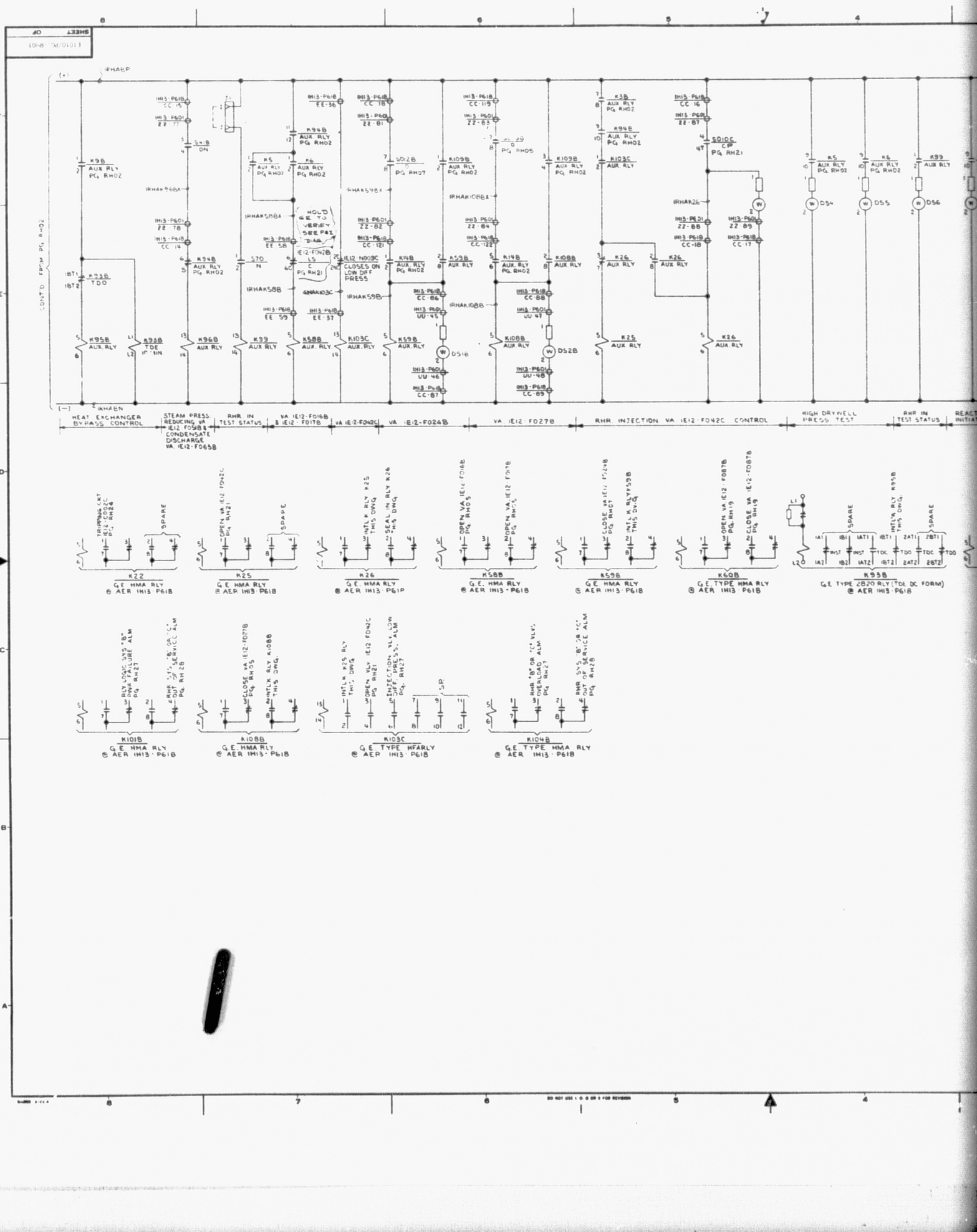
ESSENTIAL COMPONENTS
INCLUDED

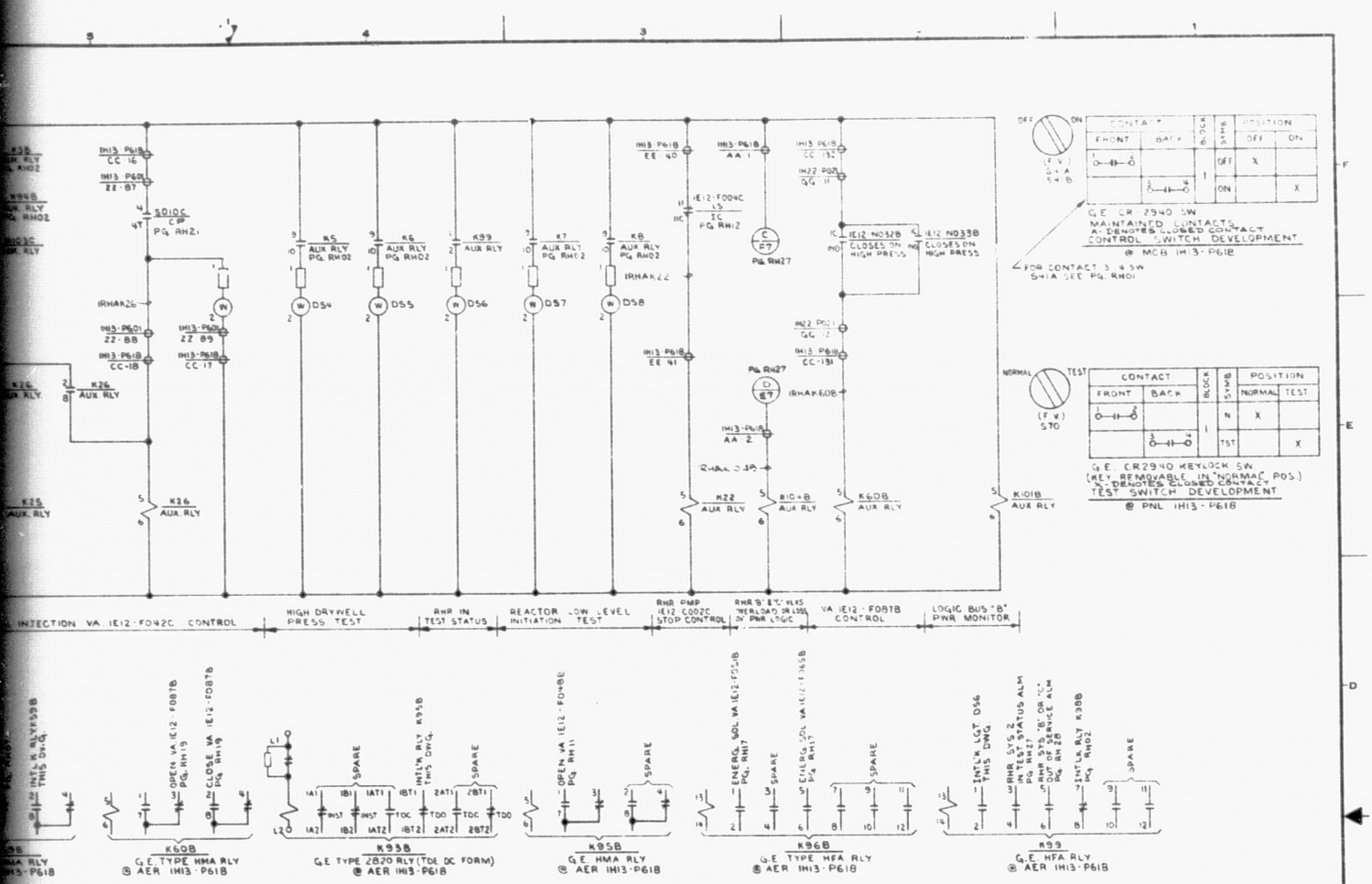
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 2 of 29)


SHEET OF
E1010/RX... RH05
(+)
IRHABP
(−)
IRHABN
CONT'D FROM PG RH02
K9B AUX RLY PG RH02
S4B ON
K5 AUX RLY PG RH02
K6 AUX RLY PG RH02
K94B AUX RLY PG RH02
S010B PG RH07
K109B AUX RLY PG RH02
K3B AUX RLY PG RH02
K94B AUX RLY PG RH02
K103C AUX RLY
S010C CP PG RH21
K5 AUX RLY PG RH02
K6 AUX RLY PG RH02
K99 AUX RLY
DS4
DS5
DS6
HOLD GE TO VERIFY SEE P&I DIAG
S70 N
IE12-F042B LS C PG RH21
IE12 N009C CLOSES ON LOW DIFF PRESS
K14B AUX RLY PG RH02
K59B AUX RLY
K14B AUX RLY PG RH02
K108B AUX RLY
K26 AUX RLY
K26 AUX RLY
K93B TDE
K95B AUX. RLY
K96B AUX RLY
K39 AUX RLY
K58B AUX. RLY
K103C AUX. RLY
K59B AUX RLY
K108B AUX RLY
K25 AUX RLY
K26 AUX. RLY
DS1B
DS2B
IRHAK588A
IRHAK598A
IRHAK1088A
IRHAK26
IRHAK588
IRHAK598
IRHAK1088
IRHAK103C
HEAT EXCHANGER BYPASS CONTROL
STEAM PRESS REDUCING VA IE12-F058B & CONDENSATE DISCHARGE VA IE12-F065B
RHR IN TEST STATUS
VA IE12-F016B & IE12-F017B
VA IE12-F042C
VA IE12-F024B
VA IE12-F027B
RHR INJECTION VA IE12-F042C CONTROL
HIGH DRYWELL PRESS TEST
RHR IN TEST STATUS
K22 G.E. HMA RLY @ AER 1H13-P618
K25 G.E. HMA RLY @ AER 1H13-P618
K26 G.E. HMA RLY @ AER 1H13-P618
K58B G.E. HMA RLY @ AER 1H13-P618
K59B G.E. HMA RLY @ AER 1H13-P618
K60B G.E. TYPE HMA RLY @ AER 1H13-P618
K93B G.E. TYPE 2820 RLY (TDE DC FORM) @ AER 1H13-P618
K101B G.E. HMA RLY @ AER 1H13-P618
K108B G.E. HMA RLY @ AER 1H13-P618
K103C G.E. TYPE HFA RLY @ AER 1H13-P618
K104B G.E. TYPE HMA RLY @ AER 1H13-P618
DO NOT USE I, O, Q OR S FOR REVISION



CONTACT		BLOCK	SYMB	POSITION	
FRONT	BACK			OFF	ON
1-2		1	OFF	X	
	3-4		ON		X

(F.V.) S41 A & B

OFF ON

G.E. CR 2940 SW
MAINTAINED CONTACTS
A-DENOTES CLOSED CONTACT
CONTROL SWITCH DEVELOPMENT
@ MCB 1H13-P618

FOR CONTACT 3-4 SW S41A SEE PG RH01

CONTACT		BLOCK	SYMB	POSITION	
FRONT	BACK			NORMAL	TEST
1-2		1	N	X	
	3-4		TST		X

(F.V.) S70

NORMAL TEST

G.E. CR2940 KEYLOCK SW.
(KEY REMOVABLE IN "NORMAL" POS.)
X-DENOTES CLOSED CONTACT
TEST SWITCH DEVELOPMENT
@ PNL 1H13-P618

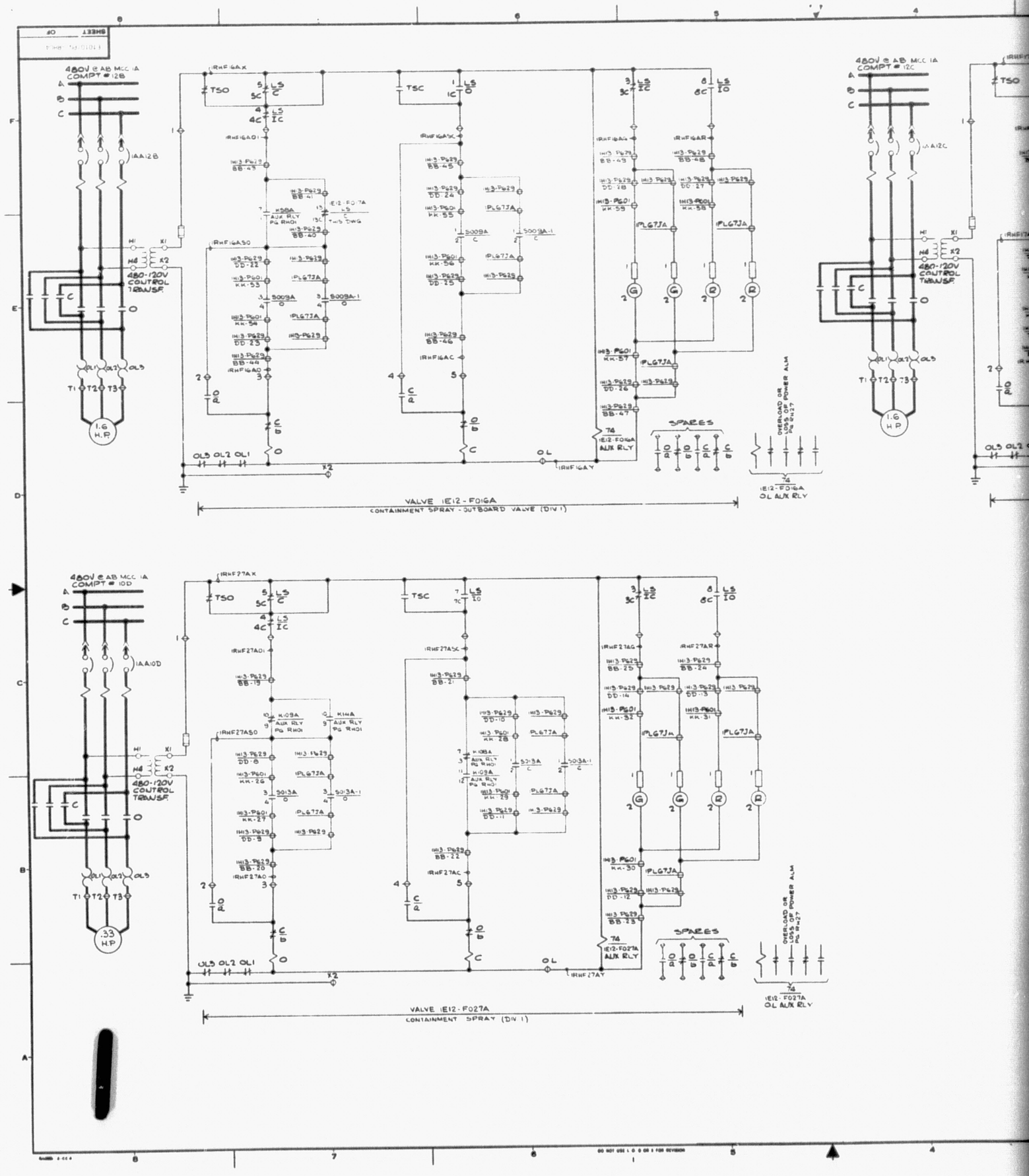
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

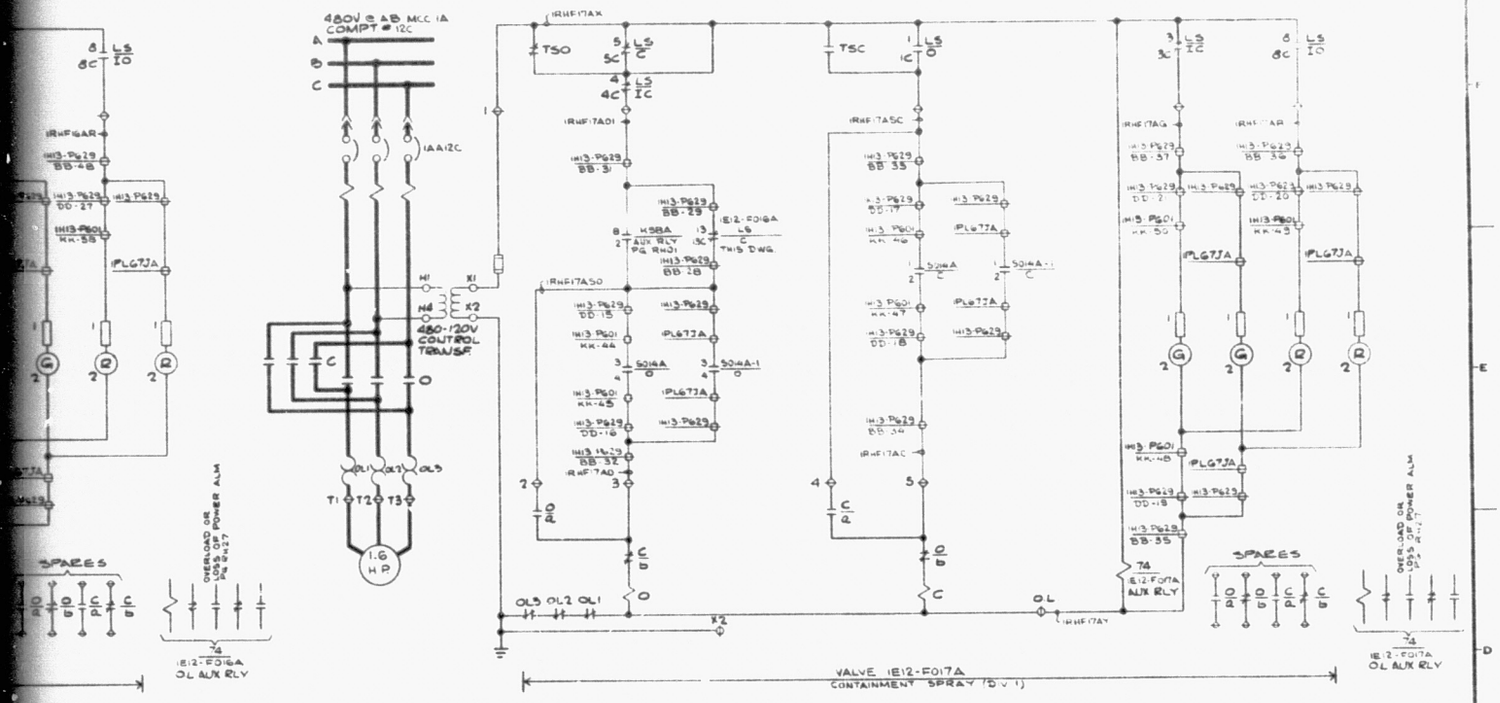
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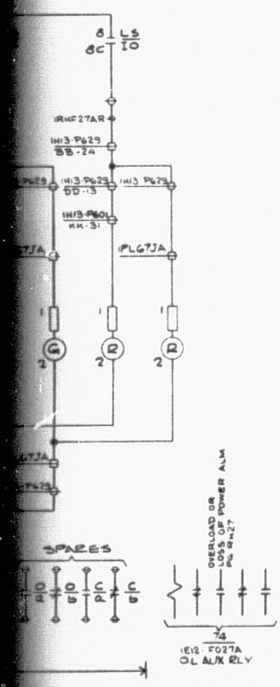
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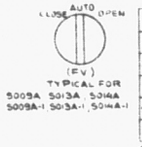
FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 3 of 29)


480V @ AB MCC 1A COMPT # 12B
480-120V CONTROL TRANSF.
1.6 H.P
VALVE 1E12-F016A
CONTAINMENT SPRAY - OUTBOARD VALVE (DIV 1)
480V @ AB MCC 1A COMPT # 12C
480V @ AB MCC 1A COMPT # 10D
.33 H.P
VALVE 1E12-F027A
CONTAINMENT SPRAY (DIV 1)
SPARES
OVERLOAD OR LOSS OF POWER ALM PG RH27
1E12-F016A OL AUX RLY
1E12-F027A OL AUX RLY
DO NOT USE 1 0 0 OR 2 FOR REVISION







CONTACTS		BLOCK	SYMB	POSITION		
FRONT	BACK			CLOSE	AUTO	OPEN
01	02	1	C	X		
	03		O			X
04			C	X		
	05	2	O			X
	07		O			X
	08		O			X

GE CR2940 SWITCH
SPRING RETURN TO AUTO POS
X-DENOTES CLOSED CONTACT
CONTROL SWITCH DEVELOPMENT
SO09A, SO13A SO14A @ M.B. PNL IHI3-P601
SO09A-1 SO13A-1 SO14A-1 @ PNL IPLG7JA

SWITCH NUMBER	CONTACT NUMBER	USED ON
SO13A	7 - 8	PG. RH01

BLOCK	CONTACTS	SYMB	VALVE POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1O — 01C	O			X
	2O — 02C	O			X
	3O — 03C	IC	X	X	
	4O — 04C	IC	X	X	
2	5O — 05C	C	X		
	6O — 06C	C	X		
	7O — 07C	IO		X	X
	8O — 08C	IO		X	X
3	9O — 09C	O			X
	10O — 010C	O			X
	11O — 011C	IC	X	X	
	12O — 012C	IC	X	X	
4	13O — 013C	C	X		
	14O — 014C	C	X		
	15O — 015C	IO		X	X
	16O — 016C	IO		X	X
TSC			CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE.		
TSO			OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE.		

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVES IE12-F016A, F017A, F027A
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

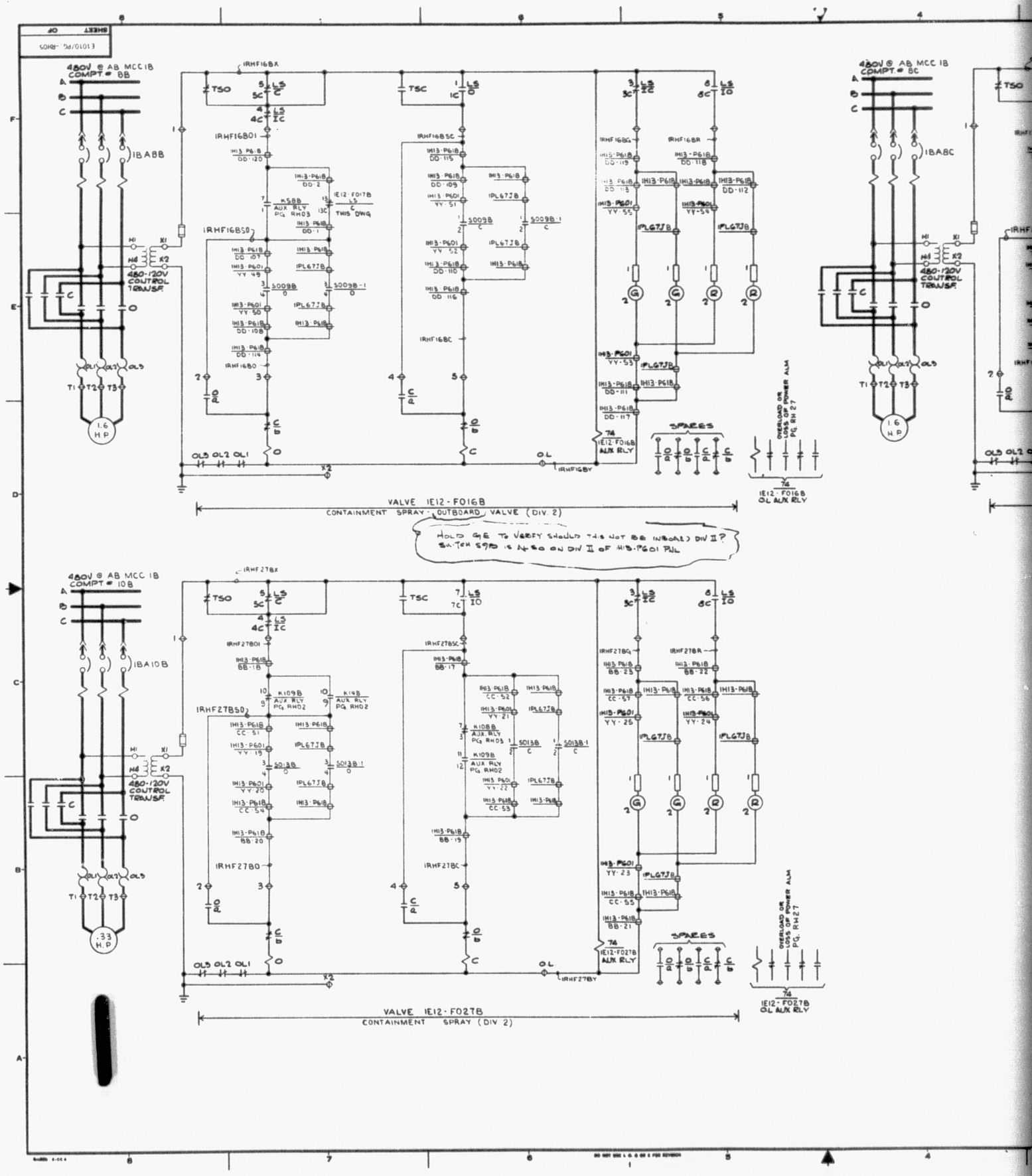
VALVE NUMBER	LS NUMBER	USED ON
IE12-F027A	G-6C	PG. RH16

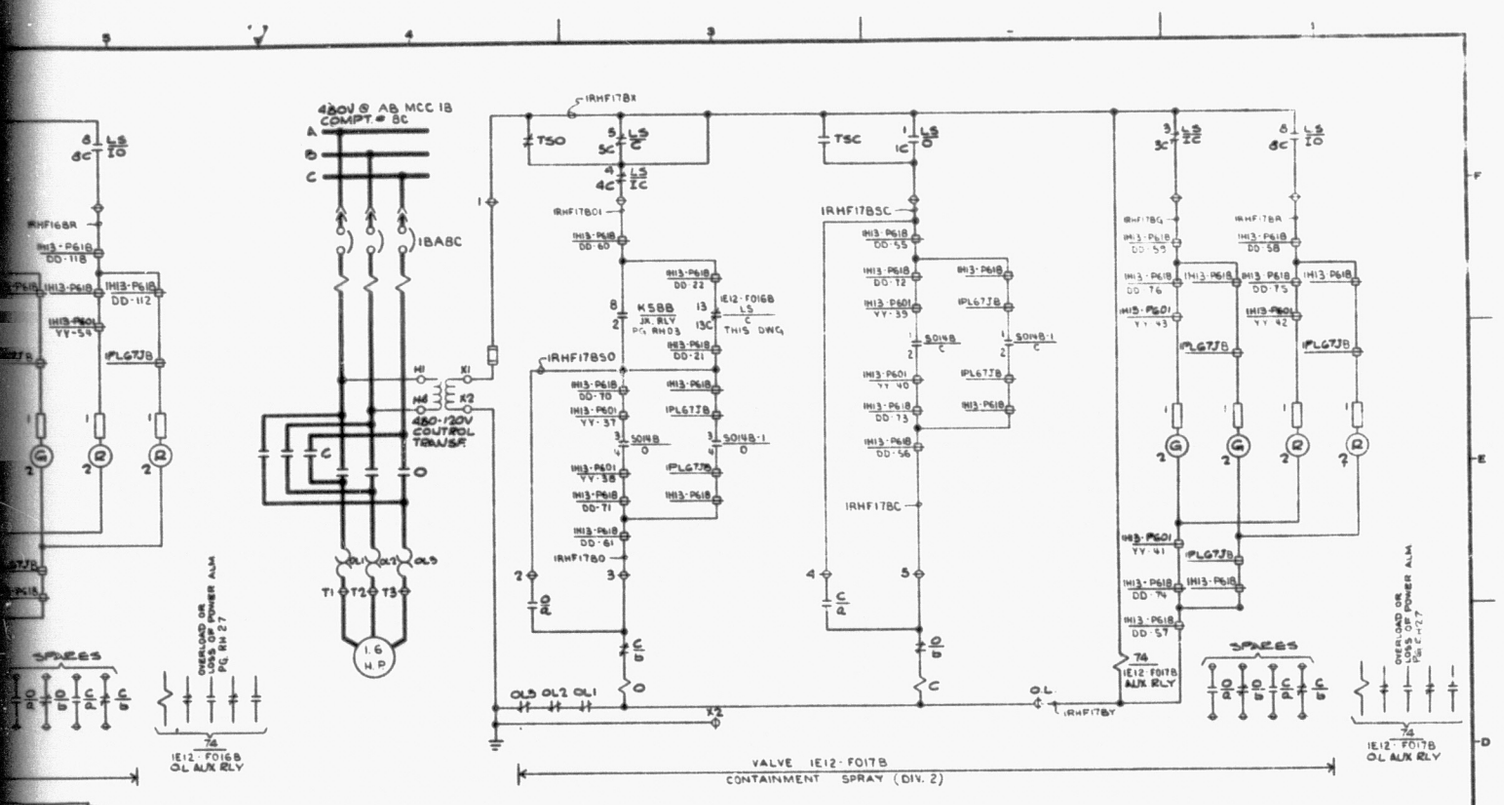
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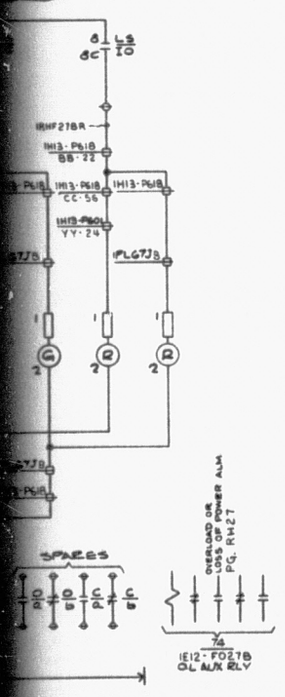
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

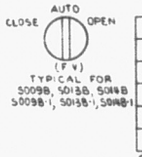
FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 4 of 29)


480V @ AB MCC 1B COMPT. # 8B
1BAB8B
480-120V CONTROL TRANSF
1.6 H.P
IRHF16BX
IRHF16B01
IRHF16BS0
IRHF16BC
IRHF16BR
IRHF16BQ
IRHF16BY
IE12-F016B
AUX RLY
VALVE IE12-F016B
CONTAINMENT SPRAY OUTBOARD VALVE (DIV. 2)
480V @ AB MCC 1B COMPT. # 8C
1BA8C
480V @ AB MCC 1B COMPT. # 10B
1BA10B
33 H.P
IRHF27BX
IRHF27B01
IRHF27BS0
IRHF27BC
IRHF27BR
IRHF27BQ
IRHF27BY
IE12-F027B
AUX RLY
VALVE IE12-F027B
CONTAINMENT SPRAY (DIV 2)
SPARES
OVERLOAD OR LOSS OF POWER ALM PG. RH 27
HOLD GE TO VERIFY SHOULD THIS NOT BE IN SEAL) DIV II? SWITCH 59B IS AT 80 ON DIV II OF H13-P601 PNL







CONTACTS		BLOCK	SYMB	POSITION		
FRONT	BACK			CLOSE	AUTO	OPEN
		1	C	X		
			O			X
		2	C	X		
			O			X

G.E. CR2940 SWITCH
SPRING RETURN TO "AUTO" POS.
X- DENOTES CLOSED CONTACT.

CONTROL SWITCH DEVELOPMENT

S009B, S013B, S014B @ MCB PNL. 1H13-P601
S009B-1, S013B-1, S014B @ PNL 1PL67JB

SWITCH NUMER	CONTACT NUMBER	USED ON
S013B	7-8	PG. RH03

BANK	CONTACTS	SYMB	VALVE POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1O—||—01C	O			X
	2O—||—02C	O			X
	3O—||—03C	IC	X	X	
	4O—||—04C	IC	X	X	
2	5O—||—05C	C	X		
	6O—||—06C	C	X		
	7O—||—07C	IO		X	X
	8O—||—08C	IO		X	X
3	9O—||—09C	O			X
	10O—||—010C	O			X
	11O—||—011C	IC	X	X	
	12O—||—012C	IC	X	X	
4	13O—||—013C	C	X		
	14O—||—014C	C	X		
	15O—||—015C	IO		X	X
	16O—||—016C	IO		X	X
TSC			CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
TSO			OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

LIMIT SWITCH DEVELOPMENT (L.S)
TYPICAL FOR VALVE 1E12-F016B, 1E12-F017B 1E12-F027B
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

VALVE NUMBER	L.S. NUMBER	USED ON
1E12-F027B	6-6C	PG. RH17

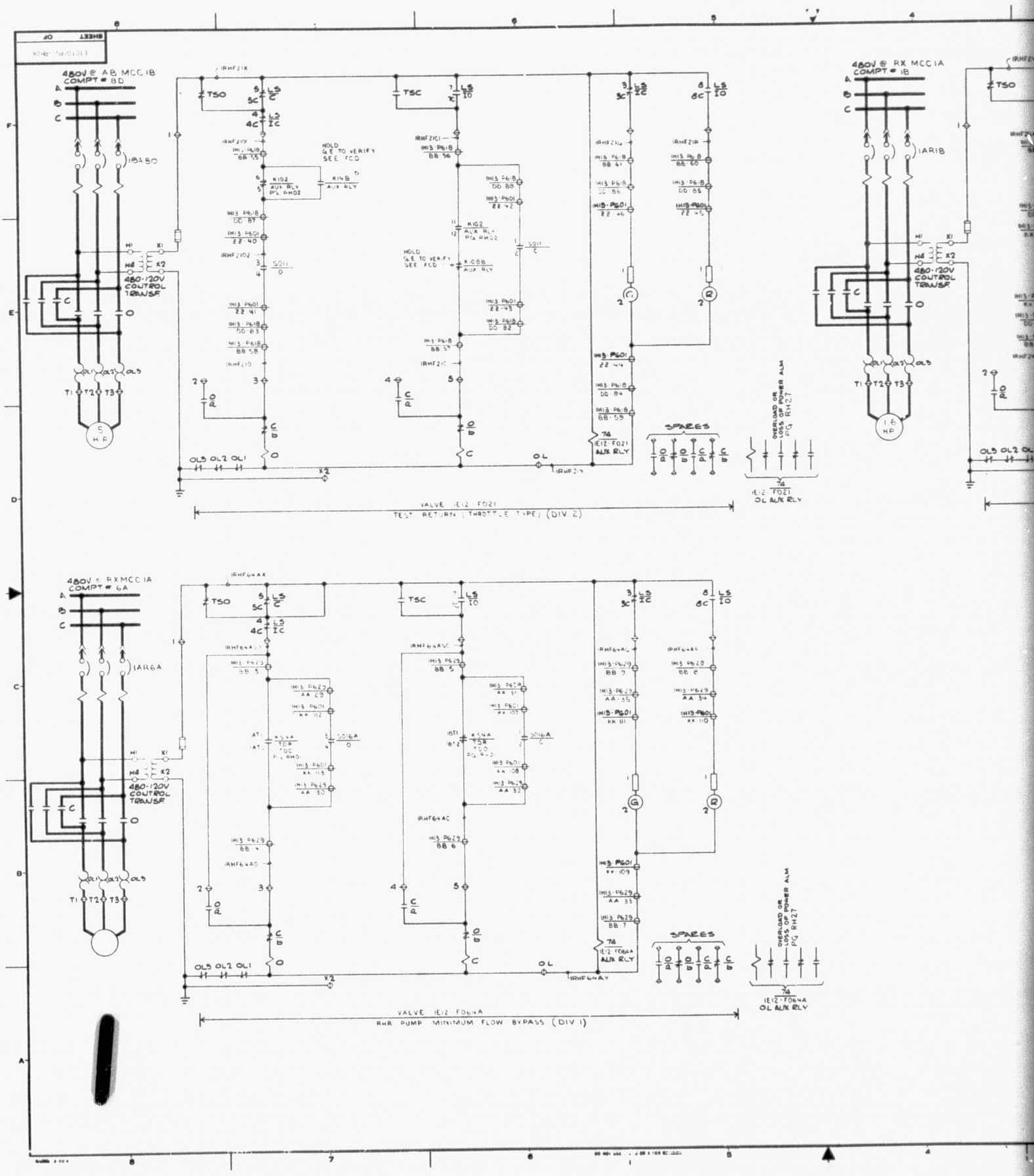
ESSENTIAL COMPONENTS
△ INCLUDED △

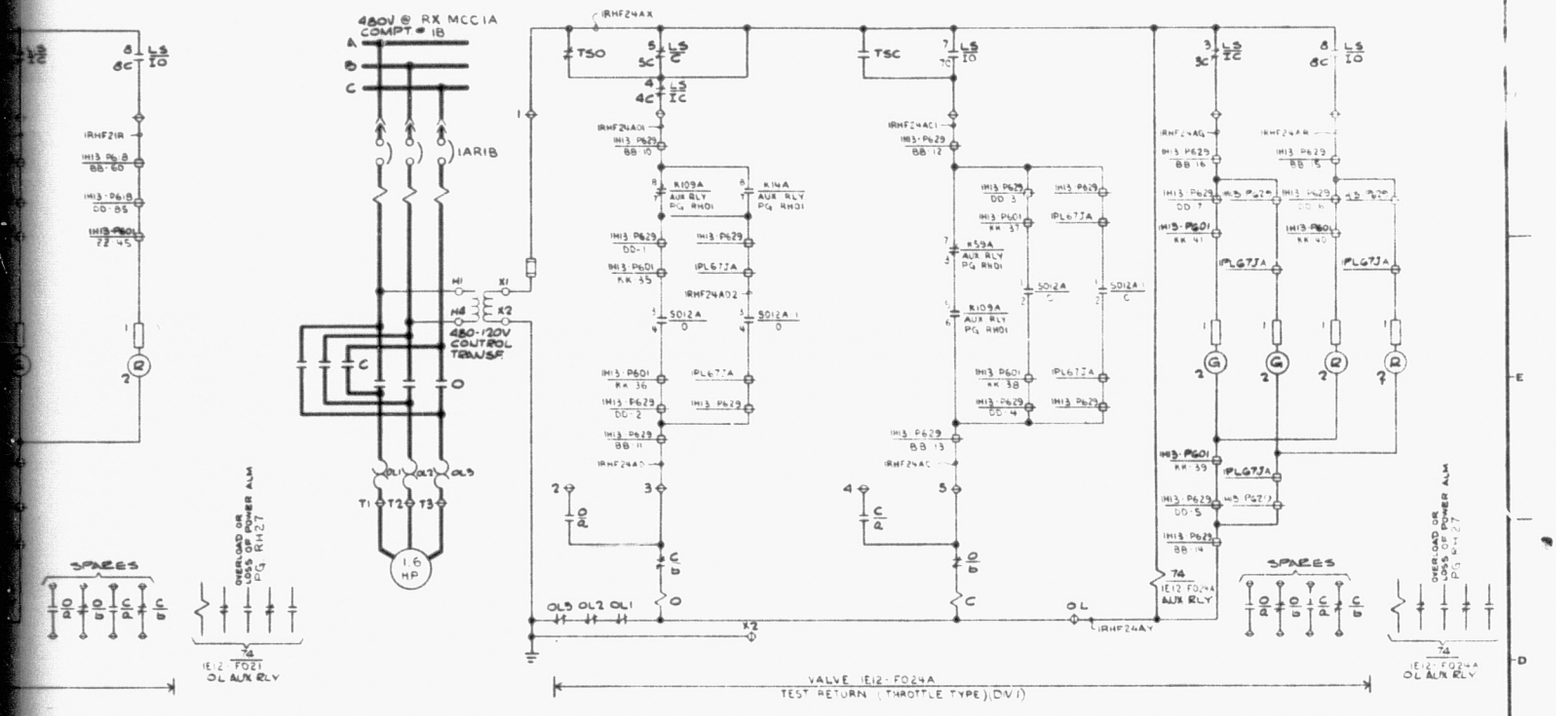
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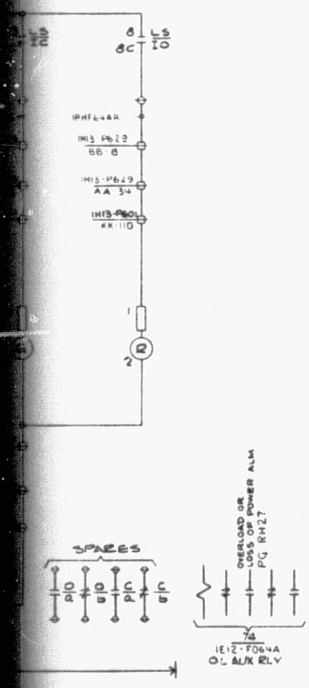
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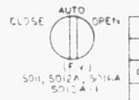
FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 5 of 29)


480V @ AB MCC 1B
COMPT # 8D
480V @ RX MCC 1A
COMPT # 1B
480V @ RX MCC 1A
COMPT # 6A
480-120V CONTROL TRANSF.
TSO
TSC
HOLD G.E. TO VERIFY SEE FCD
SPARES
OVERLOAD OR LOSS OF POWER ALM PG RH27
VALVE 1E12-F021
TEST RETURN (THROTTLE TYPE) (DIV. 2)
VALVE 1E12-F064A
RHR PUMP MINIMUM FLOW BYPASS (DIV. 1)







CONTACTS		BLOCK	SYMB	POSITION		
FRONT	BACK			CLOSE	AUTO	OPEN
		1	C	X		
			O			X
		2	C	X		
			O			X

G.E. CR2940 SWITCH
SPRING RETURN TO 'AUTO' POS.
X-DENOTES CLOSE CONTACT

CONTROL SWITCH DEVELOPMENT
5011, 5012A, 5016A @ MCB PNL. IHI3-P601
5012A-1 @ PNL IPL67JA

SWITCH NUMBER	CONTACT NUMBER	USED ON
5012A	7 - 8	PG. RH01

BLOCK	CONTACTS	SYMB	VALVE POSITION		
			FULL CLOSE	INTER MEDIATE	FULL OPEN
1	1O — 1C	O			X
	2O — 2C	O			X
	3O — 3C	IC	X	X	
	4O — 4C	IC	X	X	
2	5O — 5C	C	X		
	6O — 6C	C	X		
	7O — 7C	IO		X	X
	8O — 8C	IO		X	X
3	9O — 9C	O			X
	10O — 10C	O			X
	11O — 11C	IC	X	X	
	12O — 12C	IC	X	X	
4	13O — 13C	C	X		
	14O — 14C	C	X		
	15O — 15C	IO		X	X
	16O — 16C	IO		X	X
TSC	CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE				
TSO	OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE				

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVE 1E12-F021, F024A, F064A
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

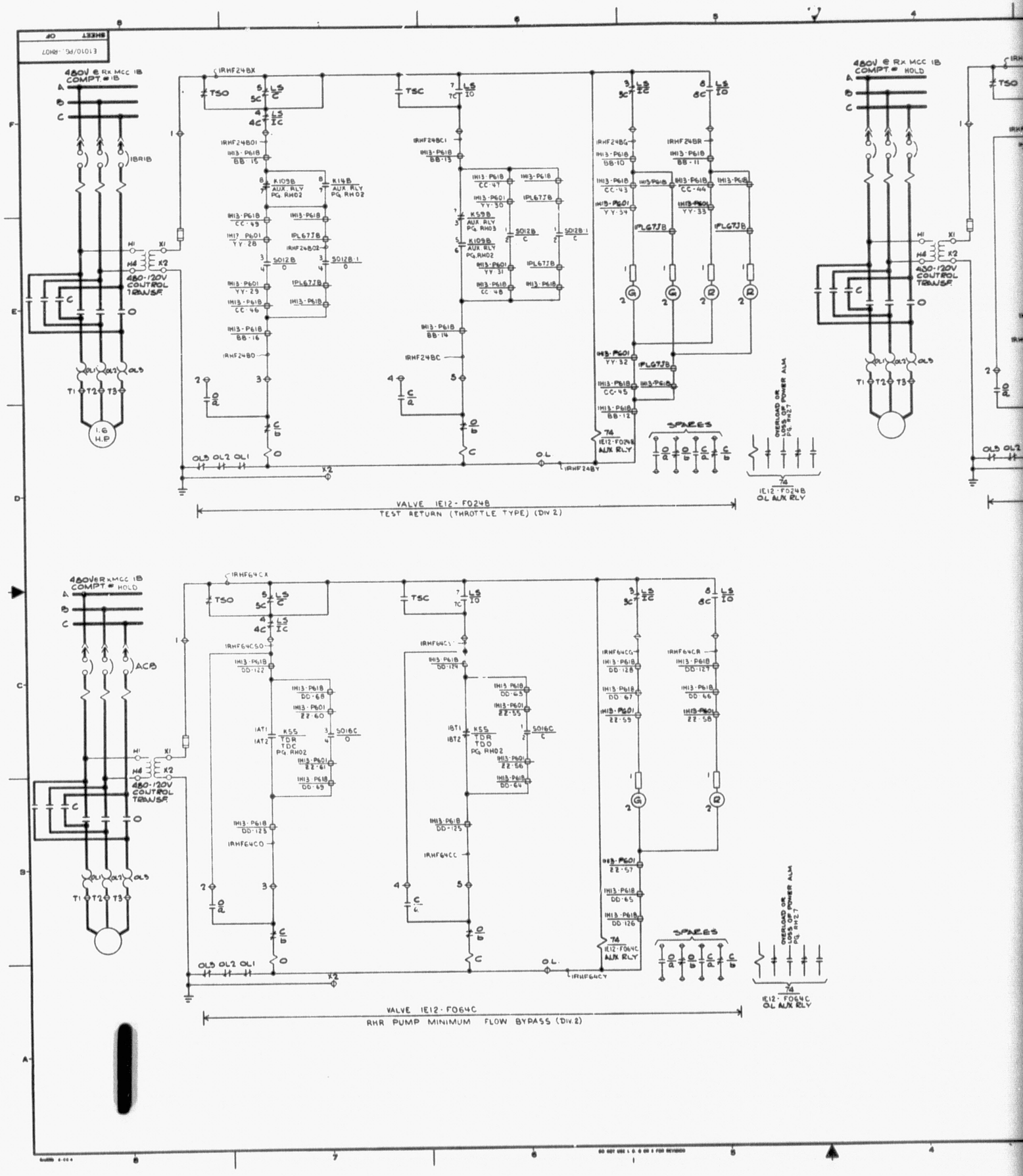
VALVE NUMBER	LS NUMBER	USED ON
1E12-F064A	9 - 9C	PG. RH28
1E12-F024A	6 - 6C	PG. RH16

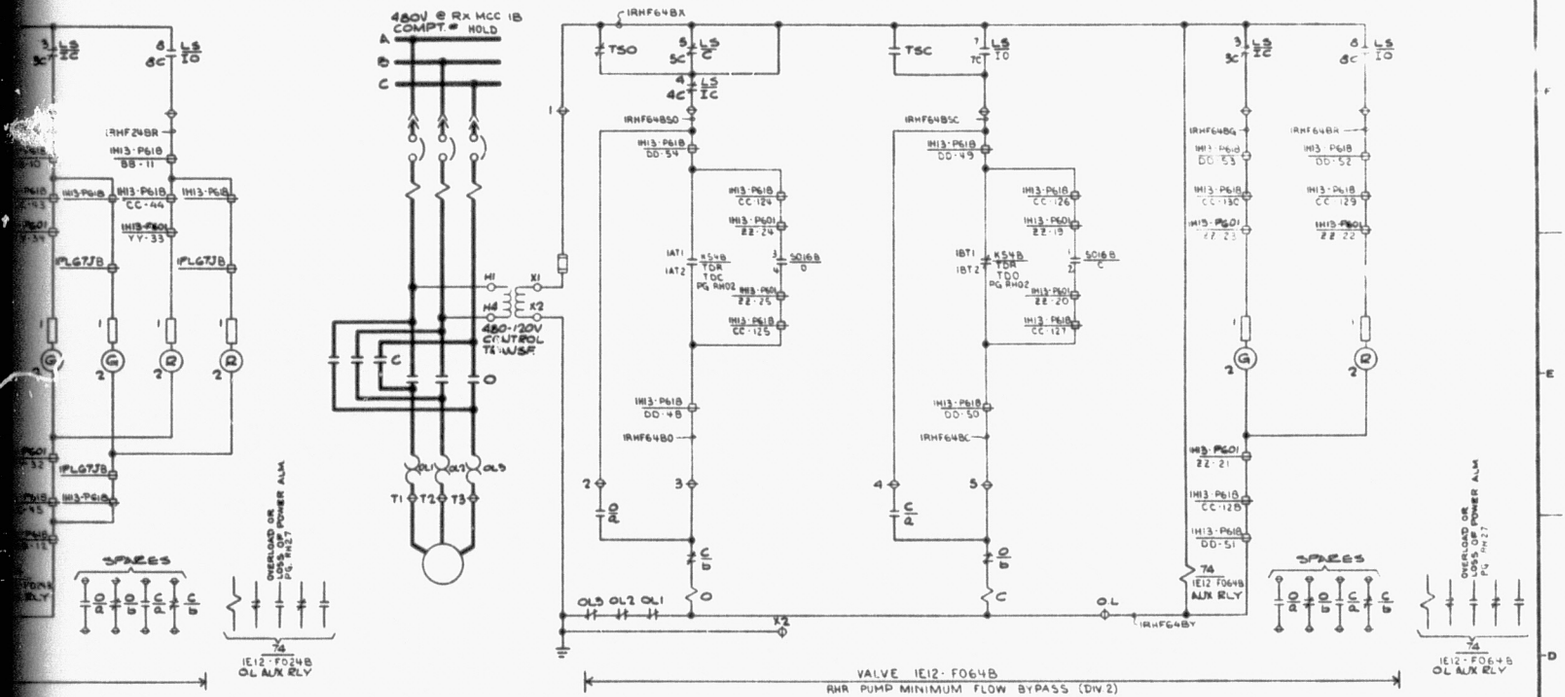
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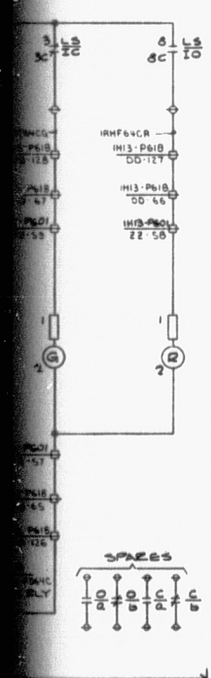
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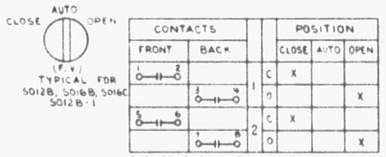
FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 6 of 29)


480V @ Rx MCC 1B COMPT # 1B
480V @ Rx MCC 1B COMPT # HOLD
480V @ Rx MCC 1B COMPT # HOLD
480-120V CONTROL TRANS'FR
1.G H.P
ACB
1BA1B
IRHF24BX
IRHF24B01
IRHF24B02
IRHF24B0
IRHF24BC1
IRHF24BC
IRHF24BG
IRHF24BR
IRHF24BY
IRHF64CX
IRHF64C50
IRHF64CO
IRHF64C1
IRHF64CC
IRHF64CG
IRHF64CR
IRHF64CY
TSO
TSC
LS 5C
LS 4C
LS 7C
LS 8C
LS 1C
LS 10
K109B AUX RLY PG. RH02
K14B AUX RLY PG. RH02
K59B AUX RLY PG. RH03
K55 TDR TDC PG. RH02
K55 TDR TDO PG. RH02
5012B
5012B.1
5016C
IPL67JB
IE12-F024B AUX RLY
IE12-F064C AUX RLY
SPARES
OVERLOAD OR LOSS OF POWER ALM PG. RH27
74
IE12-F024B OL AUX RLY
IE12-F064C OL AUX RLY
VALVE IE12-F024B
TEST RETURN (THROTTLE TYPE) (DIV 2)
VALVE IE12-F064C
RHR PUMP MINIMUM FLOW BYPASS (DIV.2)
SHEET OF
E1010/PG. RH07







CONTACTS			POSITION		
FRONT	BACK		CLOSE	AUTO	OPEN
1 2		1 C	X		
	3 4	1 O			X
5 6		2 C	X		
	7 8	2 O			X

G.E. CR2940 SWITCH
SPRING RETURN TO AUTO
X- DENOTES CONTACT CLOSED

CONTROL SWITCH DEVELOPMENT
SO12B, SO16B, SO16C @ MCB PNL IH13-P601
SO12B-1 @ PNL IPL6TJB

SWITCH NUMBER	CONTACT NUMBER	USED ON
SO12B	7-8	PG RH03

SECTION	CONTACTS		VALVE POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1O—1—01C	O			X
	2O—1—02C	O			X
	3O—1—03C	IC	X	X	
	4O—1—04C	IC	X	X	
2	5O—1—05C	C	X		
	6O—1—06C	C	X		
	7O—1—07C	IO		X	X
	8O—1—08C	IO		X	X
3	9O—1—09C	O			X
	10O—1—010C	O			X
	11O—1—011C	IC	X	X	
	12O—1—012C	IC	X	X	
4	13O—1—013C	C	X		
	14O—1—014C	C	X		
	15O—1—015C	IO		X	X
	16O—1—016C	IO		X	X
TSC		CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE			
TSO		OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE			

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVE IE12-F024B, IE12-F064B, IE12-F064C
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

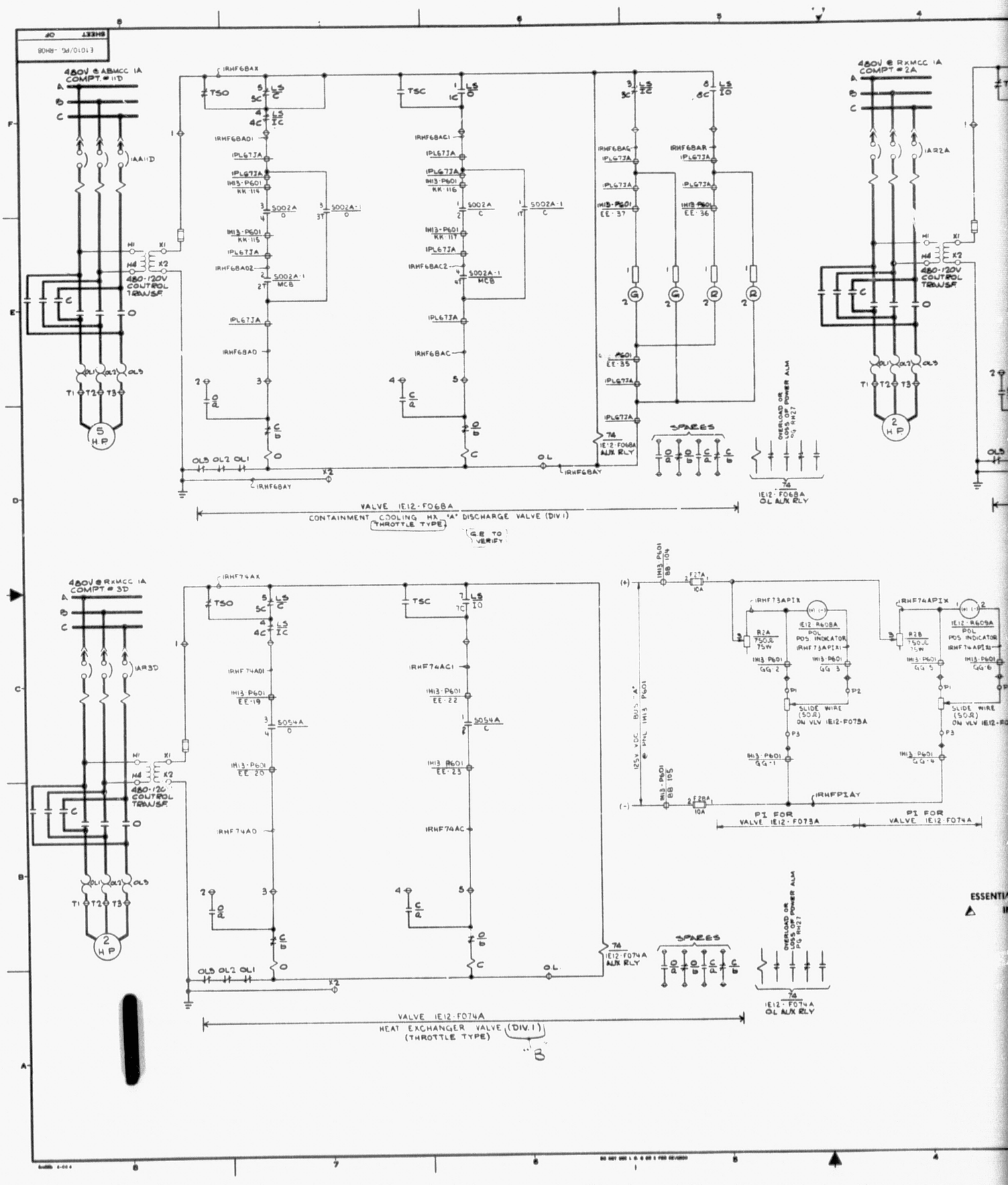
VALVE #	LS #	USED ON
IE12-F064B	9-9C	PG RH28
IE12-F024B	6-6C	PG RH17

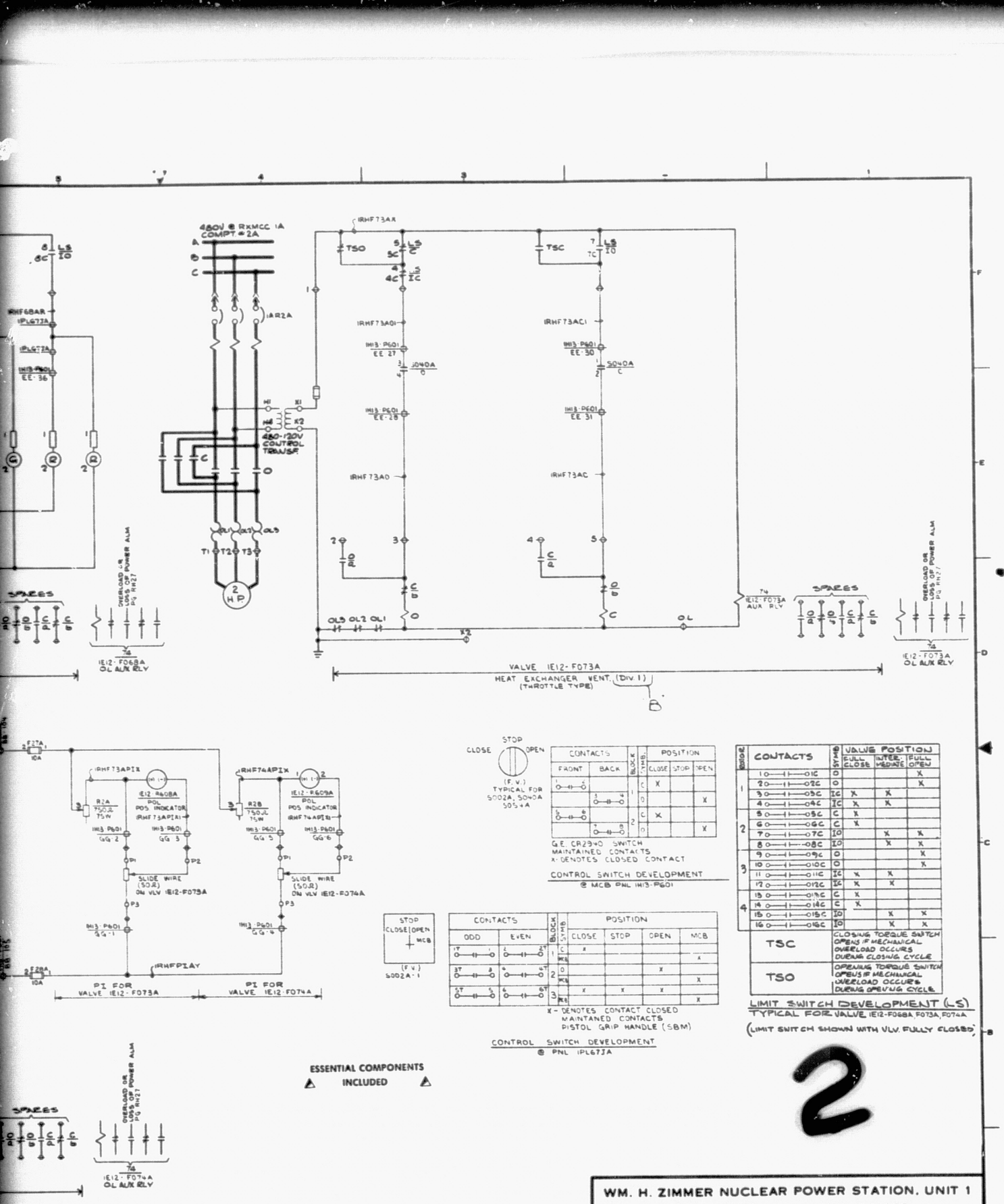
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FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 7 of 29)


480V @ ABMCC 1A COMPT # 11D
1AA11D
480-120V CONTROL TRANSF.
5 H.P
480V @ RXMCC 1A COMPT # 2A
1AR2A
2 H.P
IRHF68AX
IRHF68AD1
IRHF68AG1
IRHF68AQ
IRHF68AR
IRHF68AD2
IRHF68AO
IRHF68AC
IRHF68AY
IPL67JA
IH13-P601 KK-114
IH13-P601 KK-115
IH13-P601 KK-116
IH13-P601 KK-117
IH13-P601 EE-37
IH13-P601 EE-36
IH13-P601 EE-35
TSO
TSC
LS 5C
LS 4C
LS 1C
LS 8C
LS 10
S002A
S002A-1
MCB
74 IE12-F068A AUX RLY
OL3 OL2 OL1
SPARES
OVERLOAD OR LOSS OF POWER ALM PG RH27
74 IE12-F068A OL AUX RLY
VALVE IE12-F068A
CONTAINMENT COOLING HX "A" DISCHARGE VALVE (DIV I)
(THROTTLE TYPE)
GE TO VERIFY
480V @ RXMCC 1A COMPT # 3D
1AR3D
2 H.P
IRHF74AX
IRHF74AD1
IRHF74AG1
IRHF74AO
IRHF74AC
IRHF74AY
IH13-P601 EE-19
IH13-P601 EE-20
IH13-P601 EE-22
IH13-P601 EE-23
S054A
74 IE12-F074A AUX RLY
74 IE12-F074A OL AUX RLY
VALVE IE12-F074A
HEAT EXCHANGER VALVE (DIV I)
(THROTTLE TYPE)
IH13-P601 BB-104
IH13-P601 BB-105
125V VDC BUS "A" VIA IH13-P601
F27A 10A
F28A 10A
IRHF73APIX
IRHF74APIX
IE12-R608A POS. INDICATOR IRHF73APIX
IE12-R609A POS. INDICATOR IRHF74APIX
R2A 750Ω 75W
R2B 750Ω 75W
IH13-P601 GG-2
IH13-P601 GG-3
IH13-P601 GG-5
IH13-P601 GG-6
IH13-P601 GG-1
IH13-P601 GG-4
SLIDE WIRE (50Ω) ON VLV IE12-F073A
SLIDE WIRE (50Ω) ON VLV IE12-F074A
IRHFPIAY
PI FOR VALVE IE12-F073A
PI FOR VALVE IE12-F074A
ESSENTIAL



STOP CLOSE OPEN

(F.V.) TYPICAL FOR 5002A, 5040A 5054A

CONTACTS FRONT	CONTACTS BACK	BLOCK SYMB	POSITION CLOSE	POSITION STOP	POSITION OPEN
1 — C		C	X		
	3 — 4	1	0		X
6 — B		C	X		
	7 — 8	2	0		X

G.E. CR2940 SWITCH
MAINTAINED CONTACTS
X-DENOTES CLOSED CONTACT

CONTROL SWITCH DEVELOPMENT
@ MCB PNL IHI3-P601

CONTACTS ODD	CONTACTS EVEN	BLOCK SYMB	POSITION CLOSE	POSITION STOP	POSITION OPEN	POSITION MCB
17 — 1	2 — 23	1 C	X			
		MCB				X
37 — 8	4 — 47	2 O			X	
		MCB				X
57 — 5	6 — 67	3 C	X	X		
		MCB				X

STOP CLOSE OPEN MCB

(F.V.) 5002A-1

X - DENOTES CONTACT CLOSED
MAINTAINED CONTACTS
PISTOL GRIP HANDLE (SBM)

CONTROL SWITCH DEVELOPMENT
@ PNL IPL67JA

NOTE	CONTACTS	SYMB	VALVE POSITION FULL CLOSE	INTERMEDIATE	FULL OPEN
	1 — 1C	O			X
	2 — 2C	O			X
1	3 — 3C	IC	X	X	
	4 — 4C	IC	X	X	
	5 — 5C	C	X		
2	6 — 6C	C	X		
	7 — 7C	IO		X	X
	8 — 8C	IO		X	X
	9 — 9C	O			X
	10 — 10C	O			X
3	11 — 11C	IC	X	X	
	12 — 12C	IC	X	X	
	13 — 13C	C	X		
4	14 — 14C	C	X		
	15 — 15C	IO		X	X
	16 — 16C	IO		X	X
	TSC		CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
	TSO		OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVE IE12-F068A, F073A, F074A
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

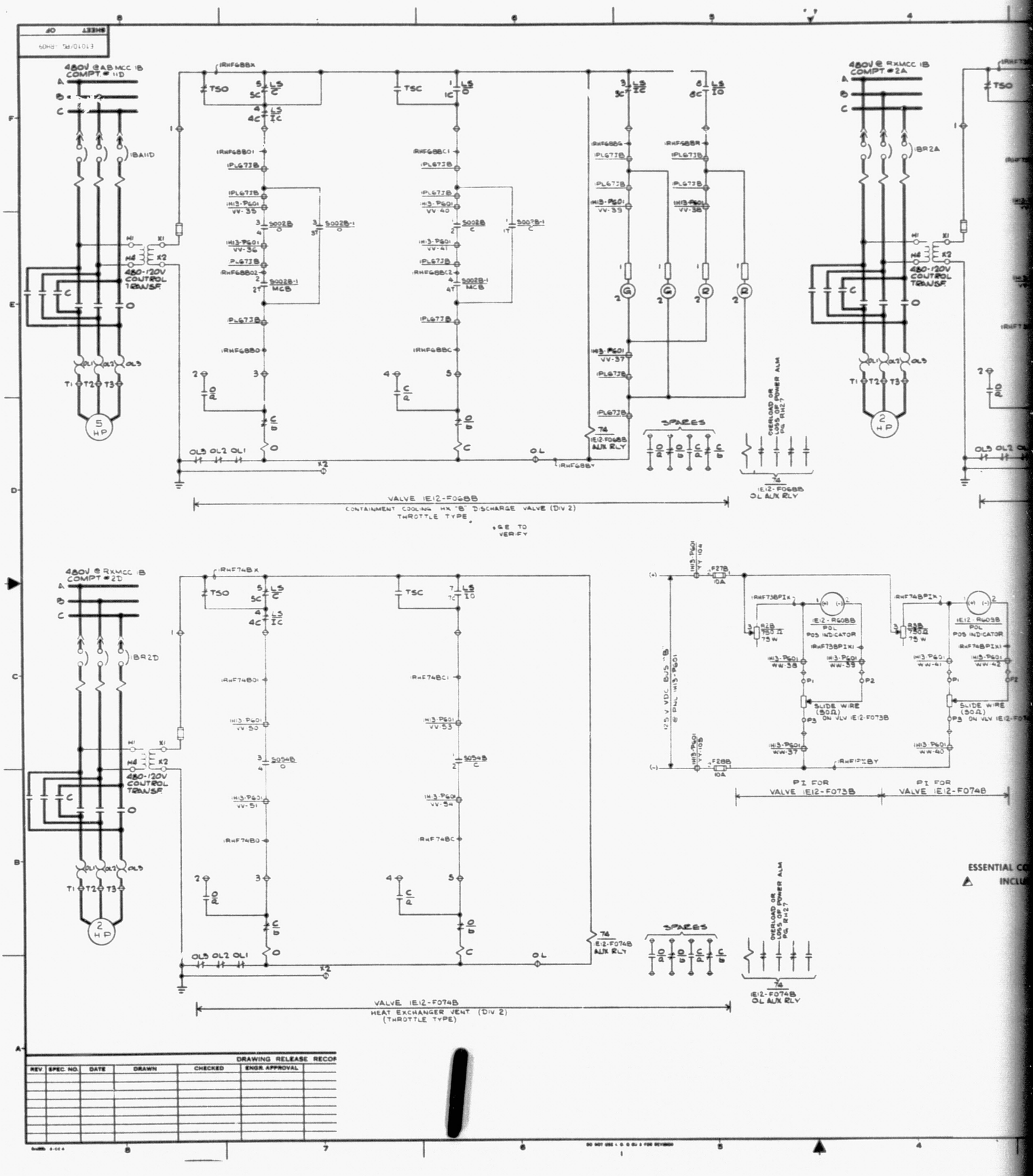
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

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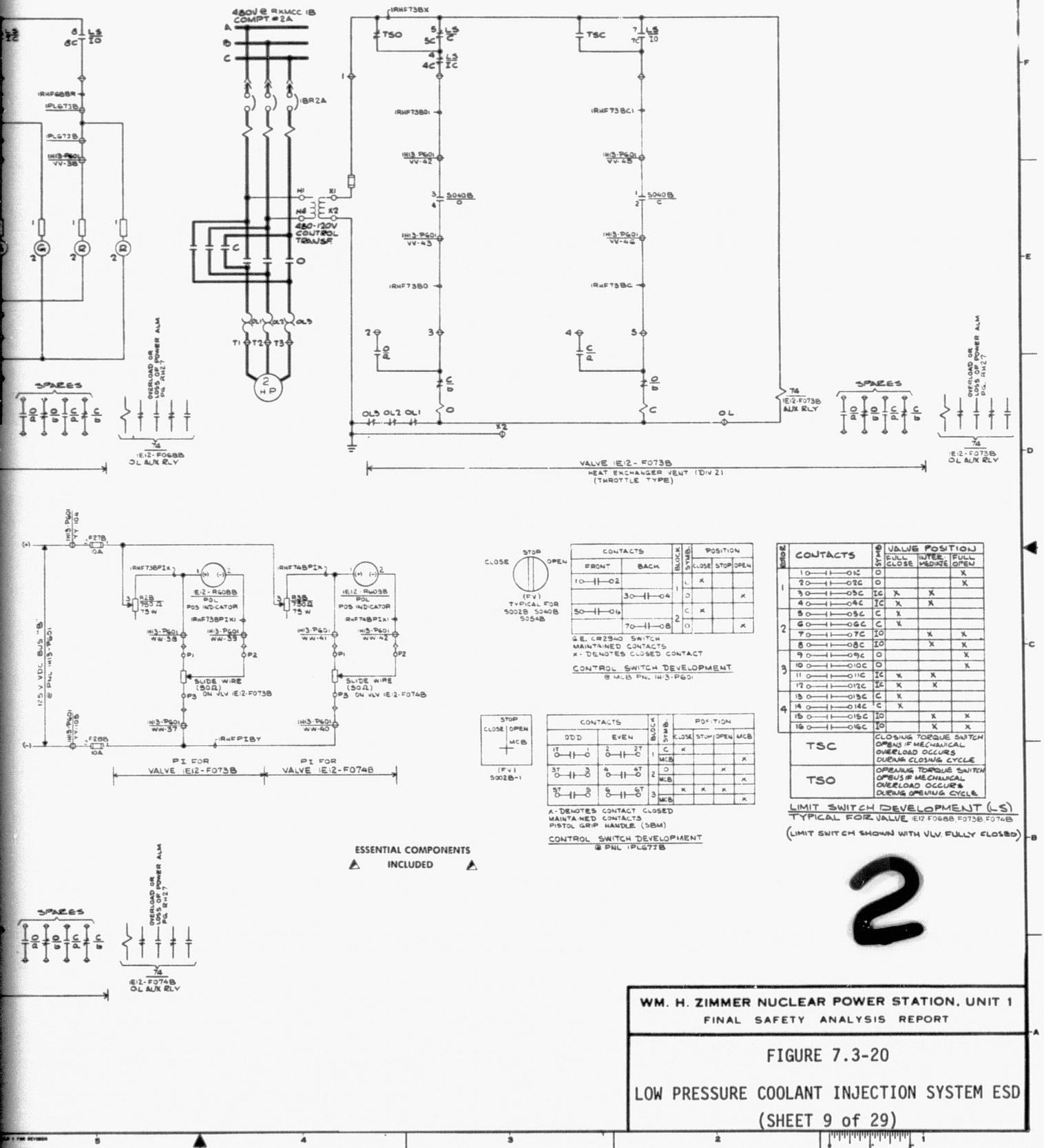
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 8 of 29)



REV.	SPEC. NO.	DATE	DRAWN	CHECKED	ENGR APPROVAL	



CONTACTS		BLOCK	SYMB.	POSITION		
FRONT	BACK			CLOSE	STOP	OPEN
10 — 02		1	L	X		
	30 — 04		O			X
50 — 06		2	C	X		
	70 — 08		O			X

(FV) TYPICAL FOR 5002B, 5040B, 5054B

G.E. CR2940 SWITCH
MAINTAINED CONTACTS
X - DENOTES CLOSED CONTACT

CONTROL SWITCH DEVELOPMENT @ MCB PNL 1H13-P601

CONTACTS		BLOCK	SYMB.	POSITION			
ODD	EVEN			CLOSE	STOP	OPEN	MCB
1T — 1	2 — 2T	1	C	X			
			MCB				X
3T — 3	4 — 4T	2	O			X	
			MCB				X
5T — 5	6 — 6T	3		X	X	X	
			MCB				X

(FV) 5002B-1

X - DENOTES CONTACT CLOSED
MAINTAINED CONTACTS
PISTOL GRIP HANDLE (SBM)

CONTROL SWITCH DEVELOPMENT @ PNL 1PL677B

EDGE	CONTACTS	SYMB	VALVE POSITION		
			FULL CLOSE	INTER MEDIATE	FULL OPEN
1	10 — 01C	O			X
	20 — 02C	O			X
	30 — 03C	IC	X	X	
	40 — 04C	IC	X	X	
2	50 — 05C	C	X		
	60 — 06C	C	X		
	70 — 07C	IO		X	X
	80 — 08C	IO		X	X
3	90 — 09C	O			X
	100 — 010C	O			X
	110 — 011C	IC	X	X	
	120 — 012C	IC	X	X	
4	130 — 013C	C	X		
	140 — 014C	C	X		
	150 — 015C	IO		X	X
	160 — 016C	IO		X	X
TSC	CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE				
TSO	OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE				

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVE 1E12-F068B, F073B, F074B
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

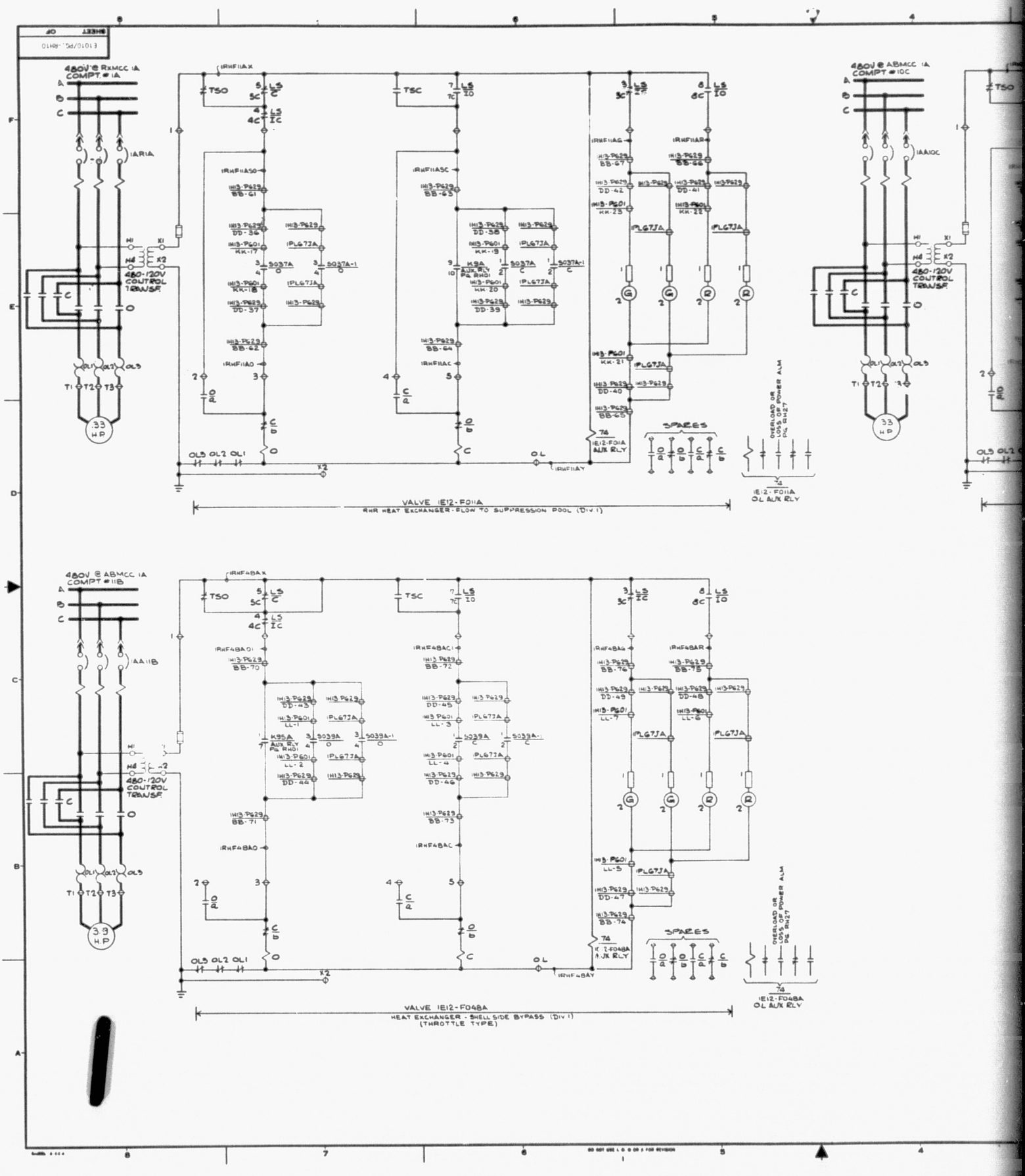
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▲ INCLUDED ▲

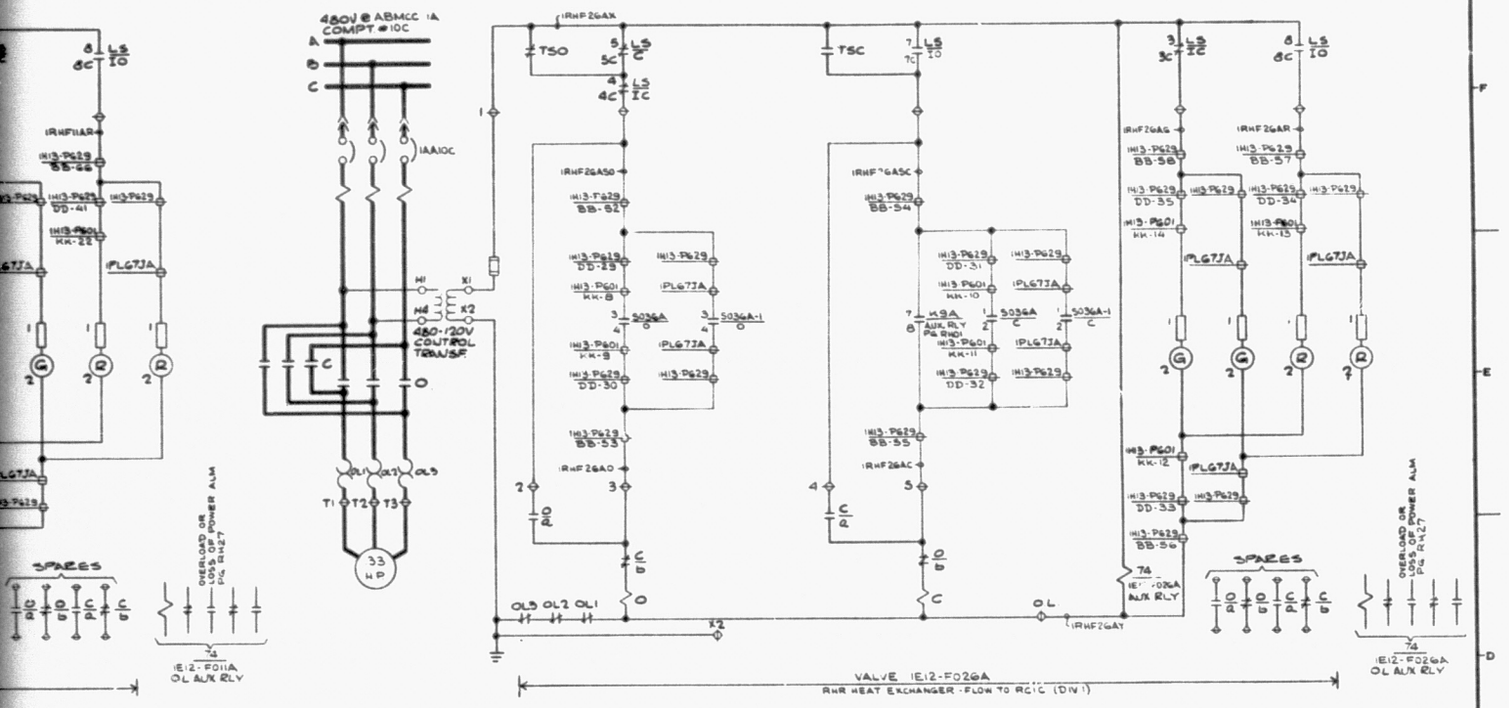
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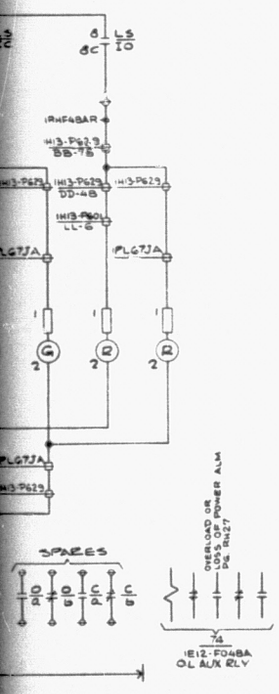
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

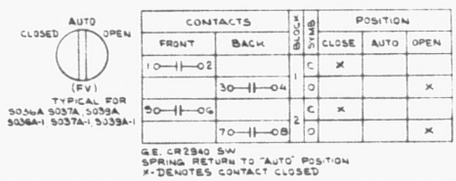
FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 9 of 29)


480V @ RXMCC 1A COMPT # 1A
480V @ ABMCC 1A COMPT # 10C
480V @ ABMCC 1A COMPT # 11B
480-120V CONTROL TRANSF
33 H.P
TSO
TSC
SPARES
OVERLOAD OR LOSS OF POWER ALM
VALVE 1E12-F011A
RHR HEAT EXCHANGER - FLOW TO SUPPRESSION POOL (DIV I)
1E12-F011A OL AUX RLY
VALVE 1E12-F048A
HEAT EXCHANGER - SHELL SIDE BYPASS (DIV I) (THROTTLE TYPE)
1E12-F048A OL AUX RLY







CONTACTS		BLOCK SYMB	POSITION		
FRONT	BACK		CLOSE	AUTO	OPEN
10 — 02		C	X		
	30 — 04	O			X
50 — 06		C	X		
	70 — 08	O			X

GE CR2940 SW
SPRING RETURN TO "AUTO" POSITION
X-DENOTES CONTACT CLOSED

CONTROL SWITCH DEVELOPMENT
SO36A, SO37A, SO39A @ MCB PNL 1H13-P601
SO36A-1, SO37A-1, SO39A-1 @ PNL 1PLG7JA

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

Rotor	CONTACTS	SYMB	VALVE POSITION		
			FULL CLOSE	INTERMEDIATE	FULL OPEN
1	10 — 01C	O			X
	20 — 02C	O			X
	30 — 03C	IC	X	X	
	40 — 04C	IC	X	X	
2	50 — 05C	C	X		
	60 — 06C	C	X		
	70 — 07C	IO		X	X
	80 — 08C	IO		X	X
3	90 — 09C	O			X
	100 — 010C	O			X
	110 — 011C	IC	X	X	
	120 — 012C	IC	X	X	
4	130 — 013C	C	X		
	140 — 014C	C	X		
	150 — 015C	IO		X	X
	160 — 016C	IO		X	X
TSC			CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
TSO			OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

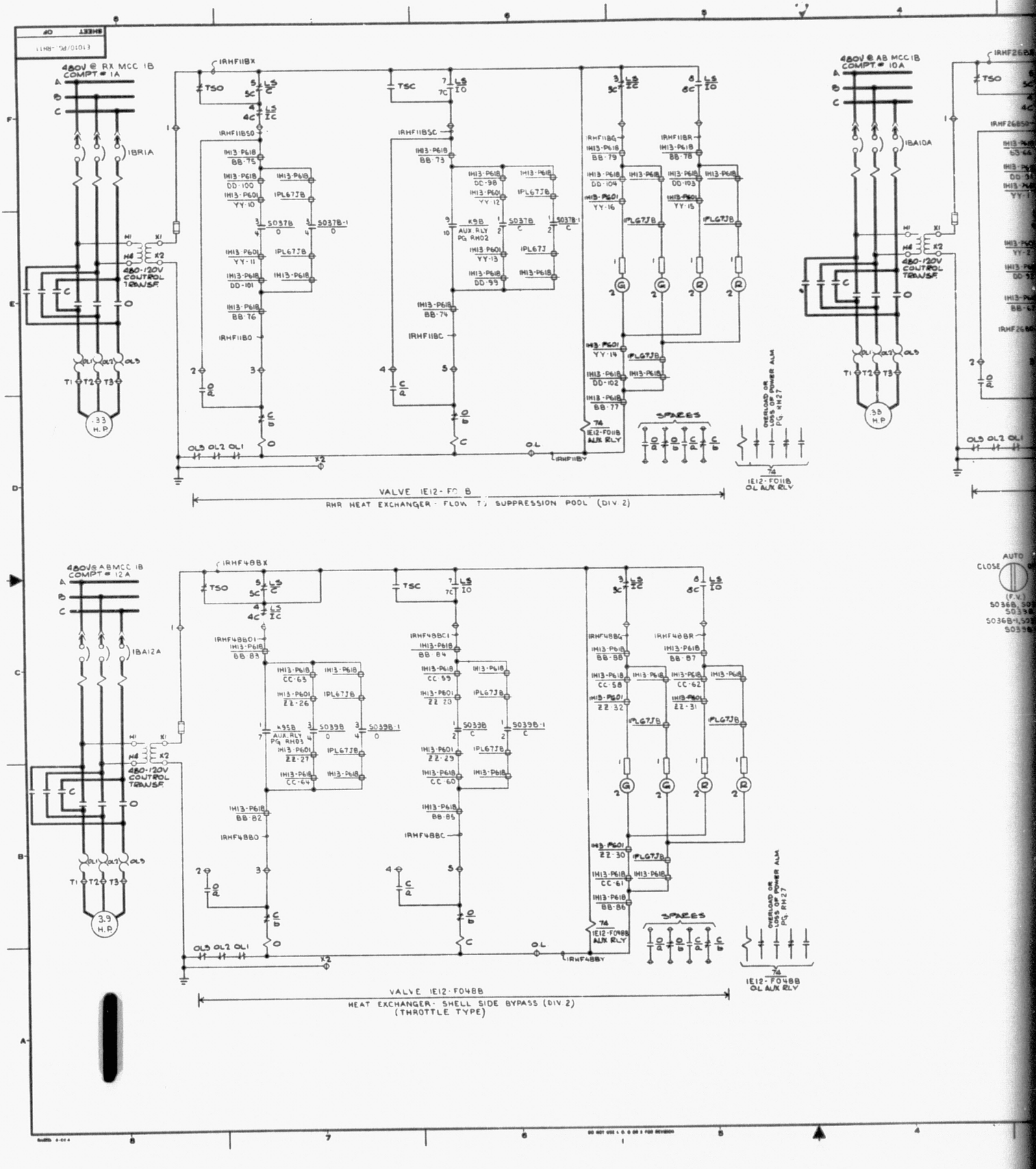
LIMIT SWITCH DEVELOPMENT (L-S)
TYPICAL FOR VALVE 1E12-F011A F026A F048A
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

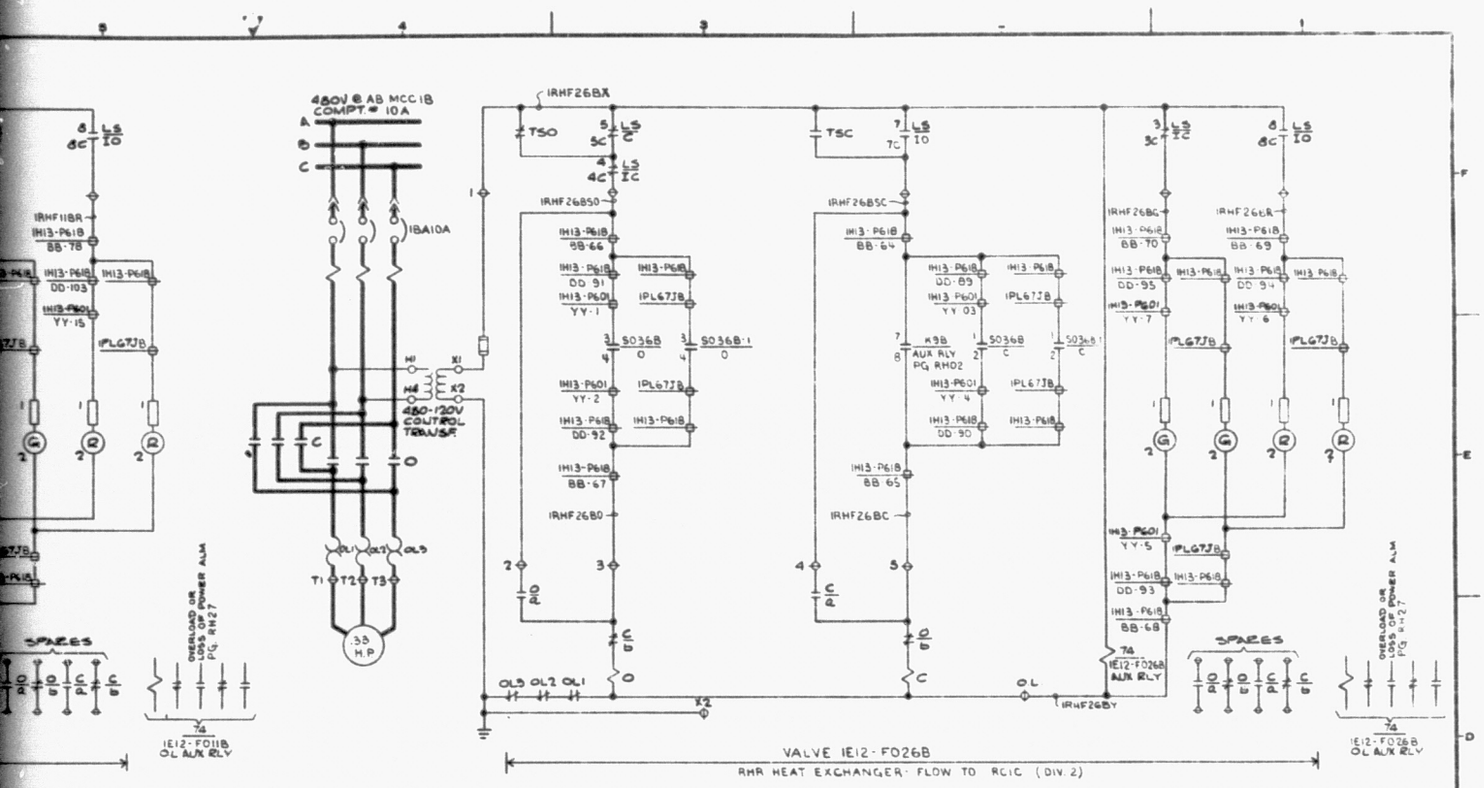
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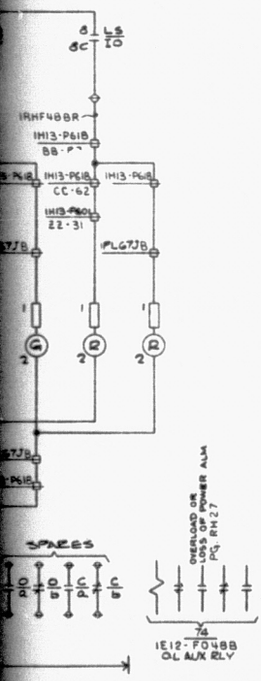
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 10 of 29)


480V @ RX MCC 1B
COMPT # 1A
1BR1A
480-120V CONTROL TRANSF.
.33 H.P.
1RHF11BX
1RHF11BS0
1RHF11BS0
1RHF11BC
1RHF11BQ
1RHF11BR
1RHF11BY
VALVE 1E12-F0 B
RHR HEAT EXCHANGER - FLOW TO SUPPRESSION POOL (DIV 2)
480V @ AB MCC 1B
COMPT # 10A
1BA10A
480-120V CONTROL TRANSF.
.33 H.P.
SPARES
OVERLOAD OR LOSS OF POWER ALM PG RH27
1E12-F011B OL AUX RLY
480V@AB MCC 1B
COMPT # 12A
1BA12A
480-120V CONTROL TRANSF.
3.9 H.P.
1RHF48BX
1RHF48B0
1RHF48BC
1RHF48BY
VALVE 1E12-F048B
HEAT EXCHANGER - SHELL SIDE BYPASS (DIV 2)
(THROTTLE TYPE)
1E12-F048B OL AUX RLY
AUTO
CLOSE





AUTO
CLOSE OPEN
(F.V.)
5036B, 5037B
5039B
5036B-1, 5037B-1
5039B-1

CONTACTS		BLOCK	SYMB.	POSITION		
FRONT	BACK			CLOSE	AUTO	OPEN
1 2		1	C	X		
	3 4		O			X
5 6		2	C	X		
	7 8		O			X

G.E. CR2940 SW.
SPRING RETURN TO "AUTO" POSITION
X - DENOTES CONTACT CLOSED

CONTROL SWITCH DEVELOPMENT

5036B, 5037B, 5039B @ MCB PNL 1H13-P601
5036B-1, 5037-1, 5039B-1@ PNL 1PL67JB

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

BLOCK	CONTACTS	SYMB	VALVE POSITION: FULL CLOSE	INTERMEDIATE	FULL OPEN
1	1 O—O 1C	O			X
	2 O—O 2C	O			X
	3 O—O 3C	IC	X	X	
	4 O—O 4C	IC	X	X	
2	5 O—O 5C	C	X		
	6 O—O 6C	C	X		
	7 O—O 7C	IO		X	X
	8 O—O 8C	IO		X	X
3	9 O—O 9C	O			X
	10 O—O 10C	O			X
	11 O—O 11C	IC	X	X	
	12 O—O 12C	IC	X	X	
4	13 O—O 13C	C	X		
	14 O—O 14C	C	X		
	15 O—O 15C	IO		X	X
	16 O—O 16C	IO		X	X
TSC			CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
TSO			OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

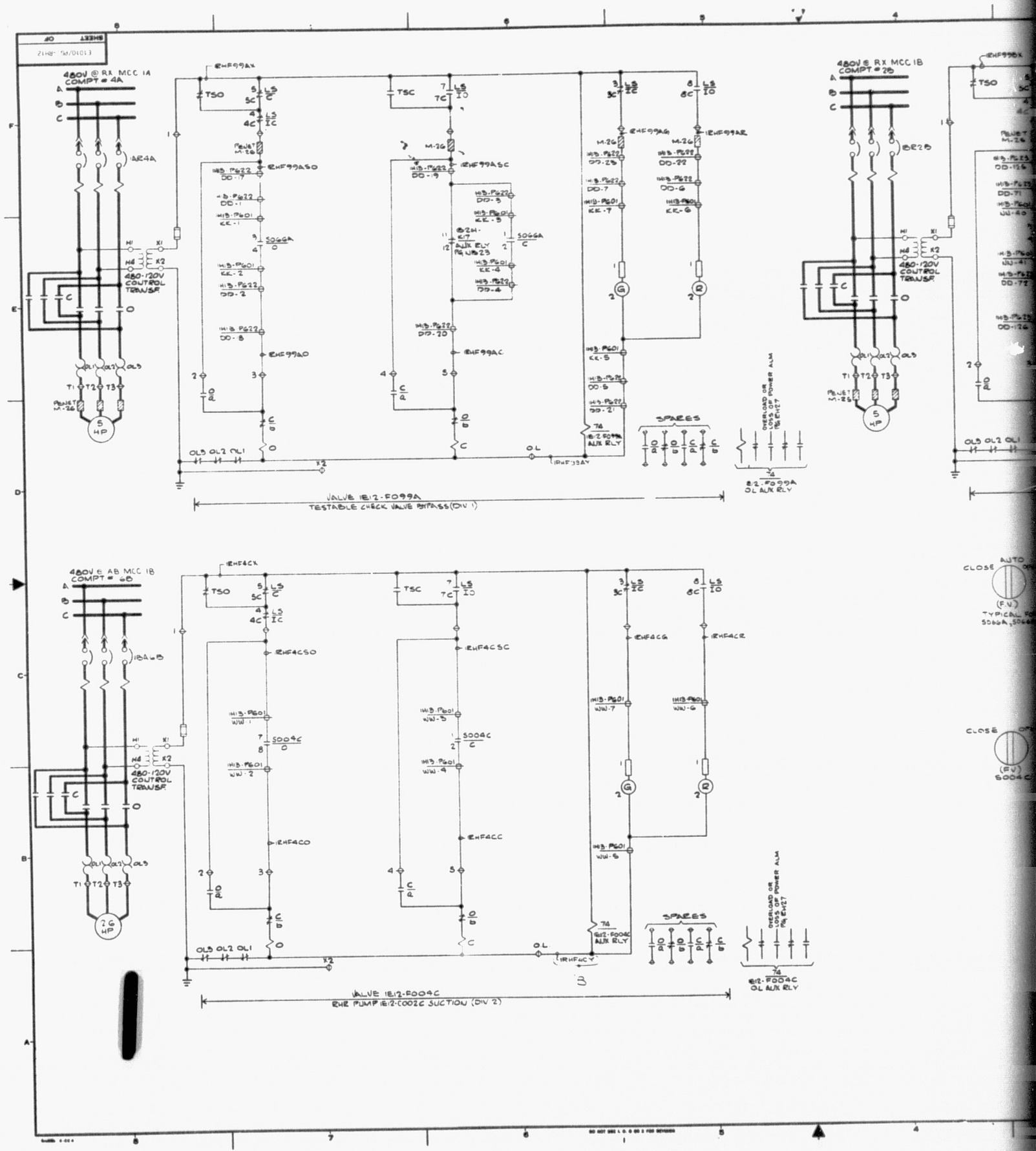
LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVE, IE12-F011B, F026B, F048B
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

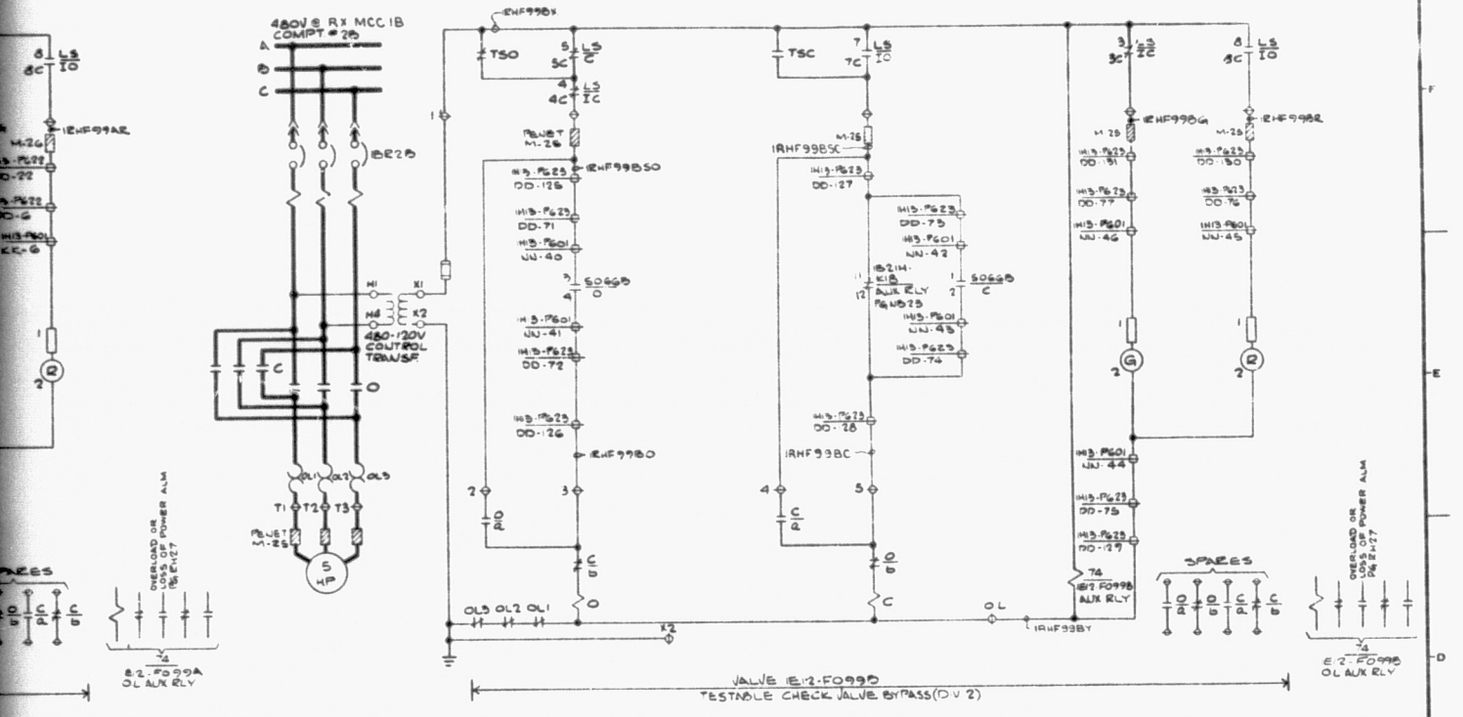
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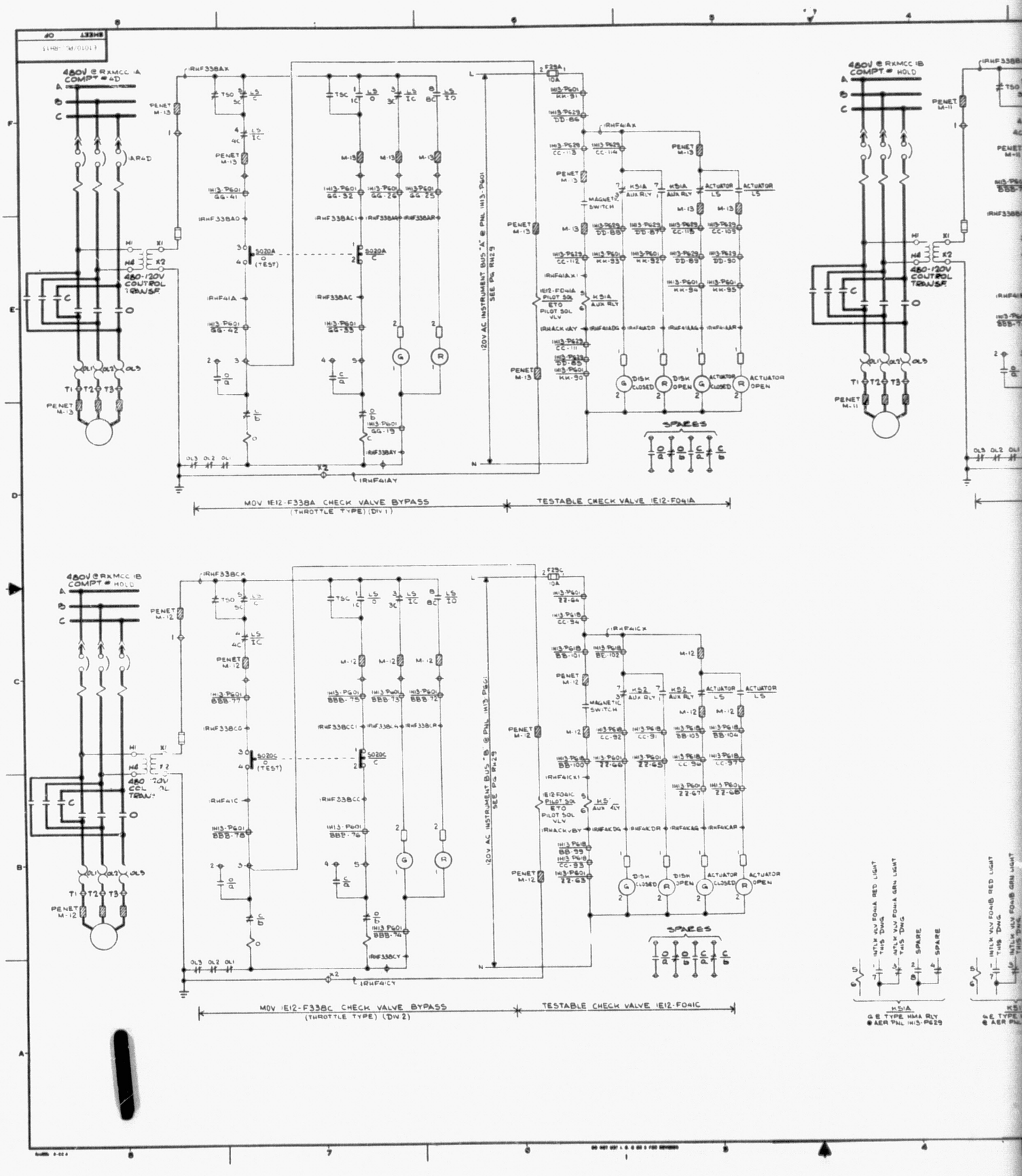
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FINAL SAFETY ANALYSIS REPORT

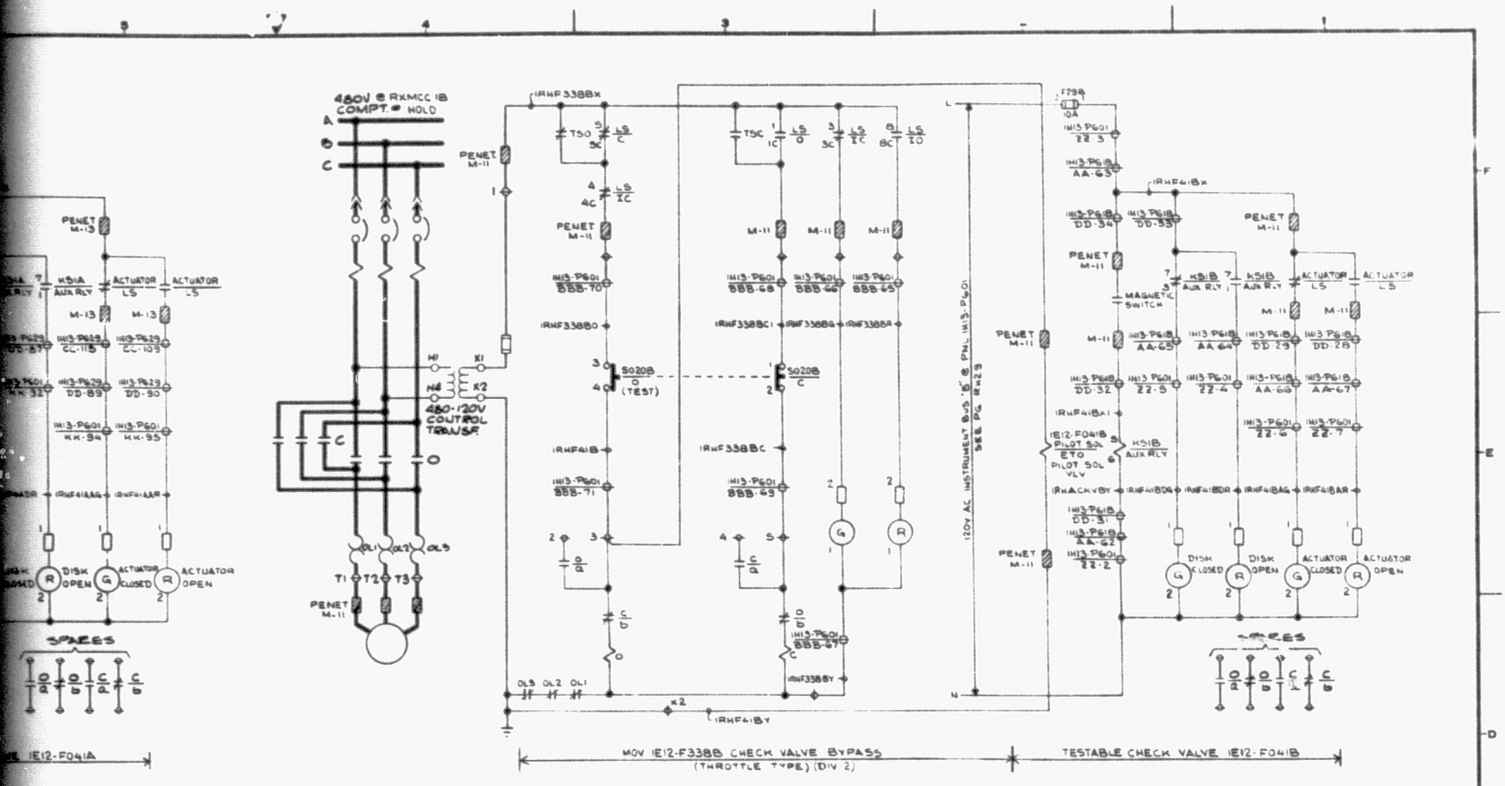
FIGURE 7.3-20

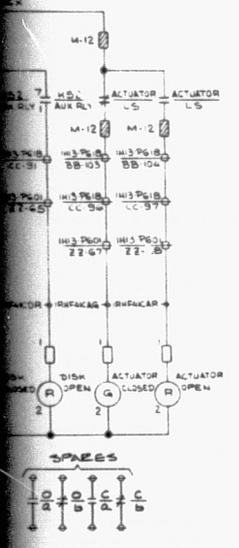
LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 11 of 29)

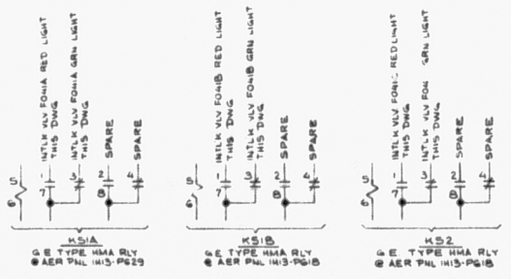

480V @ RX MCC 1A COMPT # 4A
480V @ RX MCC 1B COMPT # 2B
480V @ AB MCC 1B COMPT # 6B
480-120V CONTROL TRANSF
VALVE 1E12-F099A
TESTABLE CHECK VALVE BYPASS (DIV 1)
VALVE 1E12-F004C
RHR PUMP 1E12-C002C SUCTION (DIV 2)
SPARES
OVERLOAD OR LOSS OF POWER ALM
1E12-F099A OL AUX RLY
1E12-F004C OL AUX RLY
TYPICAL FOR SD66A, SD66B
AUTO
CLOSE
(FV) SD66C


480V @ RX MCC 1B
COMPT # 2B
1RHF998A
1RHF998B
1RHF998C
1RHF998D
1RHF998G
1RHF998R
TSO
TSC
LS
IC
IO
2C
3C
5C
7C
8C
10
M-26
M-25
1BUET
1B21H-K18
AUX RLY
1B2114
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480V @ RXMCC 1A COMPT # 4D
480V @ RXMCC 1B COMPT # HOLD
480-120V CONTROL TRANSF
MOV 1E12-F338A CHECK VALVE BYPASS (THROTTLE TYPE) (DIV 1)
TESTABLE CHECK VALVE 1E12-F041A
MOV 1E12-F338C CHECK VALVE BYPASS (THROTTLE TYPE) (DIV 2)
TESTABLE CHECK VALVE 1E12-F041C
120V AC INSTRUMENT BUS "A" @ PNL 1H13-P601 SEE PID RH29
120V AC INSTRUMENT BUS "C" @ PNL 1H13-P601 SEE PID RH29
DISK CLOSED
DISK OPEN
ACTUATOR CLOSED
ACTUATOR OPEN
SPARES
MAGNETIC SWITCH
K51A AUX RLY
K52 AUX RLY
K5 AUX RLY
PENET M-13
PENET M-12
PENET M-11
1E12-F041A PILOT SOL VLV
1E12-F041C PILOT SOL VLV
K51A GE TYPE HMA RLY @ AER PNL 1H13-P629
K51B GE TYPE HMA RLY @ AER PNL 1H13-P629







ESSENTIAL COMPONENTS ▲ INCLUDED ▲

ZONE	CONTACTS	SYMB	VALVE POSITION: FULL CLOSE	INTERMEDIATE	FULL OPEN
1	1O—1—01C	O			X
	2O—1—02C	O			X
	3O—1—03C	IC	X	X	
	4O—1—04C	IC	X	X	
2	5O—1—05C	C	X		
	6O—1—06C	C	X		
	7O—1—07C	IO		X	X
	8O—1—08C	IO		X	X
3	9O—1—09C	O			X
	10O—1—010C	O			X
	11O—1—011C	IC	X	X	
	12O—1—012C	IC	X	X	
4	13O—1—013C	C	X		
	14O—1—014C	C	X		
	15O—1—015C	IO		X	X
	16O—1—016C	IO		X	X

TSC	CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE
TSO	OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE

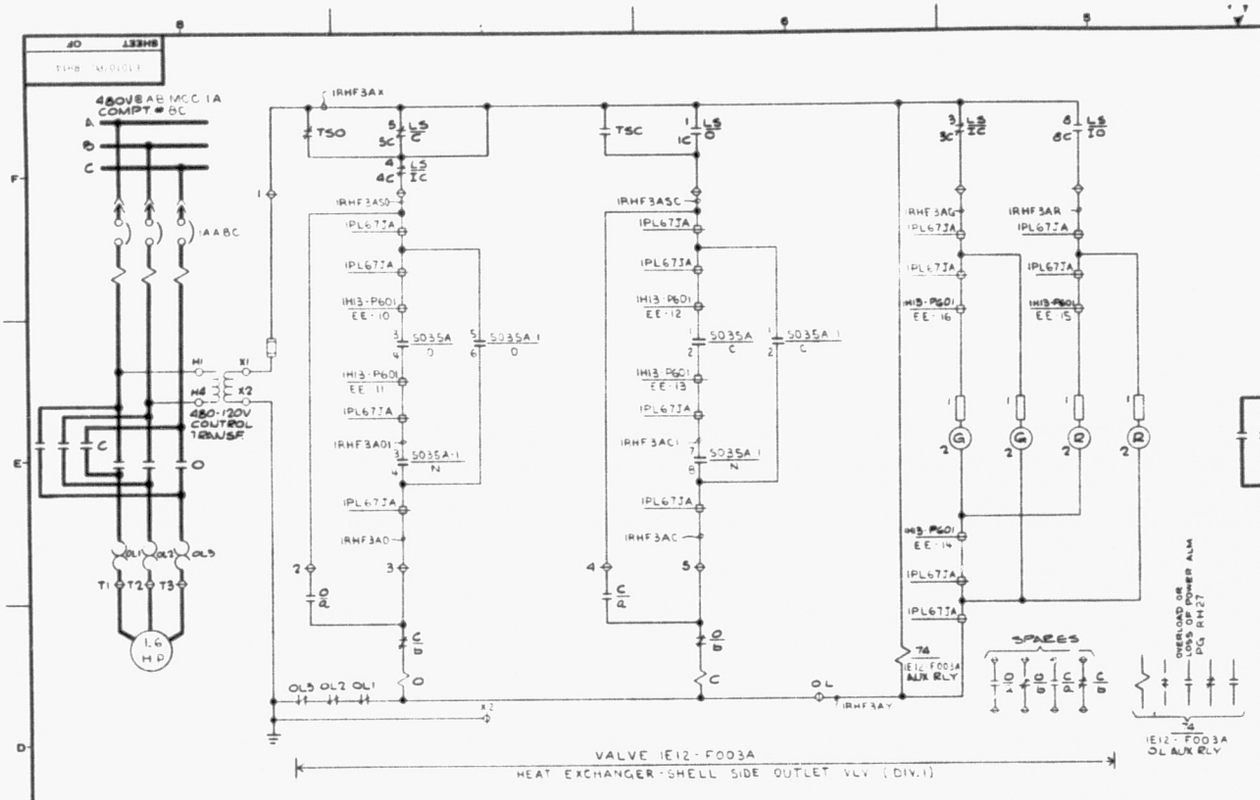
LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVE IE12-F338A,B,C
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

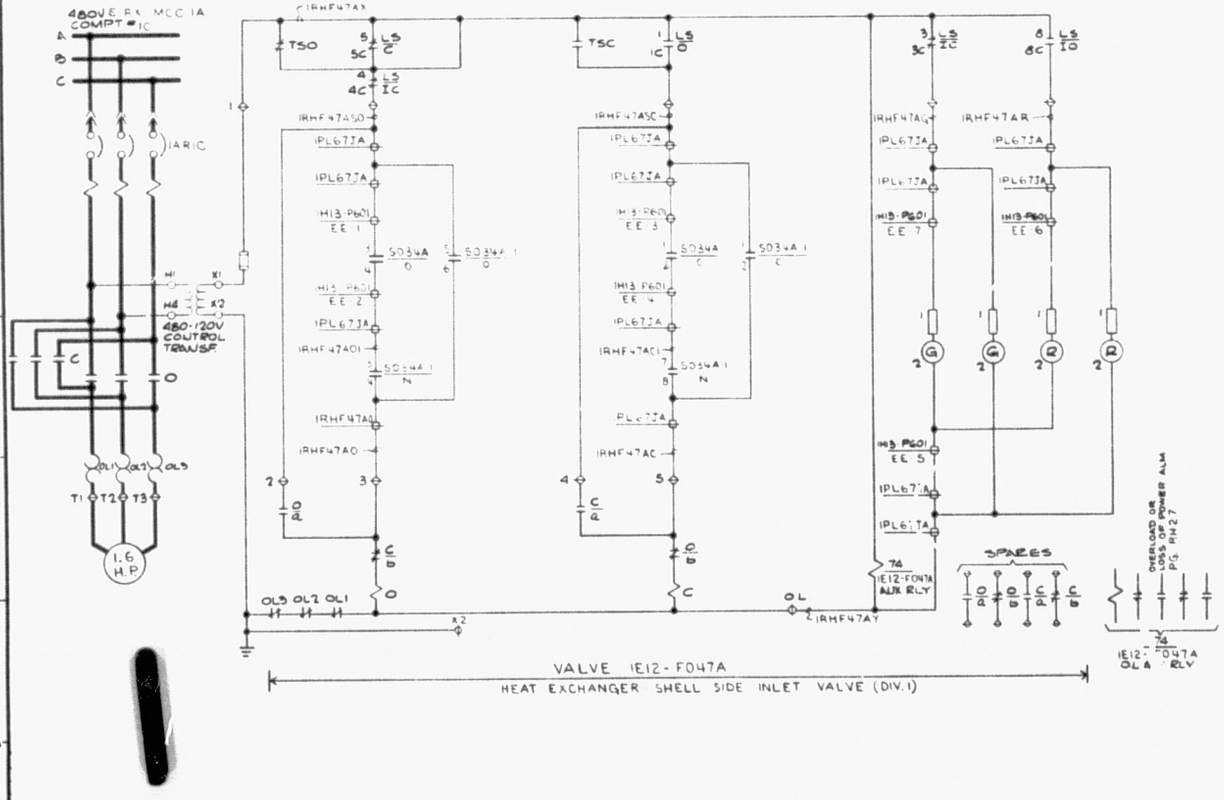
2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

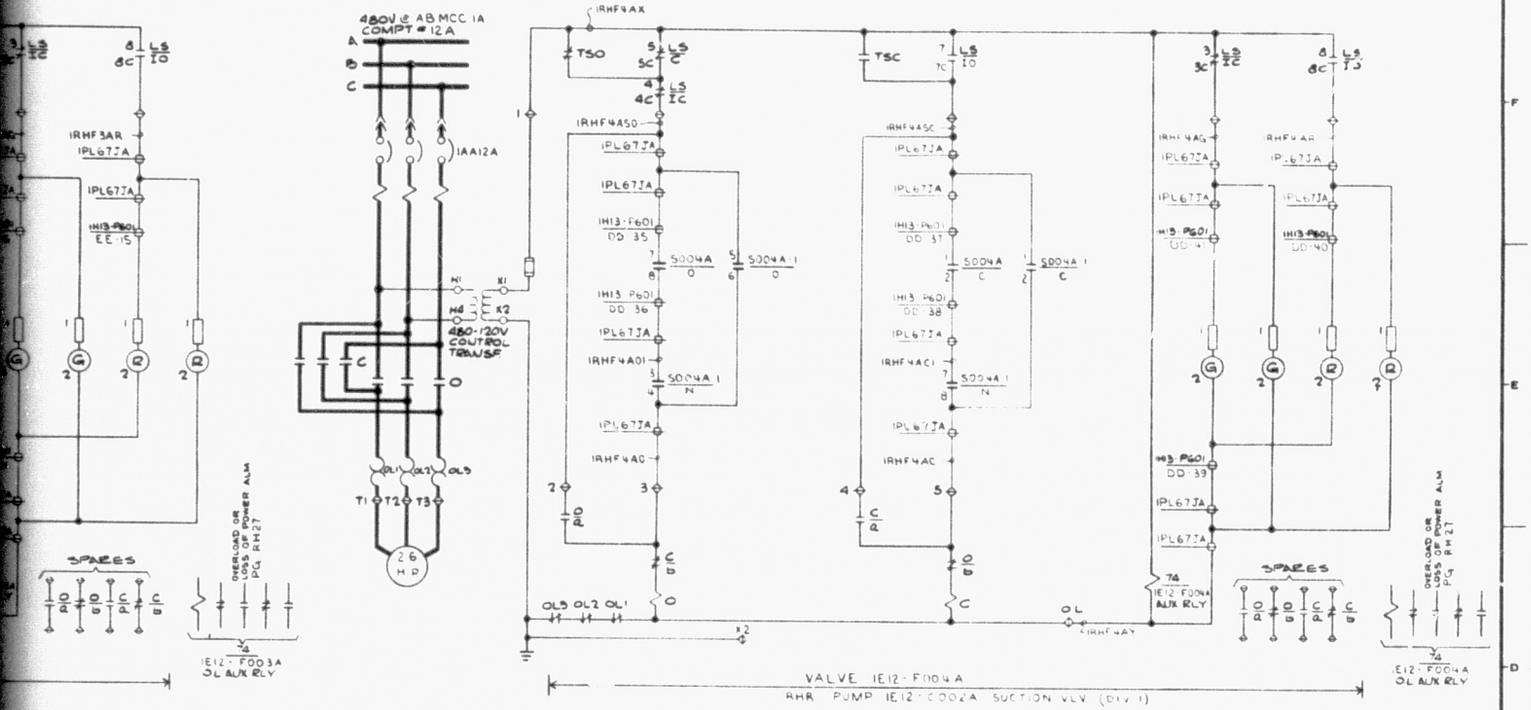
LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 13 of 29)

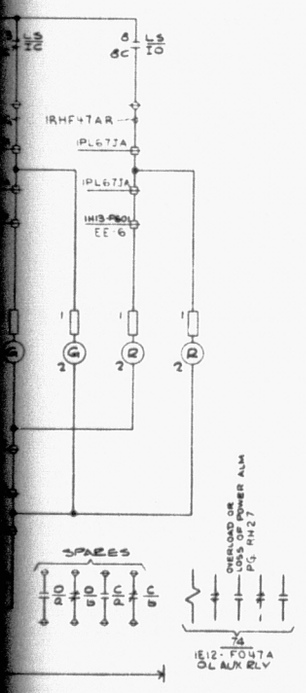




ESSENTIAL COMPONENTS
⚠ INCLUDED ⚠

SWITCH NUMBER	S
S004A	





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CLOSE OPEN

CONTACTS FRONT	CONTACTS BACK	BLOCK	SYMB	POSITION CLOSE	POSITION OPEN
1-2		1	C	X	
	3-4		O		X
5-6		2	C	X	
	7-8		O		X

(F.V.) TYPICAL FOR 5004A, 5034A 5035A

G.E. CR2940 SWITCH
KEYLOCK (KEY REMOVABLE IN OPEN POS)
X-DENOTES CLOSED CONTACT

CONTROL SWITCH DEVELOPMENT
@ MCB PNL IH13-P601

SECTION	CONTACTS	SYMB	VALVE POSITION FULL CLOSE	INTERMEDIATE	FULL OPEN
1	1-01C	O			X
	2-02C	O			X
	3-03C	IC	X	X	
	4-04C	IC	X	X	
2	5-05C	C	X		
	6-06C	C	X		
	7-07C	IO		X	X
	8-08C	IO		X	X
3	9-09C	O			X
	10-010C	O			X
	11-011C	IC	X	X	
	12-012C	IC	X	X	
4	13-013C	C	X		
	14-014C	C	X		
	15-015C	IO		X	X
	16-016C	IO		X	X
TSC	CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE				
TSO	OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE				

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVES IE12-F003A, F004A, F047A
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

CLOSE OPEN NORM (MCB)

(F.V.) 5004A-1 5034A-1 5035A-1

CONTACTS FRONT	CONTACTS BACK	BLOCK	SYMB	POSITION CLOSE	POSITION OPEN	POSITION NORMAL (MCB)
1-2		1	C	X		
	3-4		N			X
5-6		2	O		X	
	7-8		N			X
9-10		3	CO	X	X	
	11-12		N			X

G.E. CR2940 SWITCH
MAINTAINED CONTACT
X-DENOTES CONTACT CLOSED

CONTROL SWITCH DEVELOPMENT
@ PNL IPL67JA

ESSENTIAL COMPONENTS
⚠ INCLUDED ⚠

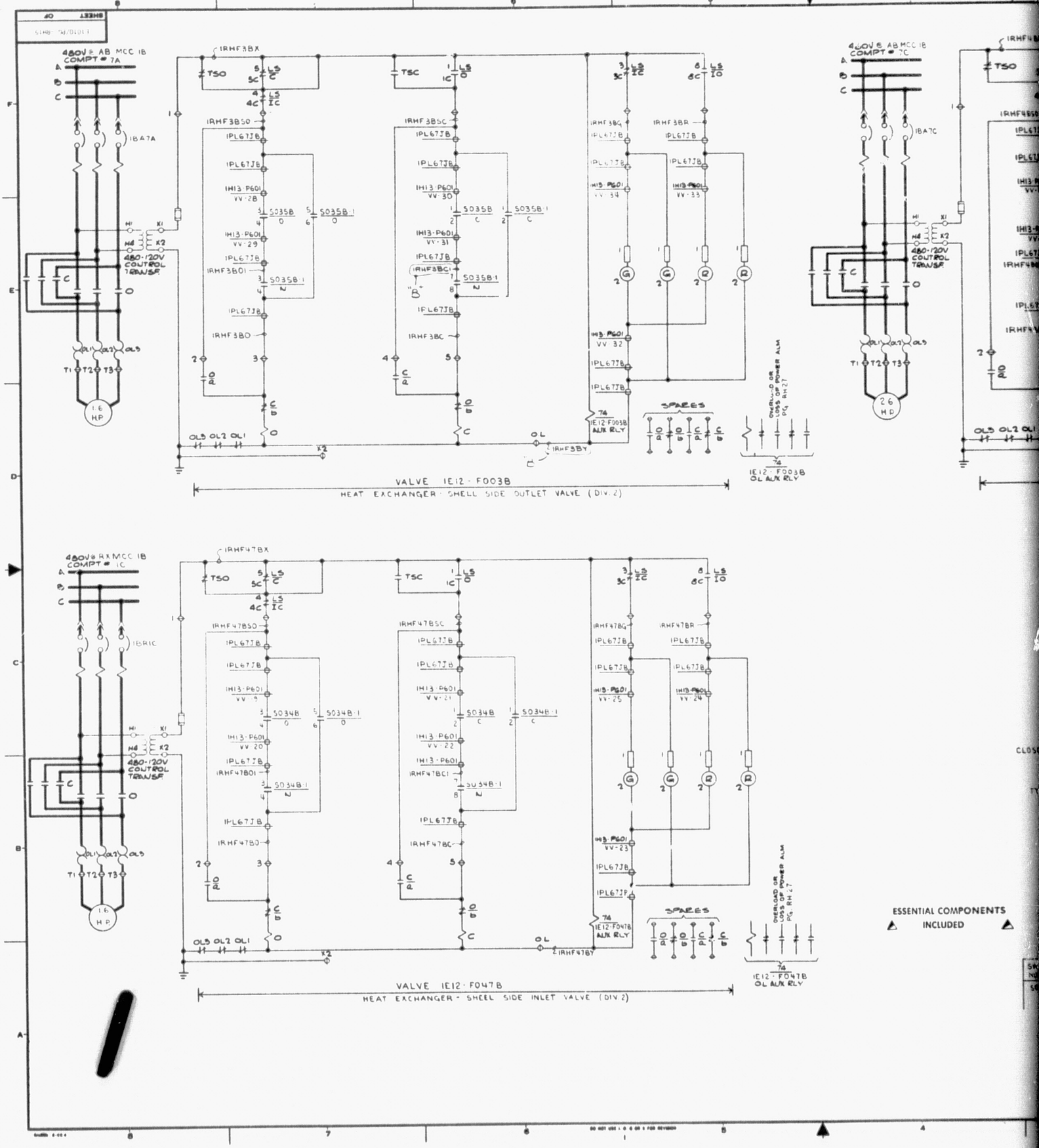
VALVE NUMBER	LS NUMBER	USED ON
IE12-F004A	12-12C 6-6C	PG RH01 PG RH16

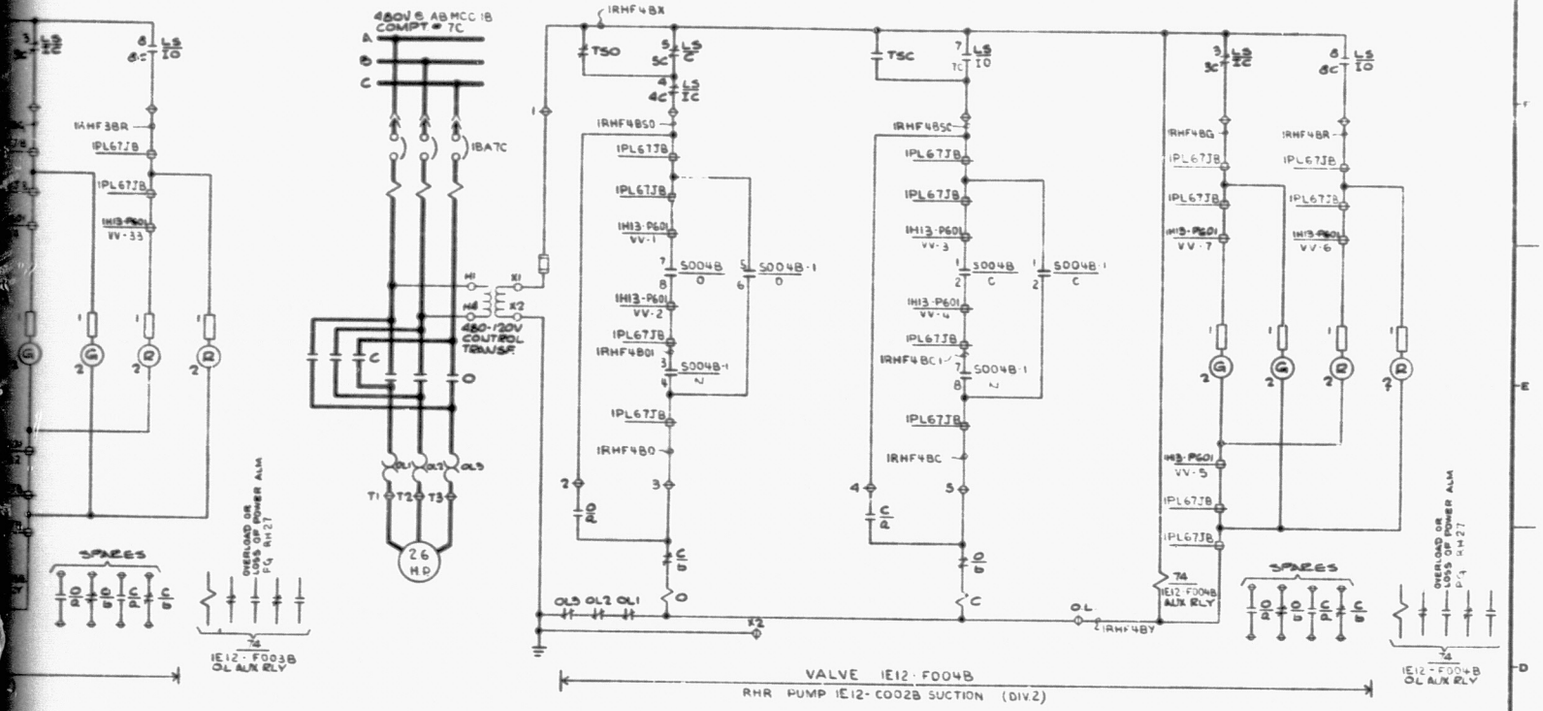
SWITCH NUMBER	CONTACT NUMBER	USED ON
5004A	5-6 3-4	PG. RH28 PG RH27

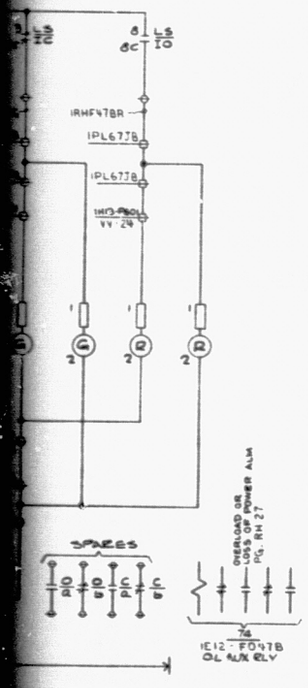
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

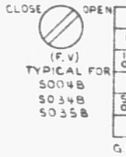
LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 14 of 29)


480V & AB MCC 1B COMPT # 7A
1BA7A
480-120V CONTROL TRANSF
1.6 H.P.
1RHF3BX
1RHF3BSO
1RHF3BSC
1RHF3BR
1RHF3BQ
1RHF3BO
1RHF3BC
1RHF3BC1
1RHF3BO1
1RHF3BY
IPL67JB
IH13-P601
VV-28
VV-29
VV-30
VV-31
VV-32
VV-33
VV-34
S035B
S035B-1
IE12-F003B AUX RLY
SPARES
OVERLOAD OR LOSS OF POWER ALM PG RH 27
74 IE12-F003B OL AUX RLY
480V & AB MCC 1B COMPT # 7C
1BA7C
2.6 H.P.
VALVE IE12-F003B
HEAT EXCHANGER - SHELL SIDE OUTLET VALVE (DIV 2)
480V & AX MCC 1B COMPT # 1C
1BR1C
1RHF47BX
1RHF47BSO
1RHF47BSC
1RHF47BR
1RHF47BQ
1RHF47BO
1RHF47BC
1RHF47BC1
1RHF47BO1
1RHF47BY
S034B
S034B-1
IE12-F047B AUX RLY
VALVE IE12-F047B
HEAT EXCHANGER - SHELL SIDE INLET VALVE (DIV 2)
ESSENTIAL COMPONENTS
INCLUDED





2

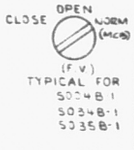


CONTACTS		BLOCK	SYMB	POSITION	
FRONT	BACK			CLOSE	OPEN
1-2		1	C	X	
	3-4		O		X
5-6		2	C	X	
	7-8		O		X

G.E. CR2940 SWITCH
KEYLOCK (KEY REMOVABLE IN OPEN POS)
X-DENOTES CLOSED CONTACT.

CONTROL SWITCH DEVELOPMENT
@ MCB PNL IH13-P601

SWITCH NUMBER	CONTACT NUMBER	USED ON
S004B	3-4 5-6	PG RH27 PG. RH28



CONTACTS		BLOCK	SYMB	POSITION		
FRONT	BACK			CLOSE	OPEN	NORM (MCB)
1-2		1	C	X		
	3-4		NC			X
5-6		2	O		X	
	7-8		NO			X
9-10		3	CO	X	X	
	11-12		NC			X

G.E. CR2940 SW.
MAINTAINED CONTACT
X-DENOTES CONTACT CLOSED

CONTROL SWITCH DEVELOPMENT
@ PNL IPL67JB

SENSOR	CONTACTS	SYMB	VALVE POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1O-01C	O			X
	2O-02C	O			X
	3O-03C	IC	X	X	
	4O-04C	IC	X	X	
2	5O-05C	C	X		
	6O-06C	C	X		
	7O-07C	IO		X	X
	8O-08C	IO		X	X
3	9O-09C	O			X
	10O-010C	O			X
	11O-011C	IC	X	X	
	12O-012C	IC	X	X	
4	13O-013C	C	X		
	14O-014C	C	X		
	15O-015C	IO		X	X
	16O-016C	IO		X	X
TSC			CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE.		
TSO			OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE.		

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVE IE12-F003B, F004B, F047B
(LIMIT SWITCH SHOWN WITH VLV FULLY CLOSED)

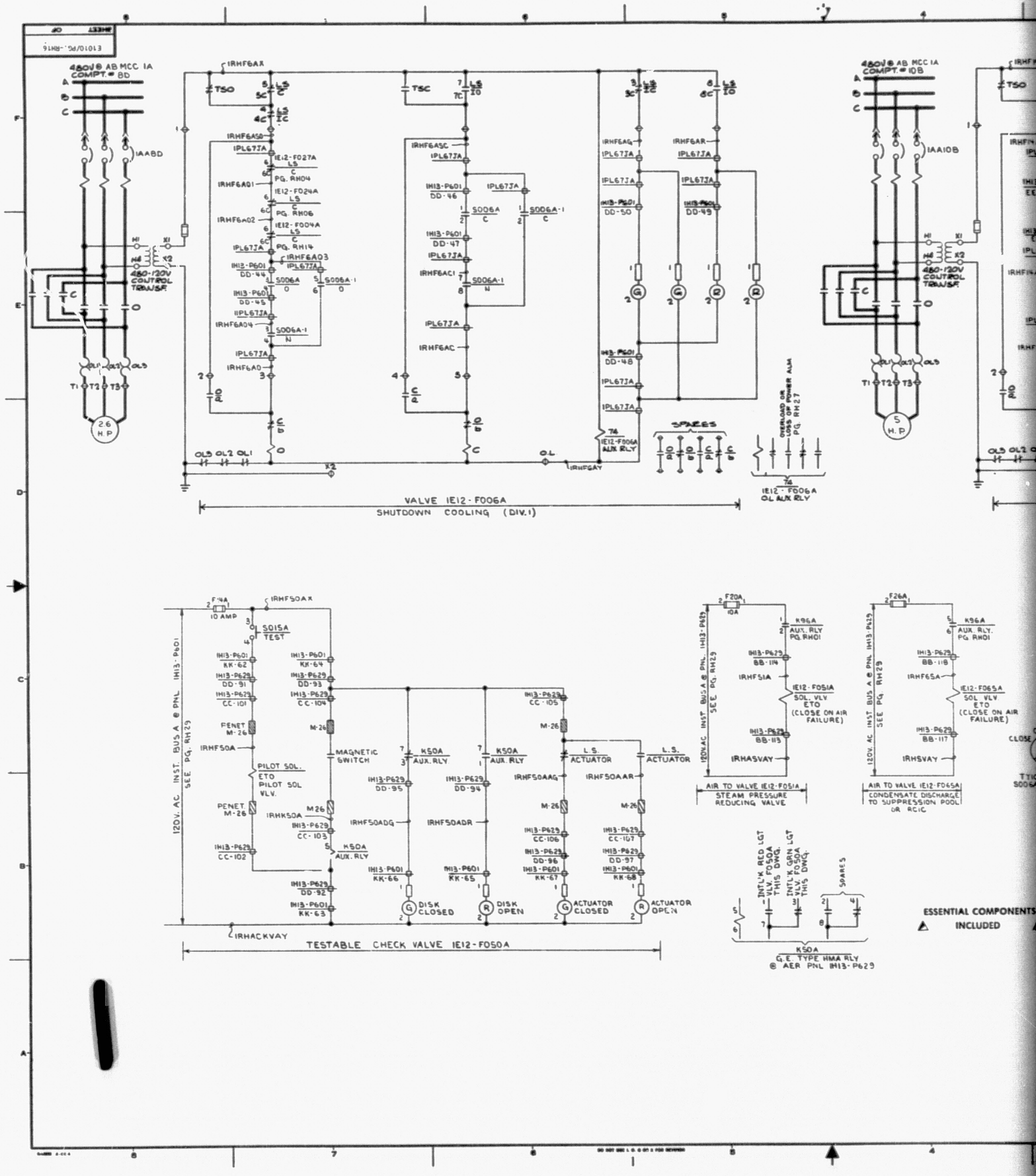
VALVE NUMBER	LS NUMBER	USE ON
IE12-F004B	6-6C 12-12C	PG RH 17 PG RH 02

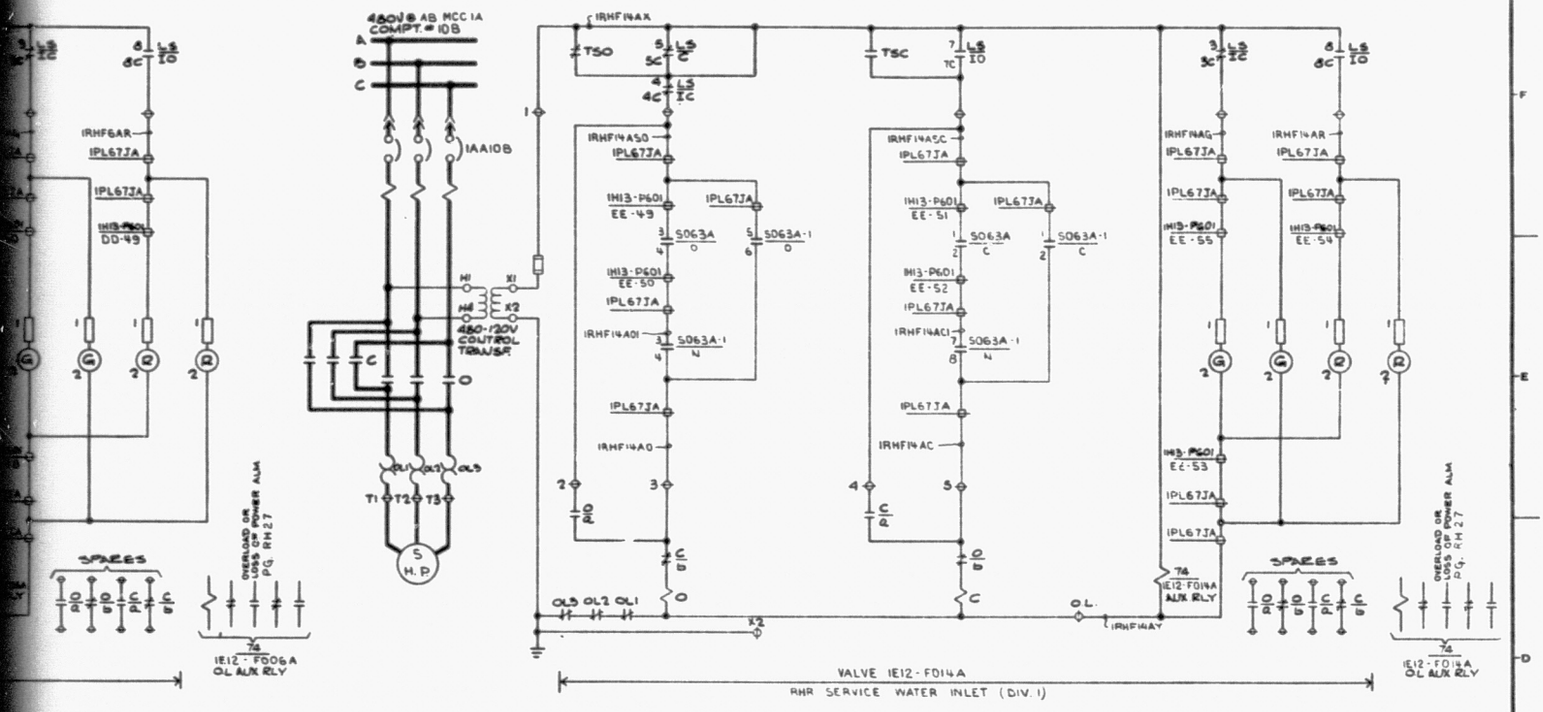
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

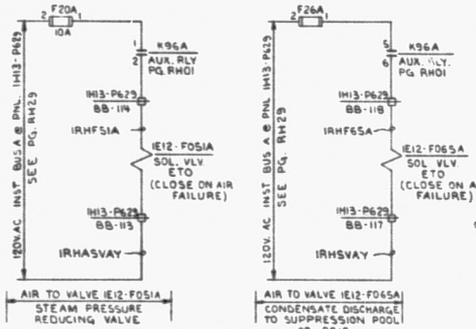
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

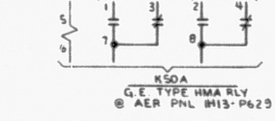
FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 15 of 29)

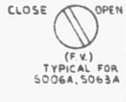

480V Ø AB MCC 1A COMPT. # 8D
480V Ø AB MCC 1A COMPT. # 10B
1AA8D
1AA10B
480-120V CONTROL TRANS/SF.
2.6 H.P.
5 H.P.
IRHF6AX
IRHF6ASA
IRHF6AQ1
IRHF6AQ2
IRHF6AQ3
IRHF6AQ4
IRHF6ASC
IRHF6AQ
IRHF6AR
IRHF6ACI
IRHF6AC
IRHF6AD
IRHF6AAY
IE12-F027A
IE12-F024A
IE12-F004A
IE12-F006A AUX RLY
OVERLOAD OR LOSS OF POWER ALM PG. RH 27
SPARES
VALVE IE12-F006A
SHUTDOWN COOLING (DIV. 1)
IE12-F006A OL AUX RLY
F14A
10 AMP
IRHF50AX
S015A TEST
PENET M-26
IRHF50A
PILOT SOL. ETO PILOT SOL VLV.
MAGNETIC SWITCH
K50A AUX. RLY
L.S. ACTUATOR
IRHK50A
IRHF50ADG
IRHF50ADR
IRHF50AAG
IRHF50AAR
DISK CLOSED
DISK OPEN
ACTUATOR CLOSED
ACTUATOR OPEN
IRHACKVAY
TESTABLE CHECK VALVE IE12-F050A
120V. AC. INST. BUS A @ PNL. IH13-P601 SEE PG. RH29
F20A
10A
K96A AUX. RLY PG. RH01
IRHF51A
IE12-F051A SOL. VLV ETO (CLOSE ON AIR FAILURE)
IRHASVAY
AIR TO VALVE IE12-F051A
STEAM PRESSURE REDUCING VALVE
F26A
IRHF65A
IE12-F065A SOL. VLV ETO (CLOSE ON AIR FAILURE)
IRHSVAY
AIR TO VALVE IE12-F065A
CONDENSATE DISCHARGE TO SUPPRESSION POOL OR RCIC
INTLK RED LGT VLV. F050A THIS DWG.
INTLK GRN LGT VLV. F050A THIS DWG.
SPARES
K50A G.E. TYPE HMA RLY @ AER PNL IH13-P629
ESSENTIAL COMPONENTS
INCLUDED







ESSENTIAL COMPONENTS ▲ INCLUDED ▲



CONTACTS			POSITION	
FRONT	BACK		CLOSE	OPEN
1 2		C	X	
	3 4	O		X

G.E CR2940 SWITCH
MAINTAINED CONTACT
X-DENOTES CLOSED CONTACT

CONTROL SWITCH DEVELOPMENT
@ MCB PNL IH13-P601



CONTACTS		BLOCK	SYMB.	POSITION		
FRONT	BACK			CLOSE	OPEN	NORM (MCB)
1 2		1	C	X		
	3 4		N			X
5 6		2	O		X	
	7 8		N			X
9 10		3	CO	X	X	
	11 12		N			X

G.E. CR 2940 SW.
MAINTAINED CONTACT
X-DENOTES CLOSED CONTACT

CONTROL SWITCH DEVELOPMENT
@ PNL IPL67JA

BLOCK	CONTACTS	SYMB.	VALVE POSITION FULL CLOSE	INTERMEDIATE	FULL OPEN
1	1 0 — 1 C	O			X
	2 0 — 2 C	O			X
	3 0 — 3 C	IC	X	X	
	4 0 — 4 C	IC	X	X	
2	5 0 — 5 C	C	X		
	6 0 — 6 C	C	X		
	7 0 — 7 C	IO		X	X
	8 0 — 8 C	IO		X	X
3	9 0 — 9 C	O			X
	10 0 — 10 C	O			X
	11 0 — 11 C	IC	X	X	
	12 0 — 12 C	IC	X	X	
4	13 0 — 13 C	C	X		
	14 0 — 14 C	C	X		
	15 0 — 15 C	IO		X	X
	16 0 — 16 C	IO		X	X
TSC			CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
TSO			OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVES IE12-F006A, F014A
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

VALVE #	LS #	USE ON
IE12-F006A	9-9C 12-12C	PG. RH28 PG. RH01

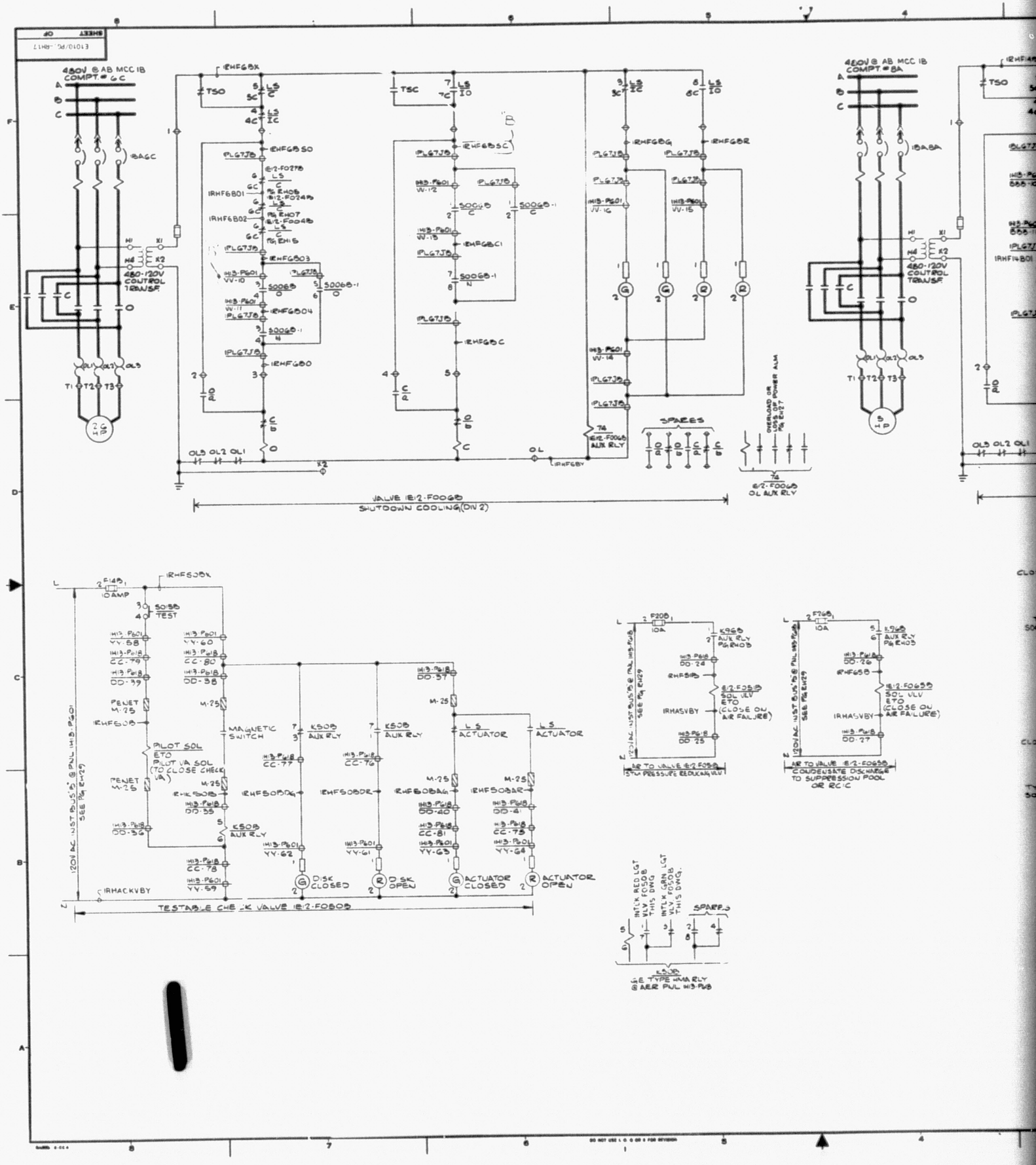
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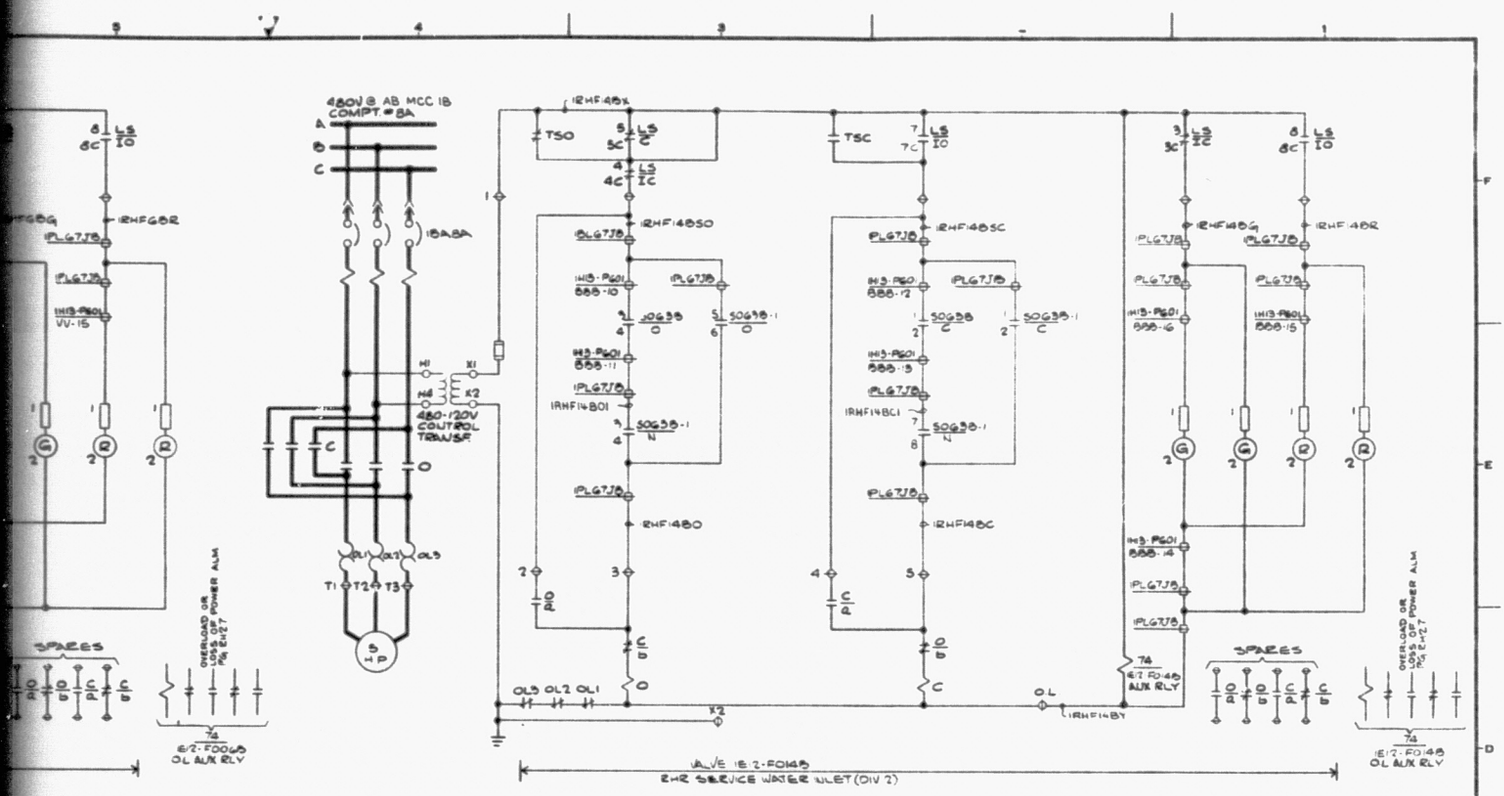
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

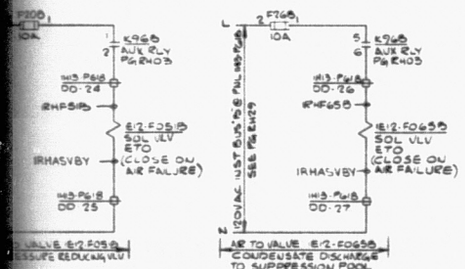
FIGURE 7.3-20

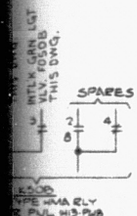
LOW PRESSURE COOLANT INJECTION SYSTEM ESD

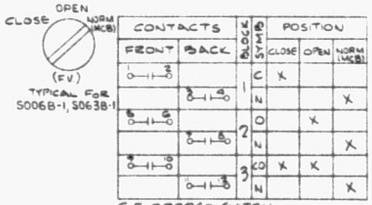
(SHEET 16 of 29)

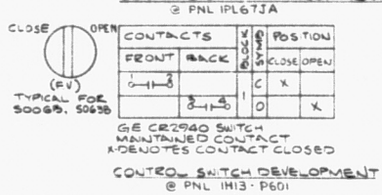

480V @ AB MCC 1B COMPT. # 6C
480V @ AB MCC 1B COMPT. # 8A
480-120V CONTROL TRANSF
VALVE 1E12-F006B SHUTDOWN COOLING (DIV 2)
SPARES
OVERLOAD OR LOSS OF POWER ALM
1E12-F006B OL AUX RLY
TESTABLE CHECK VALVE 1E12-F050B
PILOT SOL ETO (TO CLOSE CHECK VA)
MAGNETIC SWITCH
K50B AUX RLY
LS ACTUATOR
DISK CLOSED
DISK OPEN
ACTUATOR CLOSED
ACTUATOR OPEN
1E12-F065B SOL VLV ETO (CLOSE ON AIR FAILURE)
AIR TO VALVE 1E12-F065B
CONDENSATE DISCHARGE TO SUPPRESSION POOL OR RCIC
AIR TO VALVE 1E12-F050B
SAM PRESSURE REDUCING VLV
K50B 4E TYPE HMA RLY @ AER PNL H13-P618

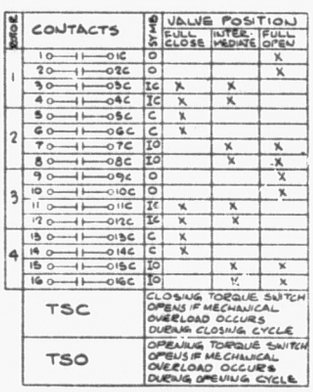












ESSENTIAL COMPONENTS
▲ INCLUDED ▲

VALVE NO	LIMIT SW NUMBER	USED ON
1E12-F006B	9-9C	PS ER128
	12-12C	PS RH02

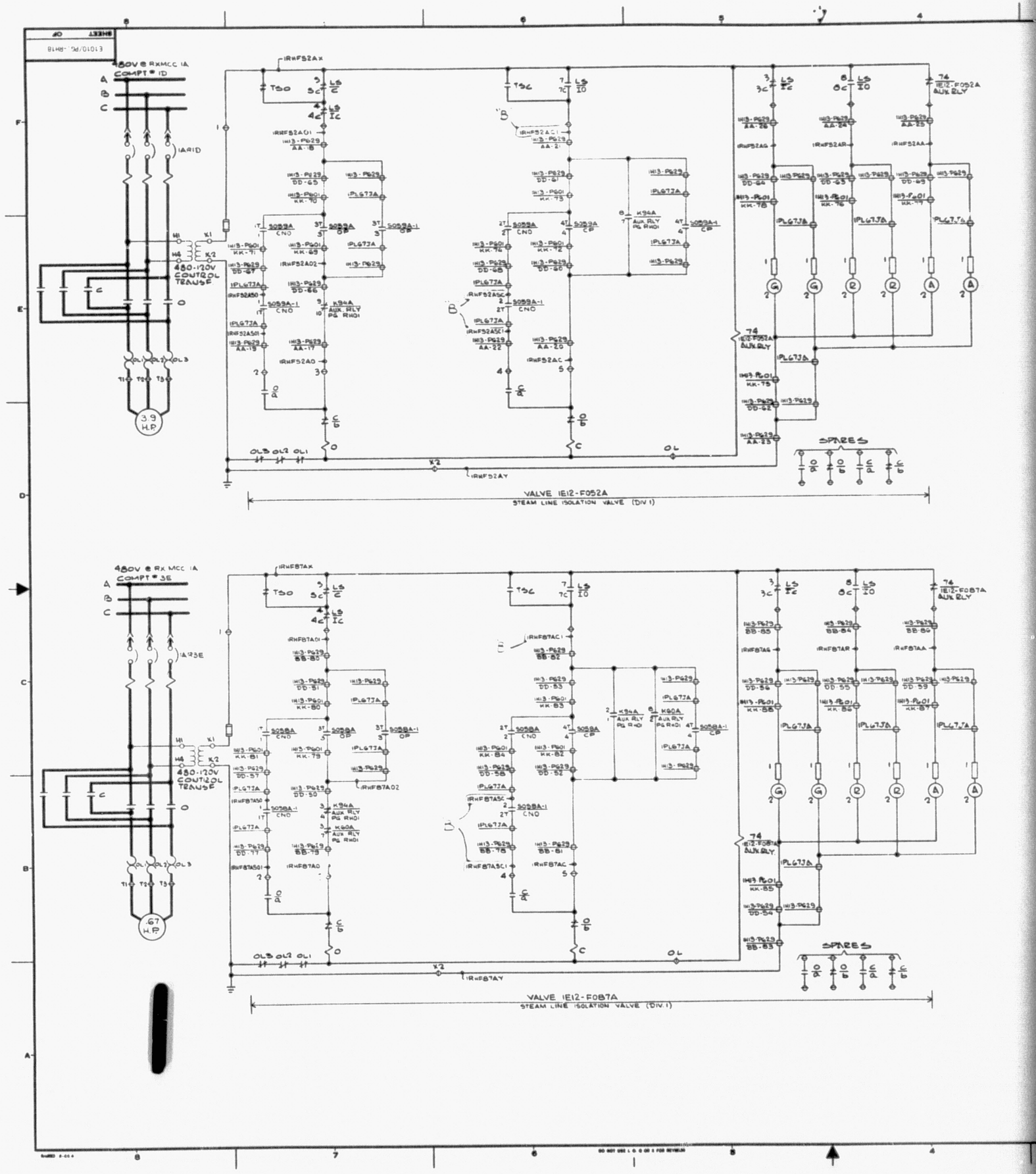
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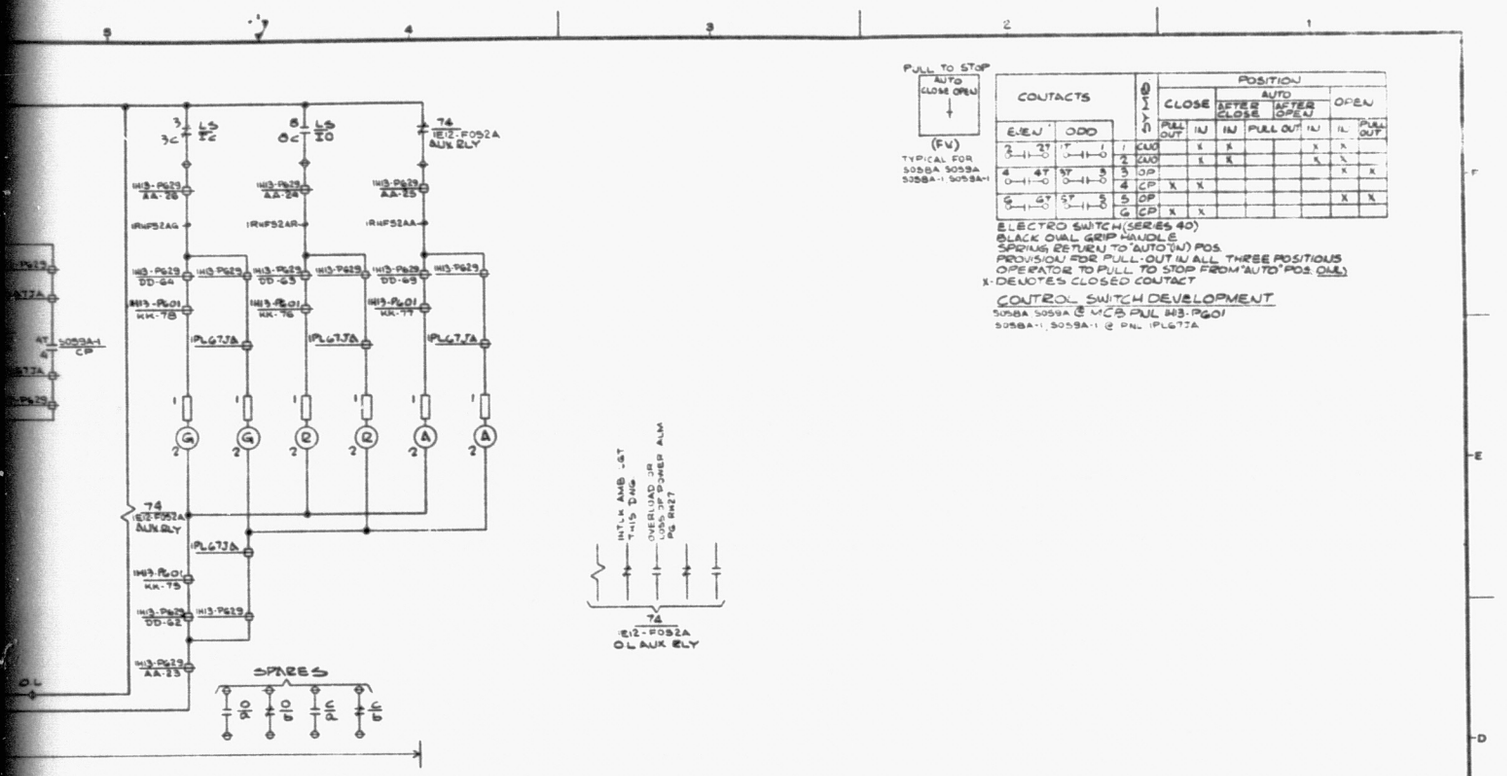
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD

(SHEET 17 of 29)


480V @ RxMCC 1A
COMPT # 1D
480-120V CONTROL TRANSF
3.9 H.P
VALVE 1E12-F052A
STEAM LINE ISOLATION VALVE (DIV 1)
74 1E12-F052A AUX RLY
SPARES
480V @ RX MCC 1A
COMPT # 3E
480-120V CONTROL TRANSF
.67 H.P
VALVE 1E12-F087A
STEAM LINE ISOLATION VALVE (DIV 1)
74 1E12-F087A AUX RLY
SPARES



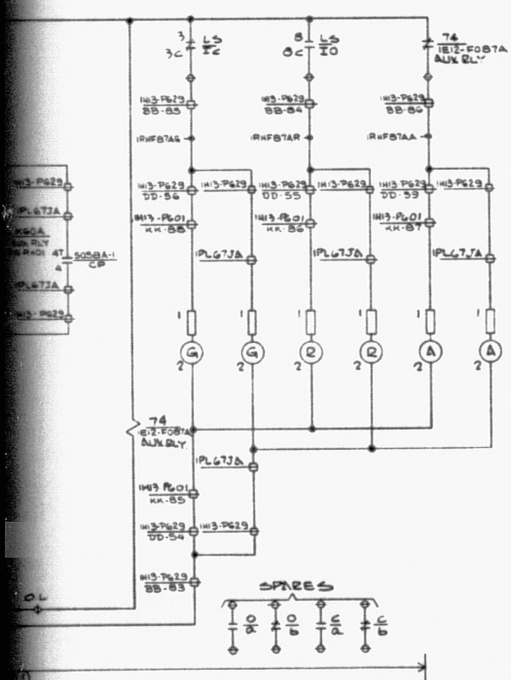
PULL TO STOP
AUTO
CLOSE OPEN

(FW)
TYPICAL FOR
5058A 5059A
5058A-1 5059A-1

CONTACTS				SYMB	POSITION							
					CLOSE	AUTO AFTER CLOSE		AUTO AFTER OPEN		OPEN		
E-VEN	ODD				PULL OUT	IN	IN	PULL OUT	IN	IN	PULL OUT
2 21	1T 1	1	CUO			X	X			X	X	
		2	CUO			X	X			X	X	
4 41	5T 5	3	OP							X	X	
		4	CP	X	X							
6 61	5T 5	5	OP							X	X	
		6	CP	X	X							

ELECTRO SWITCH (SERIES 40)
BLACK OVAL GRIP HANDLE
SPRING RETURN TO "AUTO" (IN) POS.
PROVISION FOR PULL-OUT IN ALL THREE POSITIONS
OPERATOR TO PULL TO STOP FROM "AUTO" POS. ONLY
X-DENOTES CLOSED CONTACT

CONTROL SWITCH DEVELOPMENT
5058A 5059A & MCB PNL 843-PG01
5058A-1, 5059A-1 & PNL 1PL67JA



SECTION	CONTACTS	SYMB	VALVE POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1 — 01C	O			X
	2 — 02C	O			X
	3 — 03C	IC	X	X	
	4 — 04C	IC	X	X	
2	5 — 05C	C	X		
	6 — 06C	C	X		
	7 — 07C	IO		X	X
	8 — 08C	IO		X	X
3	9 — 09C	O			X
	10 — 010C	O			X
	11 — 011C	IC	X	X	
	12 — 012C	IC	X	X	
4	13 — 013C	C	X		
	14 — 014C	C	X		
	15 — 015C	IO		X	X
	16 — 016C	IO		X	X
TSC			CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
TSO			OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVE 1E12-F052A, F087A
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

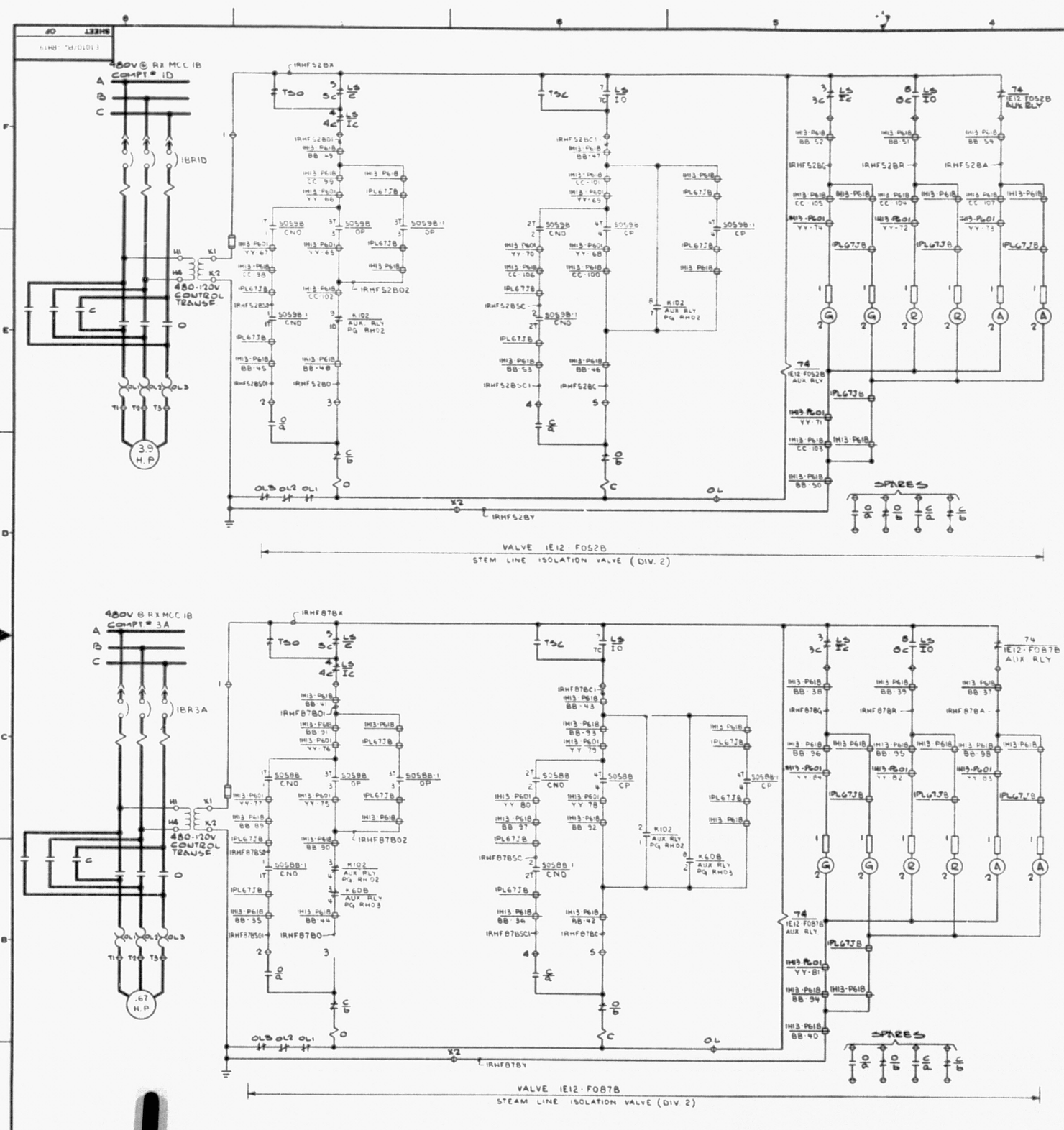
ESSENTIAL COMPONENTS
INCLUDED

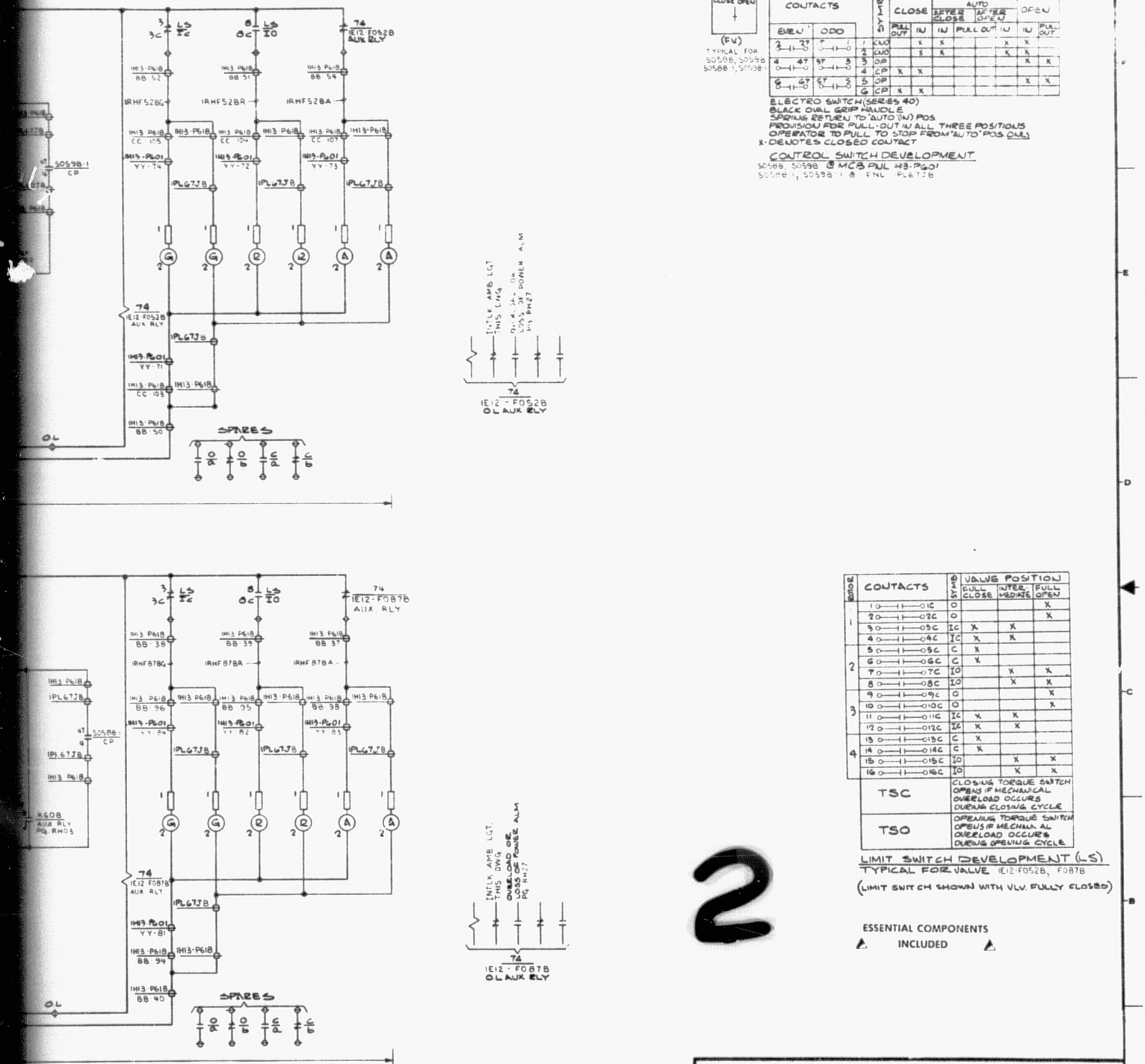
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 18 of 29)


480V © RX MCC 1B
COMPT # 1D
1BR1D
480-120V CONTROL TRANSF
3.9 H.P
IRHF52BX
IRHF52BY
IRHF52B01
IRHF52B02
IRHF52BSC
IRHF52BSC1
IRHF52BC
IRHF52BC1
IRHF52BQ
IRHF52BR
IRHF52BA
74 IE12 F052B AUX RLY
VALVE IE12 F052B
STEM LINE ISOLATION VALVE (DIV. 2)
480V © RX MCC 1B
COMPT # 3A
1BR3A
480-120V CONTROL TRANSF
.67 H.P
IRHF87BX
IRHF87BY
IRHF87B01
IRHF87B02
IRHF87BSC
IRHF87BSC1
IRHF87BC
IRHF87BC1
IRHF87BQ
IRHF87BR
IRHF87BA
74 IE12 F087B AUX RLY
VALVE IE12 F087B
STEAM LINE ISOLATION VALVE (DIV. 2)
SPARES



SECTION	CONTACTS	SYMB	VALVE POSITION FULL CLOSE	INTERMEDIATE	FULL OPEN
1	1 — 01C	O			X
	2 — 02C	O			X
	3 — 03C	IC	X	X	
	4 — 04C	IC	X	X	
2	5 — 05C	C	X		
	6 — 06C	C	X		
	7 — 07C	IO		X	X
	8 — 08C	IO		X	X
3	9 — 09C	O			X
	10 — 010C	O			X
	11 — 011C	IC	X	X	
	12 — 012C	IC	X	X	
4	13 — 013C	C	X		
	14 — 014C	C	X		
	15 — 015C	IO		X	X
	16 — 016C	IO		X	X
TSC			CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
TSO			OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVE IE12-F052B, F087B
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

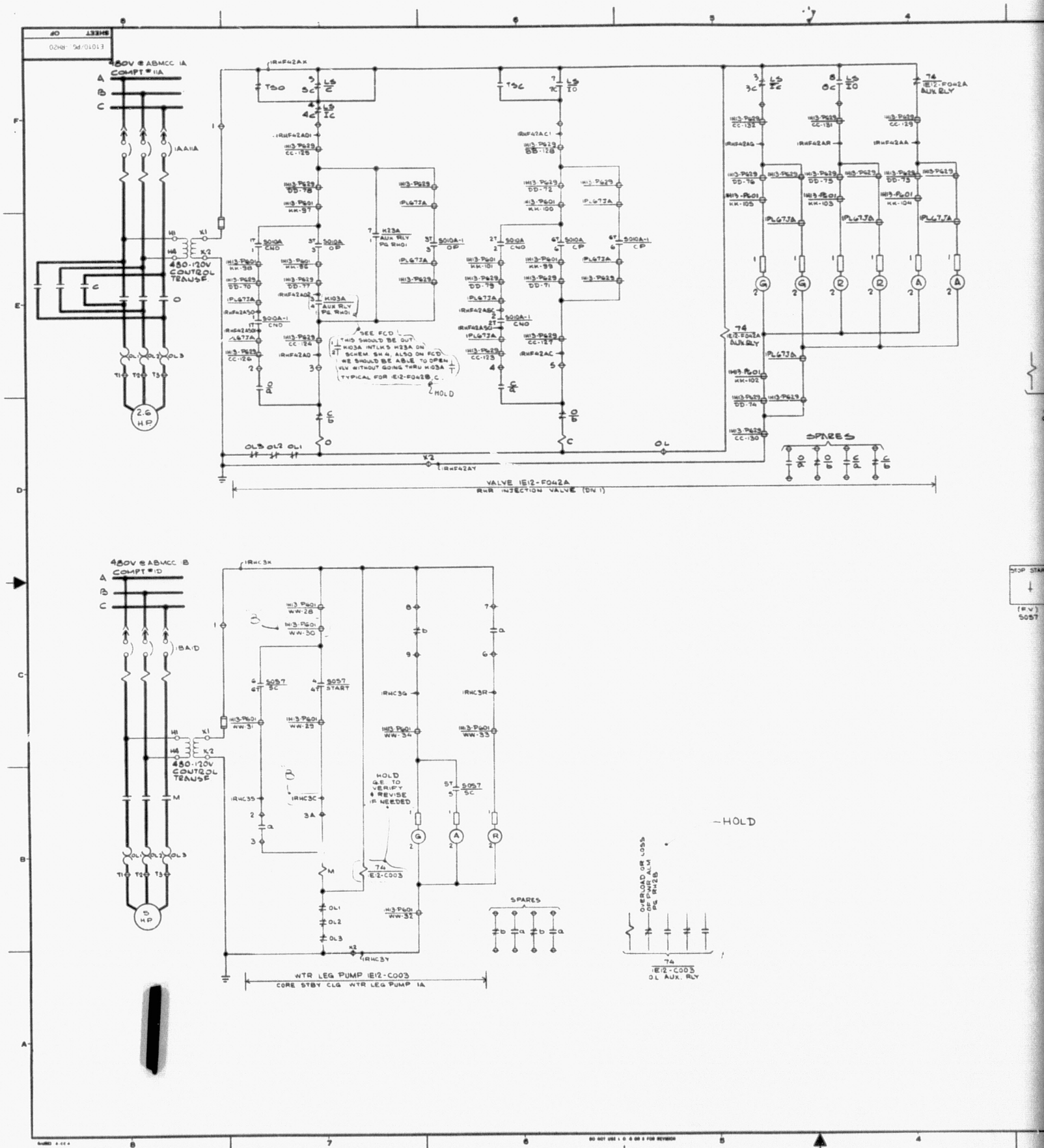
ESSENTIAL COMPONENTS
INCLUDED

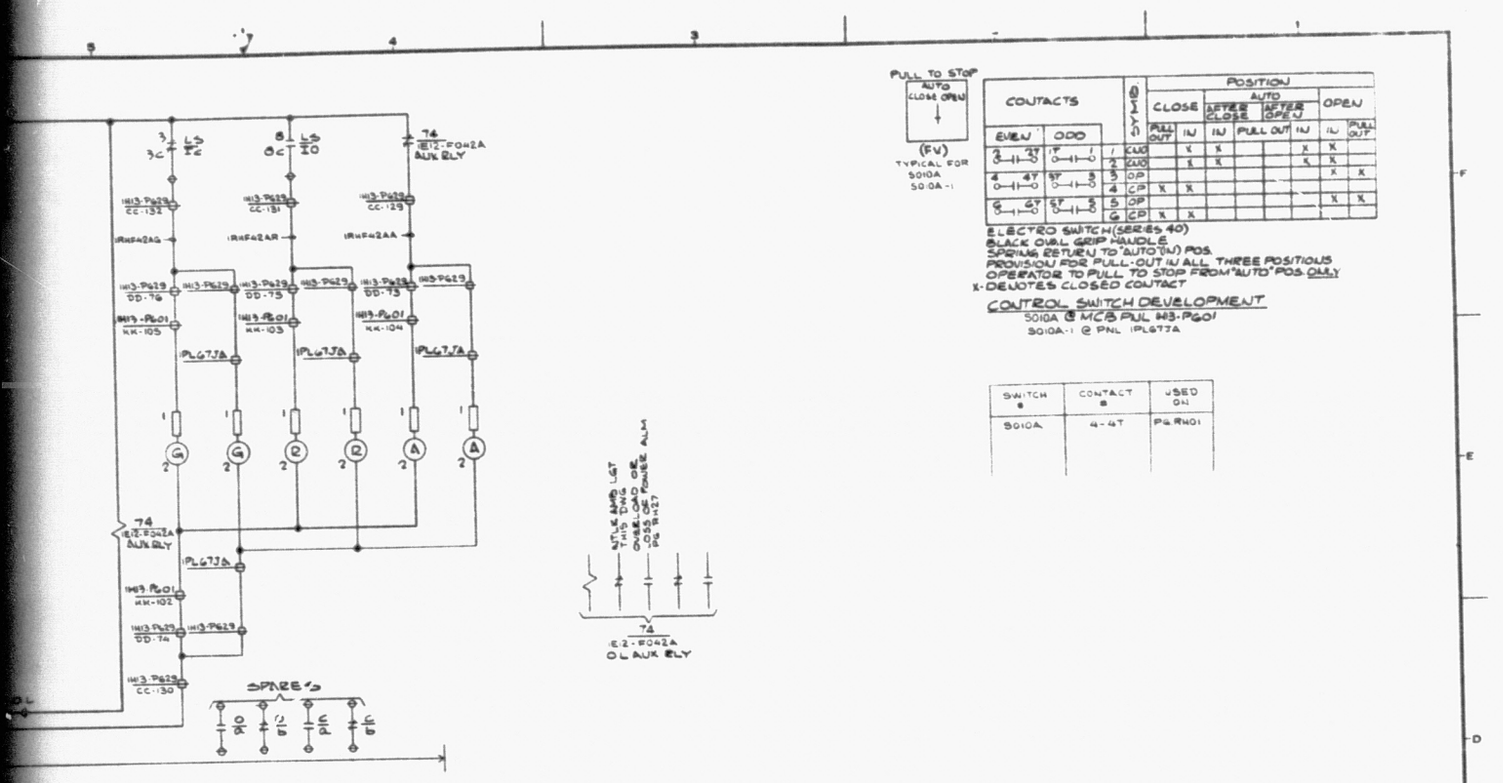
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 19 of 29)


480V @ ABMCC 1A
COMPT # 11A
480-120V CONTROL TRANSF
2.6 HP
VALVE 1E12-F042A
RHR INJECTION VALVE (DN 1)
SPARES
480V @ ABMCC B
COMPT # 1D
5 HP
HOLD
WTR LEG PUMP 1E12-C003
CORE STBY CLG WTR LEG PUMP 1A
OVERLOAD OR LOSS OF PWR ALM PL 1R42B
74 1E12-C003 OL AUX. RLY
STOP START
(P.V.) 5057



CONTACTS				POSITION						
				CLOSE	AUTO				OPEN	
					AFTER CLOSE		AFTER OPEN			
EVEN	ODD			PULL OUT	IN	IN	PULL OUT	IN	IN	PULL OUT
2 2T	1 1T	1	CLO		X	X		X	X	
		2	CLO		X	X		X	X	
4 4T	3 3T	3	OP					X	X	
		4	CP	X	X					
6 6T	5 5T	5	OP						X	X
		6	CP	X	X					

ELECTRO SWITCH (SERIES 40)
BLACK OVAL GRIP HANDLE
SPRING RETURN TO "AUTO" (N) POS.
PROVISION FOR PULL-OUT IN ALL THREE POSITIONS
OPERATOR TO PULL TO STOP FROM "AUTO" POS. ONLY
X-DENOTES CLOSED CONTACT

CONTROL SWITCH DEVELOPMENT
5010A @ MCB PNL 1H13-P601
5010A-1 @ PNL 1PL67JA

SWITCH #	CONTACT #	USED ON
5010A	4-4T	PG RH01



CONTACTS				POSITION			
					NORMAL		
ODD	EVEN			STOP	AFTER STOP	AFTER START	START
1T 1	2 2T	1	STOP	X			
		2	STOP	X			
3T 3	4 4T	3	O		X	X	
		4	START				X
5T 5	6 6T	5	SC			X	X
		6	SC			X	X
7T 7	8 8T	7	STOP	X			
		8	START				X

SEE TYPE "SBM" SW
X-DENOTES CLOSED CONTACT
BLACK PISTOL GRIP HANDLE
SPRING RETURN TO NORMAL POSITION

CONTROL SWITCH DEVELOPMENT
@ MCB PNL 1H13-P601

VALVE	CONTACTS		VALVE POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1O — 01C	O			X
	2O — 02C	O			X
	3O — 03C	IC	X	X	
	4O — 04C	IC	X	X	
2	5O — 05C	C	X		
	6O — 06C	C	X		
	7O — 07C	IO		X	X
	8O — 08C	IO		X	X
3	9O — 09C	O			X
	10O — 010C	O			X
	11O — 011C	IC	X	X	
	12O — 012C	IC	X	X	
4	13O — 013C	C	X		
	14O — 014C	C	X		
	15O — 015C	IO		X	X
	16O — 016C	IO		X	X
	TSC		CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
	TSO		OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVE 1E12-F042C
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

VALVE NUMBER	L S NUMBER	USED ON
1E12-F042A	6 - 6C	PG RH01

-HOLD

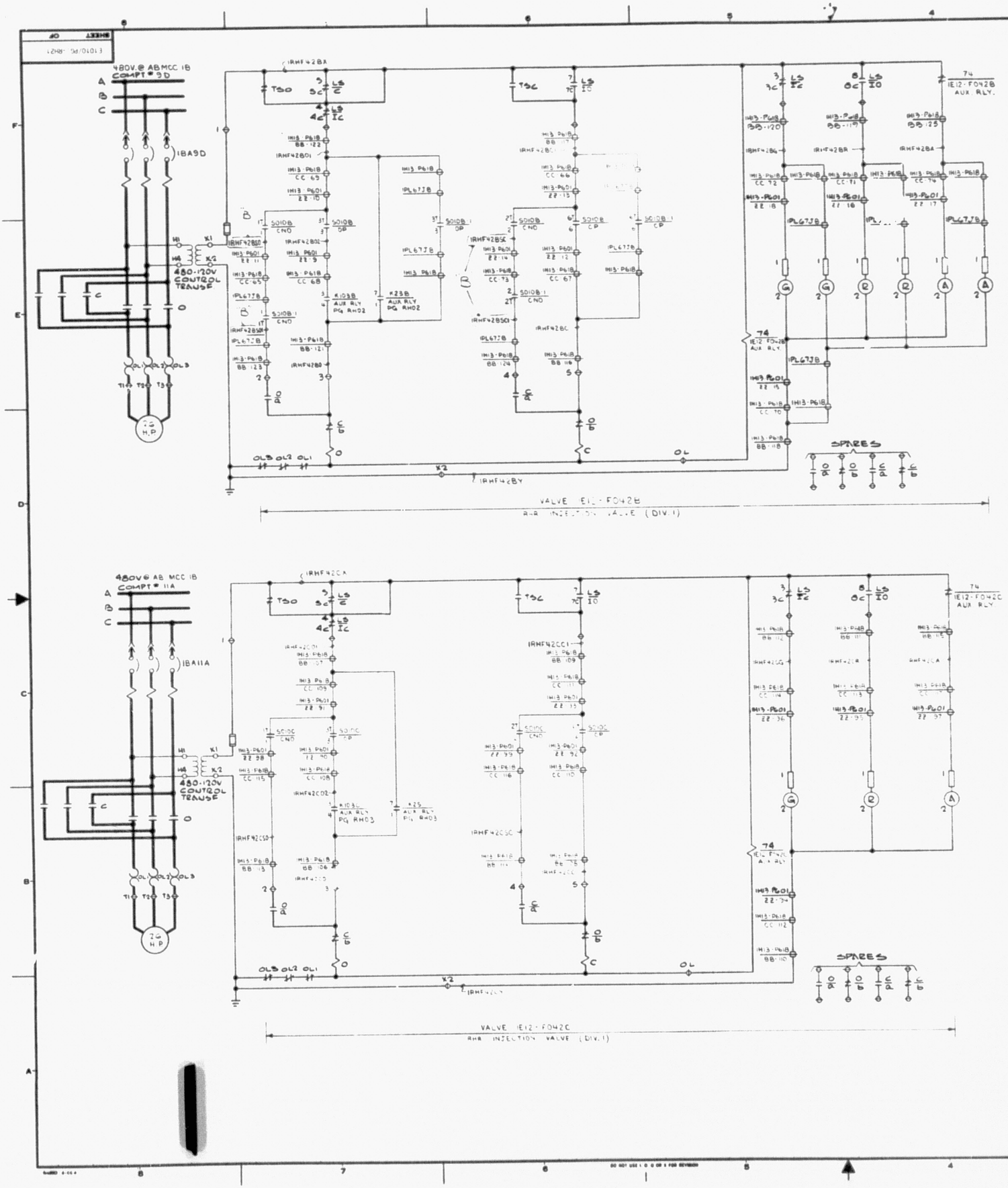
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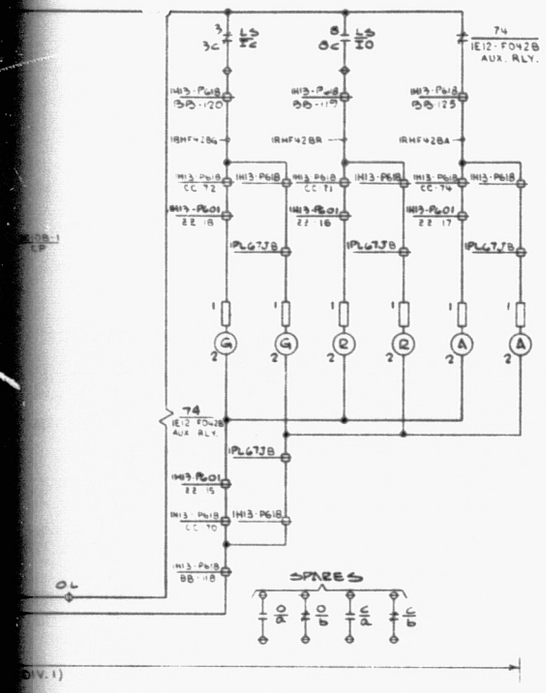
ESSENTIAL COMPONENTS
INCLUDED

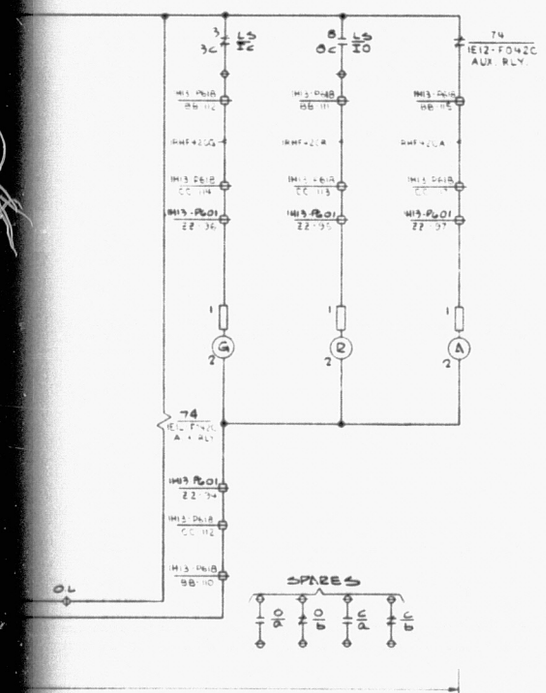
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FINAL SAFETY ANALYSIS REPORT

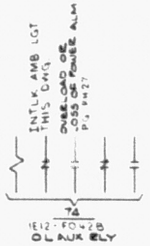
FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 20 of 29)


480V. @ AB MCC 1B
COMPT # 9D
1BA9D
480-120V CONTROL TRANSF
2 H.P
VALVE 1E12-F042B
RHR INJECTION VALVE (DIV. 1)
480V @ AB MCC 1B
COMPT # 11A
1BA11A
480-120V CONTROL TRANSF
2 H.P
VALVE 1E12-F042C
RHR INJECTION VALVE (DIV. 1)
SPARES











(FV)
TYPICAL FOR
SD10B, SD10C
SD10B-1

CONTACTS				DISC	POSITION						
					CLOSE	AUTO AFTER CLOSE	AUTO AFTER OPEN		OPEN		
EVEN		ODD			PULL OUT	I/J	I/J	PULL OUT	I/J	PULL OUT
3	3T	1T	1	CLO		X	X		X	X	
4	4T	2T	2	CLO		X	X		X	X	
			3	OP						X	X
			4	OP	X	X					
6	6T	5T	5	OP						X	X
			6	CP	X	X					

ELECTRIC SWITCH (SERIES 40)
BLACK OVAL GRIP HANDLE
SPRING RETURN TO "AUTO" (A/J) POS.
PROVISION FOR PULL-OUT IN ALL THREE POSITIONS
OPERATOR TO PULL TO STOP FROM "AUTO" POS. ONLY
X-DENOTES CLOSED CONTACT

CONTROL SWITCH DEVELOPMENT
1H13-P601 @ MCB PNL 1H13-P601
SD10B / C PNL RLY F/B

SWITCH NUMBER	CONTACT NUMBER	USED ON
SD10B	4 - 4T	PG. RH02
SD10C	4 - 4T	PG. RH03

2

SECTION	CONTACTS	DISC	VALVE POSITION FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1O — 01C	O			X
	2O — 02C	O			X
	3O — 03C	IC	X	X	
	4O — 04C	IC	X	X	
2	5O — 05C	C	X		
	6O — 06C	C	X		
	7O — 07C	IO		X	X
	8O — 08C	IO		X	X
3	9O — 09C	O			X
	10O — 010C	O			X
	11O — 011C	IC	X	X	
	12O — 012C	IC	X	X	
4	13O — 013C	C	X		
	14O — 014C	C	X		
	15O — 015C	IO		X	X
	16O — 016C	IO		X	X
TSC			CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE.		
TSO			OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE.		

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVE 1E12-F042B, F042C
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

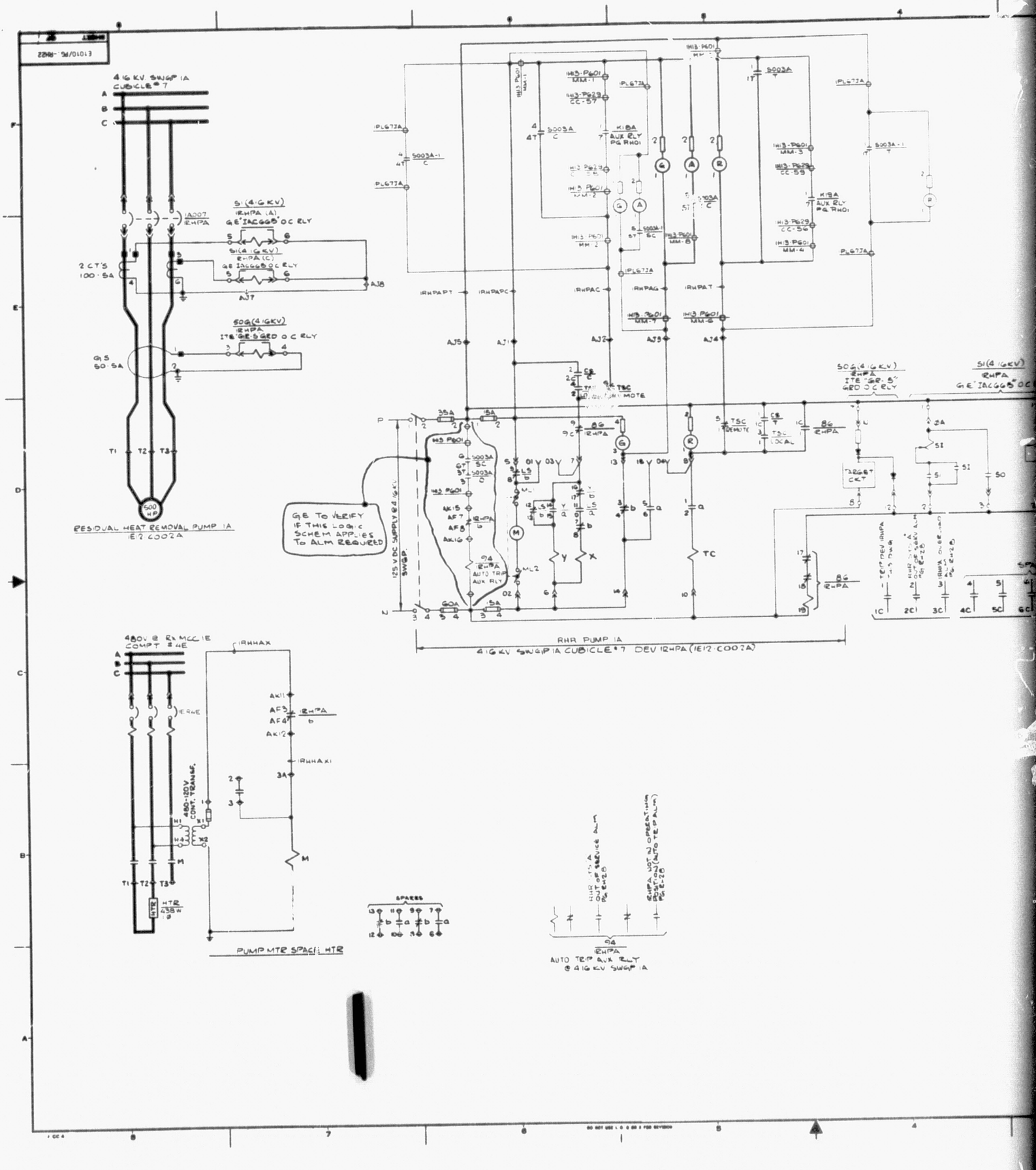
VALVE NUMBER	LIMIT SW. NUMBER	USED ON
1E12-F042B	6 - 6C	PG. RH03

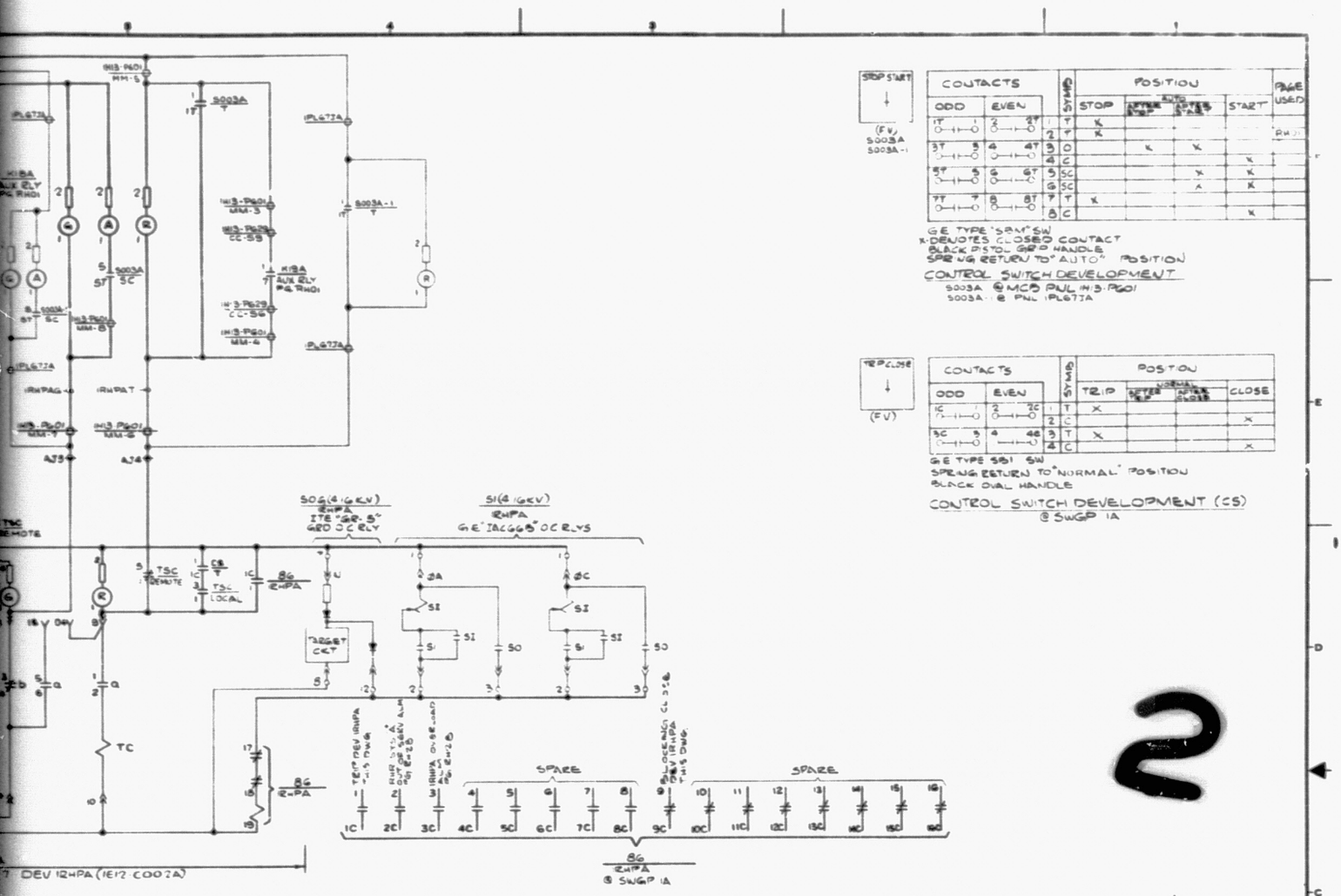
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD

(SHEET 21 of 29)


4.16 KV SWGR 1A
CUBICLE #7
1A007
1EHPA
2 CT'S
100-5A
GIS
50-5A
51 (4.16 KV)
1RHPA (A)
GE IAC66B OC RLY
51 (4.16 KV)
1EHPA (C)
GE IAC66B OC RLY
AJ8
AJ7
50G (4.16KV)
1RHPA
ITE 50 GED OC RLY
T1 T2 T3
500 HP
RESIDUAL HEAT REMOVAL PUMP 1A
1E12-C002A
GE TO VERIFY
IF THIS LOGIC
SCHEM APPLIES
TO ALM REQUIRED
125 V DC SUPPLY
SWGR
1RHPAPT
1RHPAPC
1RHPAC
1RHPAG
1RHPAT
AJ5
AJ1
AJ2
AJ3
AJ4
1H13-P601
MM-1
1H13-P629
CC-57
1PL677A
5003A
K18A
AUX RLY
PG RH01
1H13-P601
MM-3
1H13-P629
CC-59
1H13-P601
MM-2
1H13-P629
CC-56
1H13-P601
MM-4
1H13-P601
MM-7
1H13-P601
MM-8
1H13-P601
MM-5
1H13-P601
MM-6
TSC
REMOTE
TSC
LOCAL
86
1EHPA
50G (4.16KV)
1RHPA
ITE 50GR-5"
GED OC RLY
51 (4.16KV)
1RHPA
GE IAC66B OC
TARGET
CKT
RHR PUMP 1A
4.16 KV SWGR 1A CUBICLE #7 DEV 1RHPA (1E12-C002A)
480V @ RX MCC 1E
COMPT 2-4E
1E24E
480-120V
CONT. TRANSF.
1RHHAX
1RHHAX1
1RHPA
AK11
AF3
AF4
AK12
M
HTR
438W
PUMP MTR SPACE HTR
SPARES
94
1RHPA
AUTO TRIP
AUX RLY
ML2
TC
RHR PUMP 1A OUT OF SERVICE ALM
PG RH28
1RHPA NOT IN OPERATING
POSITION (AUTO TRIP ALM)
PG RH28
94
1RHPA
AUTO TRIP AUX RLY
@ 4.16 KV SWGR 1A



STOP START	CONTACTS ODD	CONTACTS EVEN	SYMB	POSITION STOP	POSITION AUTO AFTER START	POSITION AUTO AFTER STOP	POSITION START	PAGE USED
(FV) 5003A 5003A-1	1T	2 2T	T	K				
			C	K				
	3T 5	4 4T	T		K	K		
			C				K	
	5T 5	6 6T	SC			K	K	
			SC			A	K	
	7T 7	8 8T	T	K				
			C				K	

GE TYPE "SBM" SW
K-DENOTES CLOSED CONTACT
BLACK PISTOL GRIP HANDLE
SPRING RETURN TO "AUTO" POSITION

CONTROL SWITCH DEVELOPMENT
5003A @ MCB PNL 1H13-P601
5003A-1 @ PNL 1PL677A

TRIP CLOSE	CONTACTS ODD	CONTACTS EVEN	SYMB	POSITION TRIP	POSITION AFTER TRIP (NORMAL)	POSITION AFTER CLOSE	POSITION CLOSE
(FV)	1C	2 2C	T	X			
			C				X
	3C 5	4 4C	T	X			
			C				X

GE TYPE SB1 SW
SPRING RETURN TO "NORMAL" POSITION
BLACK OVAL HANDLE

CONTROL SWITCH DEVELOPMENT (CS)
@ SWGR 1A

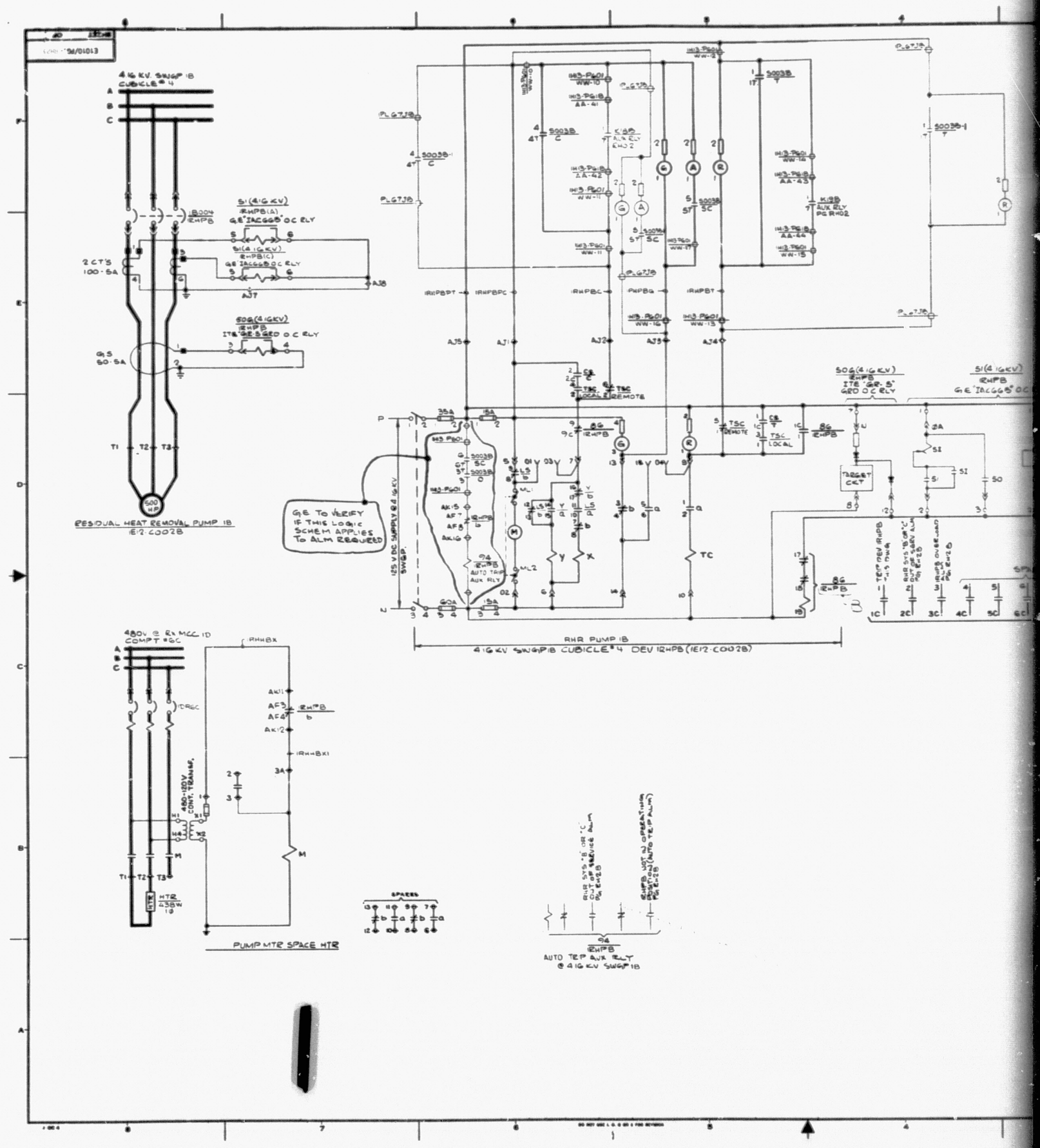
DEVICE	CONDITION OF DEVICE IN EACH BREAKER POS CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTACTS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

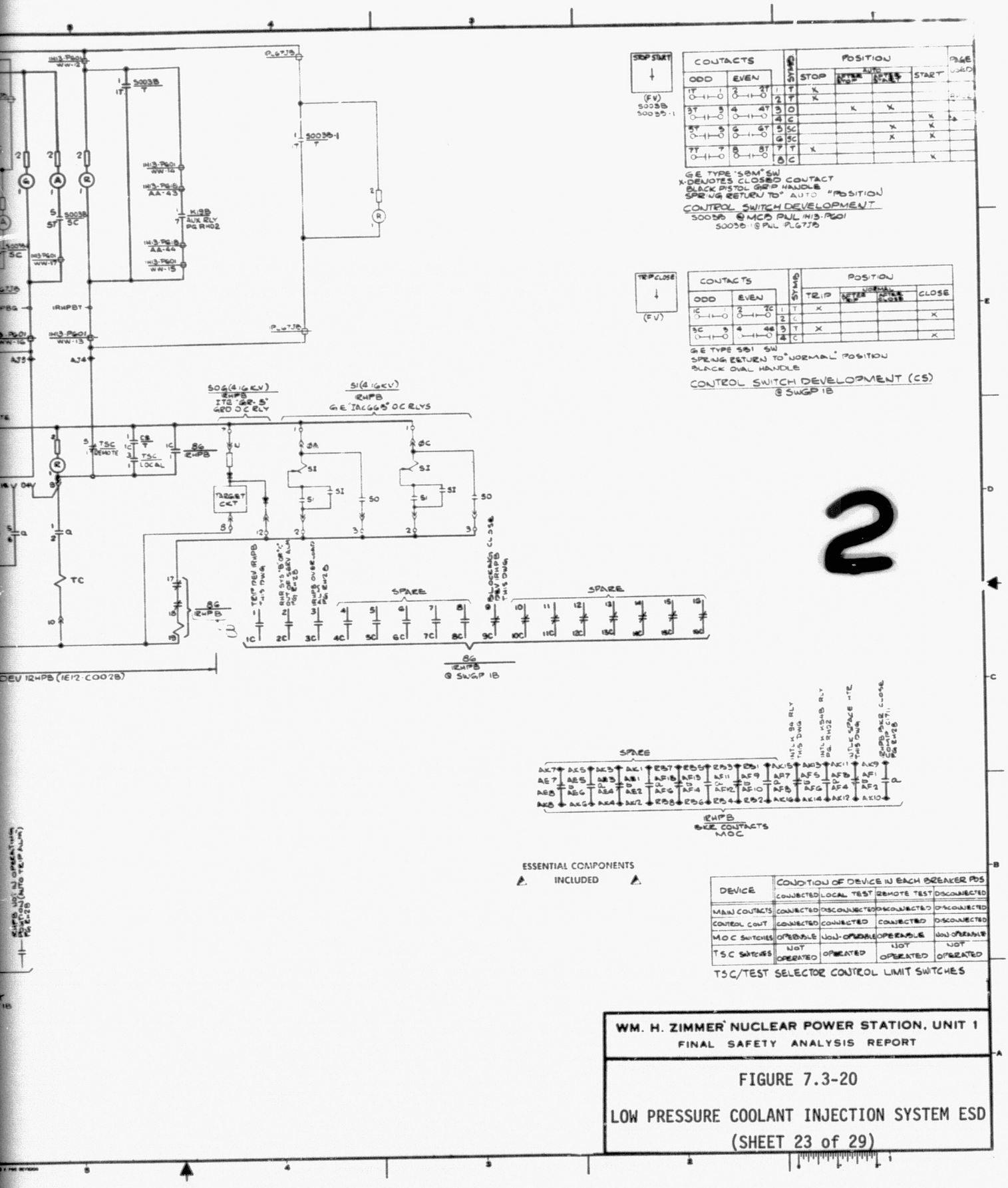
TSC/TEST SELECTOR CONTROL LIMIT SWITCHES

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 22 of 29)


4.16 KV SWGR 1B
CUBICLE # 4
2 CT'S 100-5A
1B004 1RHPB
51(4.16 KV) 1RHPB(A) GE IAC66B OC RLY
51(4.16 KV) 1RHPB(C) GE IAC66B OC RLY
50G(4.16KV) 1RHPB ITE GR-5 GRD OC RLY
GR5 50-5A
500 HP
RESIDUAL HEAT REMOVAL PUMP 1B
1E12-C002B
GE TO VERIFY IF THIS LOGIC SCHEM APPLIES TO ALM REQUIRED
125 V DC SUPPLY 4.16 KV SWGR
RHR PUMP 1B
4.16 KV SWGR 1B CUBICLE # 4 DEV 1RHPB (1E12-C002B)
480V @ RX MCC 1D COMPT # 6C
480-120V CONT. TRANSF.
HTR 438W
PUMP MTR SPACE HTR
SPARES
94 1RHPB AUTO TRIP AUX RLY
AUTO TRIP AUX RLY @ 4.16 KV SWGR 1B
TARGET CKT
TSC REMOTE
TSC LOCAL
86 1RHPB

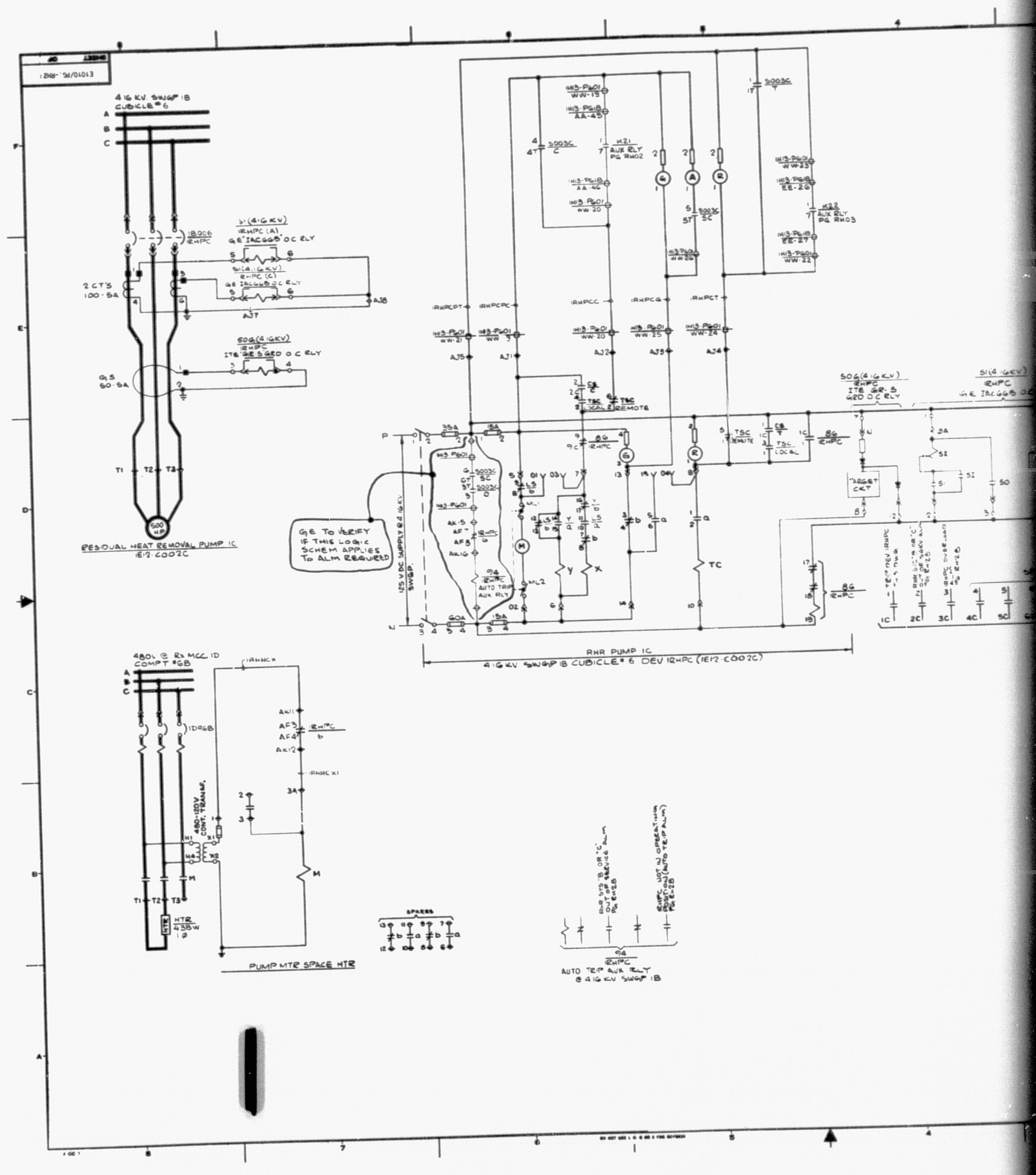


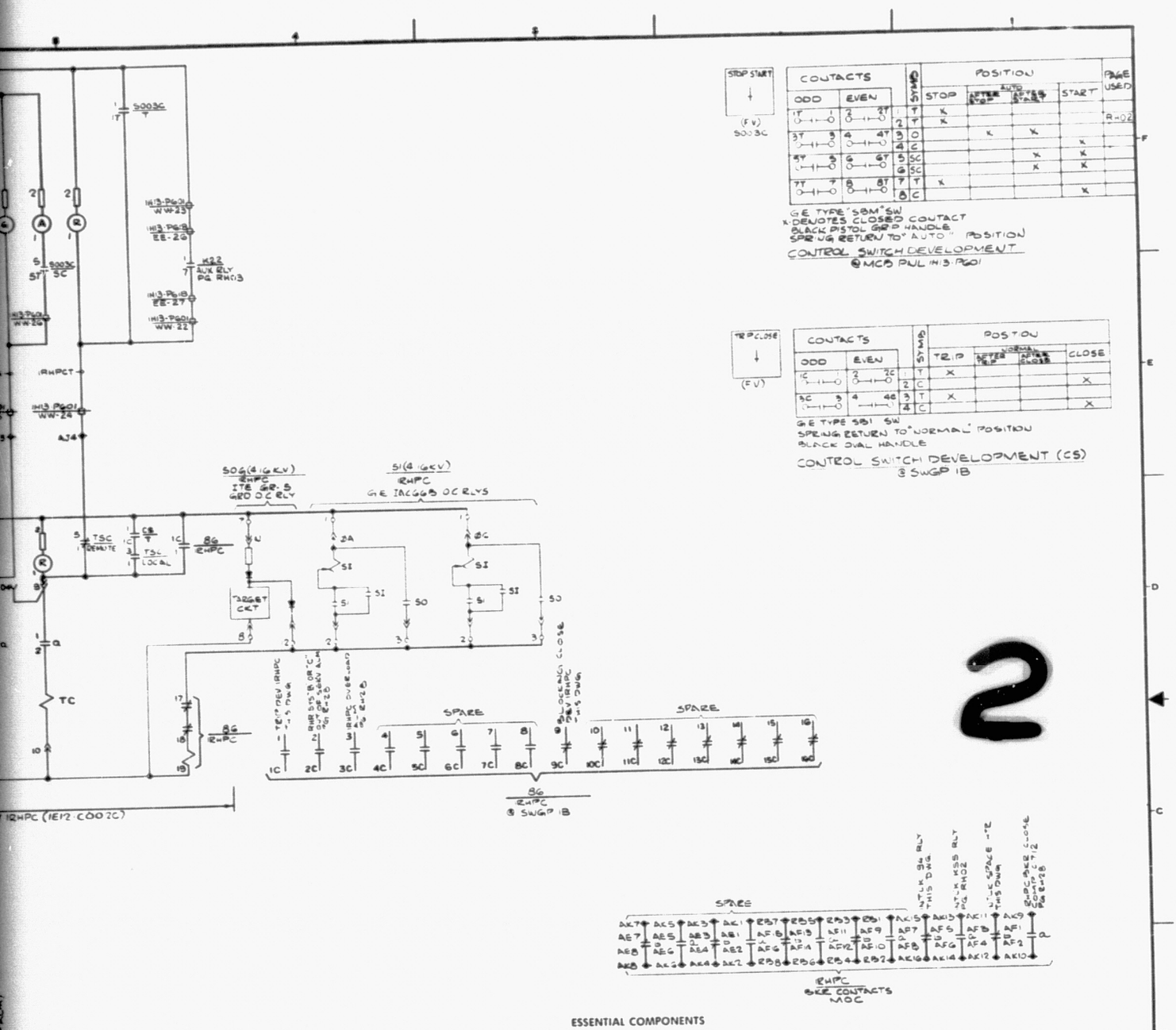
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 23 of 29)


4.16 KV. SWGR 1B
CUBICLE # 6
A
B
C
1B06
IRHPC
2 CT'S
100-5A
GE IAC66B OC RLY
AJ8
AJ7
50G(4.16KV)
IRHPC
ITE GE SGED O C RLY
GE 5
50-5A
T1 T2 T3
500 HP
RESIDUAL HEAT REMOVAL PUMP 1C
1E12-C002C
GE TO VERIFY IF THIS LOGIC SCHEM APPLIES TO ALM REQUIRED
125 VDC SUPPLY @ 4.16 KV SWGR.
94 IRHPC AUTO TRIP AUX RLY
IRHPCPT
IRHPCPC
IRHPCC
IRHPCG
IRHPCT
AJ5
AJ1
AJ2
AJ3
AJ4
TSC REMOTE
TSC LOCAL
86 IRHPC
52GBT CKT
RHR PUMP 1C
4.16 KV SWGR 1B CUBICLE # 6 DEV IRHPC (1E12-C002C)
480V @ RX MCC 1D
COMPT #6B
1D16B
480-120V CONT. TRANSF.
HTR 438W
PUMP MTR SPACE HTR
SPARES
94 IRHPC AUTO TRIP AUX RLY @ 4.16 KV SWGR 1B

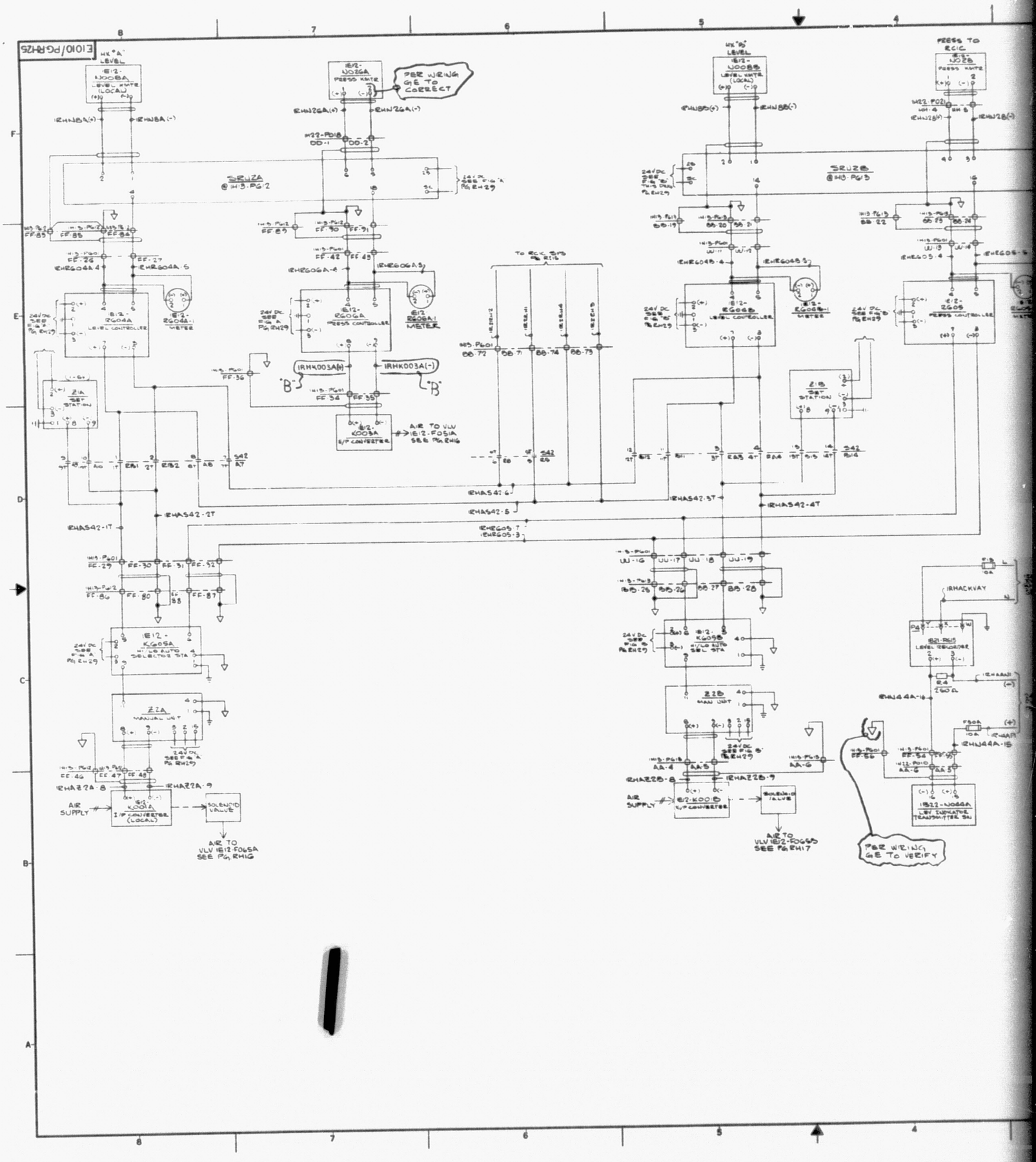


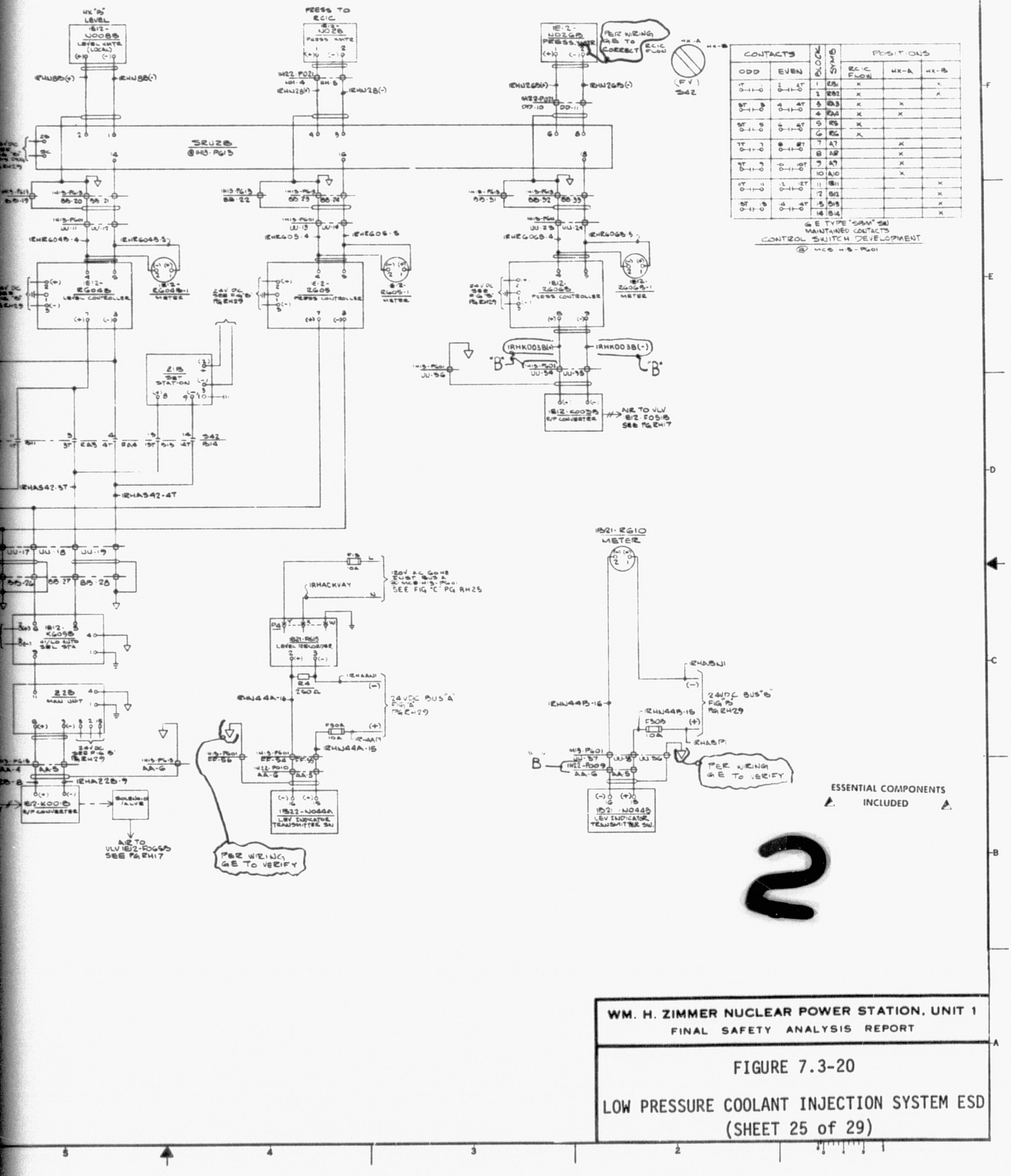
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 24 of 29)


E1010/PGRH25
HX "A" LEVEL
IE12-LJ006A LEVEL XMTR (LOCAL)
IE12-LJ026A PRESS XMTR
PER WIRING GE TO CORRECT
IRHJ2GA(+)
IRHJ2GA(-)
M22-PD18
DD-1
DD-2
SRUZA @ IH3-PG12
24V DC SEE F-6A PG EH29
IH3-PG12 FF-85
FF-84
IH3-PG01 FF-26
FF-27
IHR6046A-4
IHR6046A-5
IE12-RG006A LEVEL CONTROLLER
IE12-RG006A1 METER
IE12-RG006A PRESS CONTROLLER
IE12-RG006A1 METER
IRHK003A(+)
IRHK003A(-)
IH3-PG01 FF-36
IH3-PG01 FF-34
FF-35
IE12-KG003A E/P CONVERTER
AIR TO VLV IE12-FO51A SEE PG RH16
IH3-PG01 FF-42
FF-43
IHR6046A-6
IHR6046A-7
TO RCIC SYS PG RI15
IH3-PG01 BB-72
BB-71
BB-74
BB-73
IRHA542-6
IRHA542-5
IRHA542-1T
IRHA542-2T
IRHR6057
IHR6053-7
IHR6053-3
IH3-PG01 FF-29
FF-30
FF-31
FF-32
IH3-PG02 FF-86
FF-80
FF-87
IE12-KG003A HI/LO AUTO SELECTOR STA
Z7A MANUAL UNIT
24V DC SEE F-6A PG EH29
IH3-PG12 FF-46
FF-47
FF-48
IRHA72A-8
IRHA72A-9
IE12-KG001A I/P CONVERTER (LOCAL)
AIR SUPPLY
SOLENOID VALVE
AIR TO VLV IE12-FO65A SEE PG RH16
HX "B" LEVEL
IE12-LJ008B LEVEL XMTR (LOCAL)
IRHJ8B(+)
IRHJ8B(-)
SRUZB @ IH3-PG13
24V DC SEE F-6A PG EH29
IH3-PG13 BB-19
BB-20
BB-21
IH3-PG01 JJ-11
JJ-12
IHR6045B-4
IHR6045B-5
IE12-RG006B LEVEL CONTROLLER
IE12-RG006B1 METER
IH3-PG01 BB-72
BB-71
BB-74
BB-73
Z1B SET STATION
IRHA542-4T
IRHA542-5T
IH3-PG01 JJ-16
JJ-17
JJ-18
JJ-19
IH3-PG13 BB-25
BB-26
BB-27
BB-28
IE12-KG003B HI/LO SLTD SEL STA
Z2B MAN UNIT
24V DC SEE F-6B PG EH29
IH3-PG13 AA-4
AA-5
IRHAZ2B-8
IRHAZ2B-9
AIR SUPPLY
IE12-KG001B I/P CONVERTER
SOLENOID VALVE
AIR TO VLV IE12-FO65B SEE PG RH17
PRESS TO RCIC
IE12-LJ028 PRESS XMTR
M22-PD21
IRHJ28(+)
IRHJ28(-)
SRUZB @ IH3-PG13
IH3-PG13 BB-22
BB-23
BB-24
IH3-PG01 JJ-13
JJ-14
IHR6053-4
IHR6053-5
IE12-2G05 PRESS CONTROLLER
IRHACKVAY
IE21-PA15 LEVEL INDICATOR
R4 250Ω
IRHA44A-16
IRHA44A-15
F80A 10A
IRHAAN1
IRHAAP1
IH3-PG01 FF-51
FF-52
IH22-PD10 AA-6
AA-5
IB22-LJ066A LEV INDICATING TRANSMITTER SW
IH3-PG13 AA-6
PER WIRING GE TO VERIFY



CONTACTS ODD	CONTACTS EVEN	BLOCK	SYMB	POSITIONS RCIC FLOW	POSITIONS HX-A	POSITIONS HX-B
1T	2T	1	B5	X		X
		2	B61	X		X
3T	4T	3	B63	X	X	
		4	B64	X	X	
5T	6T	5	B5	X		
		6	B6	X		
7T	8T	7	A7		X	
		8	A8		X	
9T	10T	9	A9		X	
		10	A10		X	
11T	12T	11	B11			X
		12	B12			X
13T	14T	15	B13			X
		14	B14			X

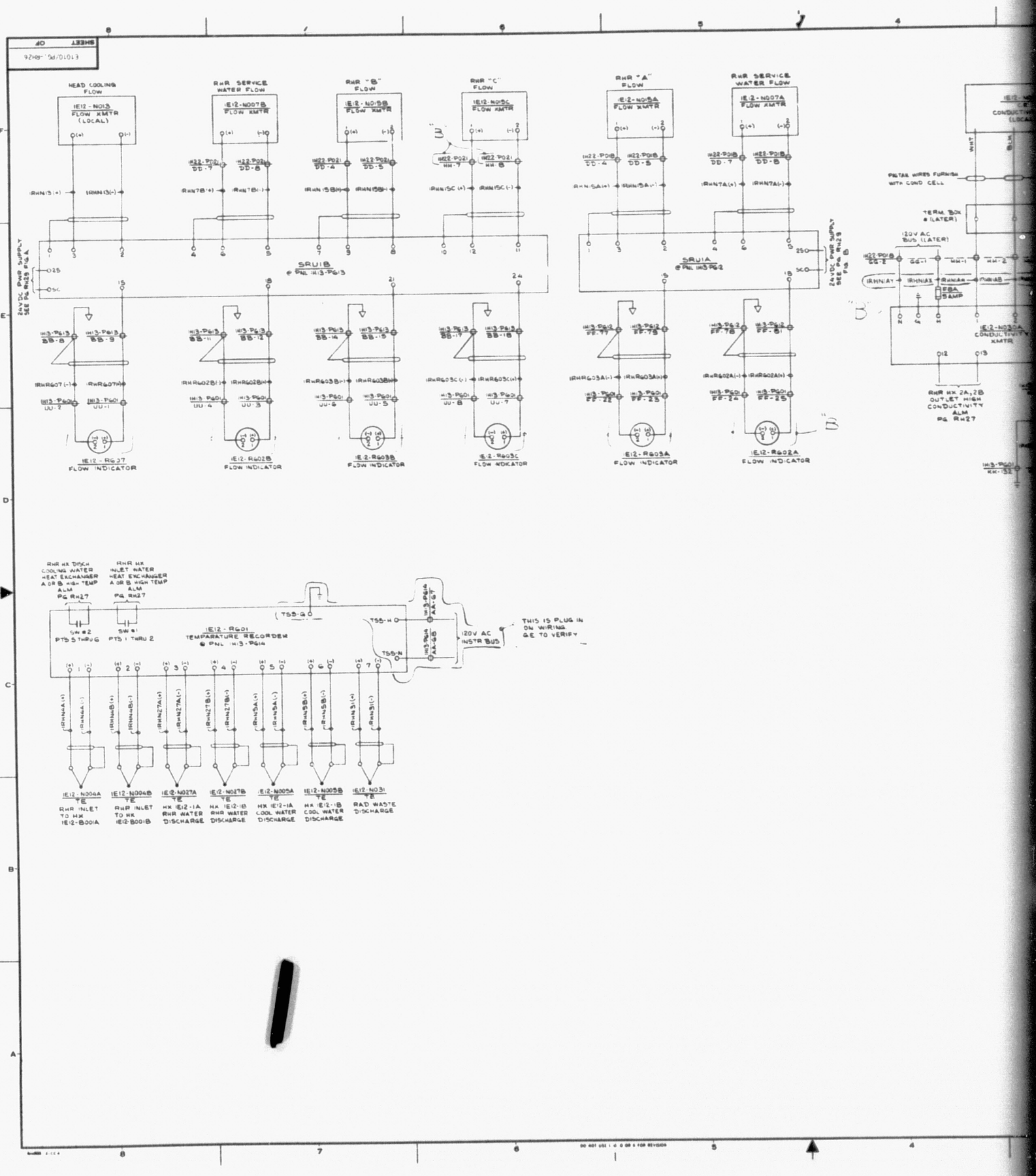
GE TYPE "SBM" SW
MAINTAINED CONTACTS
CONTROL SWITCH DEVELOPMENT
@ MCB H-5-P601

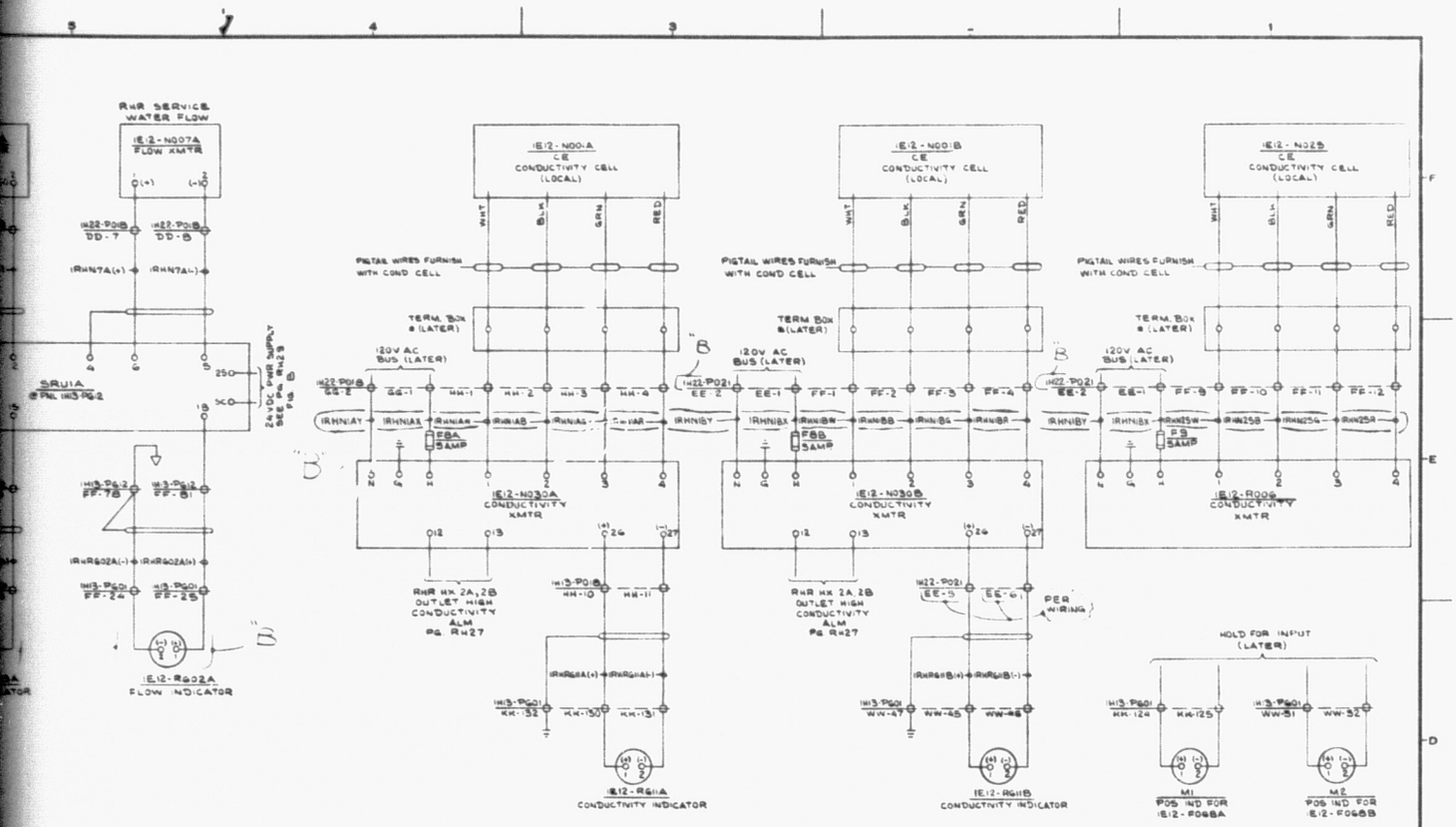
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 25 of 29)


HEAD COOLING FLOW
IE12-N013 FLOW XMTR (LOCAL)
RHR SERVICE WATER FLOW
IE12-N007B FLOW XMTR
RHR "B" FLOW
IE12-N015B FLOW XMTR
RHR "C" FLOW
IE12-N015C FLOW XMTR
RHR "A" FLOW
IE12-N015A FLOW XMTR
RHR SERVICE WATER FLOW
IE12-N007A FLOW XMTR
24VDC PWR SUPPLY SEE PG RH28 FIG A
SRU1B @ PNL 1H13-P613
SRU1A @ PNL 1H13-P612
24VDC PWR SUPPLY SEE PG RH28 FIG B
IE12-R607 FLOW INDICATOR
IE12-R602B FLOW INDICATOR
IE12-R603B FLOW INDICATOR
IE12-R603C FLOW INDICATOR
IE12-R603A FLOW INDICATOR
IE12-R602A FLOW INDICATOR
PETAK WIRED FURNISH WITH COND CELL
TERM. BOX * (LATER)
120V AC BUS (LATER)
FBA 5 AMP
IE12-N030A CONDUCTIVITY XMTR
RHR HX 2A,2B OUTLET HIGH CONDUCTIVITY ALM PG RH27
RHR HX DISCH COOLING WATER HEAT EXCHANGER A OR B HIGH TEMP ALM PG RH27
RHR HX INLET WATER HEAT EXCHANGER A OR B HIGH TEMP ALM PG RH27
SW #2 PTS 5 THRU 8
SW #1 PTS 1 THRU 2
IE12-R601 TEMPARATURE RECORDER @ PNL 1H13-P614
120V AC INSTR BUS
THIS IS PLUG IN ON WIRING GE TO VERIFY
IE12-N004A TE RHR INLET TO HX IE12-B001A
IE12-N004B TE RHR INLET TO HX IE12-B001B
IE12-N027A TE HX IE12-1A RHR WATER DISCHARGE
IE12-N027B TE HX IE12-1B RHR WATER DISCHARGE
IE12-N005A TE HX IE12-1A COOL WATER DISCHARGE
IE12-N005B TE HX IE12-1B COOL WATER DISCHARGE
IE12-N031 TE RAD WASTE DISCHARGE



2

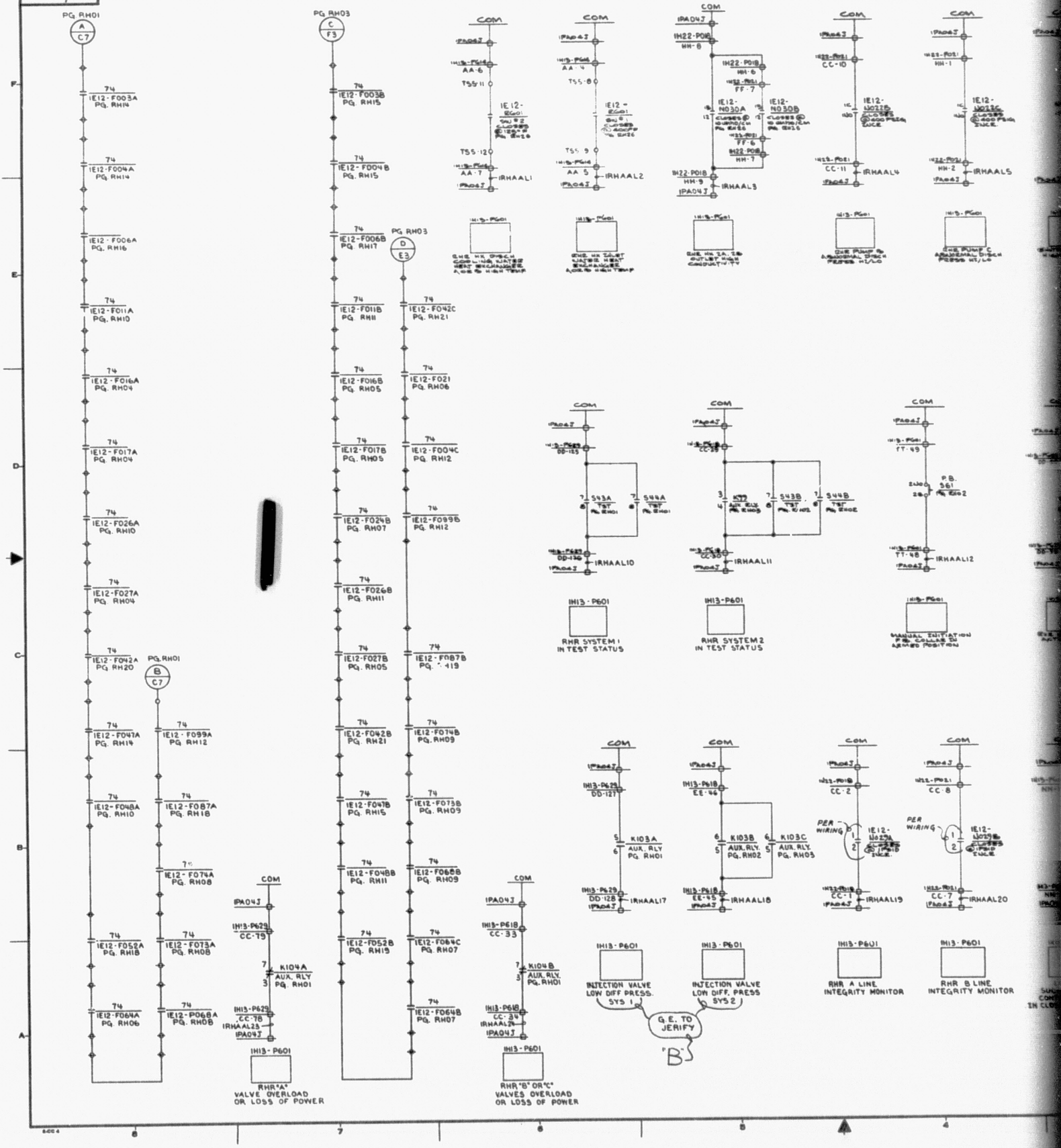
ESSENTIAL COMPONENTS
INCLUDED

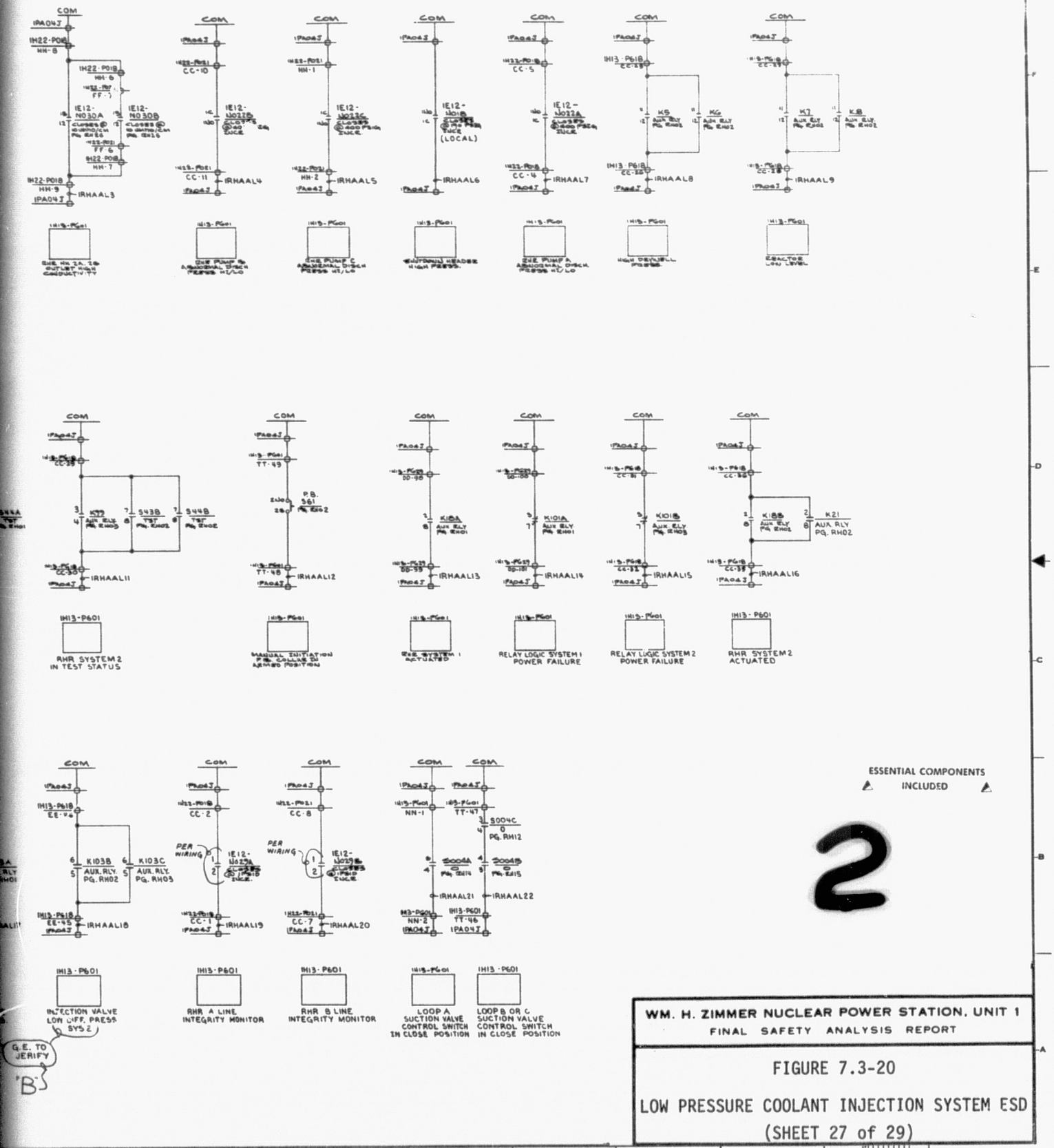
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 26 of 29)

E1010/PGRH27


PG. RH01
PG. RH03
COM
IE12-F003A PG. RH14
IE12-F004A PG. RH14
IE12-F006A PG. RH16
IE12-F011A PG. RH10
IE12-F016A PG. RH04
IE12-F017A PG. RH04
IE12-F026A PG. RH10
IE12-F027A PG. RH04
IE12-F042A PG. RH20
IE12-F047A PG. RH14
IE12-F048A PG. RH10
IE12-F052A PG. RH18
IE12-F064A PG. RH06
IE12-F099A PG. RH12
IE12-F087A PG. RH18
IE12-F074A PG. RH08
IE12-F073A PG. RH08
IE12-P068A PG. RH08
IE12-F003B PG. RH15
IE12-F004B PG. RH15
IE12-F006B PG. RH17
IE12-F011B PG. RH11
IE12-F016B PG. RH05
IE12-F017B PG. RH05
IE12-F024B PG. RH07
IE12-F026B PG. RH11
IE12-F027B PG. RH05
IE12-F042B PG. RH21
IE12-F047B PG. RH15
IE12-F048B PG. RH11
IE12-F052B PG. RH15
IE12-F042C PG. RH21
IE12-F021 PG. RH06
IE12-F004C PG. RH12
IE12-F099B PG. RH12
IE12-F087B PG. RH19
IE12-F074B PG. RH09
IE12-F073B PG. RH09
IE12-F068B PG. RH09
IE12-F064C PG. RH07
IE12-F064B PG. RH07
IE12-F099C PG. RH12
IE12-F087C PG. RH19
IE12-F074C PG. RH08
IE12-F073C PG. RH08
IE12-P068C PG. RH08
IE12-F064A PG. RH06
IE12-F064B PG. RH07
IE12-F064C PG. RH07
IE12-F048C PG. RH10
IE12-F047C PG. RH14
IE12-F042C PG. RH20
IE12-F027C PG. RH04
IE12-F026C PG. RH10
IE12-F017C PG. RH04
IE12-F016C PG. RH04
IE12-F011C PG. RH10
IE12-F006C PG. RH16
IE12-F004C PG. RH14
IE12-F003C PG. RH14
IE12-F052C PG. RH18
IE12-F073C PG. RH08
IE12-P068C PG. RH08
IE12-F064C PG. RH06
IE12-F064B PG. RH07
IE12-F064A PG. RH06
IE12-F048B PG. RH11
IE12-F047B PG. RH15
IE12-F042B PG. RH21
IE12-F027B PG. RH05
IE12-F026B PG. RH11
IE12-F024B PG. RH07
IE12-F017B PG. RH05
IE12-F016B PG. RH05
IE12-F011B PG. RH11
IE12-F006B PG. RH17
IE12-F004B PG. RH15
IE12-F003B PG. RH15
IE12-F052B PG. RH15
IE12-F073B PG. RH09
IE12-F074B PG. RH09
IE12-F087B PG. RH19
IE12-F099B PG. RH12
IE12-F021 PG. RH06
IE12-F042C PG. RH21
IE12-F027C PG. RH05
IE12-F026C PG. RH11
IE12-F017C PG. RH05
IE12-F016C PG. RH05
IE12-F011C PG. RH11
IE12-F006C PG. RH17
IE12-F004C PG. RH12
IE12-F003C PG. RH15
IE12-F052C PG. RH19
IE12-F073C PG. RH09
IE12-F074C PG. RH09
IE12-F087C PG. RH19
IE12-F099C



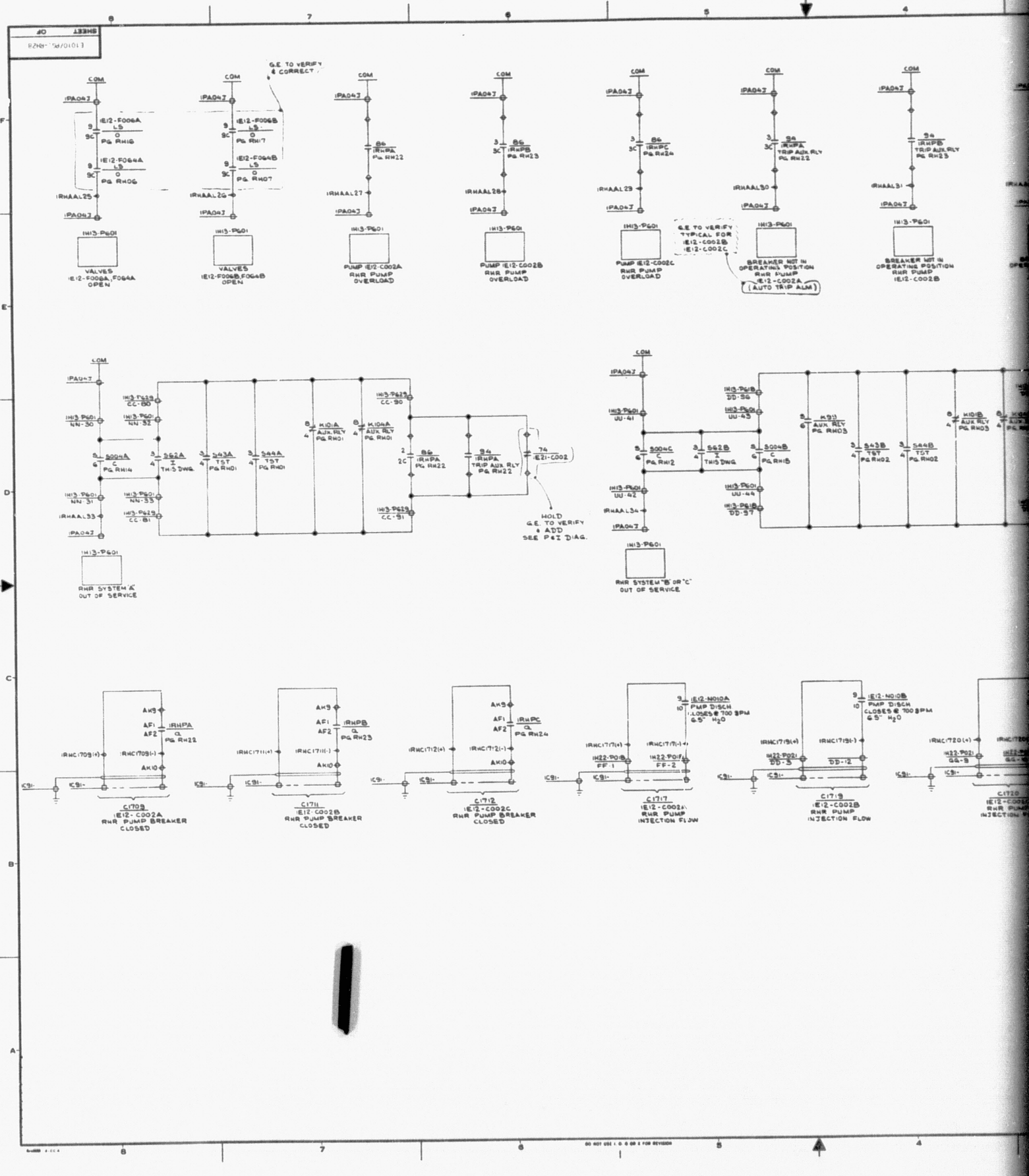
ESSENTIAL COMPONENTS INCLUDED

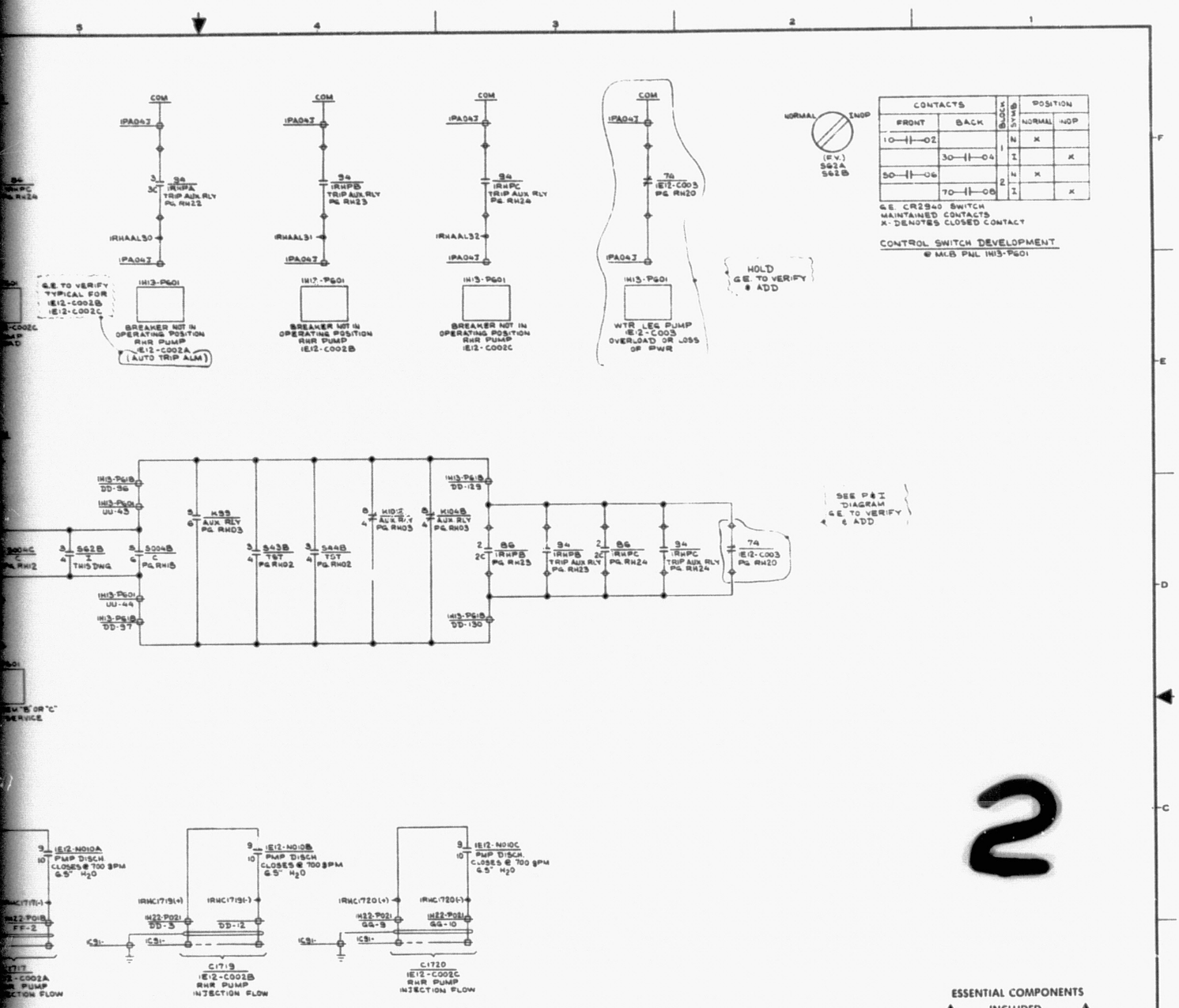
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 27 of 29)


SHEET OF
E1010/PSL-RH28
8
7
6
5
4
F
E
D
C
B
A
COM
1PA047
IE12-F006A LS O PG RH16
IE12-F064A LS O PG RH06
1RHAAL25
1PA047
1H13-P601
VALVES IE12-F006A, F064A OPEN
G.E. TO VERIFY & CORRECT
IE12-F006B LS O PG RH17
IE12-F064B LS O PG RH07
1RHAAL26
1PA047
1H13-P601
VALVES IE12-F006B, F064B OPEN
86 1RHPA PG RH22
1RHAAL27
1PA047
1H13-P601
PUMP IE12-C002A RHR PUMP OVERLOAD
86 1RHPB PG RH23
1RHAAL28
1PA047
1H13-P601
PUMP IE12-C002B RHR PUMP OVERLOAD
86 1RHPC PG RH24
1RHAAL29
1PA047
1H13-P601
PUMP IE12-C002C RHR PUMP OVERLOAD
G.E. TO VERIFY TYPICAL FOR IE12-C002B IE12-C002C
94 1RHPA TRIP AUX RLY PG RH22
1RHAAL30
1PA047
1H13-P601
BREAKER NOT IN OPERATING POSITION RHR PUMP IE12-C002A (AUTO TRIP ALM)
94 1RHPB TRIP AUX RLY PG RH23
1RHAAL31
1PA047
1H13-P601
BREAKER NOT IN OPERATING POSITION RHR PUMP IE12-C002B
1H13-P601 NN-30
1H13-P601 NN-32
1H13-P629 CC-80
1H13-P629 CC-90
1H13-P629 CC-91
1H13-P601 NN-31
1H13-P601 NN-33
1H13-P629 CC-81
1RHAAL33
1PA047
1H13-P601
RHR SYSTEM 'A' OUT OF SERVICE
5004A C PG RH14
562A X TH15 DWG
543A TST PG RH01
544A TST PG RH01
M10A AUX RLY PG RH01
M10A AUX RLY PG RH01
86 1RHPA PG RH22
94 1RHPA TRIP AUX RLY PG RH22
74 IE21-C002
HOLD G.E. TO VERIFY & ADD SEE P&I DIAG.
1H13-P601 UU-41
1H13-P601 UU-43
1H13-P601 UU-42
1H13-P601 UU-44
1H13-P618 DD-96
1H13-P618 DD-97
1RHAAL34
1PA047
1H13-P601
RHR SYSTEM 'B' OR 'C' OUT OF SERVICE
5004C C PG RH12
562B X TH15 DWG
5004B C PG RH15
M211 AUX RLY PG RH03
543B TST PG RH02
544B TST PG RH02
M10B AUX RLY PG RH03
AK9
AF1
AF2
1RHPA PG RH22
1RHC1709(+)
1RHC1709(-)
AK10
IC91-
IC91-
C1709 IE12-C002A RHR PUMP BREAKER CLOSED
1RHPB PG RH23
1RHC1711(+)
1RHC1711(-)
C1711 IE12-C002B RHR PUMP BREAKER CLOSED
1RHPC PG RH24
1RHC1712(+)
1RHC1712(-)
C1712 IE12-C002C RHR PUMP BREAKER CLOSED
IE12-N010A PMP DISCH CLOSES @ 700 $PM @ 5" H_2O
1RHC1717(+)
1RHC1717(-)
1H22-P018 FF-1
1H22-P018 FF-2
C1717 IE12-C002A RHR PUMP INJECTION FLOW
IE12-N010B PMP DISCH CLOSES @ 700 $PM @ 5" H_2O
1RHC1719(+)
1RHC1719(-)
1H22-P021 DD-5
1H22-P021 DD-12
C1719 IE12-C002B RHR PUMP INJECTION FLOW
1RHC1720(+)
1H22-P021 GG-9
C1720 IE12-C002C RHR PUMP INJECTION
DO NOT USE I, O, Q OR Z FOR REVISION



2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 28 of 29)

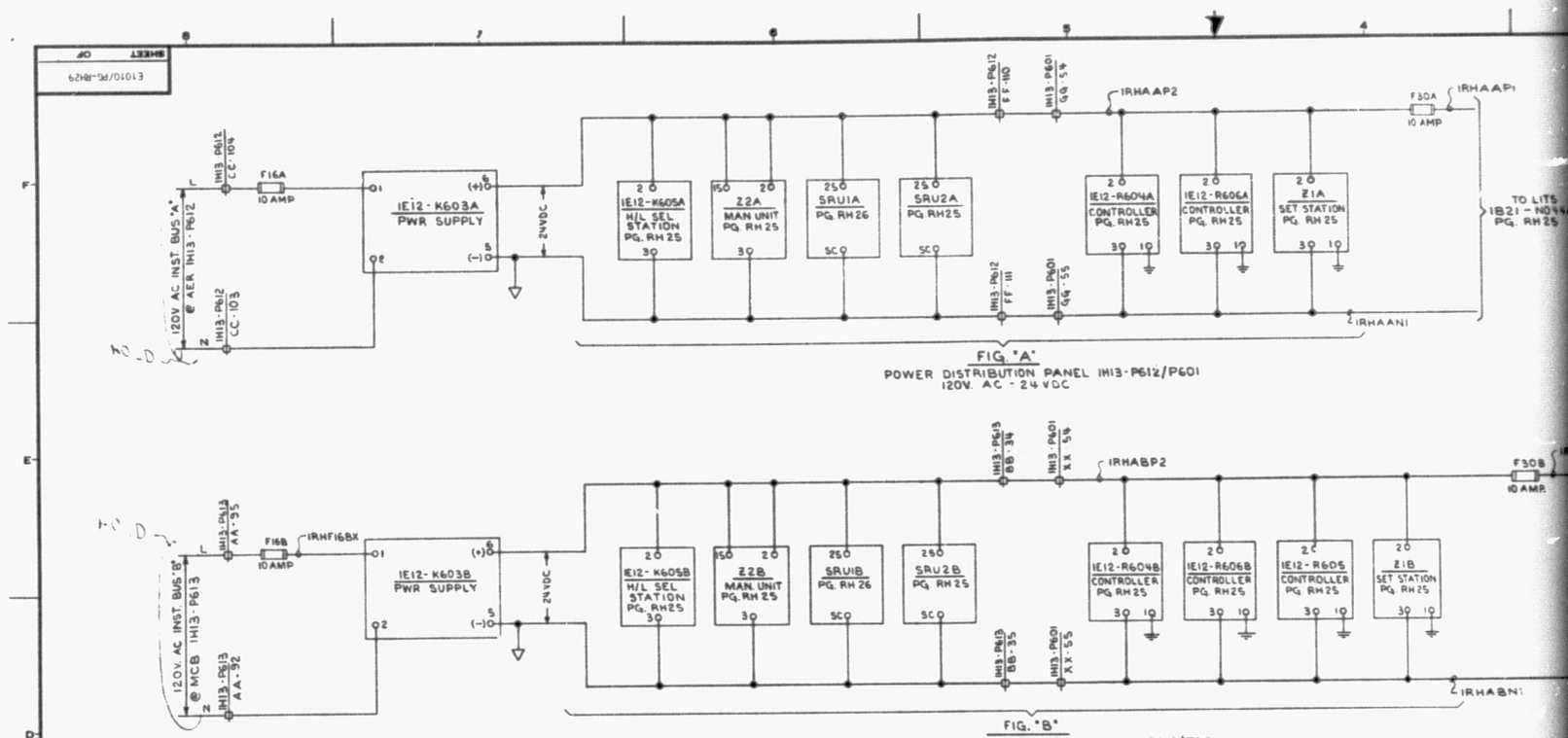


FIG. "A"
POWER DISTRIBUTION PANEL 1H13-P612/P601
120V. AC - 24 VDC

FIG. "B"
POWER DISTRIBUTION PANEL 1H13-P613/P601
120V, AC - 24VDC

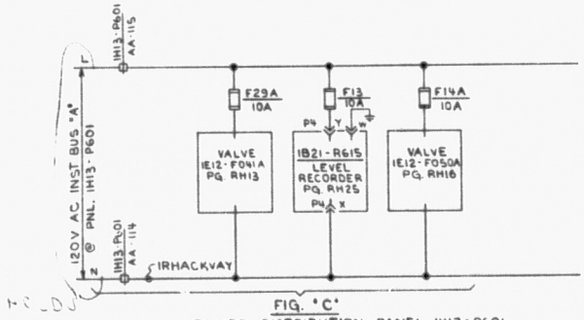


FIG. "C"
POWER DISTRIBUTION PANEL 1H13-P601

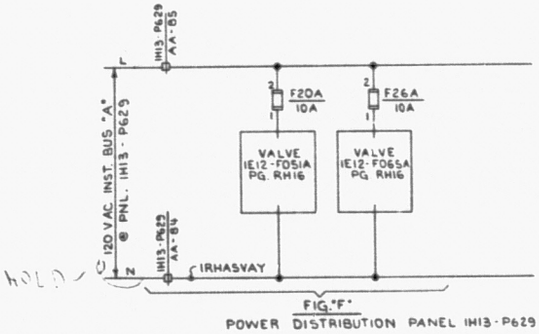


FIG. "F"
POWER DISTRIBUTION PANEL 1H13-P629

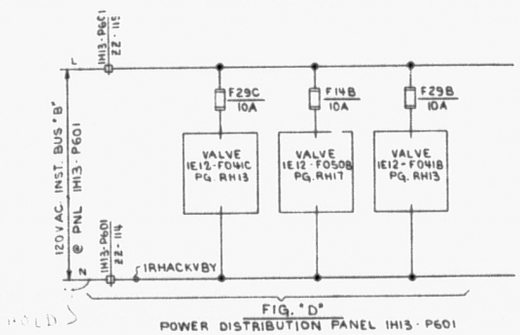


FIG. "D"
POWER DISTRIBUTION PANEL 1H13-P601

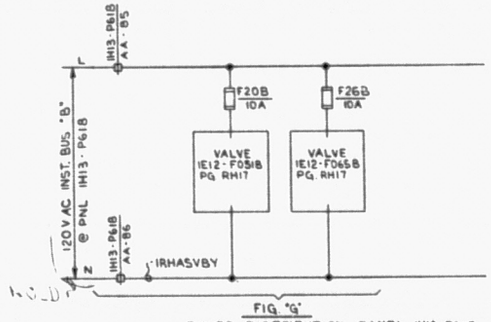


FIG. "G"
POWER DISTRIBUTION PANEL 1H13-P618

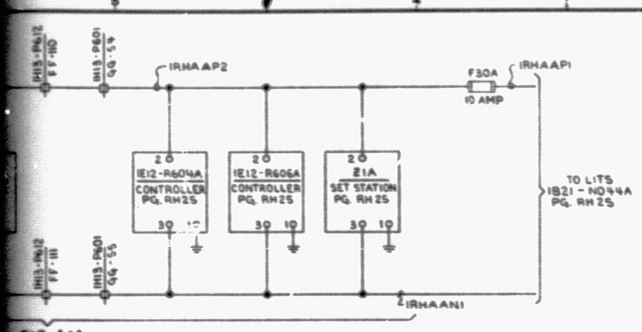


FIG. "A"
TRIBUTION PANEL IHI3-P612/P601
AC - 24 VDC

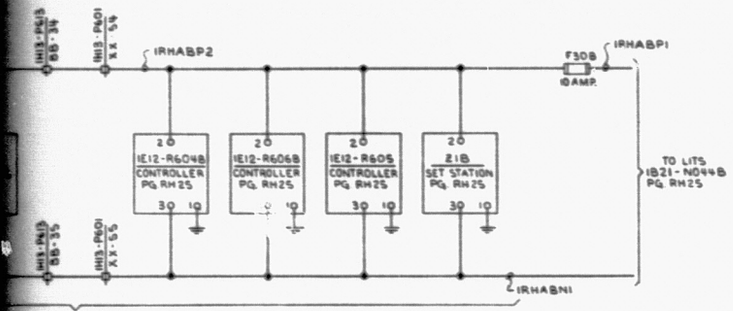


FIG. "B"
TRIBUTION PANEL IHI3-P613/P601
20V, AC - 24VDC

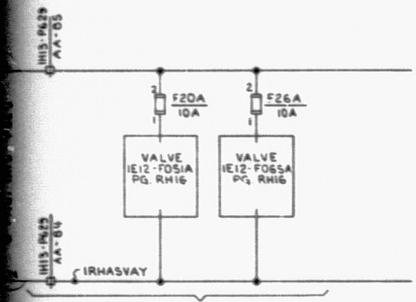


FIG. "F"
POWER DISTRIBUTION PANEL IHI3-P629

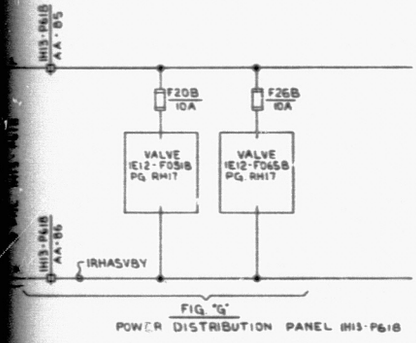
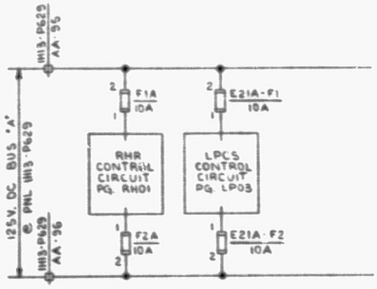


FIG. "G"
POWER DISTRIBUTION PANEL IHI3-P618



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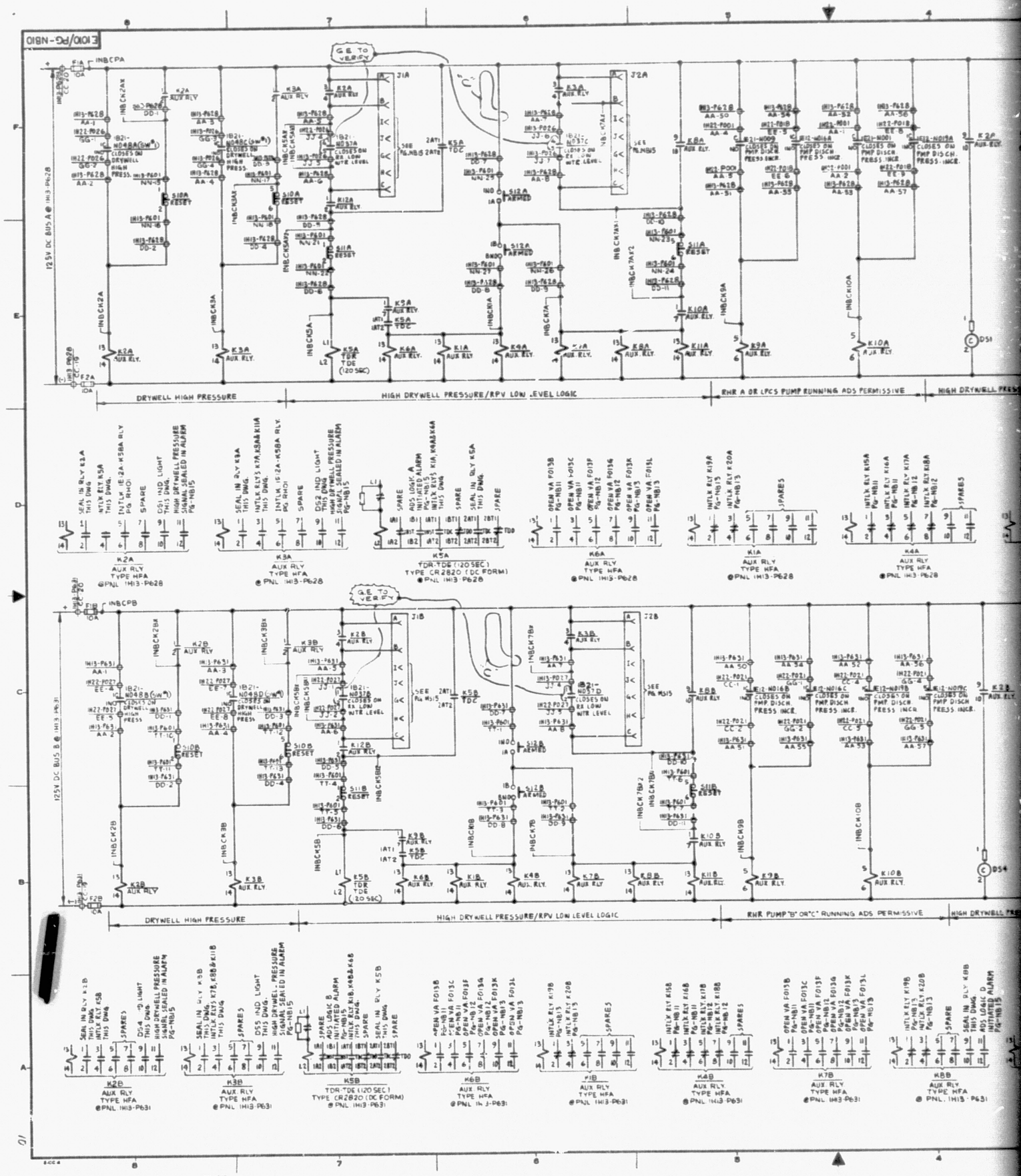
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

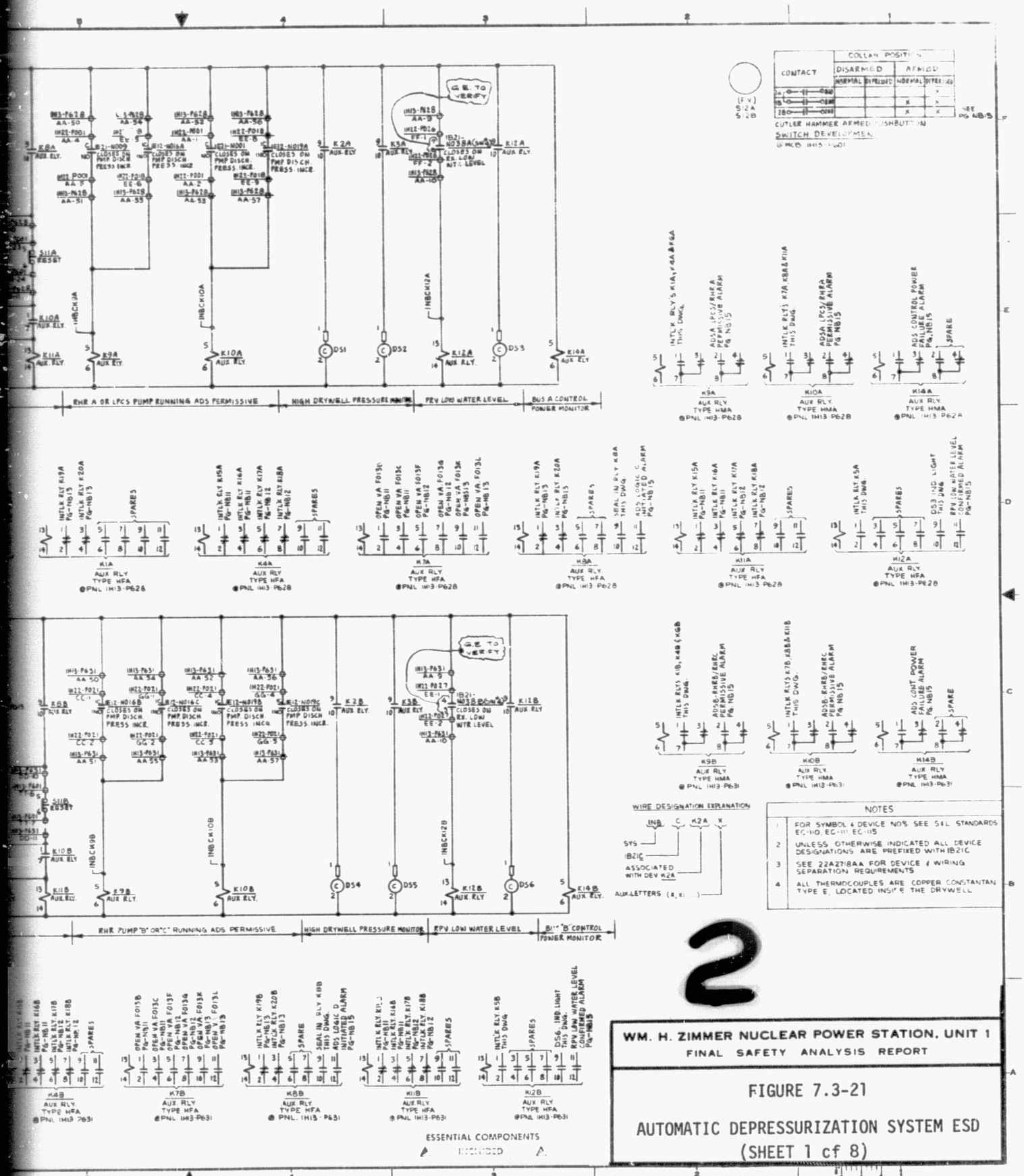
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-20

LOW PRESSURE COOLANT INJECTION SYSTEM ESD
(SHEET 29 of 29)

E1010/PG-NB10





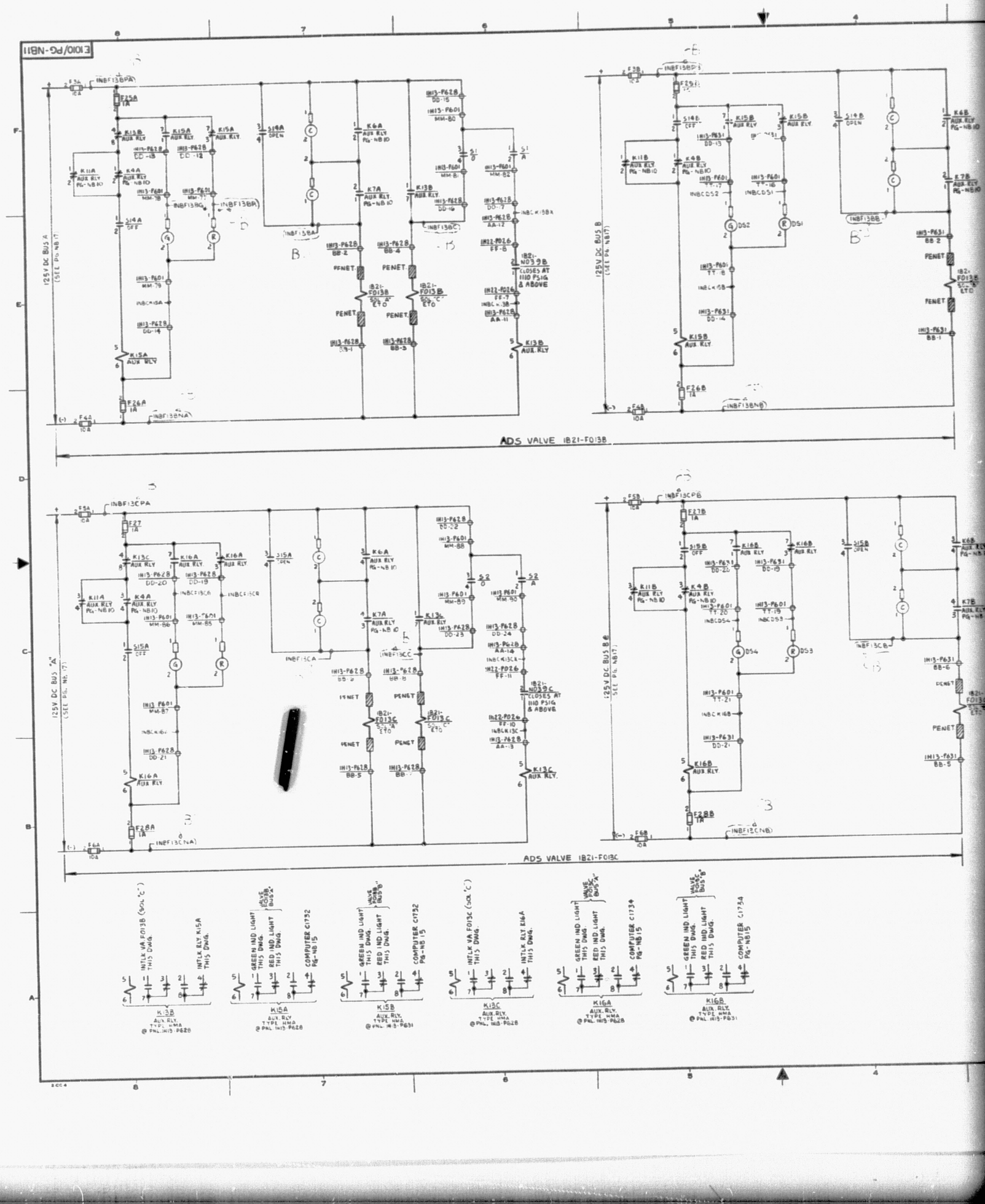
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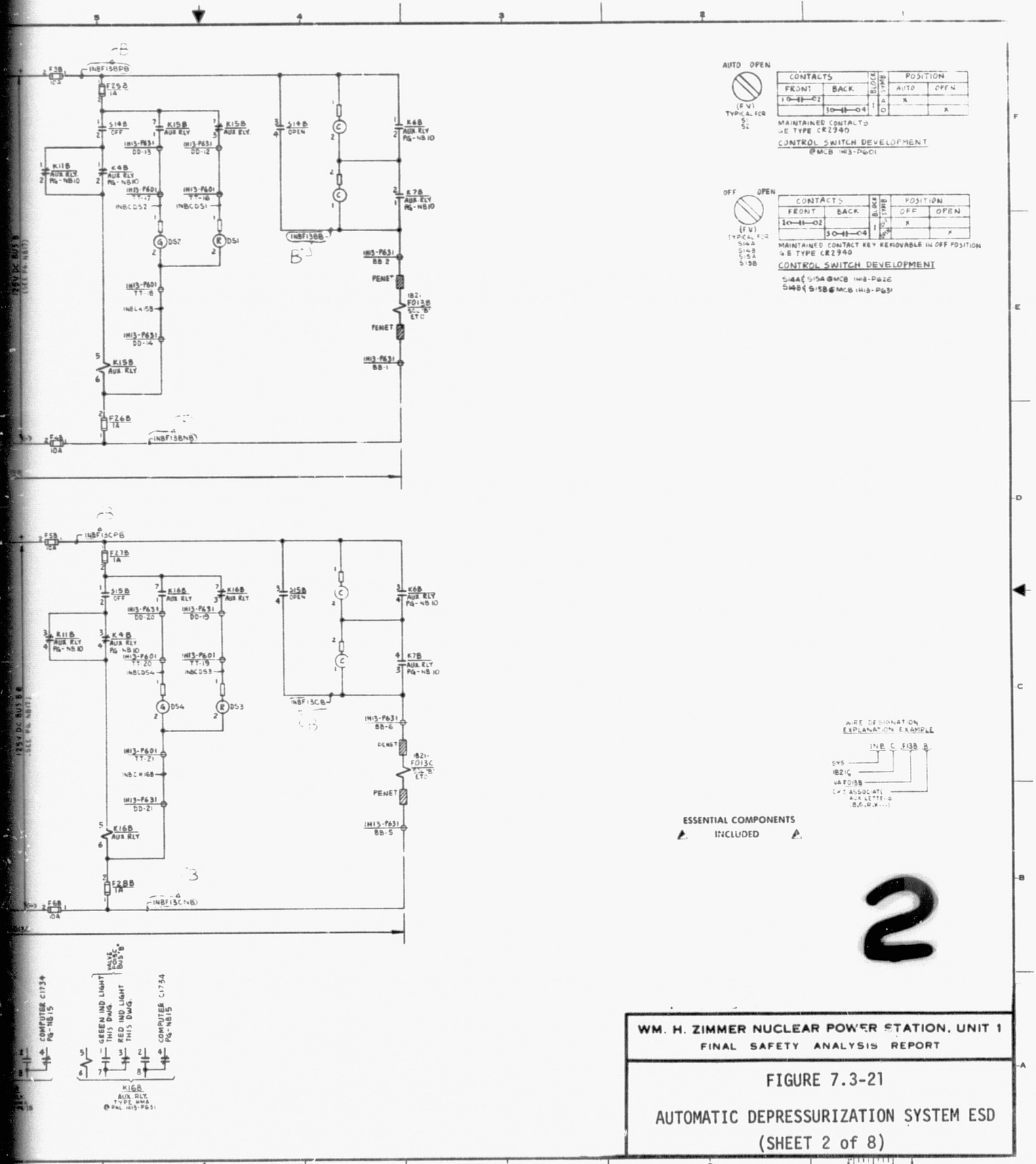
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-21

AUTOMATIC DEPRESSURIZATION SYSTEM ESD
(SHEET 1 of 8)

E1010/PG-NB11





AUTO OPEN

(F.V.) TYPICAL FOR S1 S2

CONTACTS		BLOCK SYMB	POSITION	
FRONT	BACK		AUTO	OPEN
1○—○2		A	X	
	3○—○4	D		X

MAINTAINED CONTACTS G E TYPE CR2940

CONTROL SWITCH DEVELOPMENT @MCB IH13-P601

OFF OPEN

(F.V.) TYPICAL FOR S14A S14B S15A S15B

CONTACTS		BLOCK SYMB	POSITION	
FRONT	BACK		OFF	OPEN
1○—○2		A	X	
	3○—○4	D		X

MAINTAINED CONTACT KEY REMOVABLE IN OFF POSITION G E TYPE CR2940

CONTROL SWITCH DEVELOPMENT

S14A{S15A @MCB IH13-P632
S14B{S15B @MCB IH13-P631

WIRE DESIGNATION EXPLANATION EXAMPLE

INB C F13B B

SYS
IB21G
VAFO13B
CKT ASSOCIATI AUX LETTER (B,C,R,X...)

ESSENTIAL COMPONENTS

▲ INCLUDED ▲

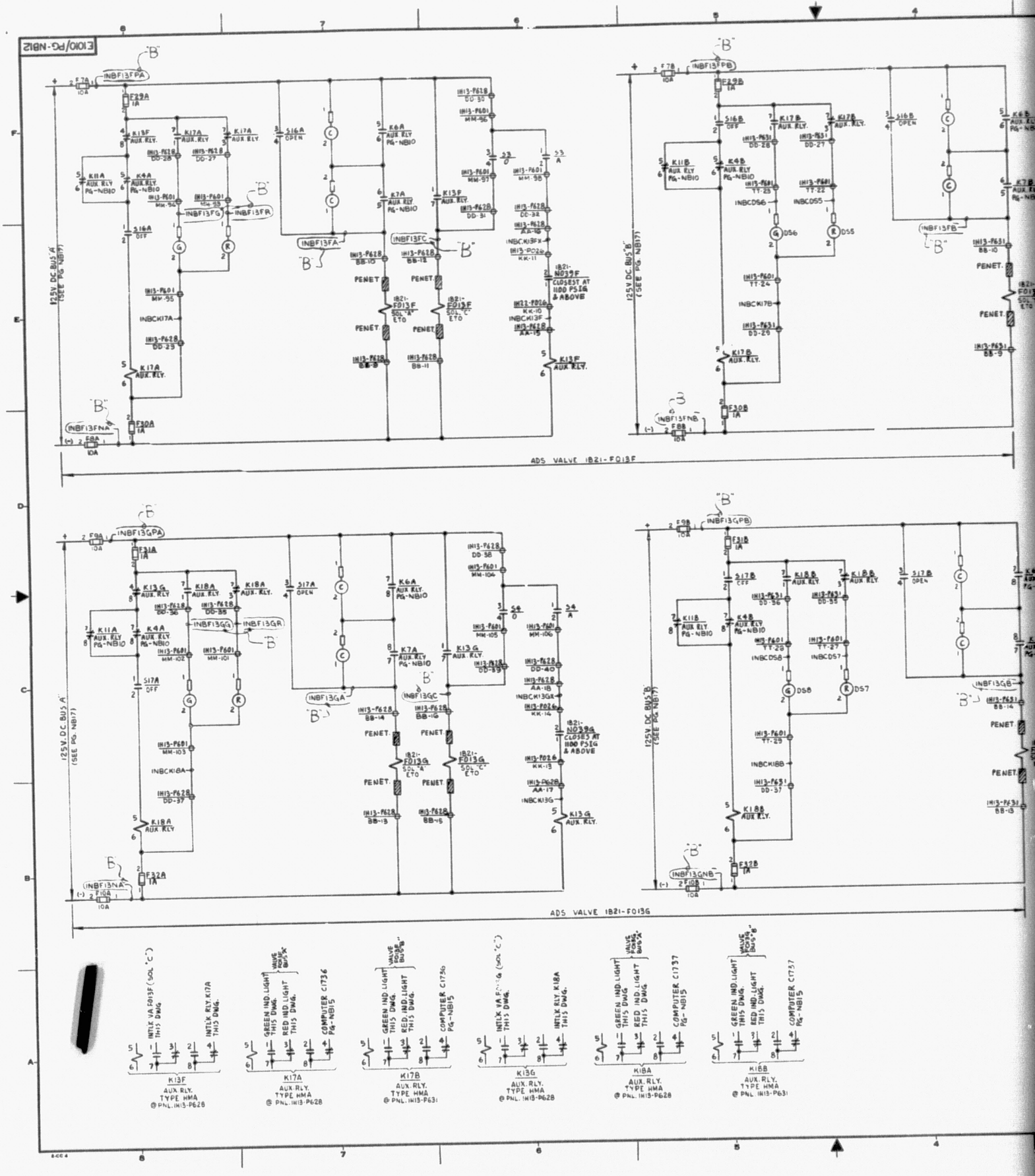
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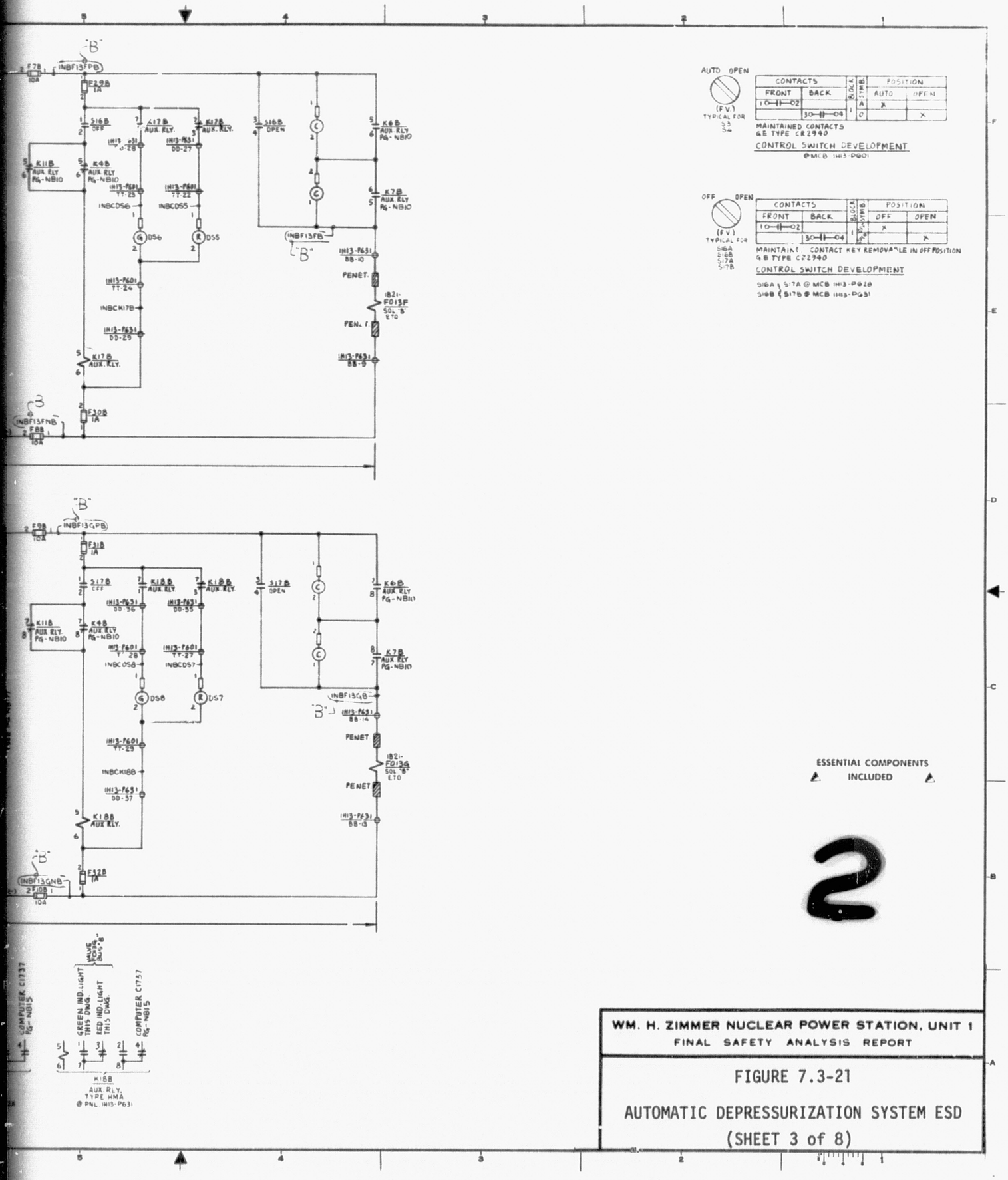
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-21

AUTOMATIC DEPRESSURIZATION SYSTEM ESD
(SHEET 2 of 8)

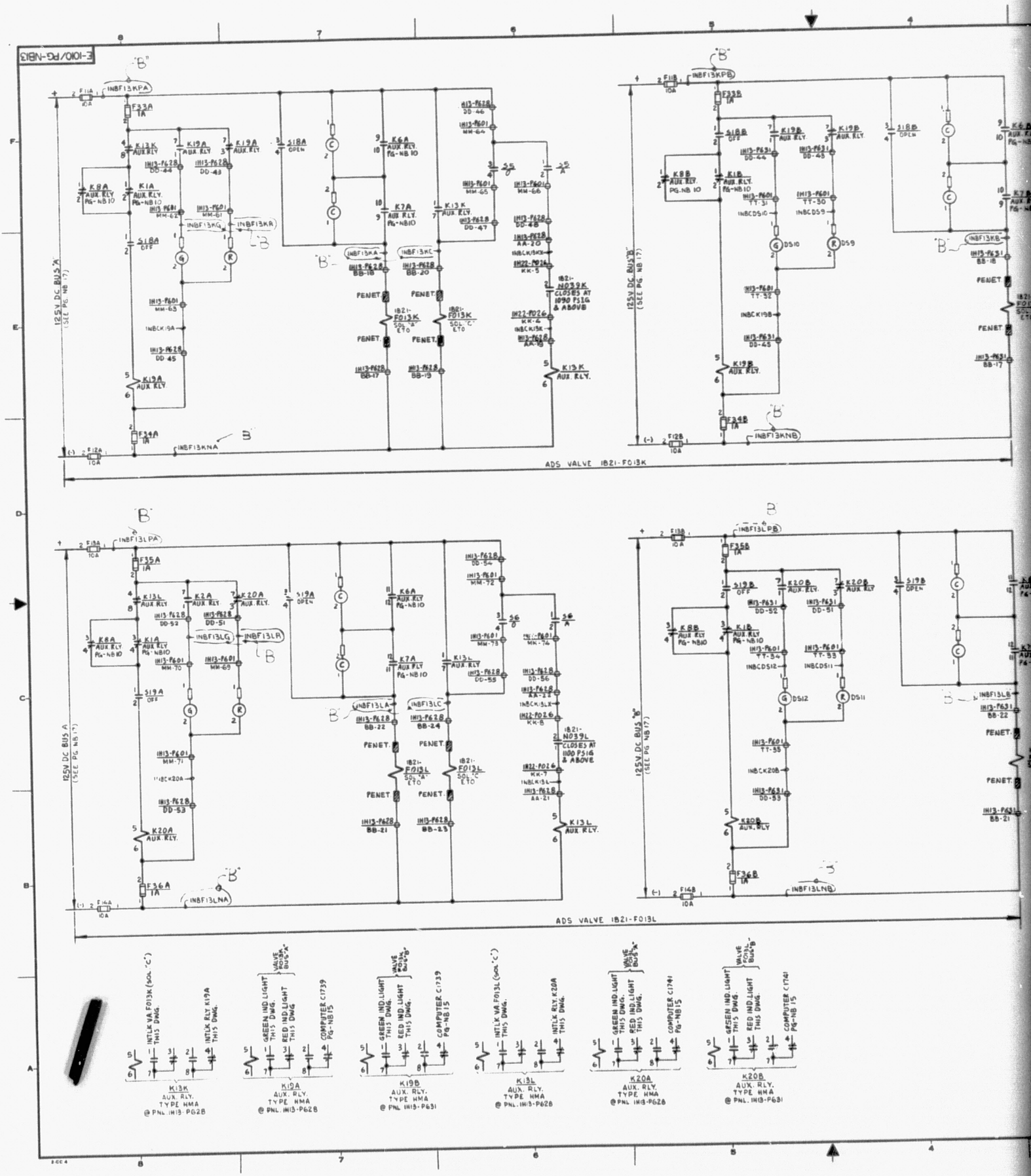
E1010/PG-NB12

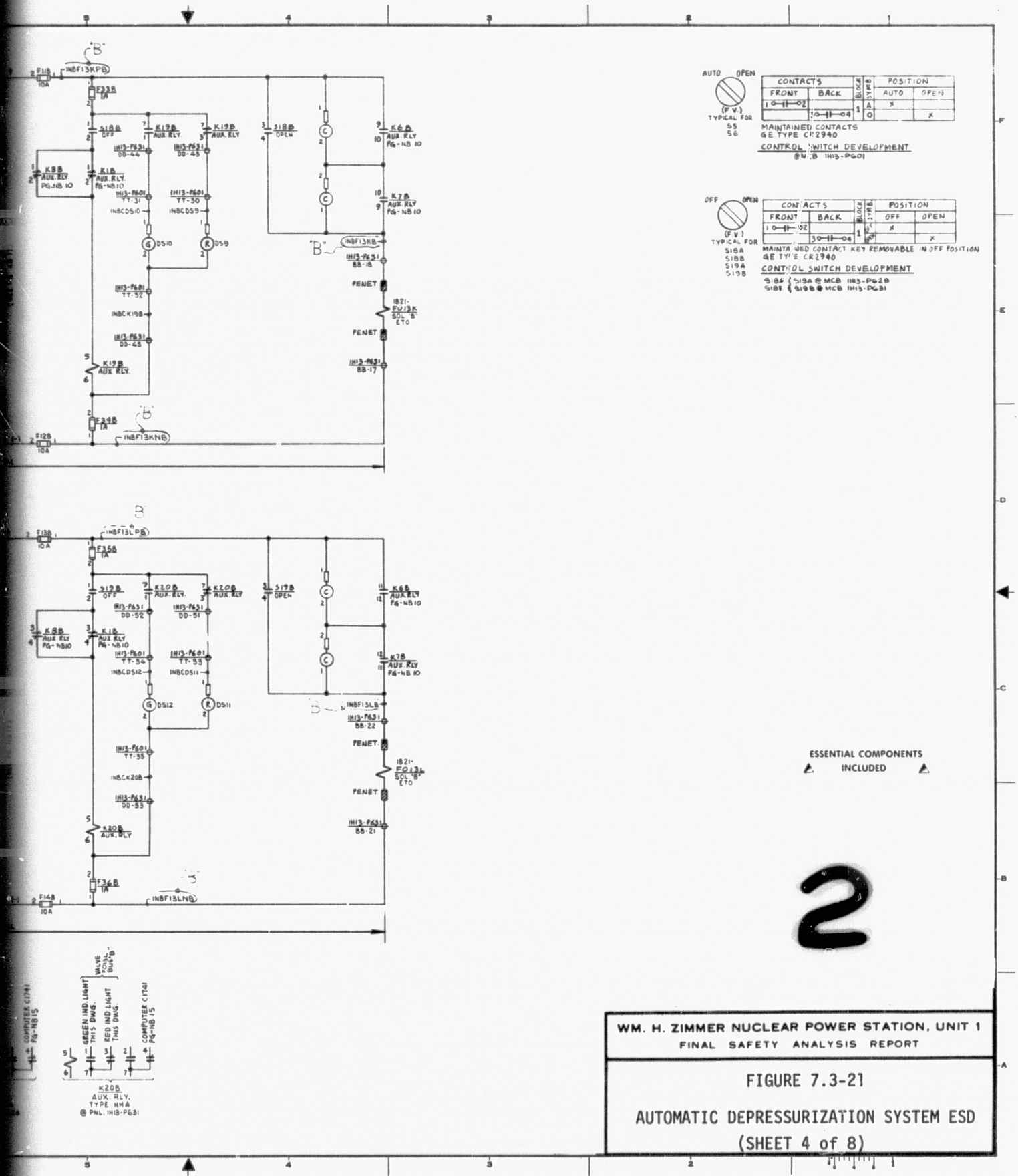




WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-21
AUTOMATIC DEPRESSURIZATION SYSTEM ESD (SHEET 3 of 8)

E-1010/PG-NB13





AUTO OPEN

(F.V.) TYPICAL FOR S5 S6

CONTACTS		BLOCK	SYMB.	POSITION	
FRONT	BACK			AUTO	OPEN
1 o—||—o2		1	A	X	
	3 o—||—o4		O		X

MAINTAINED CONTACTS GE TYPE CR2940

CONTROL SWITCH DEVELOPMENT @ M.B IH13-P601

OFF OPEN

(F.V.) TYPICAL FOR S18A S18B S19A S19B

CONTACTS		BLOCK	SYMB.	POSITION	
FRONT	BACK			OFF	OPEN
1 o—||—o2		1	A	X	
	3 o—||—o4		O		X

MAINTAINED CONTACT KEY REMOVABLE IN OFF POSITION GE TYPE CR2940

CONTROL SWITCH DEVELOPMENT

S18A @ MCB IH13-P628
S18B @ MCB IH13-P631
S19A
S19B

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

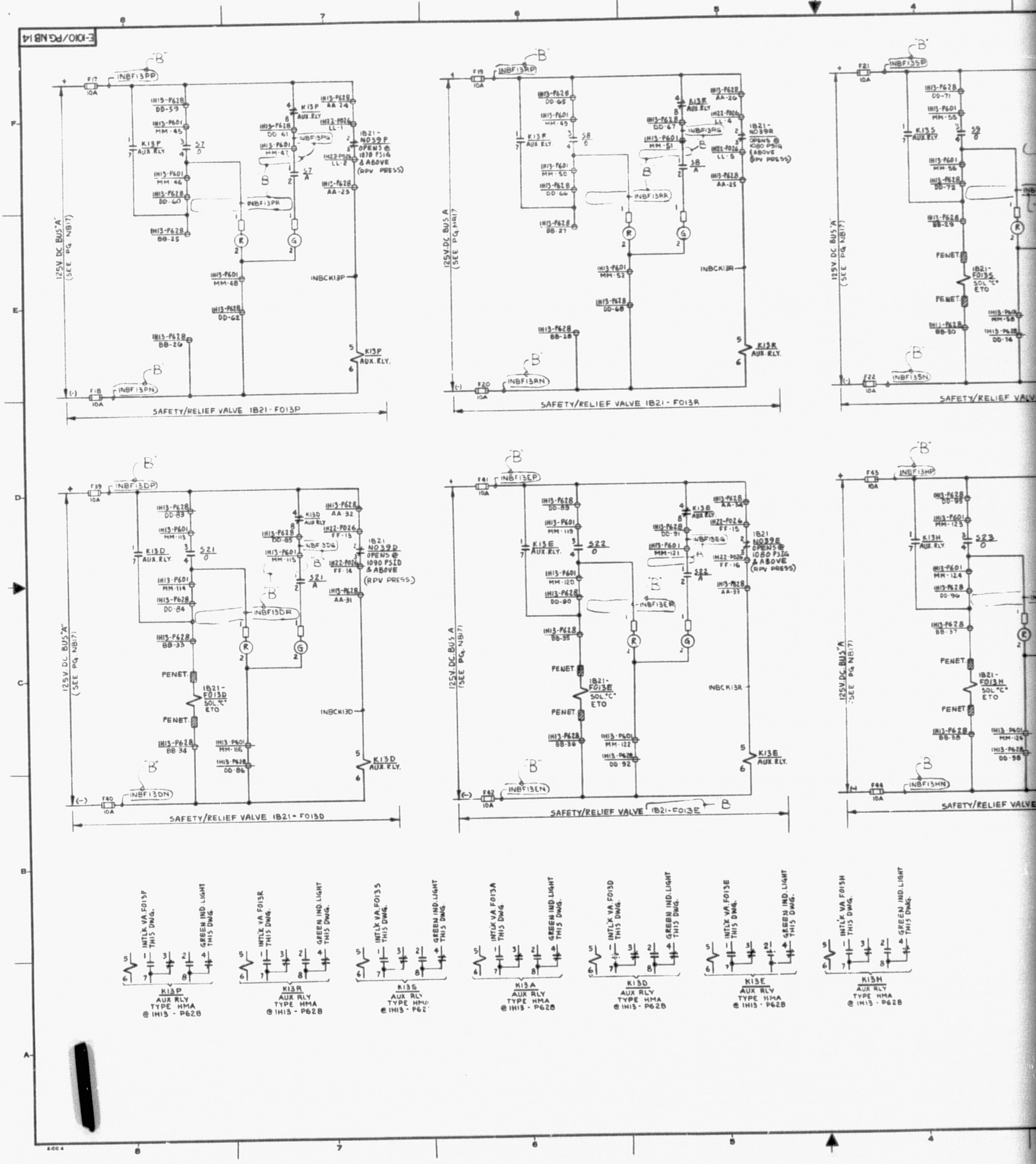
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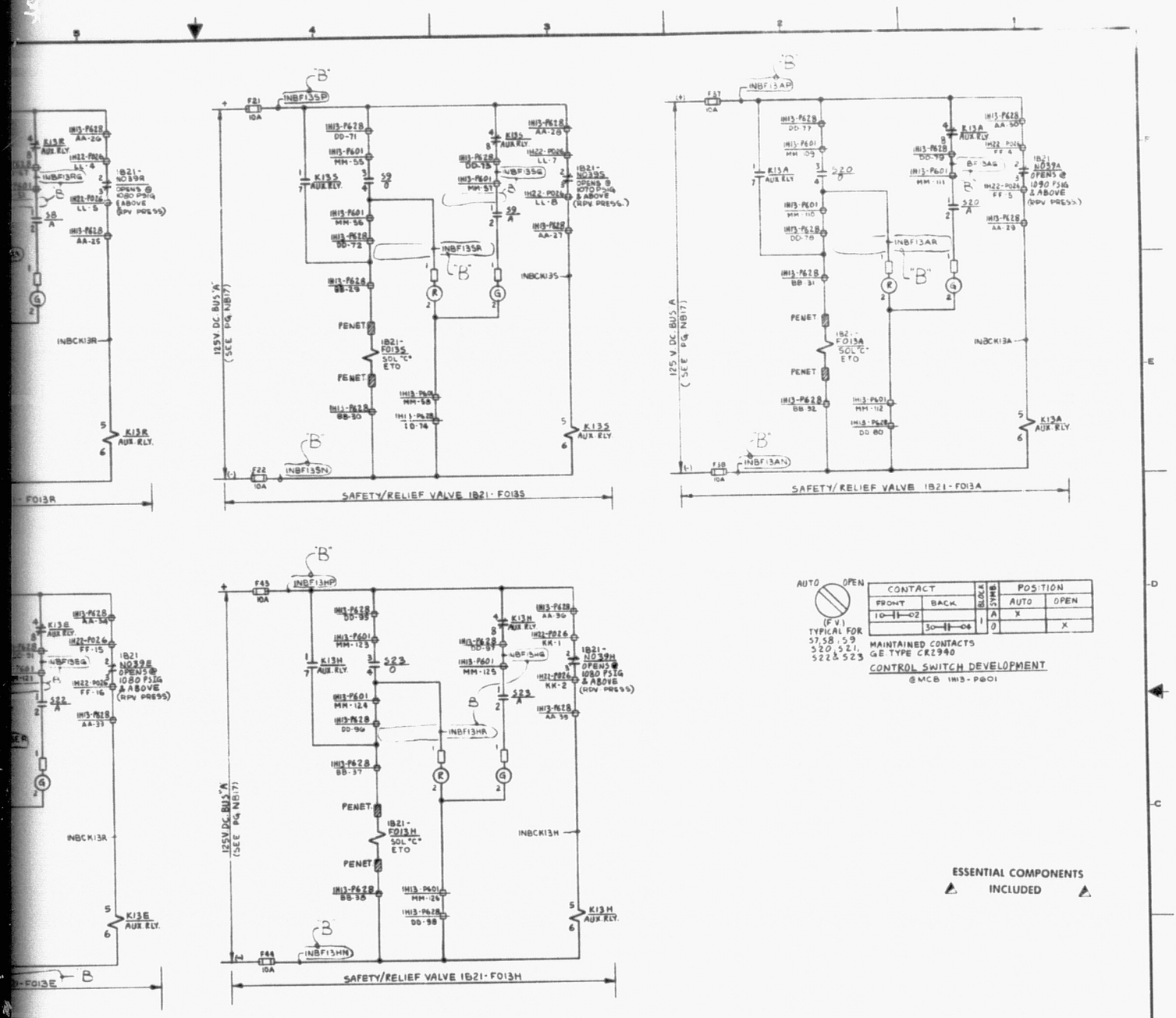
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FIGURE 7.3-21

AUTOMATIC DEPRESSURIZATION SYSTEM ESD
(SHEET 4 of 8)

E-1010/PG NB 14



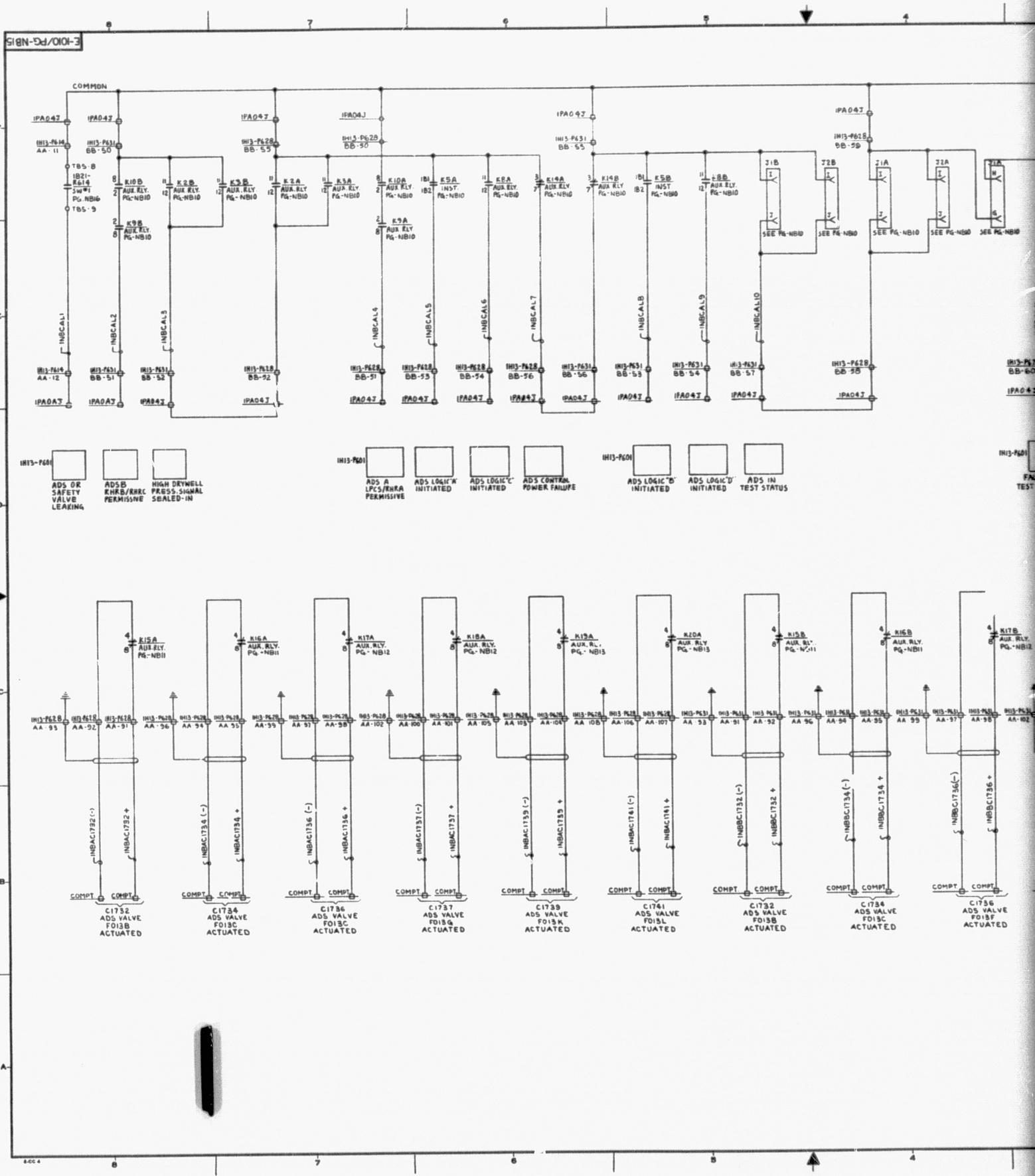


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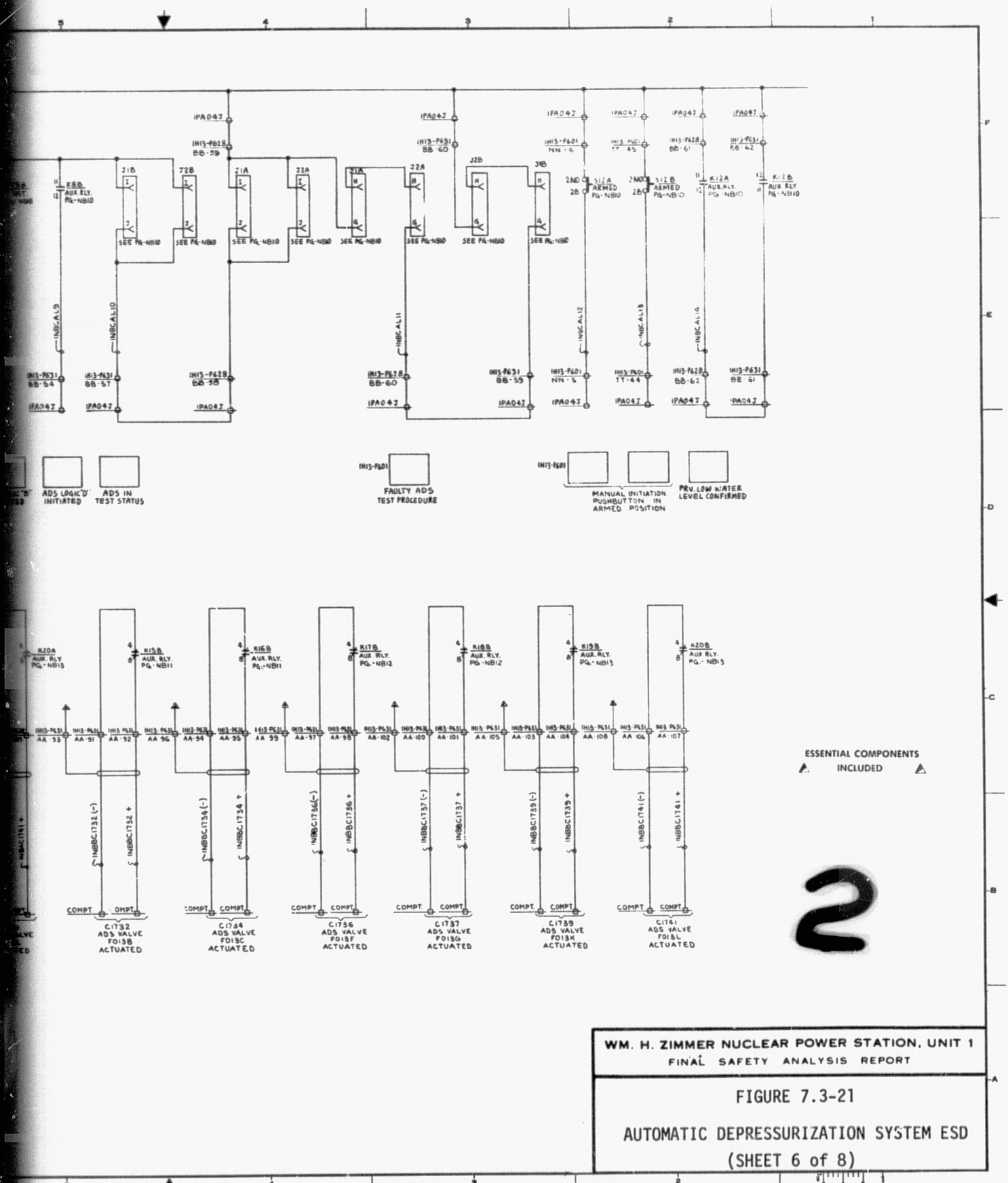
FIGURE 7.3-21

AUTOMATIC DEPRESSURIZATION SYSTEM ESD
(SHEET 5 of 8)

E-1010/PG-NB15



8-004

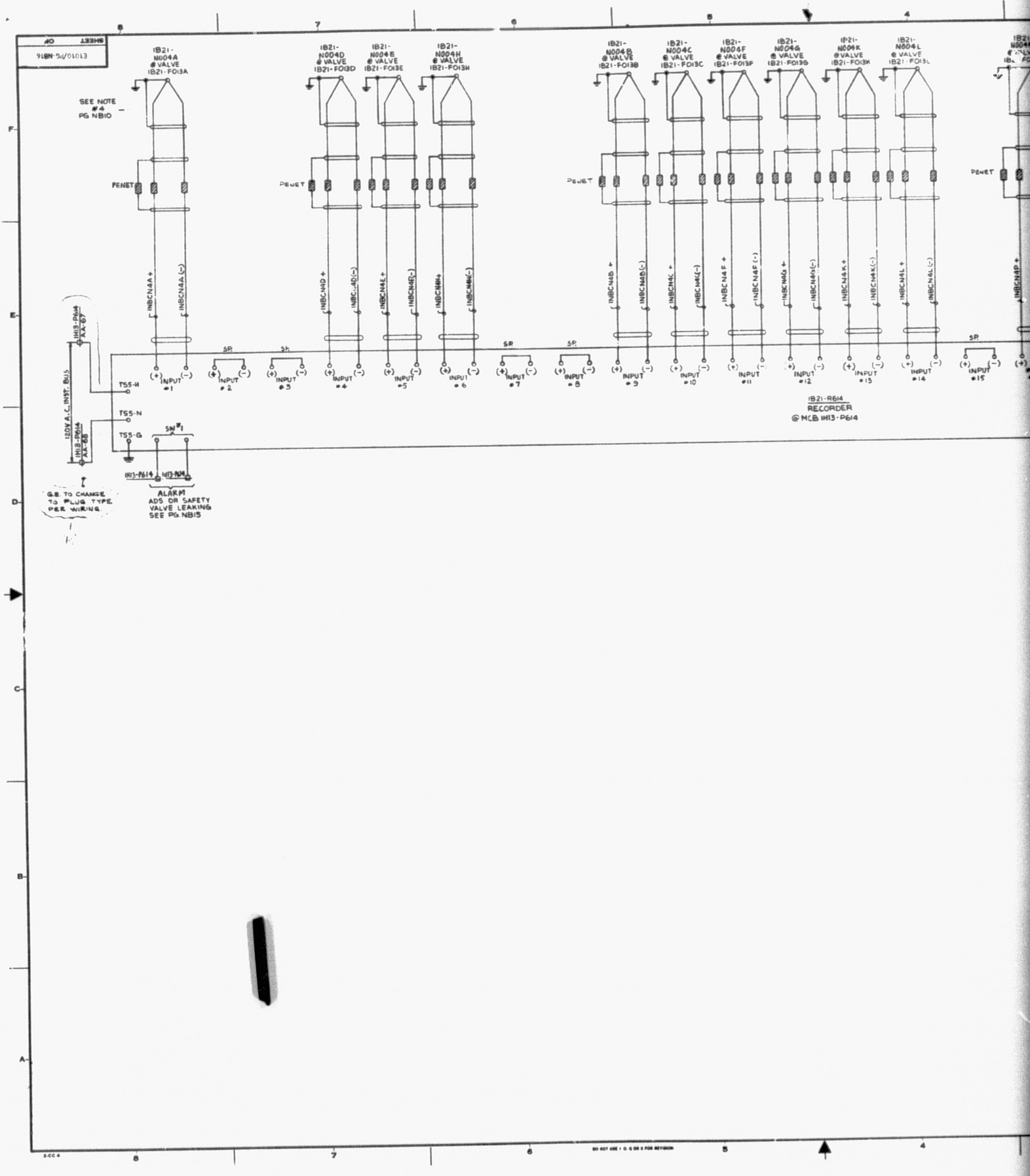


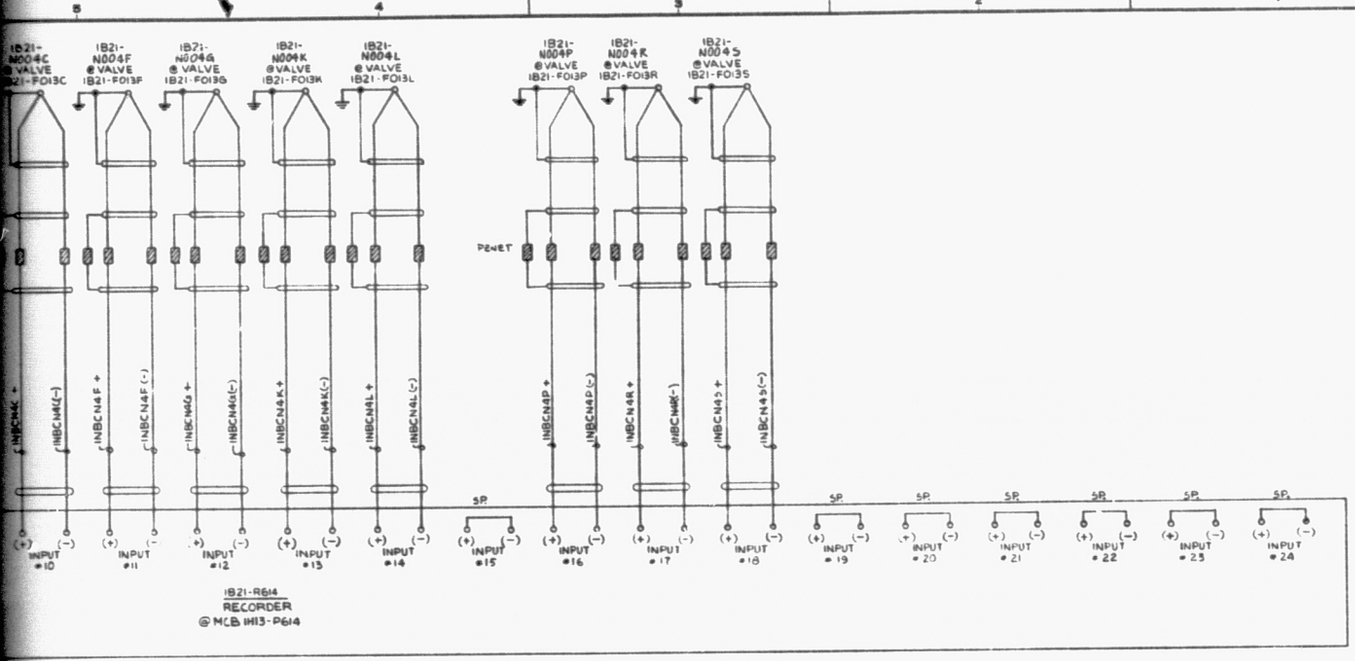
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FIGURE 7.3-21

AUTOMATIC DEPRESSURIZATION SYSTEM ESD
(SHEET 6 of 8)


SHEET 40
918N-94/01013
1B21-N004A @ VALVE 1B21-F013A
1B21-N004D @ VALVE 1B21-F013D
1B21-N004E @ VALVE 1B21-F013E
1B21-N004H @ VALVE 1B21-F013H
1B21-N004B @ VALVE 1B21-F013B
1B21-N004C @ VALVE 1B21-F013C
1B21-N004F @ VALVE 1B21-F013F
1B21-N004G @ VALVE 1B21-F013G
1P21-N004K @VALVE 1B21-F013K
1B21-N004L @ VALVE 1B21-F013L
SEE NOTE #4 PG NB10
PENET
1NBCN4A+
1NBCN4A(-)
1NBCN4D+
1NBCN4E+
1NBCN4E(-)
1NBCN4H+
1NBCN4B+
1NBCN4B(-)
1NBCN4C+
1NBCN4C(-)
1NBCN4F+
1NBCN4F(-)
1NBCN4G+
1NBCN4K+
1NBCN4K(-)
1NBCN4L+
1NBCN4L(-)
1NBCN4P+
SP
INPUT #1
INPUT #2
INPUT #3
INPUT #4
INPUT #5
INPUT #6
INPUT #7
INPUT #8
INPUT #9
INPUT #10
INPUT #11
INPUT #12
INPUT #13
INPUT #14
INPUT #15
1B21-R614
RECORDER
@ MCB 1H13-P614
TS5-H
TS5-N
TS5-G
SW#1
120V A.C. INST. BUS
1H13-P614 AA-67
1H13-P614 AA-68
1H13-P614
1H13-N14
ALARM
ADS OR SAFETY VALVE LEAKING
SEE PG NB15
G.E. TO CHANGE TO PLUG TYPE PER WIRING
DO NOT USE 1, O, & OR I FOR REVISION



2

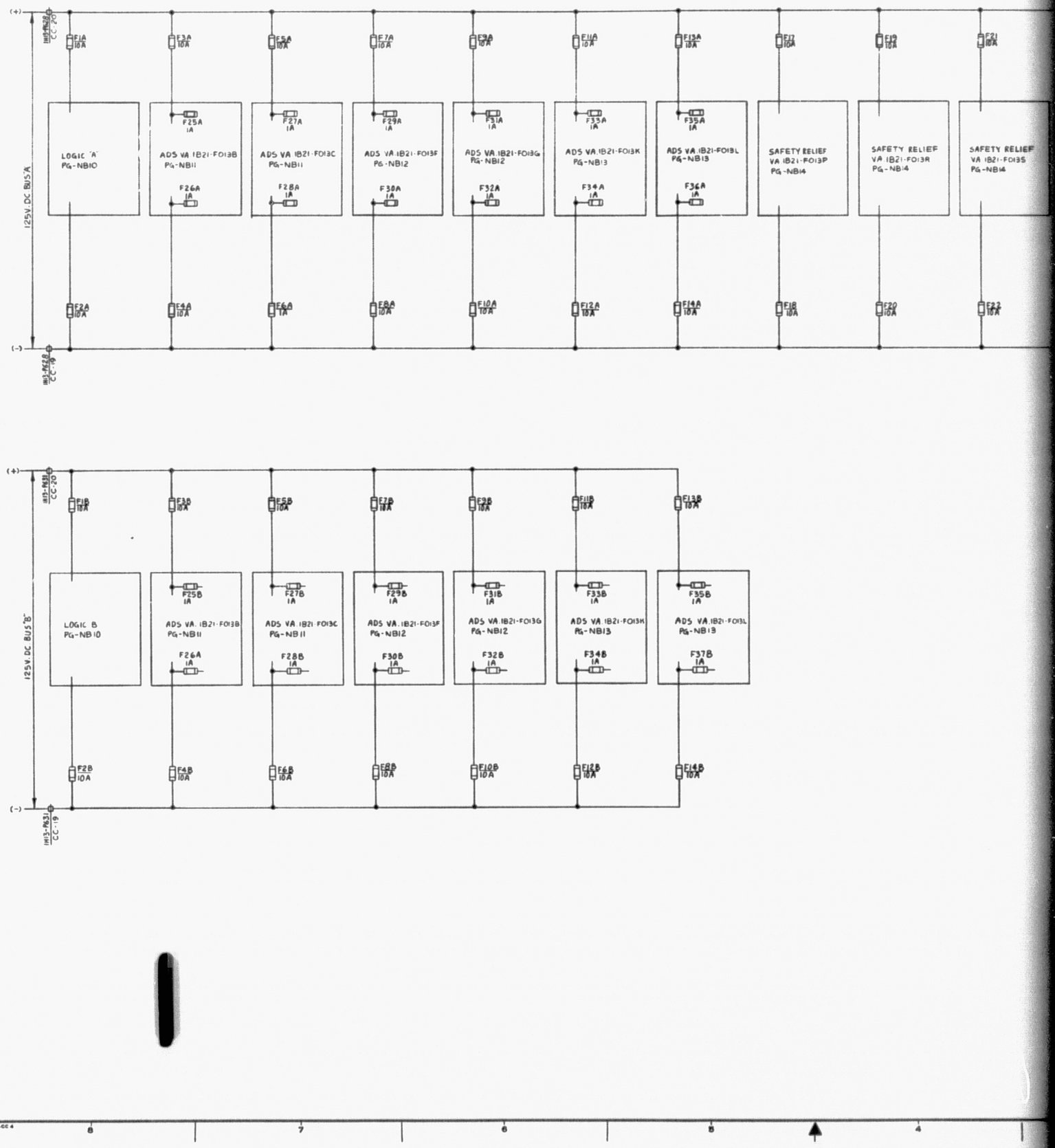
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

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FINAL SAFETY ANALYSIS REPORT

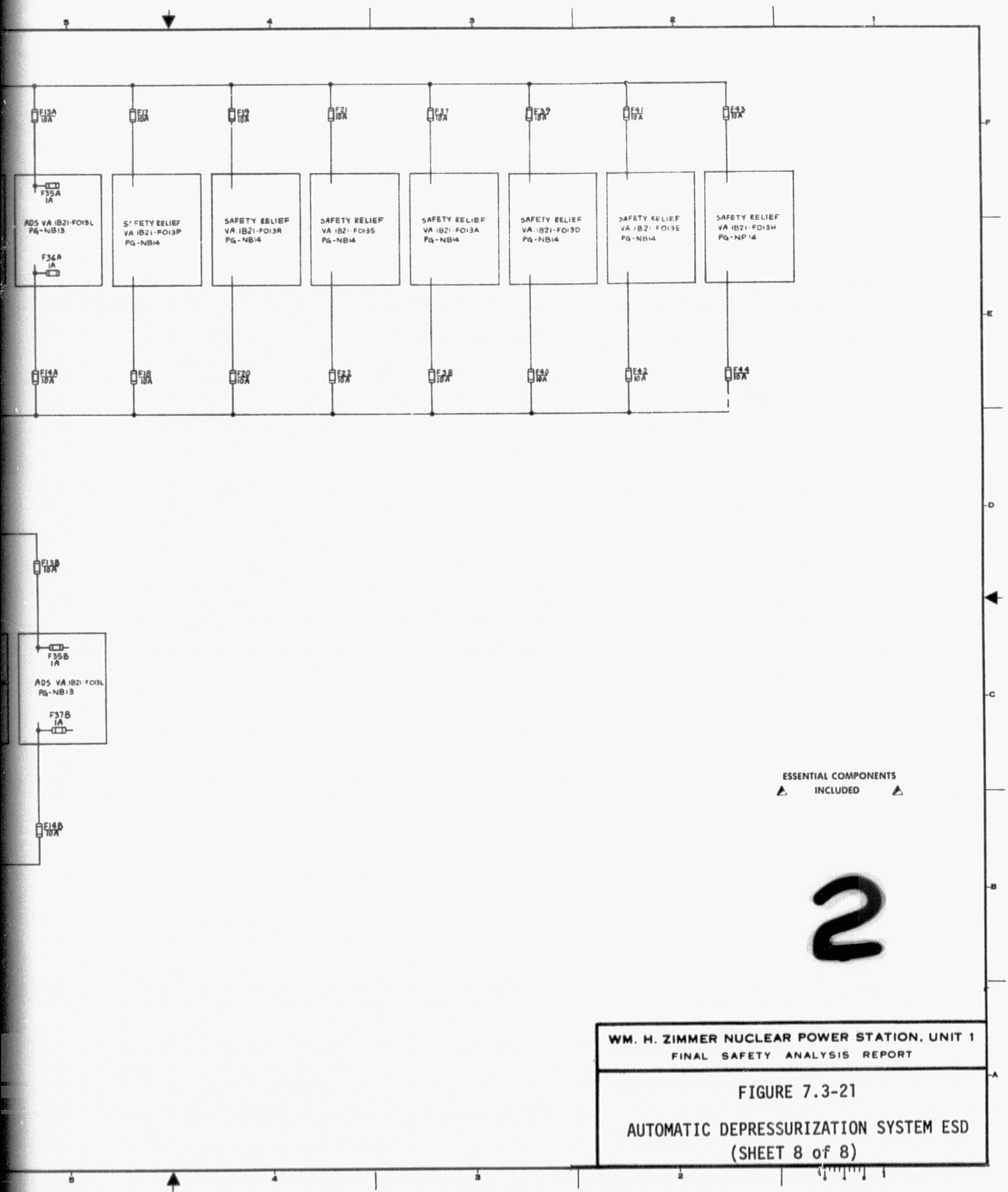
FIGURE 7.3-21

AUTOMATIC DEPRESSURIZATION SYSTEM ESD
(SHEET 7 of 8)

E-1010/PG-NB17



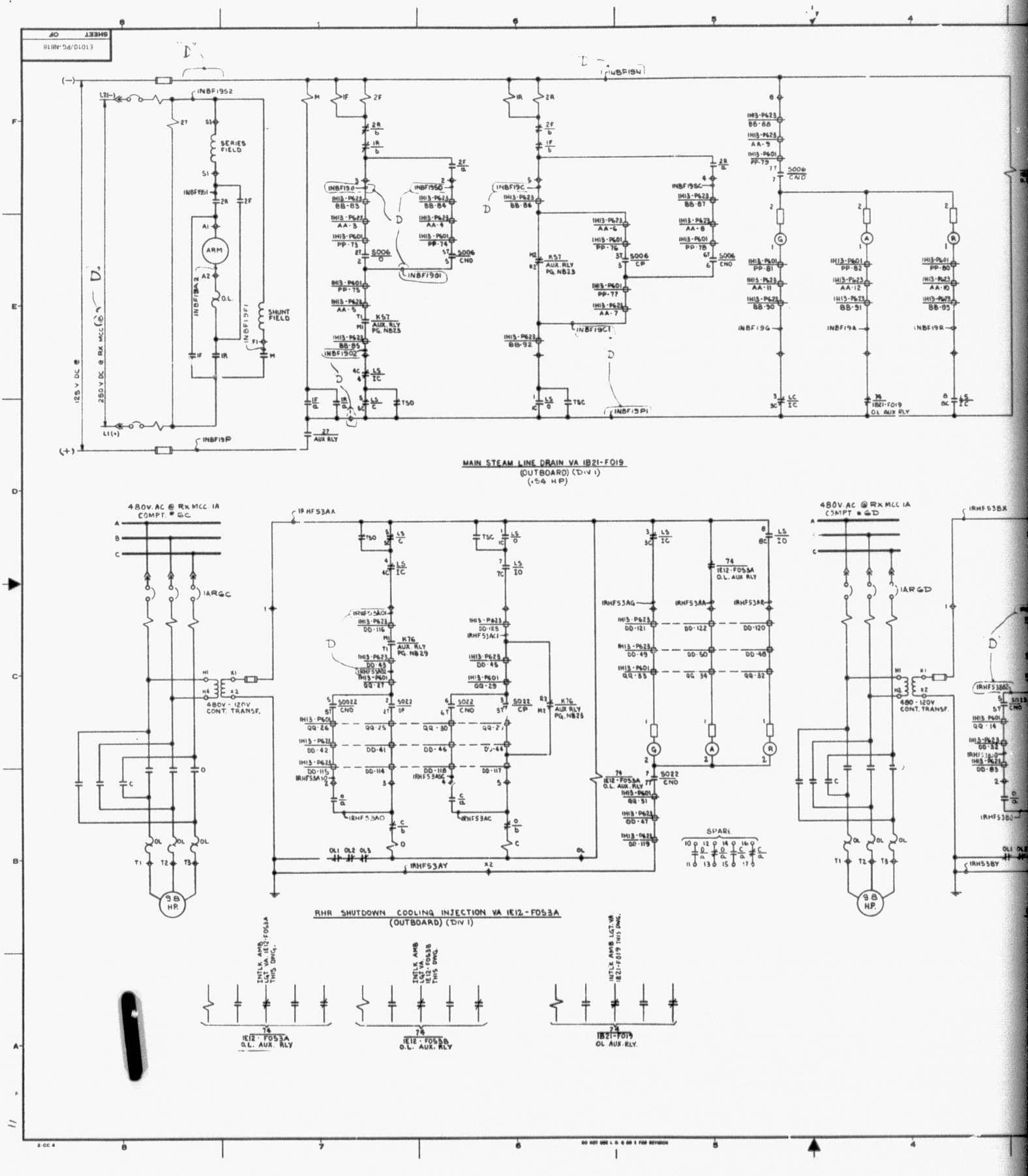
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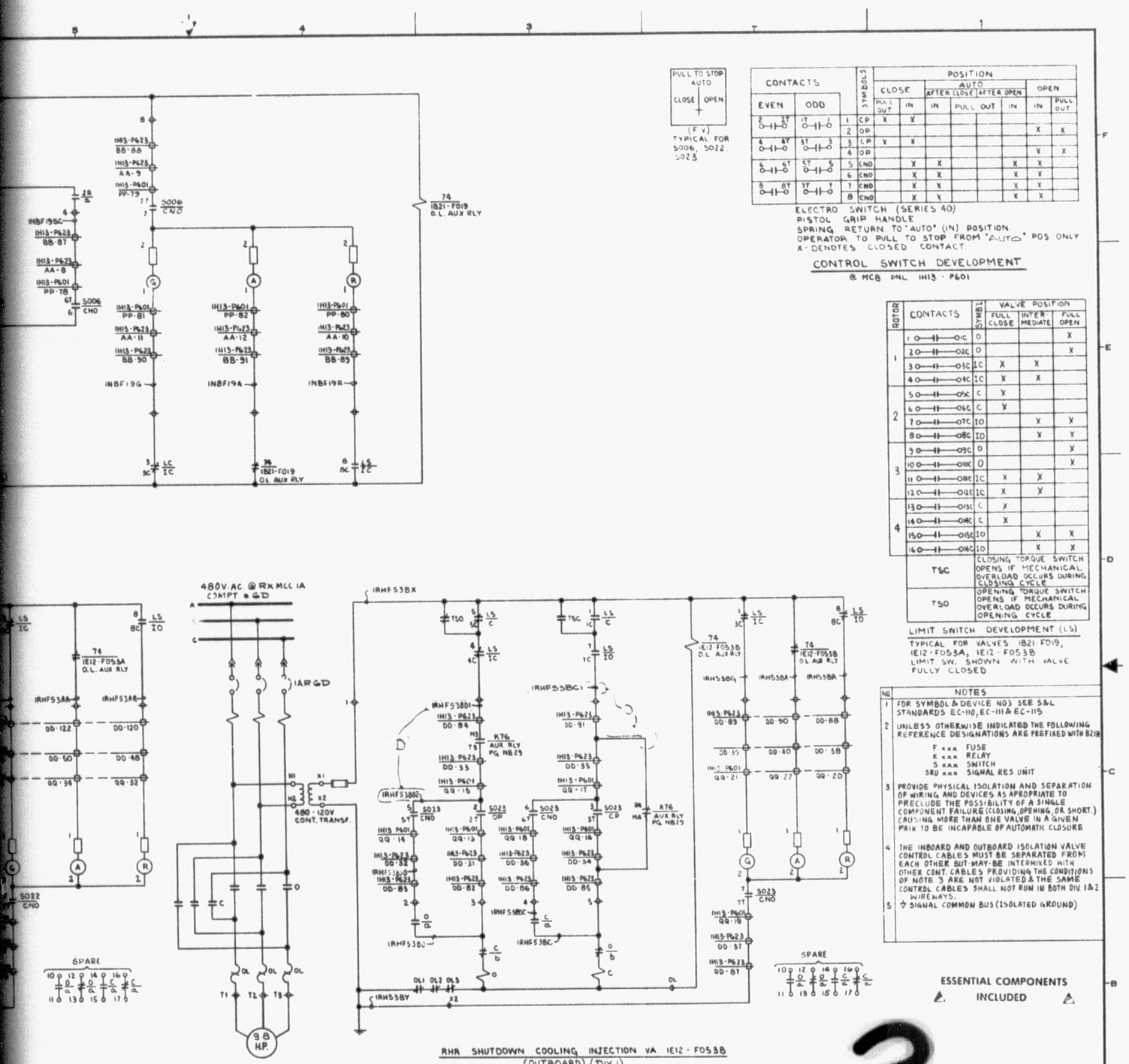


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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-21

AUTOMATIC DEPRESSURIZATION SYSTEM ESD
(SHEET 8 of 8)


MAIN STEAM LINE DRAIN VA IB21-F019
(OUTBOARD) (DIV 1)
(+54 HP)
480V AC @ Rx MCC 1A
COMPT. # GC
480V AC @ Rx MCC 1A
COMPT. # GD
480-120V CONT. TRANSF.
98 H.P.
SERIES FIELD
SHUNT FIELD
ARM
125 V DC @
250 V DC @ Rx MCC
AUX RLY PG. NB23
AUX RLY PG. NB29
O.L. AUX RLY
SPARE
RHR SHUTDOWN COOLING INJECTION VA IE12-F053A
(OUTBOARD) (DIV 1)
INTLK ARMS LGT VIA IE12-F053A THIS DWG.
INTLK ARMS LGT VIA IE12-F053B THIS DWG.
INTLK ARMS LGT VIA IB21-F019 THIS DWG.
IE12-F053A O.L. AUX. RLY
IE12-F053B O.L. AUX. RLY
IB21-F019 OL AUX. RLY.



CONTACTS EVEN	CONTACTS ODD		SYMBOLS	POSITION: CLOSE PULL OUT	CLOSE IN	AUTO AFTER CLOSE IN	AUTO AFTER OPEN PULL OUT	AUTO AFTER OPEN IN	OPEN IN	OPEN PULL OUT
2 2T	1T 1	1	CP	X	X					
4 4T	3T 3	2	OP						X	X
		3	CP	X	X					
		4	OP						X	X
6 6T	5T 5	5	CNO		X	X			X	X
		6	CNO		X	X			X	X
8 8T	7T 7	7	CNO		X	X			X	X
		8	CNO		X	X			X	X

ELECTRO SWITCH (SERIES 40)
PISTOL GRIP HANDLE
SPRING RETURN TO "AUTO" (IN) POSITION
OPERATOR TO PULL TO STOP FROM "AUTO" POS ONLY
X - DENOTES CLOSED CONTACT

CONTROL SWITCH DEVELOPMENT
@ MCB PNL 1H13 - P601

ROTOR	CONTACTS	SYMBOL	VALVE POSITION: FULL CLOSE	INTERMEDIATE	FULL OPEN
1	1 O—O 1C	O			X
	2 O—O 2C	O			X
	3 O—O 3C	IC	X	X	
	4 O—O 4C	IC	X	X	
2	5 O—O 5C	C	X		
	6 O—O 6C	C	X		
	7 O—O 7C	IO		X	X
	8 O—O 8C	IO		X	X
3	9 O—O 9C	O			X
	10 O—O 10C	O			X
	11 O—O 11C	IC	X	X	
	12 O—O 12C	IC	X	X	
4	13 O—O 13C	C	X		
	14 O—O 14C	C	X		
	15 O—O 15C	IO		X	X
	16 O—O 16C	IO		X	X
TSC			CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
TSO			OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVES 1B21-F019, 1E12-F053A, 1E12-F053B
LIMIT SW. SHOWN WITH VALVE FULLY CLOSED

NO	NOTES
1	FOR SYMBOL & DEVICE NO'S SEE S&L STANDARDS EC-110, EC-111 & EC-115
2	UNLESS OTHERWISE INDICATED THE FOLLOWING REFERENCE DESIGNATIONS ARE PREFIXED WITH B21R F xxx FUSE K xxx RELAY S xxx SWITCH SRU xxx SIGNAL RES UNIT
3	PROVIDE PHYSICAL ISOLATION AND SEPARATION OF WIRING AND DEVICES AS APROPRIATE TO PRECLUDE THE POSSIBILITY OF A SINGLE COMPONENT FAILURE (CLOSING, OPENING, OR SHORT.) CAUSING MORE THAN ONE VALVE IN A GIVEN PATH TO BE INCAPABLE OF AUTOMATIC CLOSURE
4	THE INBOARD AND OUTBOARD ISOLATION VALVE CONTROL CABLES MUST BE SEPARATED FROM EACH OTHER BUT MAY BE INTERMIXED WITH OTHER CONT. CABLES PROVIDING THE CONDITIONS OF NOTE 3 ARE NOT VIOLATED & THE SAME CONTROL CABLES SHALL NOT RUN IN BOTH DIV. 1 & 2 RACEWAYS.
5	⏚ SIGNAL COMMON BUS (ISOLATED GROUND)

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

RHR SHUTDOWN COOLING INJECTION VA 1E12-F053B
(OUTBOARD) (DIV. 1)

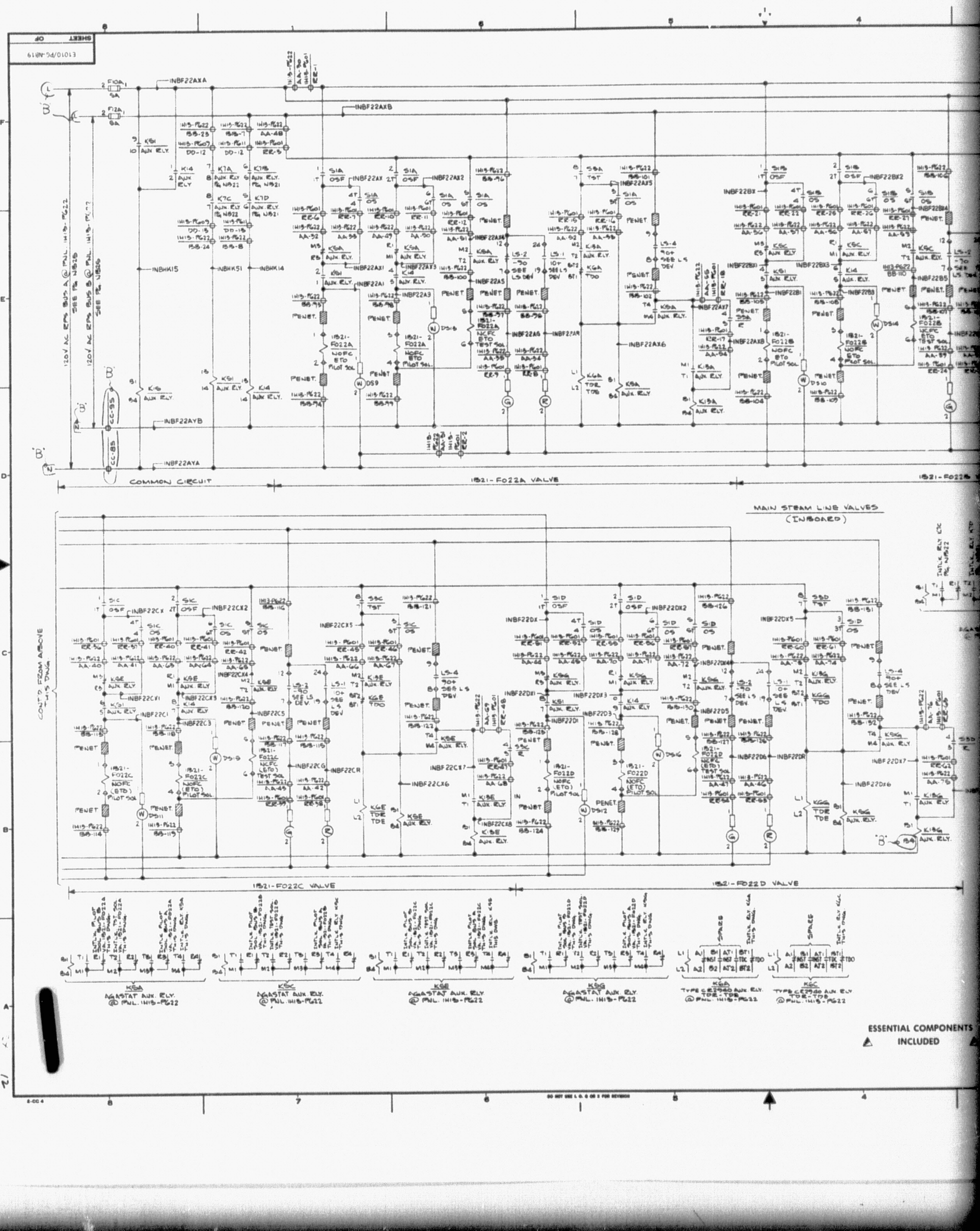
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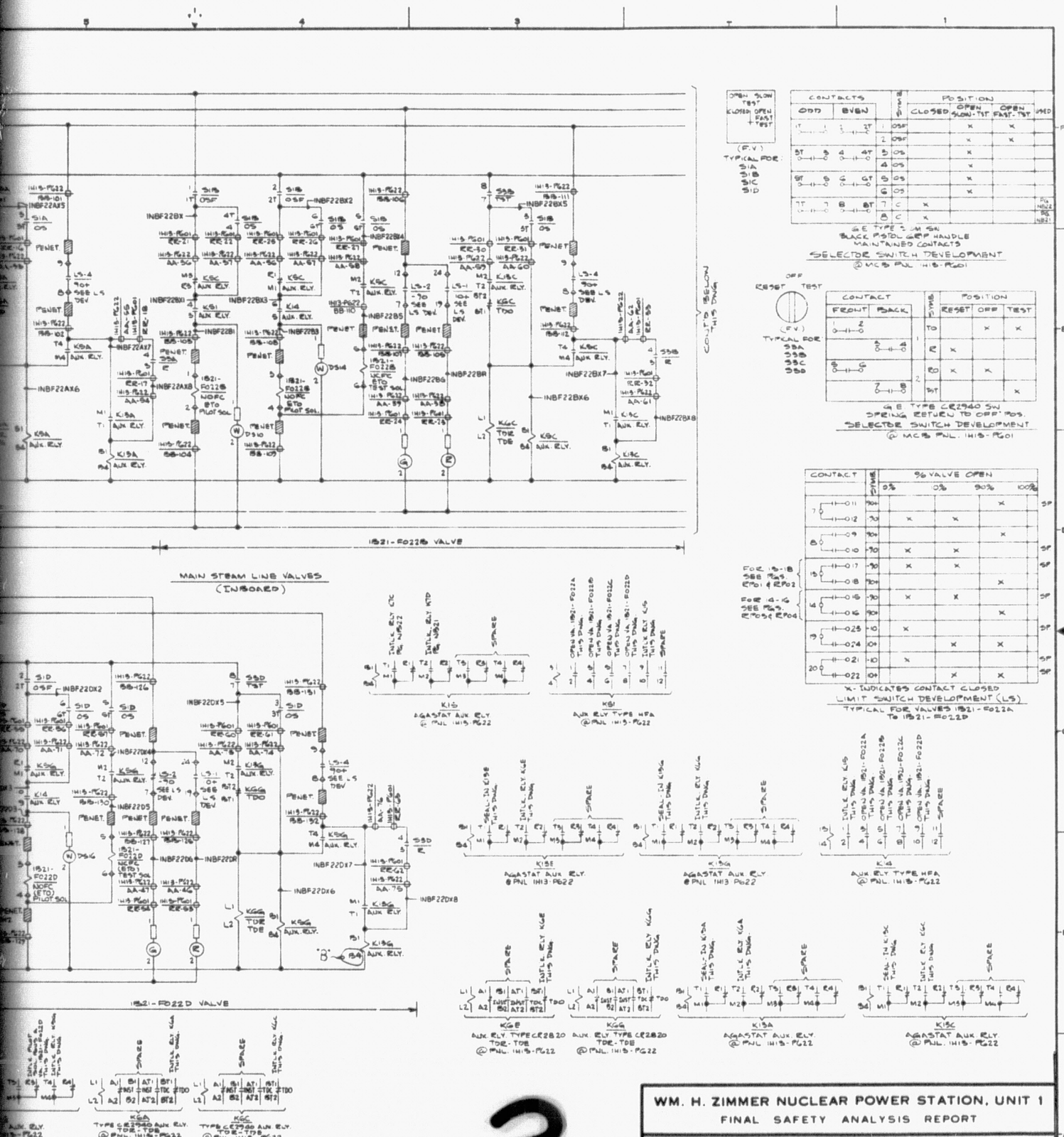
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-22

PRIMARY CONTAINMENT AND REACTOR VESSEL ISOLATION SYSTEM ESD

(SHEET 1 of 15)


SHEET OF
E1010/P6-NB19
INBF22AXA
INBF22AXB
INBF22AYB
INBF22AYA
COMMON CIRCUIT
1821-F022A VALVE
MAIN STEAM LINE VALVES
(INBOARD)
CONT'D FROM ABOVE
1821-F022C VALVE
1821-F022D VALVE
K6A AGASTAT AUX. RLY. @ PNL. IH15-PG22
K6C AGASTAT AUX. RLY @ PNL. IH15-PG22
K6E AGASTAT AUX. RLY @ PNL. IH15-PG22
K6G AGASTAT AUX. RLY @ PNL. IH15-PG22
ESSENTIAL COMPONENTS
INCLUDED



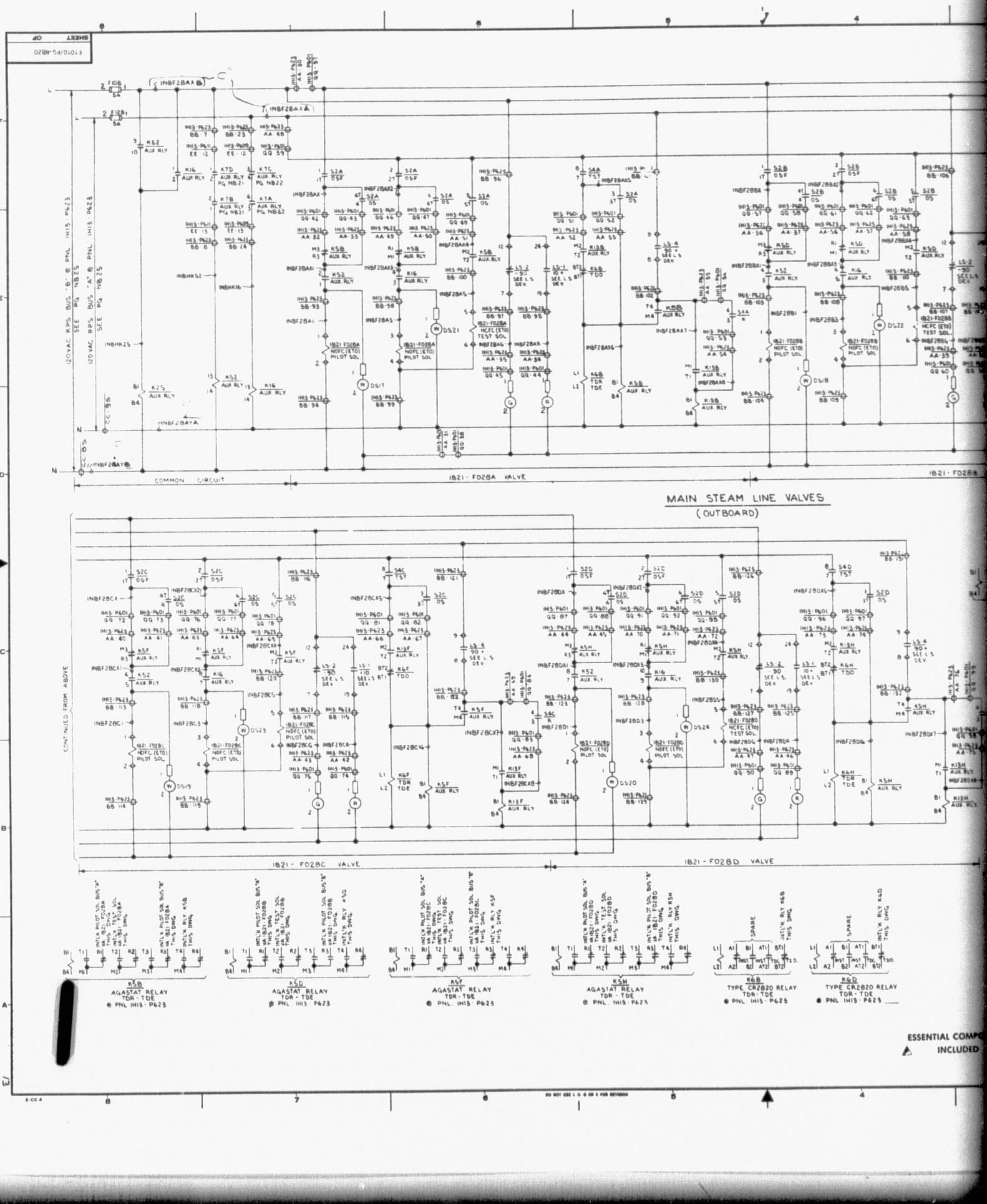
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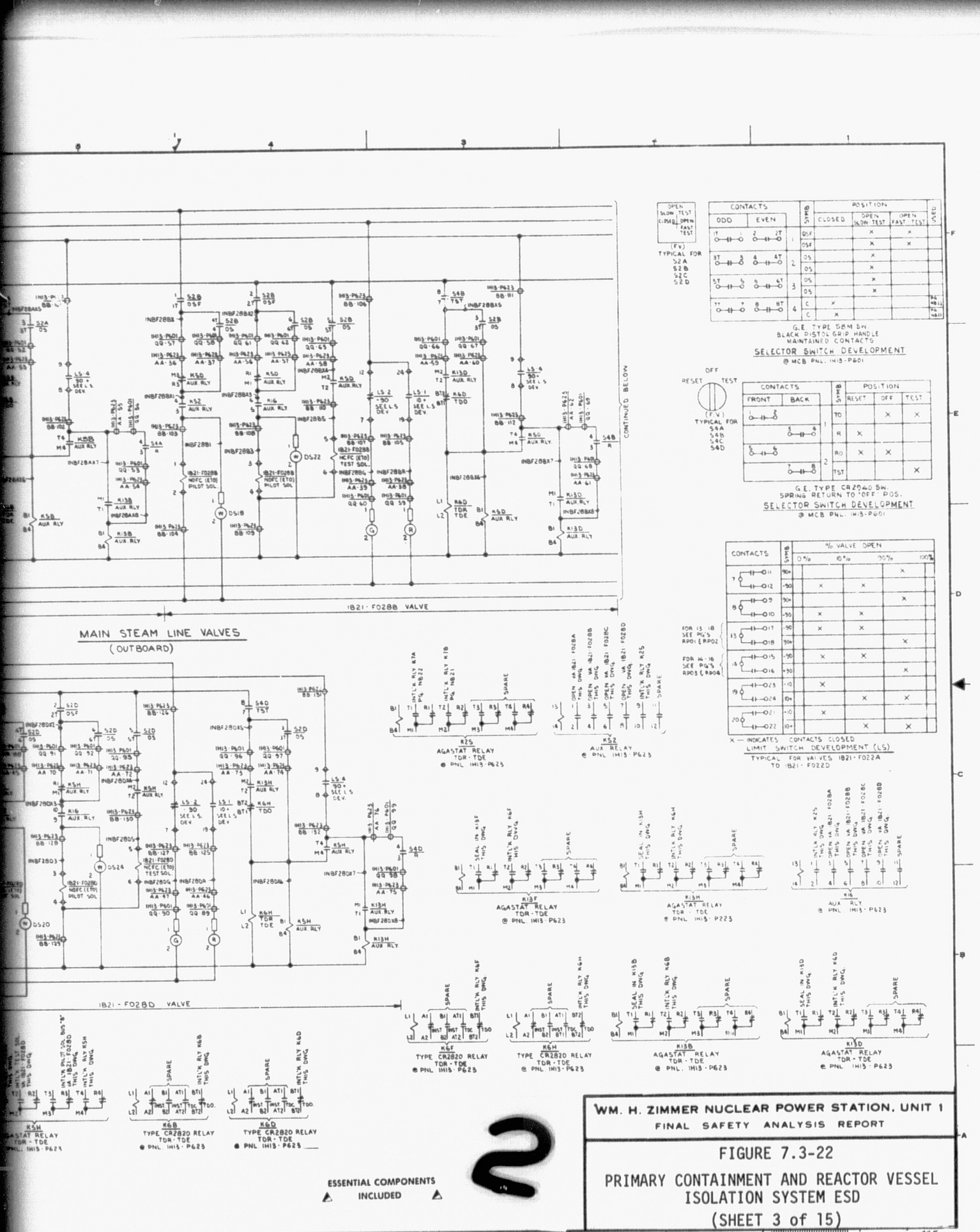
FIGURE 7.3-22

PRIMARY CONTAINMENT AND REACTOR VESSEL ISOLATION SYSTEM ESD

(SHEET 2 of 15)

2


MAIN STEAM LINE VALVES
(OUTBOARD)
1B21-F028A VALVE
1B21-F028B VALVE
1B21-F028C VALVE
1B21-F028D VALVE
COMMON CIRCUIT
CONTINUED FROM ABOVE
120VAC RPS BUS "B" @ PNL IH13-P623
120VAC RPS BUS "A" @ PNL IH13-P623
K5B AGASTAT RELAY TDR-TDE @ PNL IH13-P623
K5D AGASTAT RELAY TDR-TDE @ PNL IH13-P623
K5F AGASTAT RELAY TDR-TDE @ PNL IH13-P623
K5H AGASTAT RELAY TDR-TDE @ PNL IH13-P623
K6B TYPE CR2820 RELAY TDR-TDE @ PNL IH13-P623
K6D TYPE CR2820 RELAY TDR-TDE @ PNL IH13-P623
ESSENTIAL COMPO
INCLUDED



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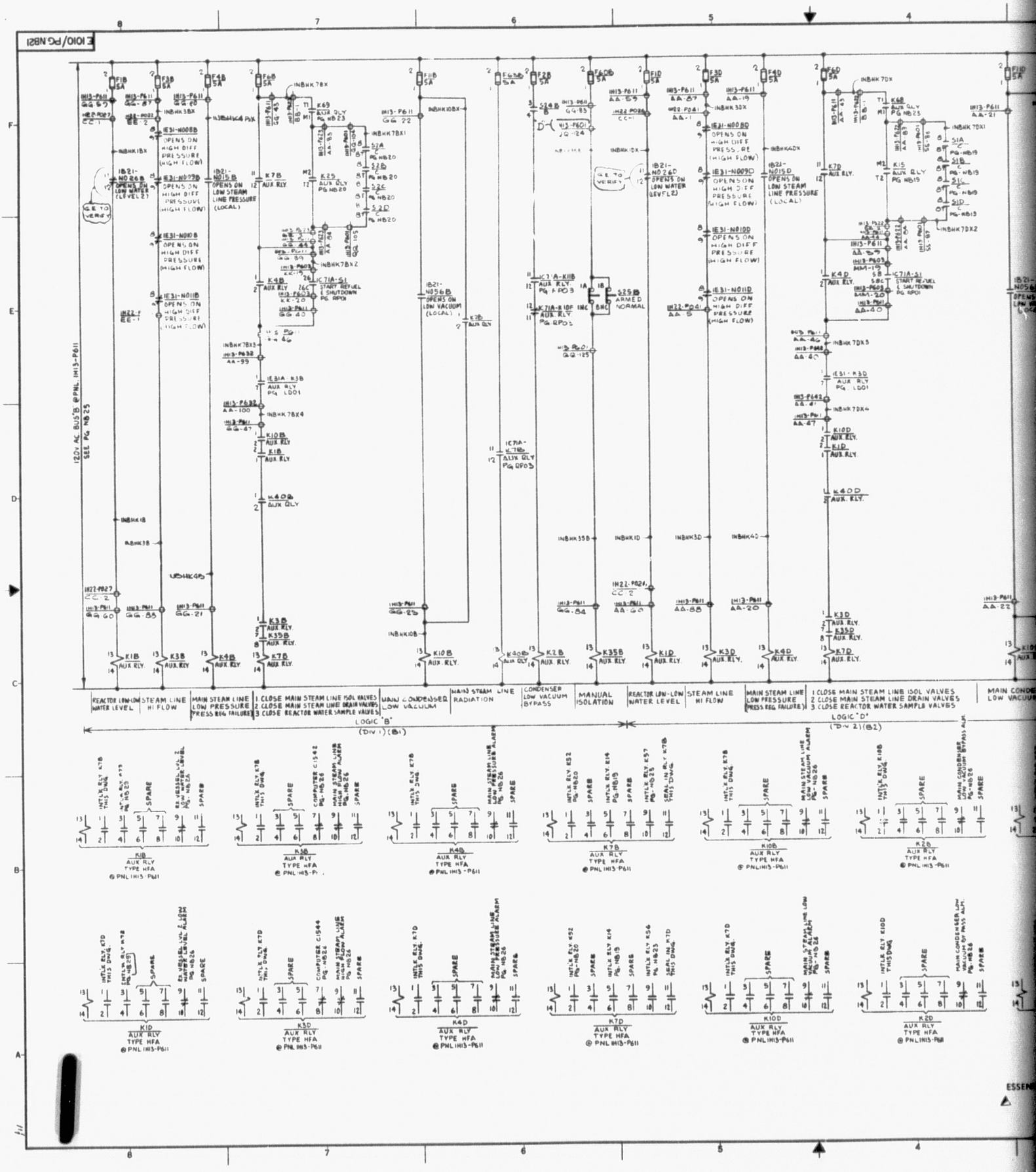
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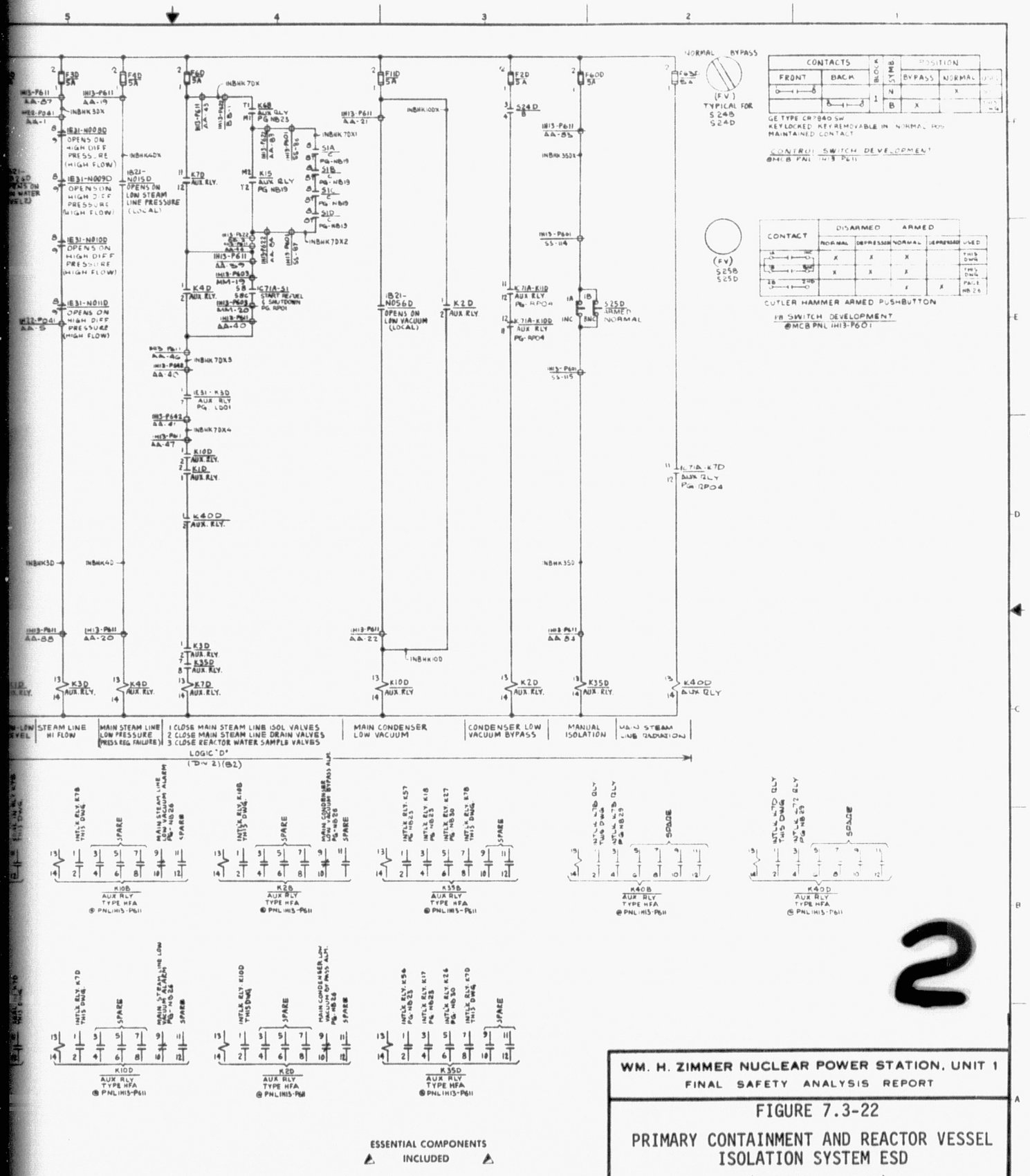
FIGURE 7.3-22

PRIMARY CONTAINMENT AND REACTOR VESSEL ISOLATION SYSTEM ESD

(SHEET 3 of 15)

2


E 1010/PG N821
120v AC BUS'B' @ PNL 1H13-P611
SEE PG NB 25
REACTOR LOW-LOW WATER LEVEL
STEAM LINE HI FLOW
MAIN STEAM LINE LOW PRESSURE PRESS REG FAILURE
1 CLOSE MAIN STEAM LINE ISOL VALVES
2 CLOSE MAIN STEAM LINE DRAIN VALVES
3 CLOSE REACTOR WATER SAMPLE VALVES
MAIN CONDENSER LOW VACUUM
MAIN STEAM LINE RADIATION
CONDENSER LOW VACUUM BYPASS
MANUAL ISOLATION
REACTOR LOW-LOW WATER LEVEL
STEAM LINE HI FLOW
MAIN STEAM LINE LOW PRESSURE (PRESS REG FAILURE)
1 CLOSE MAIN STEAM LINE ISOL VALVES
2 CLOSE MAIN STEAM LINE DRAIN VALVES
3 CLOSE REACTOR WATER SAMPLE VALVES
MAIN CONDE
LOW VACUU
LOGIC 'B'
(DIV 1)(B1)
LOGIC 'D'
(DIV 2)(B2)
K1B AUX RLY TYPE HFA @ PNL 1H13-P611
K3B AUX RLY TYPE HFA @ PNL 1H13-P...
K4B AUX RLY TYPE HFA @ PNL 1H13-P611
K7B AUX RLY TYPE HFA @ PNL 1H13-P611
K1D AUX RLY TYPE HFA @ PNL 1H13-P611
K2B AUX RLY TYPE HFA @ PNL 1H13-P611
K1D AUX RLY TYPE HFA @ PNL 1H13-P611
K3D AUX RLY TYPE HFA @ PNL 1H13-P611
K4D AUX RLY TYPE HFA @ PNL 1H13-P611
K7D AUX RLY TYPE HFA @ PNL 1H13-P611
K10D AUX RLY TYPE HFA @ PNL 1H13-P611
K2D AUX RLY TYPE HFA @ PNL 1H13-P611
ESSEN



2

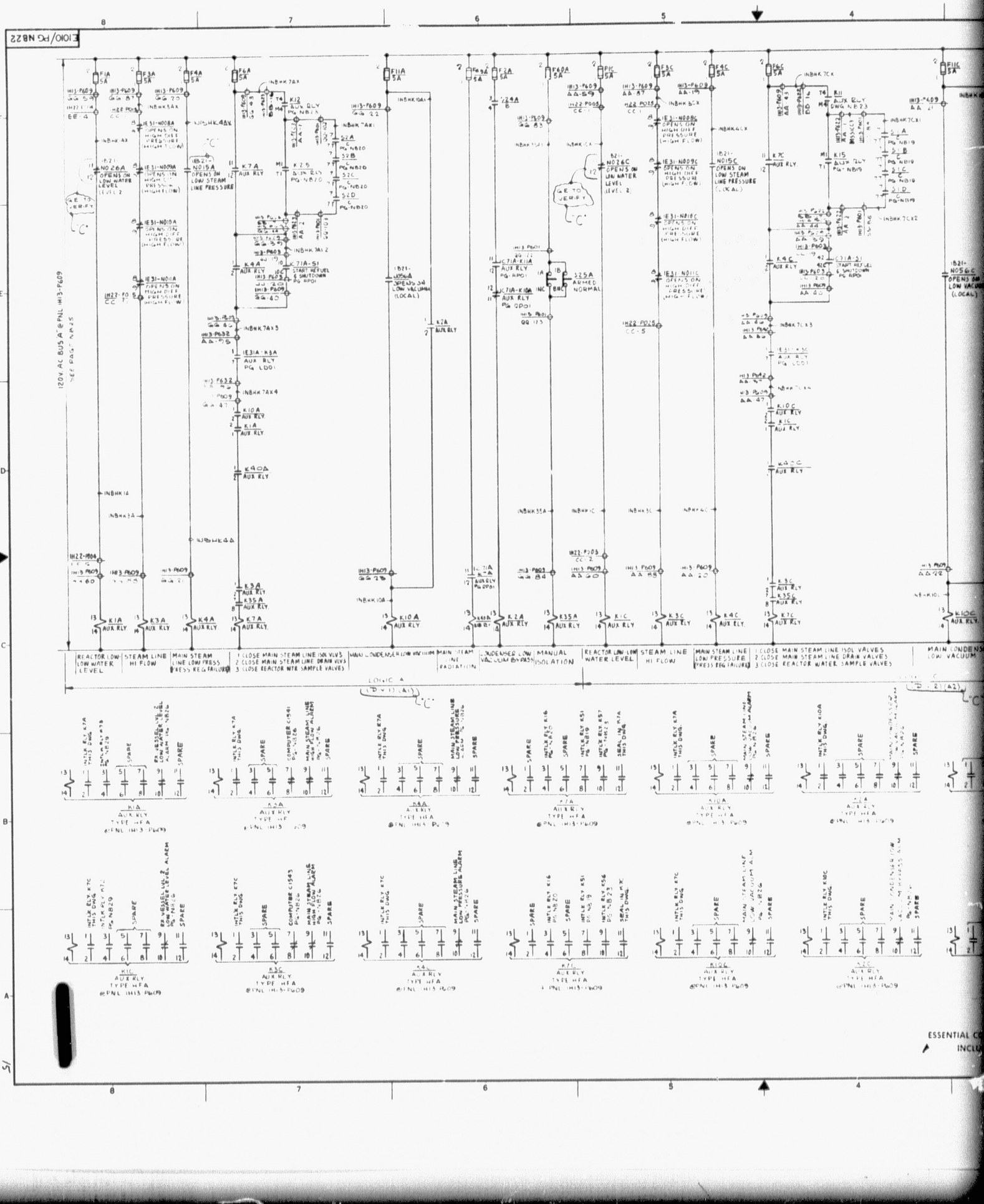
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

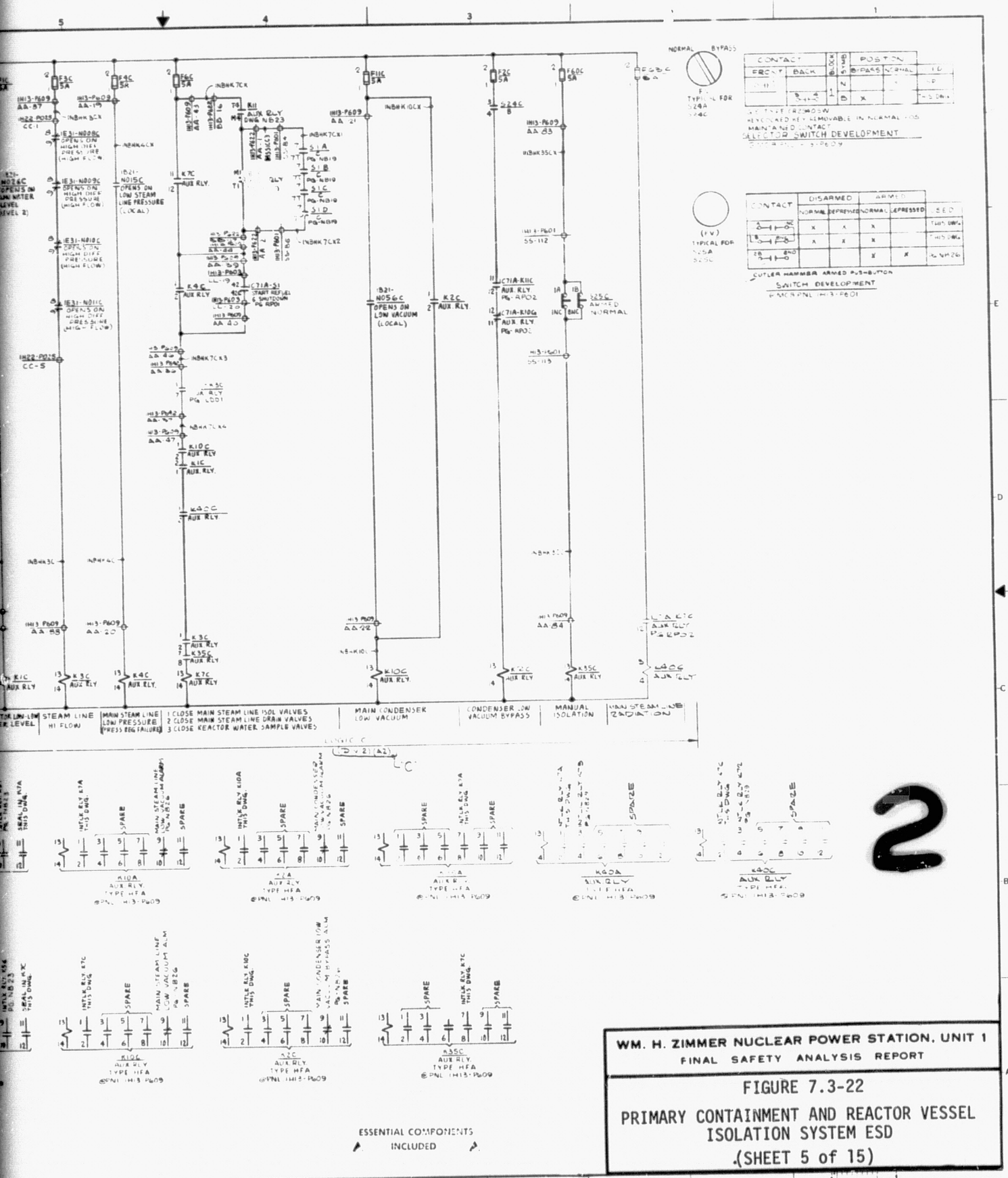
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-22

PRIMARY CONTAINMENT AND REACTOR VESSEL ISOLATION SYSTEM ESD

(SHEET 4 of 15)


E1010/PG NB22
120V AC BUS A' @PNL IH13-P609
REACTOR LOW-LOW WATER LEVEL
STEAM LINE HI FLOW
MAIN STEAM LINE LOW PRESS (PRESS REG FAILURE)
1 CLOSE MAIN STEAM LINE ISOL VLVS
2 CLOSE MAIN STEAM LINE DRAIN VLVS
3 CLOSE REACTOR WTR SAMPLE VALVES
MANU CONDENSER LOW VACUUM
MAIN STEAM LINE RADIATION
CONDENSER LOW VAC (LOW BY-PASS)
MANUAL ISOLATION
REACTOR LOW LOW WATER LEVEL
STEAM LINE HI FLOW
MAIN STEAM LINE LOW PRESSURE (PRESS REG FAILURE)
1 CLOSE MAIN STEAM LINE ISOL VALVES
2 CLOSE MAIN STEAM LINE DRAIN VALVES
3 CLOSE REACTOR WATER SAMPLE VALVES
MAIN CONDENSER LOW VACUUM
LOGIC A
LOGIC C
ESSENTIAL
INCLU



2

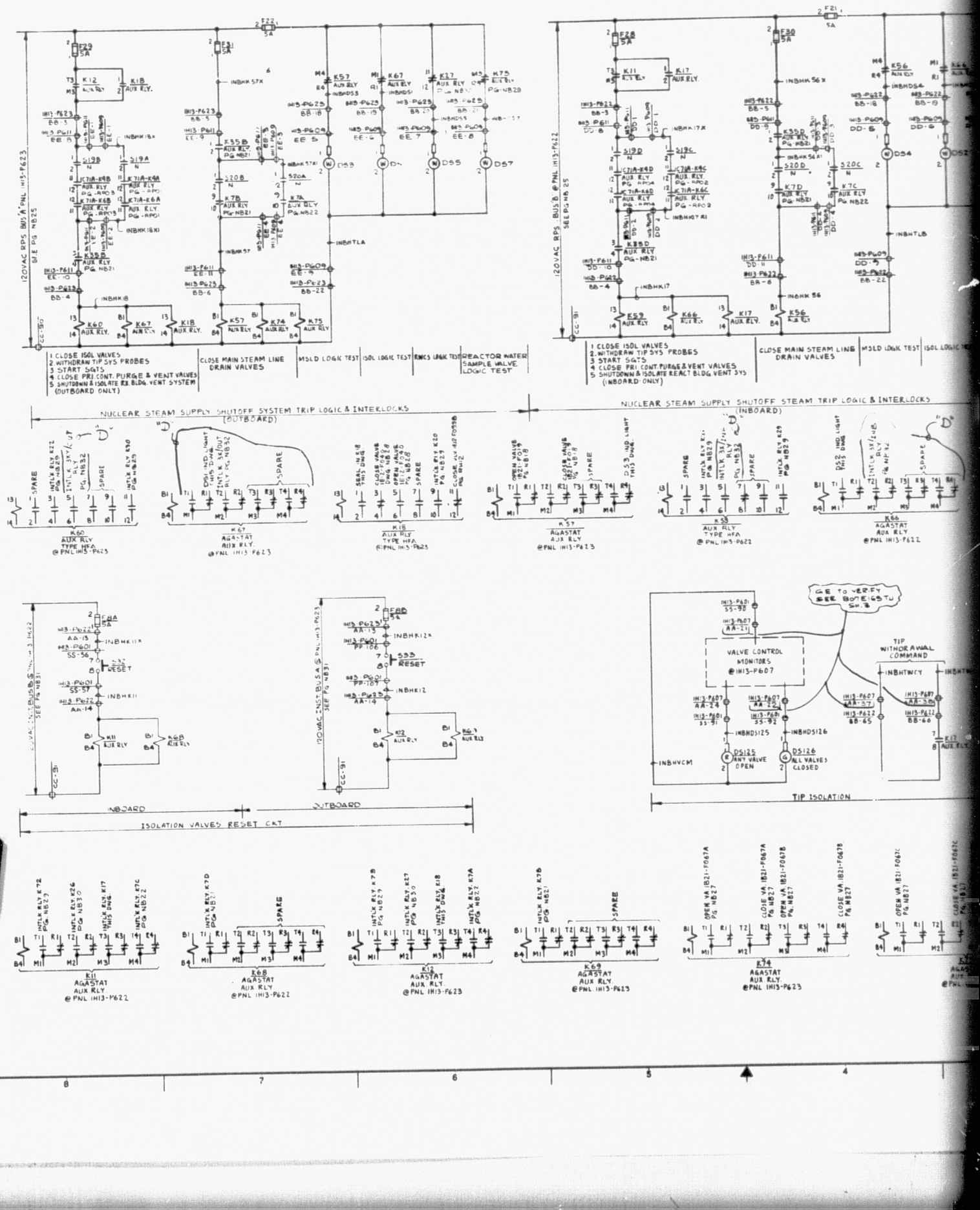
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FINAL SAFETY ANALYSIS REPORT

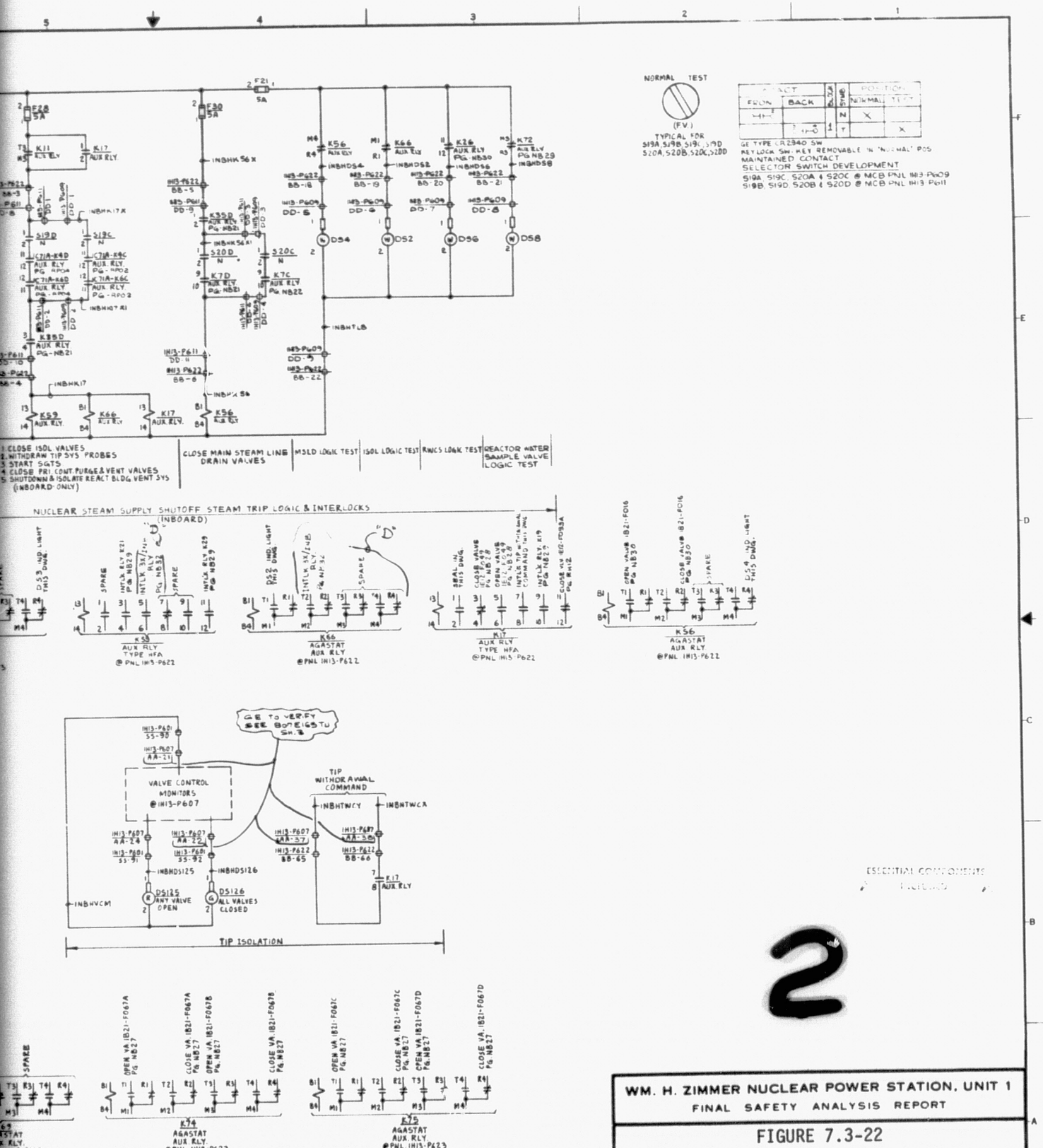
FIGURE 7.3-22

PRIMARY CONTAINMENT AND REACTOR VESSEL ISOLATION SYSTEM ESD

(SHEET 5 of 15)

E1010/PGNB23





ESSENTIAL COMPONENTS

2

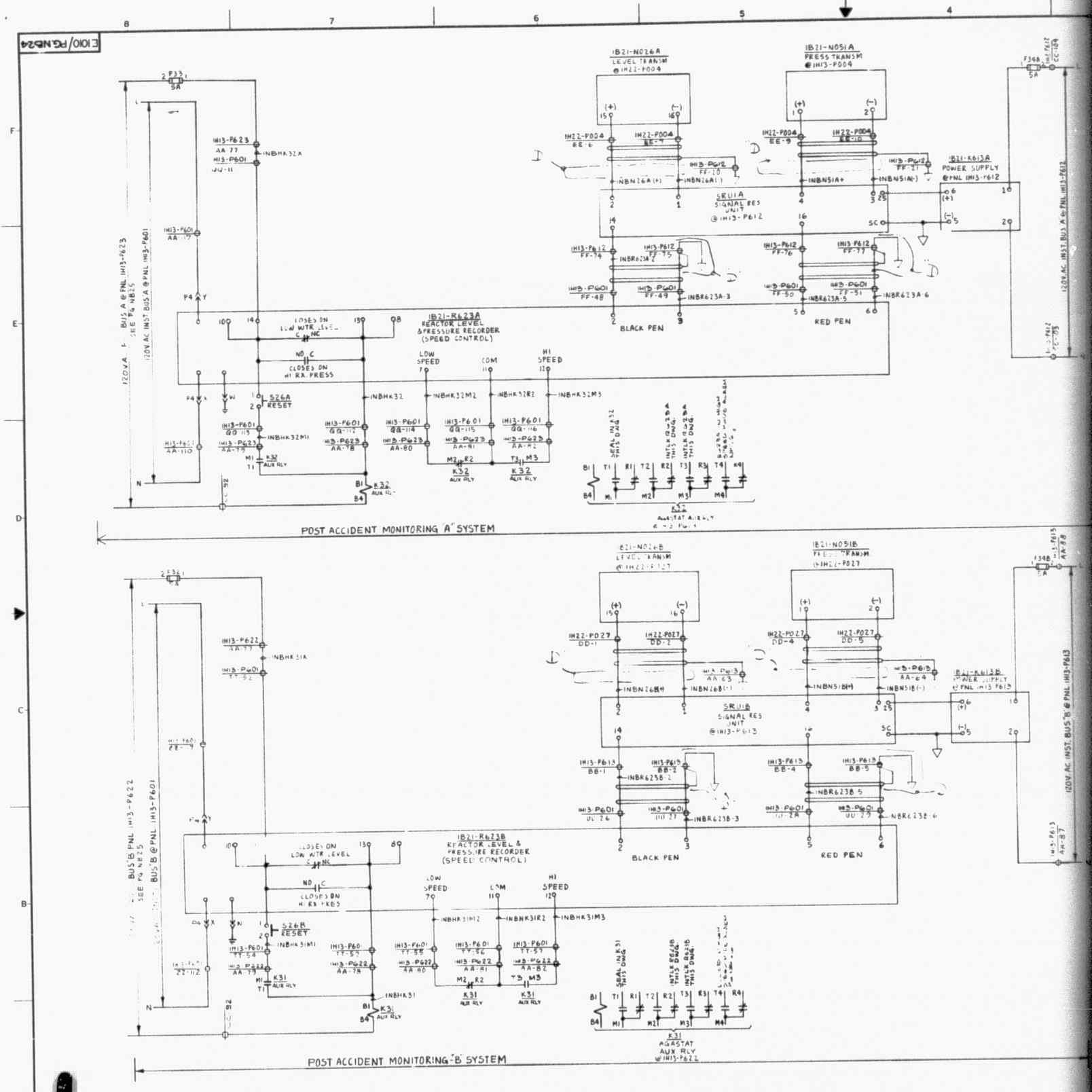
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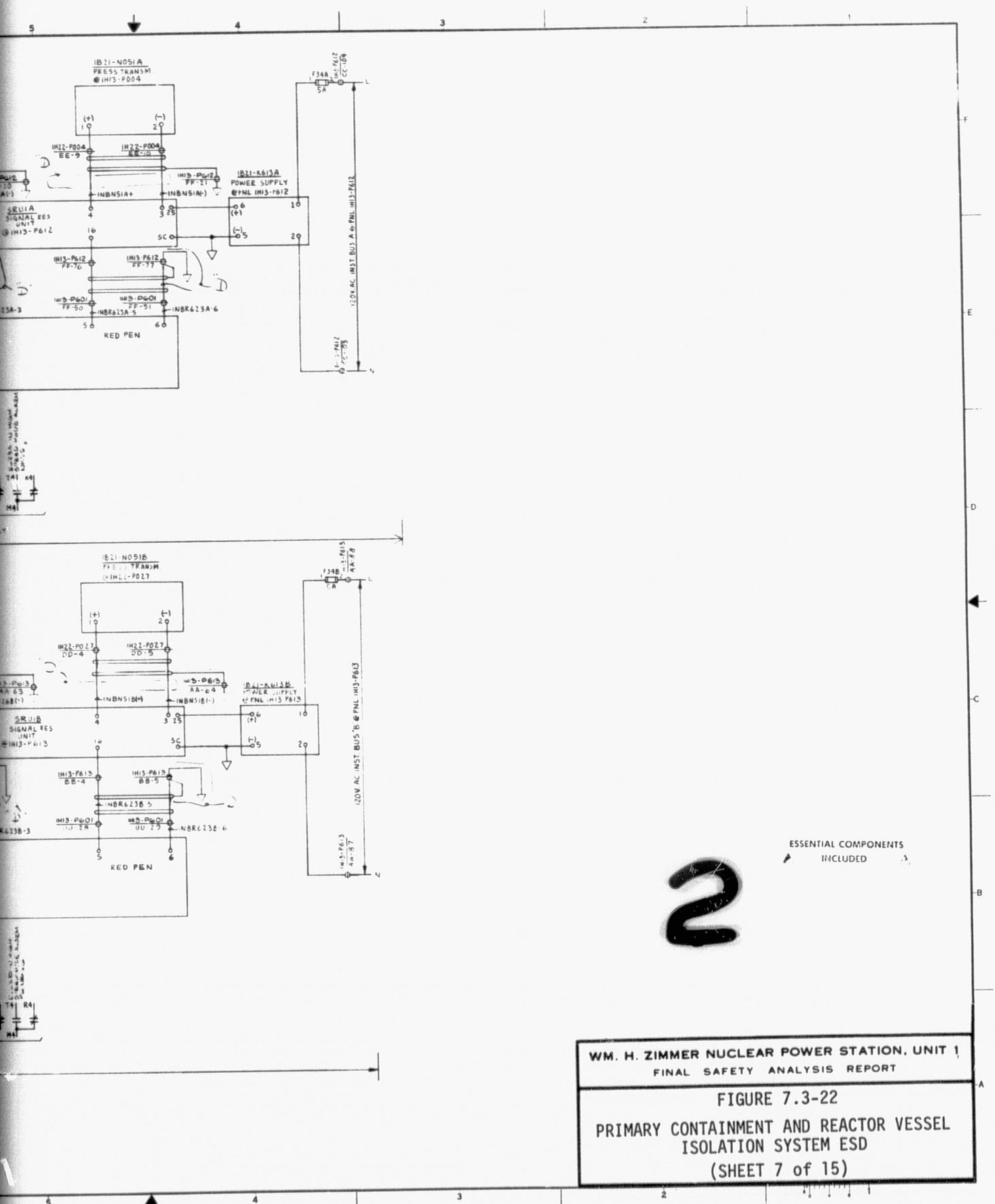
FIGURE 7.3-22

PRIMARY CONTAINMENT AND REACTOR VESSEL ISOLATION SYSTEM ESD

(SHEET 6 of 15)

E1010/PGNB24





ESSENTIAL COMPONENTS
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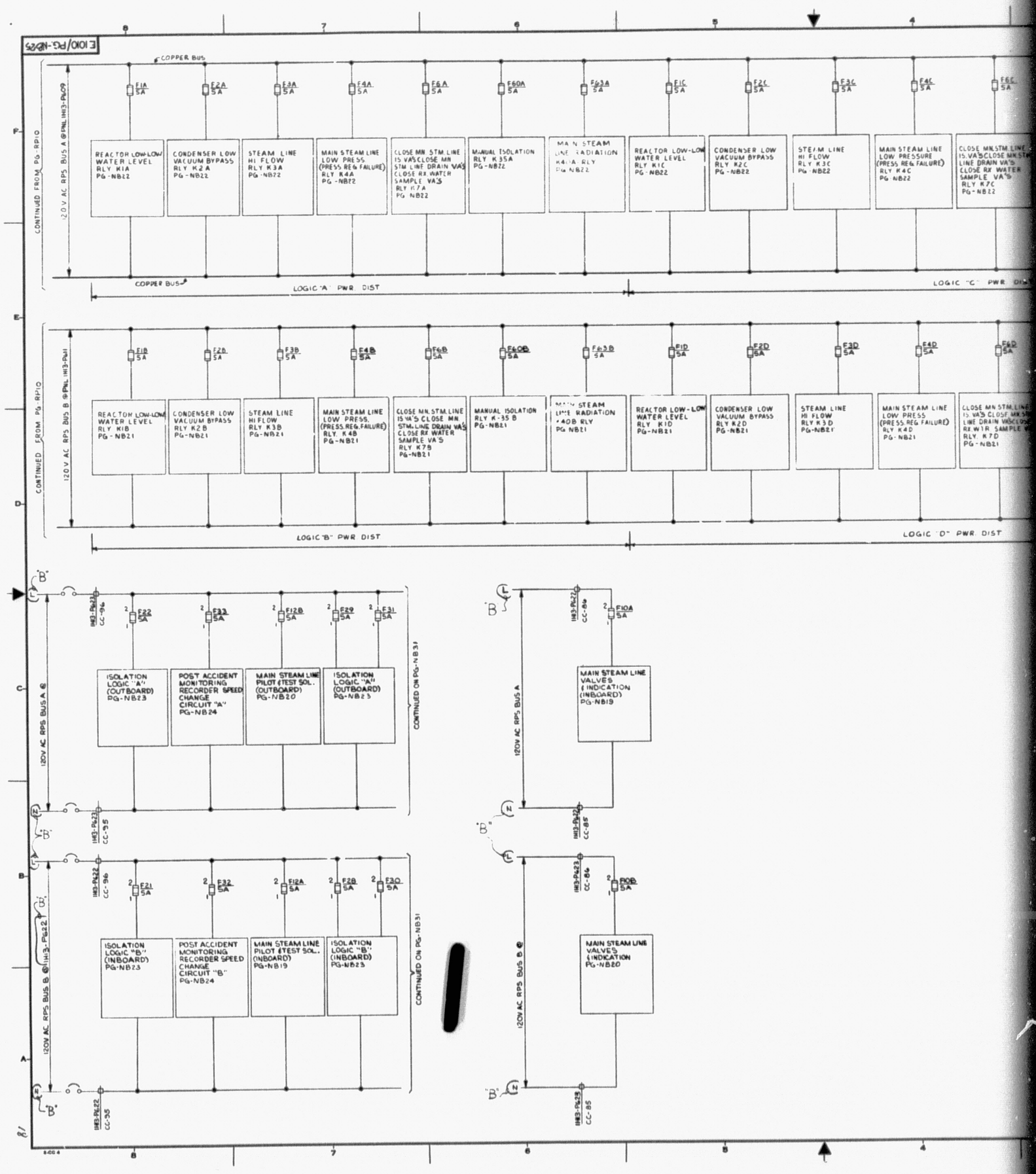
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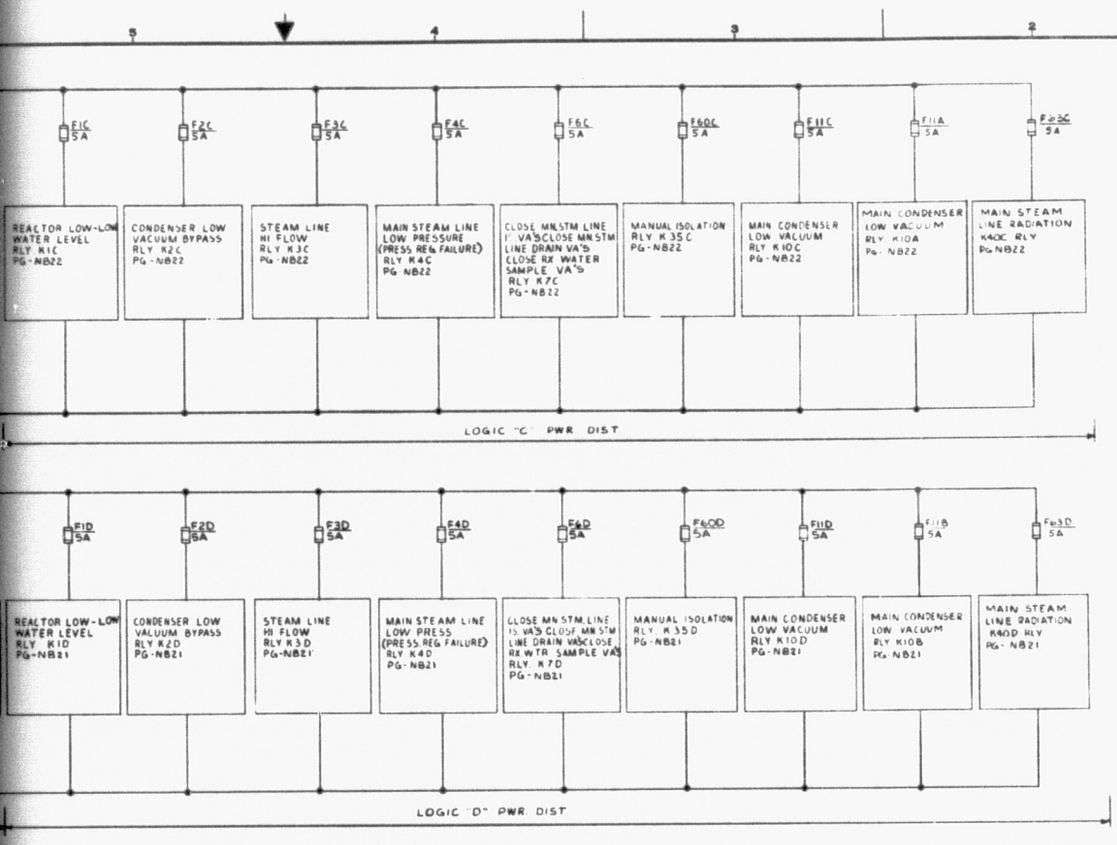
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FIGURE 7.3-22

PRIMARY CONTAINMENT AND REACTOR VESSEL ISOLATION SYSTEM ESD

(SHEET 7 of 15)


E1010/PG-NB25
CONTINUED FROM PG-RP10
120 V AC RPS BUS A @PNL IH13-P609
COPPER BUS
F1A 5A
F2A 5A
F3A 5A
F4A 5A
F6A 5A
F60A 5A
F63A 5A
F1C 5A
F2C 5A
F3C 5A
F4C 5A
F6C 5A
REACTOR LOW-LOW WATER LEVEL RLY K1A PG-NB22
CONDENSER LOW VACUUM BYPASS RLY K2A PG-NB22
STEAM LINE HI FLOW RLY K3A PG-NB22
MAIN STEAM LINE LOW PRESS. (PRESS REG FAILURE) RLY K4A PG-NB22
CLOSE MN STM LINE 15 VA'S CLOSE MN STM LINE DRAIN VA'S CLOSE RX WATER SAMPLE VA'S RLY K7A PG-NB22
MANUAL ISOLATION RLY K35A PG-NB22
MAIN STEAM LINE RADIATION K40A RLY PG-NB22
REACTOR LOW-LOW WATER LEVEL RLY K1C PG-NB22
CONDENSER LOW VACUUM BYPASS RLY K2C PG-NB22
STEAM LINE HI FLOW RLY K3C PG-NB22
MAIN STEAM LINE LOW PRESSURE (PRESS REG FAILURE) RLY K4C PG-NB22
CLOSE MN STM LINE 15 VA'S CLOSE MN STM LINE DRAIN VA'S CLOSE RX WATER SAMPLE VA'S RLY K7C PG-NB22
COPPER BUS
LOGIC "A" PWR. DIST
LOGIC "C" PWR. DIST
CONTINUED FROM PG-RP10
120 V AC RPS BUS B @PNL IH13-P611
F1B 5A
F2B 5A
F3B 5A
F4B 5A
F6B 5A
F60B 5A
F63B 5A
F1D 5A
F2D 5A
F3D 5A
F4D 5A
F6D 5A
REACTOR LOW-LOW WATER LEVEL RLY K1B PG-NB21
CONDENSER LOW VACUUM BYPASS RLY K2B PG-NB21
STEAM LINE HI FLOW RLY K3B PG-NB21
MAIN STEAM LINE LOW PRESS. (PRESS.REG.FAILURE) RLY. K4B PG-NB21
CLOSE MN STM LINE 15 VA'S CLOSE MN STM LINE DRAIN VA'S CLOSE RX WATER SAMPLE VA'S RLY K7B PG-NB21
MANUAL ISOLATION RLY K-35 B PG-NB21
MAIN STEAM LINE RADIATION K40B RLY PG-NB21
REACTOR LOW-LOW WATER LEVEL RLY K1D PG-NB21
CONDENSER LOW VACUUM BYPASS RLY K2D PG-NB21
STEAM LINE HI FLOW RLY K3D PG-NB21
MAIN STEAM LINE LOW PRESS (PRESS.REG FAILURE) RLY K4D PG-NB21
CLOSE MN STM LINE 15 VA'S CLOSE MN STM LINE DRAIN VA'S CLOSE RX WATER SAMPLE VA'S RLY K7D PG-NB21
LOGIC "B" PWR. DIST
LOGIC "D" PWR. DIST
120V AC RPS BUS A @
IH13-P622 CC-96
IH13-P623 CC-95
F22 5A
F33 5A
F12B 5A
F29 5A
F31 5A
ISOLATION LOGIC "A" (OUTBOARD) PG-NB23
POST ACCIDENT MONITORING RECORDER SPEED CHANGE CIRCUIT "A" PG-NB24
MAIN STEAM LINE PILOT & TEST SOL. (OUTBOARD) PG-NB20
ISOLATION LOGIC "A" (OUTBOARD) PG-NB23
CONTINUED ON PG-NB31
120V AC RPS BUS B @IH13-P622
IH13-P622 CC-96
IH13-P623 CC-95
F21 5A
F32 5A
F12A 5A
F28 5A
F30 5A
ISOLATION LOGIC "B" (INBOARD) PG-NB23
POST ACCIDENT MONITORING RECORDER SPEED CHANGE CIRCUIT "B" PG-NB24
MAIN STEAM LINE PILOT & TEST SOL. (INBOARD) PG-NB19
ISOLATION LOGIC "B" (INBOARD) PG-NB23
CONTINUED ON PG-NB31
120V AC RPS BUS A
IH13-P622 CC-84
IH13-P623 CC-85
F10A 5A
MAIN STEAM LINE VALVES & INDICATION (INBOARD) PG-NB19
120V AC RPS BUS B @
IH13-P622 CC-84
IH13-P623 CC-85
F10B 5A
MAIN STEAM LINE VALVES & INDICATION PG-NB20

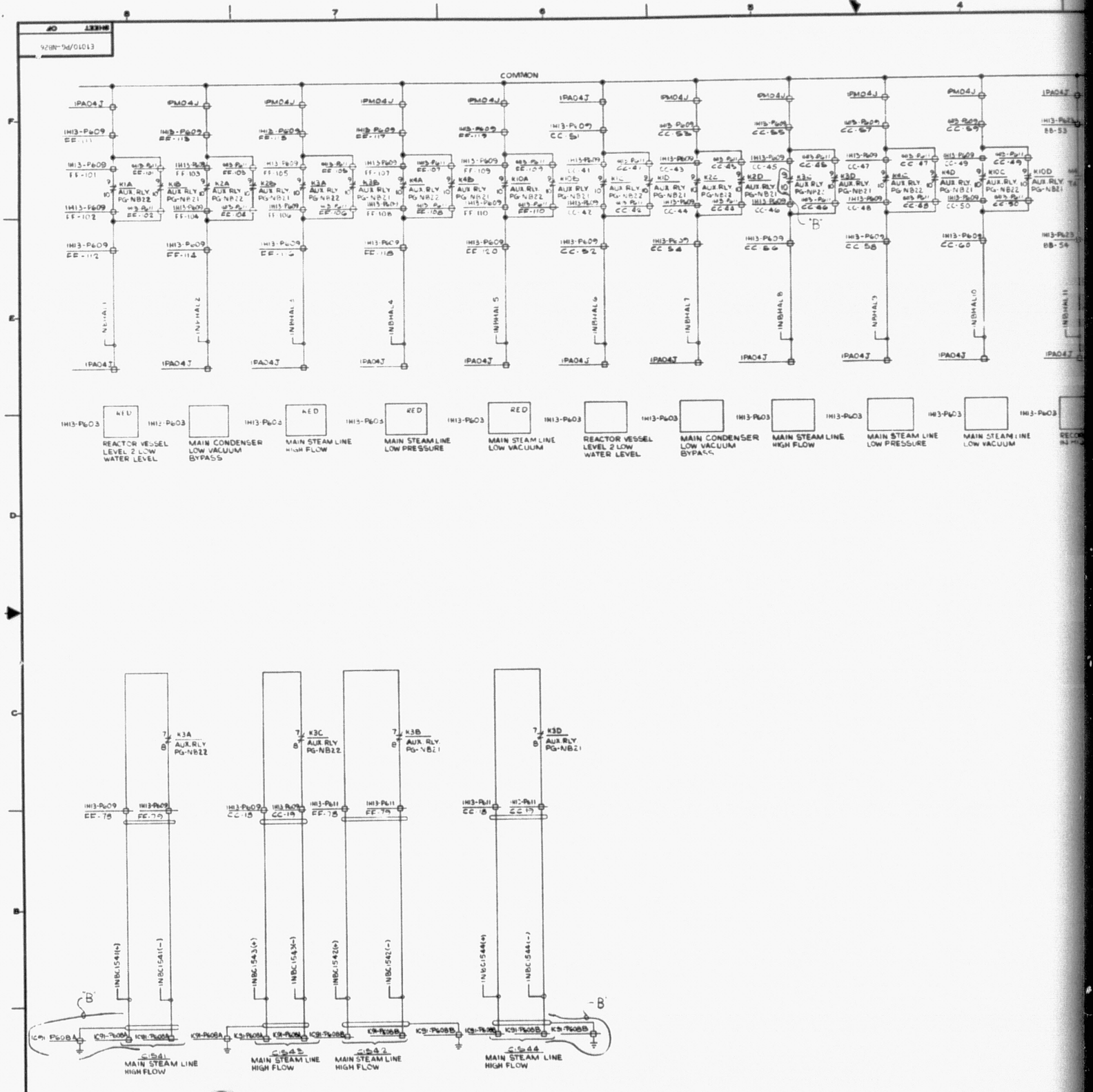


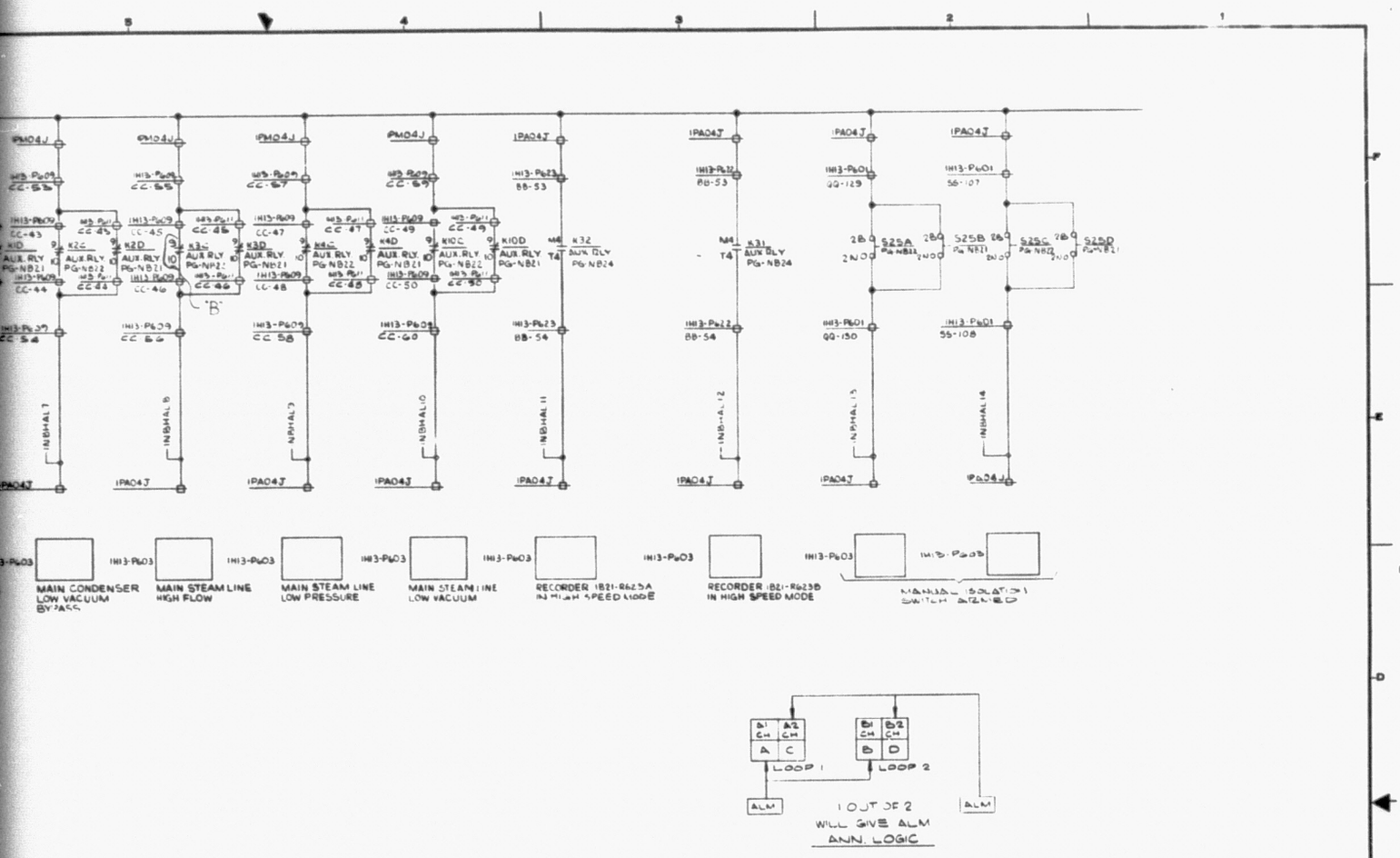
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ESSENTIAL COMPONENTS
▲ INCLUDED ▲

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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-22
PRIMARY CONTAINMENT AND REACTOR VESSEL ISOLATION SYSTEM ESD
(SHEET 8 of 15)


SHEET OF
E1010/P6-NB26
COMMON
1PA04J
1PM04J
1N13-P609
1N13-P603
1N13-P611
K1A AUX RLY PG-NB22
K1B AUX RLY PG-NB21
K2A AUX RLY PG-NB22
K2B AUX RLY PG-NB21
K3A AUX RLY PG-NB22
K3B AUX RLY PG-NB21
K4A AUX RLY PG-NB22
K4B AUX RLY PG-NB21
K1OA AUX RLY PG-NB22
K1OB AUX RLY PG-NB21
K1C AUX RLY PG-NB22
K1D AUX RLY PG-NB21
K2C AUX RLY PG-NB22
K2D AUX RLY PG-NB21
K3C AUX RLY PG-NB22
K3D AUX RLY PG-NB21
K4C AUX RLY PG-NB22
K4D AUX RLY PG-NB21
K10C AUX RLY PG-NB22
K10D AUX RLY PG-NB21
N1HAL1
N1HAL2
N1HAL3
N1HAL4
N1HAL5
N1HAL6
N1HAL7
N1HAL8
N1HAL9
N1HAL10
N1HAL11
RED
REACTOR VESSEL LEVEL 2 LOW WATER LEVEL
MAIN CONDENSER LOW VACUUM BYPASS
MAIN STEAM LINE HIGH FLOW
MAIN STEAM LINE LOW PRESSURE
MAIN STEAM LINE LOW VACUUM
REACTOR VESSEL LEVEL 2 LOW WATER LEVEL
MAIN CONDENSER LOW VACUUM BYPASS
MAIN STEAM LINE HIGH FLOW
MAIN STEAM LINE LOW PRESSURE
MAIN STEAM LINE LOW VACUUM
"B"
1N13-P609 FF-101
1N13-P609 FF-102
1N13-P609 FF-103
1N13-P609 FF-104
1N13-P609 FF-105
1N13-P609 FF-106
1N13-P609 FF-107
1N13-P609 FF-108
1N13-P609 FF-109
1N13-P609 FF-110
1N13-P609 FF-111
1N13-P609 FF-112
1N13-P609 FF-113
1N13-P609 FF-114
1N13-P609 FF-115
1N13-P609 FF-116
1N13-P609 FF-117
1N13-P609 FF-118
1N13-P609 FF-119
1N13-P609 FF-120
1N13-P609 CC-41
1N13-P609 CC-42
1N13-P609 CC-43
1N13-P609 CC-44
1N13-P609 CC-45
1N13-P609 CC-46
1N13-P609 CC-47
1N13-P609 CC-48
1N13-P609 CC-49
1N13-P609 CC-50
1N13-P609 CC-51
1N13-P609 CC-52
1N13-P609 CC-53
1N13-P609 CC-54
1N13-P609 CC-55
1N13-P609 CC-56
1N13-P609 CC-57
1N13-P609 CC-58
1N13-P609 CC-59
1N13-P609 CC-60
1N13-P609 BB-53
1N13-P609 BB-54
1N13-P609 FF-78
1N13-P609 FF-79
1N13-P609 CC-18
1N13-P609 CC-19
1N13-P611 FF-78
1N13-P611 FF-79
1N13-P611 CC-18
1N13-P611 CC-19
1N8C:1541(+)
1N8C:1541(-)
1N8C:1543(+)
1N8C:1543(-)
1N8C:1542(+)
1N8C:1542(-)
1N8C:1544(+)
1N8C:1544(-)
K91-P608A
K91-P608B
C-1541 MAIN STEAM LINE HIGH FLOW
C-1543 MAIN STEAM LINE HIGH FLOW
C-1542 MAIN STEAM LINE HIGH FLOW
C-1544 MAIN STEAM LINE HIGH FLOW

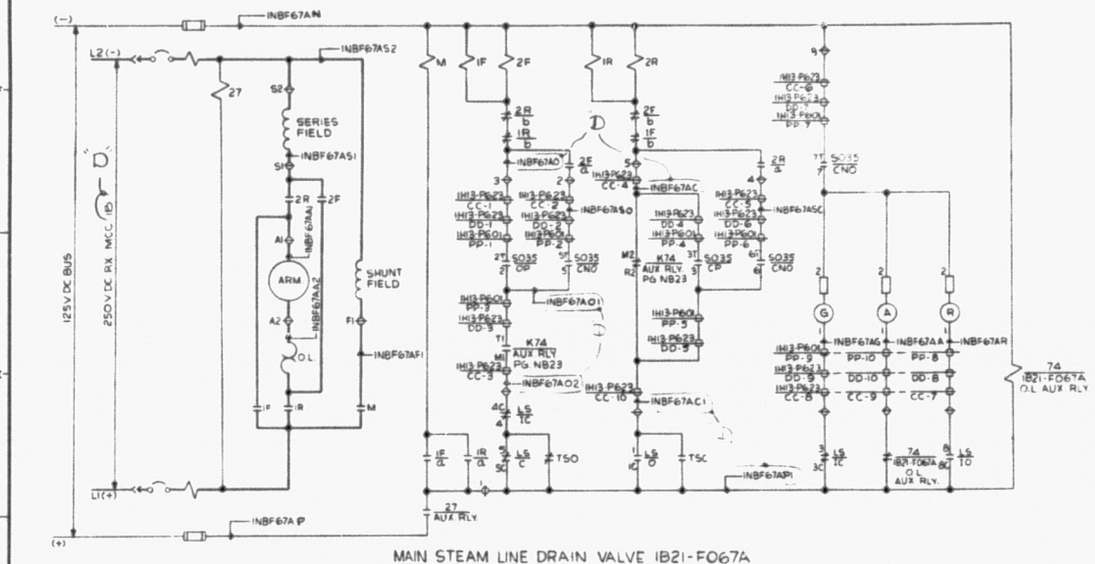


ESSENTIAL COMPONENTS
INCLUDED

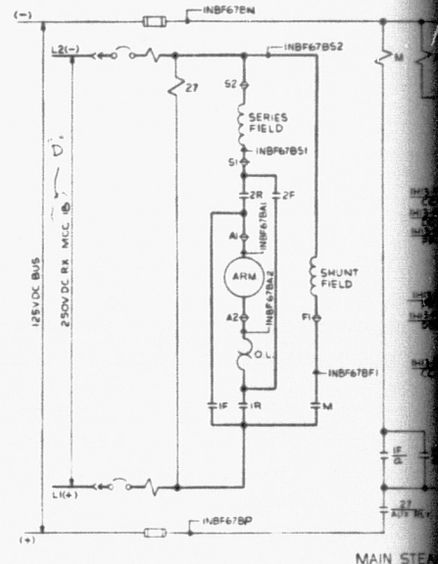
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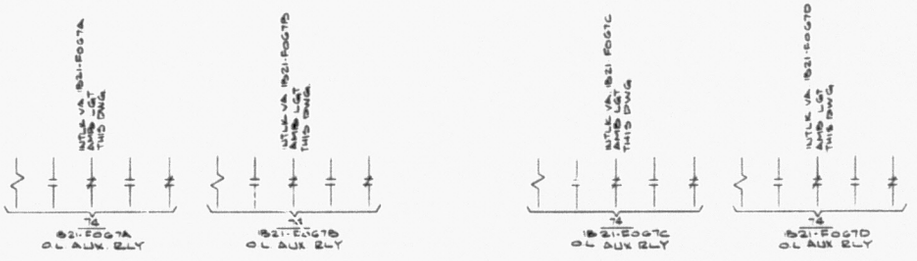
FIGURE 7.3-22
PRIMARY CONTAINMENT AND REACTOR VESSEL ISOLATION SYSTEM ESD
(SHEET 9 of 15)

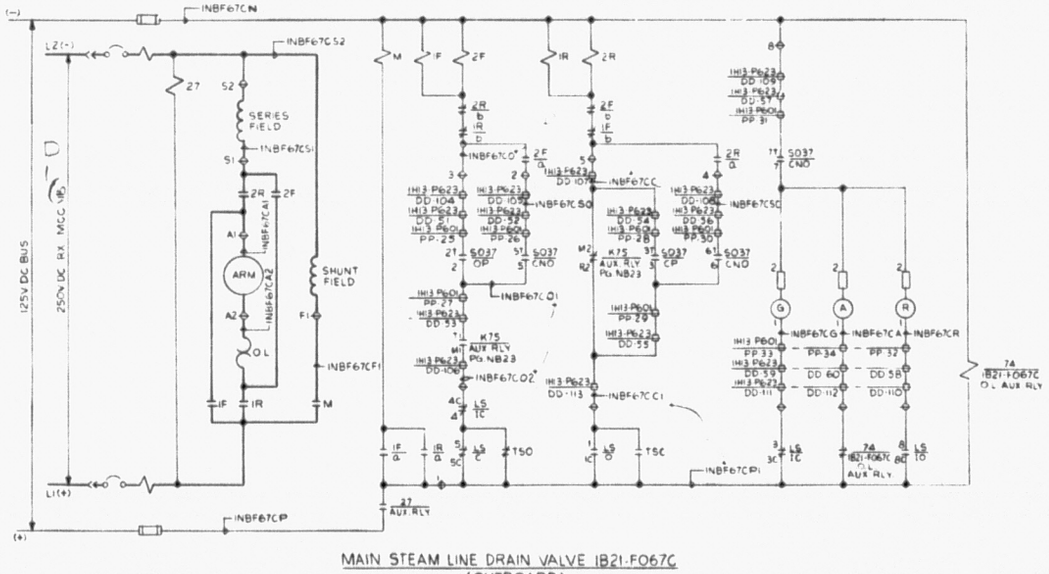


MAIN STEAM LINE DRAIN VALVE 1B21-F067A
(OUTBOUND)

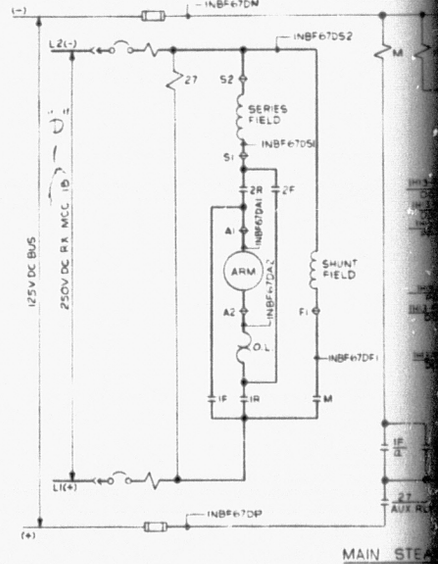


MAIN STEA



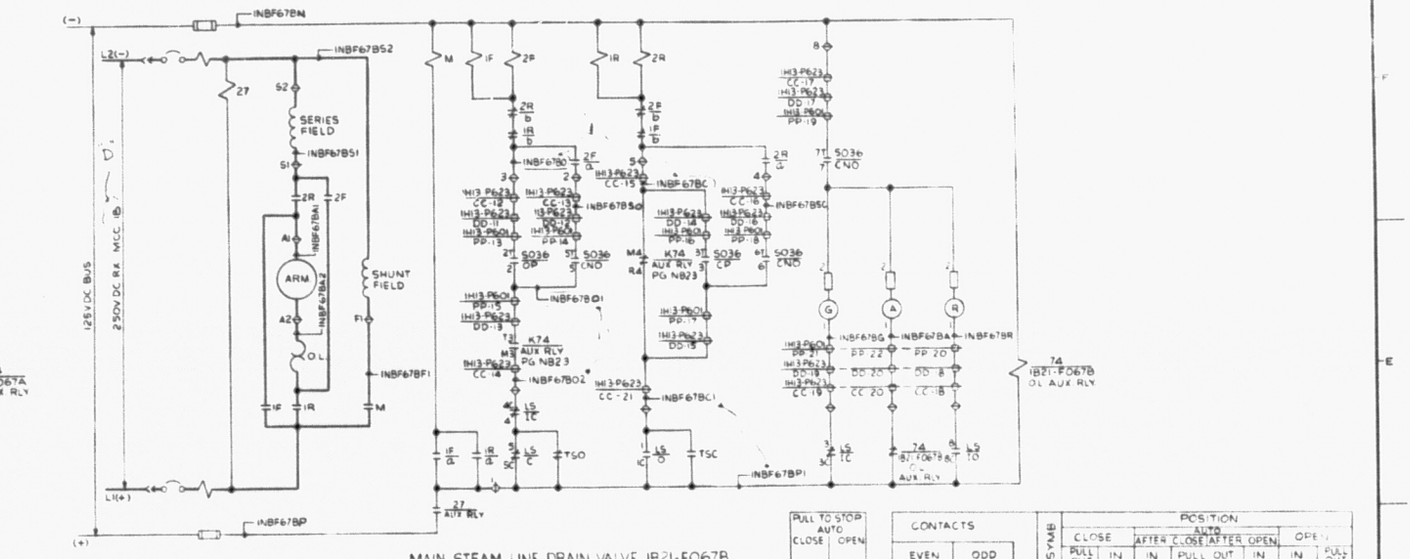


MAIN STEAM LINE DRAIN VALVE 1B21-F067C
(OUTBOUND)

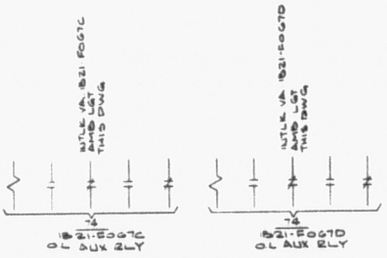


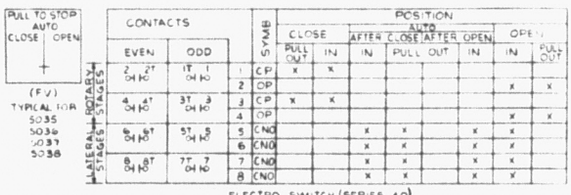
MAIN STEA

ESSENTIAL COMPONEN
▲ INCLUDED



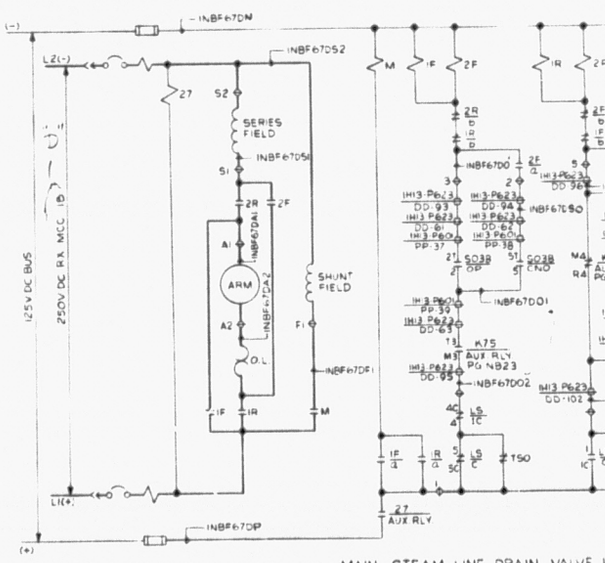
MAIN STEAM LINE DRAIN VALVE 1B21-F067B
(OUTBOARD)





ELECTRO SWITCH (SERIES 40)
PISTOL GRIP HANDLE
SPRING RETURN TO "AUTO" (IN) POSITION
OPERATOR TO PULL TO STOP FROM "NORMAL" POS. ONLY
X-DENOTES CLOSED CONTACT

CONTROL SWITCH DEVELOPMENT
@MCB PNL 1H13-P601



MAIN STEAM LINE DRAIN VALVE 1B21-F067D
(OUTBOARD)

ROTOR	CONTACTS	SYMB	POSITION FULL CLOSE	INTERMEDIATE	FULL OPEN
1	1 ⊣⊢ 01C	O			X
	2 ⊣⊢ 02C	O			X
2	3 ⊣⊢ 03C	IC	X	X	
	4 ⊣⊢ 04C	IC	X	X	
	5 ⊣⊢ 05C	C	X		
	6 ⊣⊢ 06C	C	X		
	7 ⊣⊢ 07C	IO		X	X
	8 ⊣⊢ 08C	IO		X	X
3	9 ⊣⊢ 09C	O			X
	10 ⊣⊢ 010C	O			X
	11 ⊣⊢ 011C	IC	X	X	
	12 ⊣⊢ 012C	IC	X	X	
4	13 ⊣⊢ 013C	C	X		
	14 ⊣⊢ 014C	C	X		
	15 ⊣⊢ 015C	IO		X	X
	16 ⊣⊢ 016C	IO		X	X

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALS 1B21-F067A, F067B, F067C & F067D

LIMIT SW'S SHOWN WITH VALVE FULLY CLOSED

2

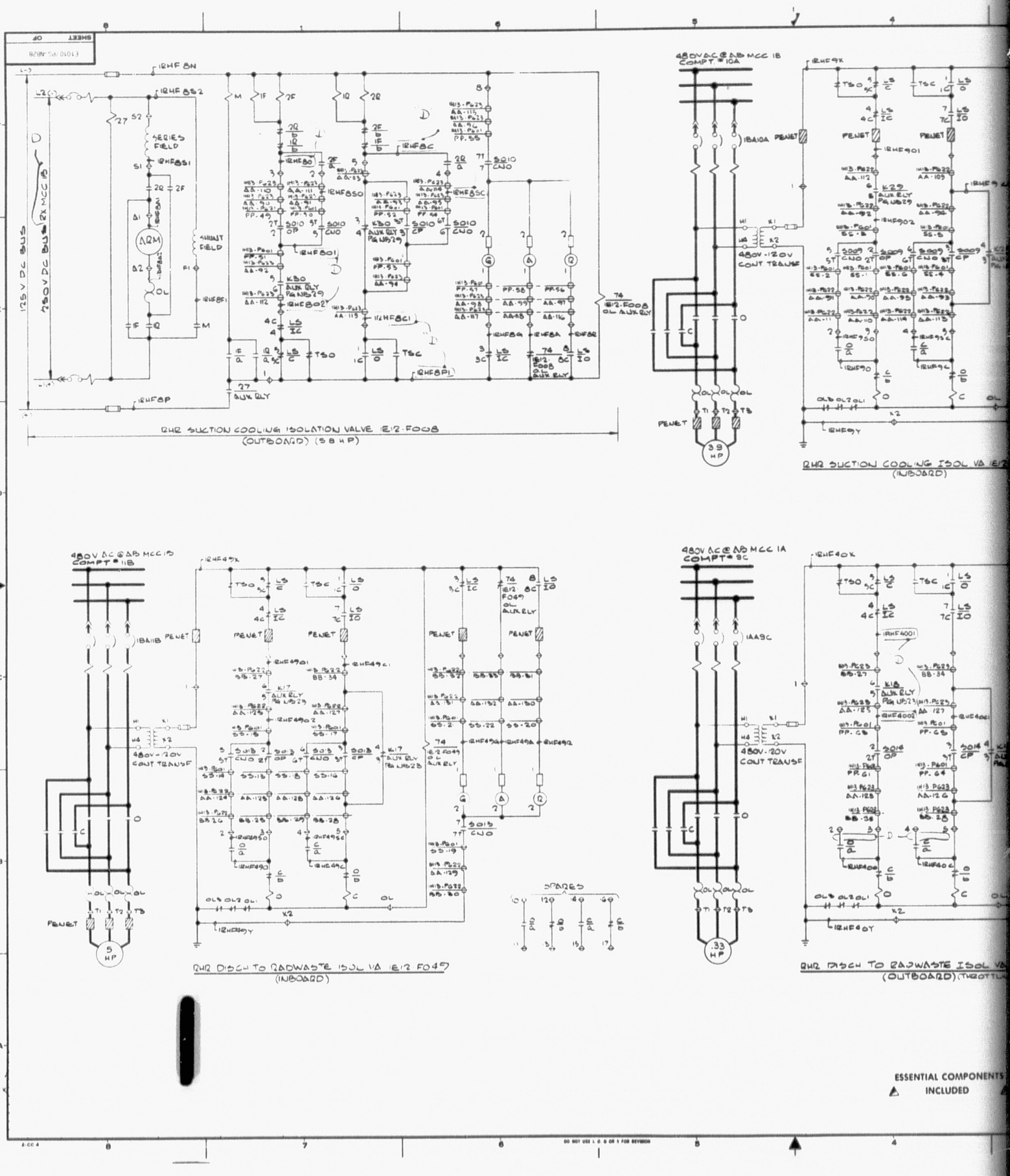
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

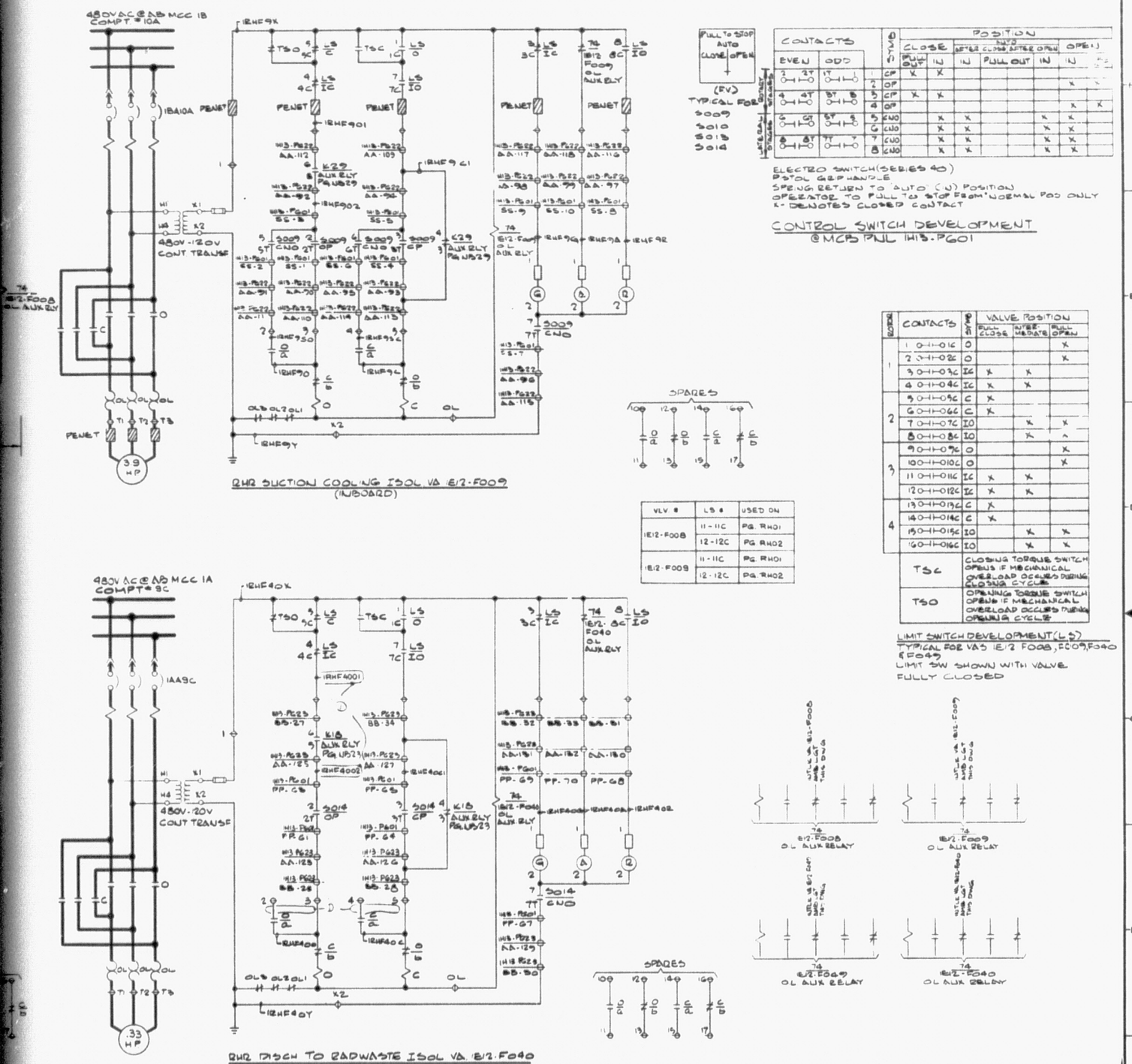
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FIGURE 7.3-22

PRIMARY CONTAINMENT AND REACTOR VESSEL ISOLATION SYSTEM ESD

(SHEET 10 of 15)


125V DC BUS
250V DC BUS 2X MCC 1B
1RHF8N
1RHF852
1RHF851
1RHF8P
SERIES FIELD
SHUNT FIELD
ARM
ΔRM
OL
27 AUX RLY
RHR SUCTION COOLING ISOLATION VALVE E12-F008 (OUTBOARD) (58 HP)
480V AC @ AB MCC 1B COMPT # 10A
1BA10A PENET
480V-120V CONT TRANSF
39 HP
RHR SUCTION COOLING ISOL VA E12
(INBOARD)
480V AC @ AB MCC 1B COMPT # 11B
1BA11B PENET
480V-120V CONT TRANSF
5 HP
RHR DISCH TO RADWASTE ISOL VA E12 F045
(INBOARD)
SPARES
480V AC @ AB MCC 1A COMPT # 9C
1AA9C
480V-120V CONT TRANSF
.33 HP
RHR DISCH TO RADWASTE ISOL VA
(OUTBOARD) (THROTTLE
ESSENTIAL COMPONENTS
INCLUDED



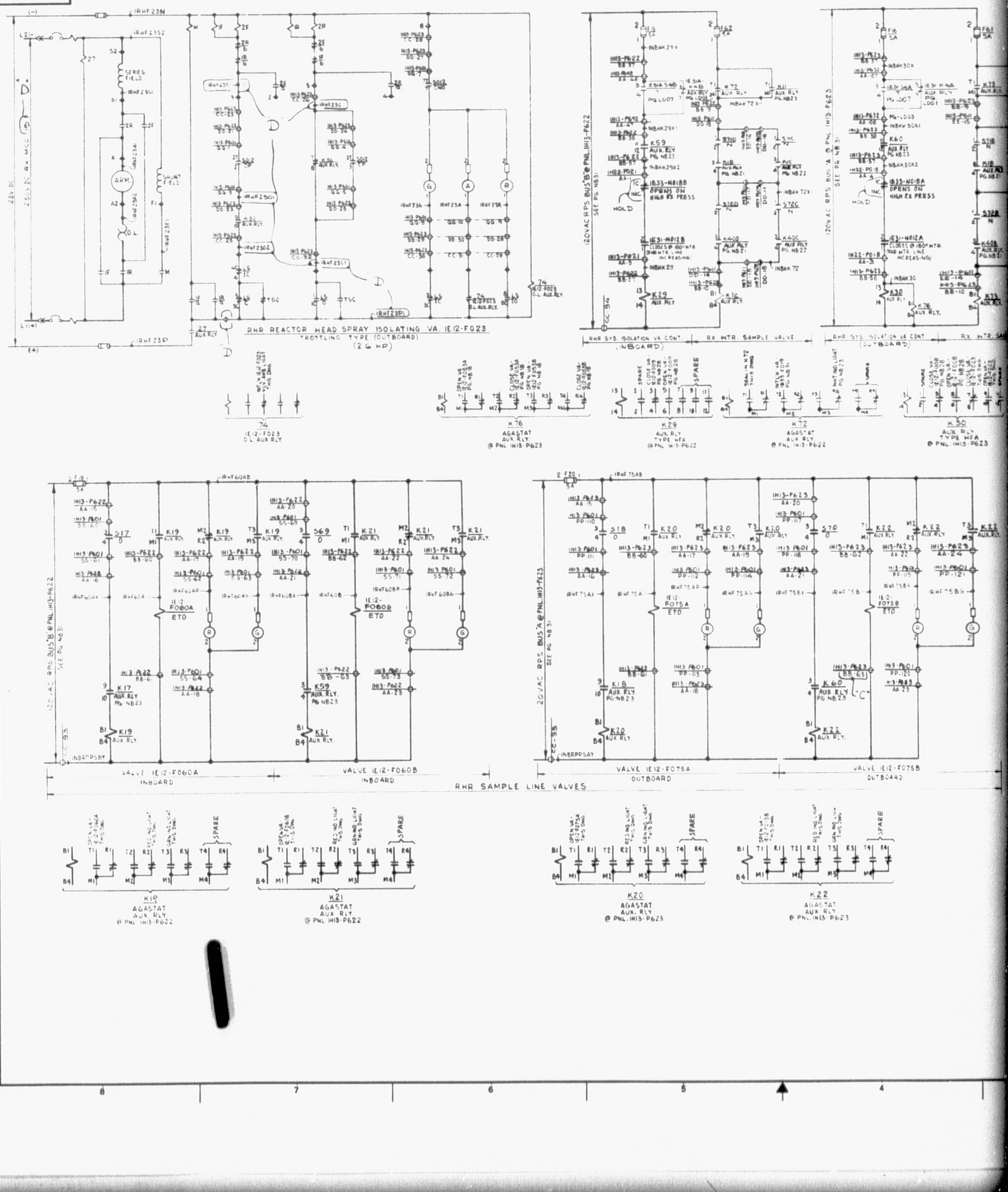
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

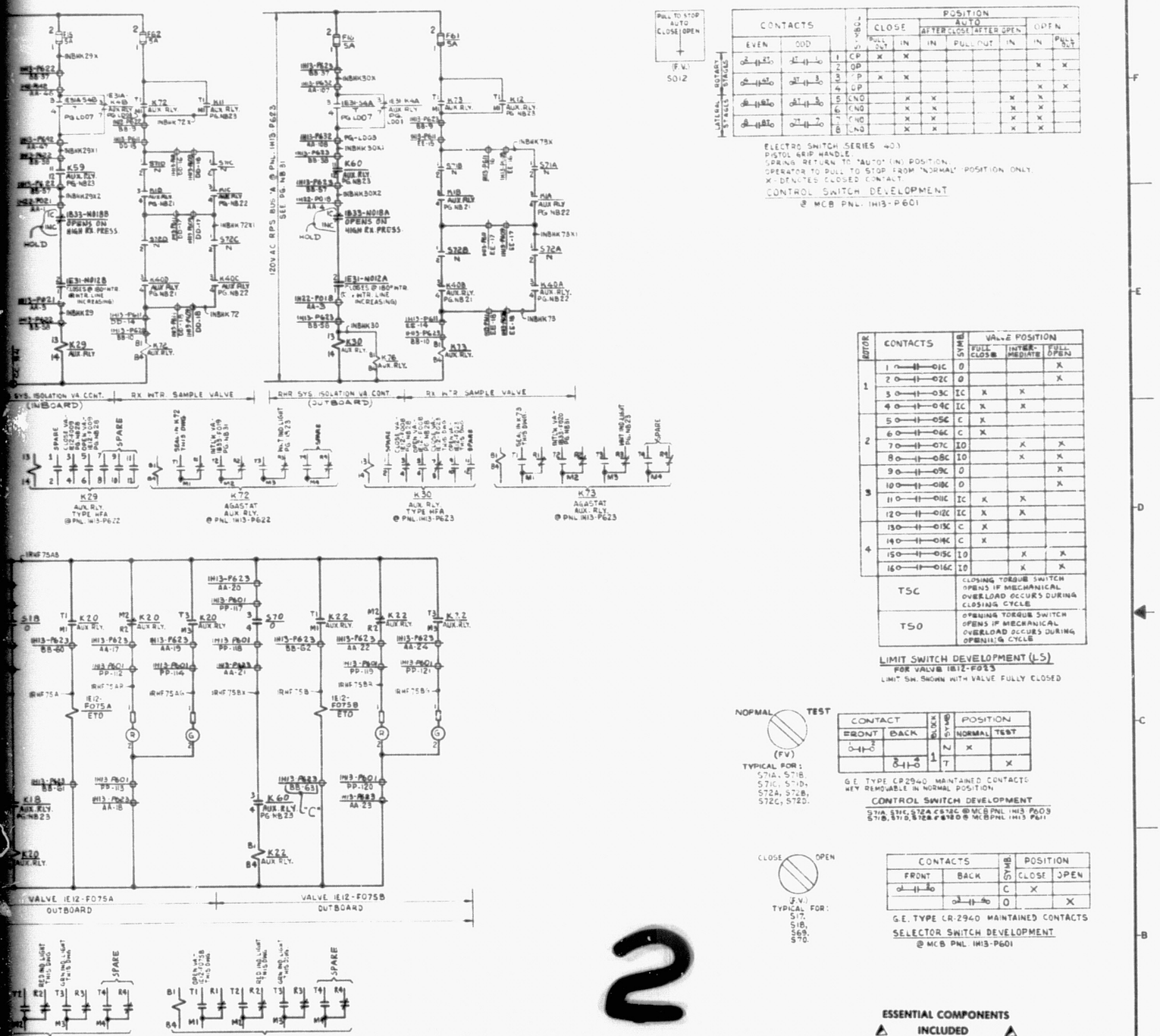
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-22
PRIMARY CONTAINMENT AND REACTOR VESSEL ISOLATION SYSTEM ESD
(SHEET 11 of 15)

E1010/PGNB29





PULL TO STOP
AUTO
CLOSE | OPEN
(F.V.)
S012

CONTACTS EVEN	CONTACTS ODD		POSITION CLOSE PULL OUT	CLOSE IN	AUTO AFTER CLOSE IN	AUTO AFTER OPEN PULL OUT	OPEN IN	OPEN PNL'L BUT
2	1	CP	X	X				
		OP					X	X
8	7	P	X	X				
		OP					X	X
6	5	CNO		X	X		X	X
4	3	CNO		X	X		X	X
		CNO		X	X		X	X

LATERAL ROTARY STAGES

ELECTRO SWITCH SERIES 40)
PISTOL GRIP HANDLE.
SPRING RETURN TO "AUTO" (N) POSITION.
OPERATOR TO PULL TO STOP FROM "NORMAL" POSITION ONLY.
X DENOTES CLOSED CONTACT.

CONTROL SWITCH DEVELOPMENT
@ MCB PNL 1H13-P601

ACTOR	CONTACTS	SYMB	VALVE POSITION FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1 01C	0			X
	2 02C	0			X
	3 03C	IC	X	X	
	4 04C	IC	X	X	
2	5 05C	C	X		
	6 06C	C	X		
	7 07C	IO		X	X
	8 08C	IO		X	X
3	9 09C	0			X
	10 010C	0			X
	11 011C	IC	X	X	
	12 012C	IC	X	X	
4	13 013C	C	X		
	14 014C	C	X		
	15 015C	IO		X	X
	16 016C	IO		X	X
	TSC		CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
	TSO		OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

LIMIT SWITCH DEVELOPMENT (LS)
FOR VALVE 1B12-F023
LIMIT SW. SHOWN WITH VALVE FULLY CLOSED

NORMAL | TEST
(F.V.)
TYPICAL FOR:
S71A, S71B, S71C, S71D, S72A, S72B, S72C, S72D.

CONTACT FRONT	CONTACT BACK	BLOCK	SYMB	POSITION NORMAL	POSITION TEST
2	3	1	N	X	
	4		T		X

G.E. TYPE CR2940 MAINTAINED CONTACTS
KEY REMOVABLE IN NORMAL POSITION

CONTROL SWITCH DEVELOPMENT
S71A, S71C, S72A & S72C @ MCB PNL 1H13-P603
S71B, S71D, S72B & S72D @ MCB PNL 1H13-P611

CLOSE | OPEN
(F.V.)
TYPICAL FOR:
S17, S18, S69, S70.

CONTACTS FRONT	CONTACTS BACK	SYMB	POSITION CLOSE	POSITION OPEN
2	1	C	X	
	2	O		X

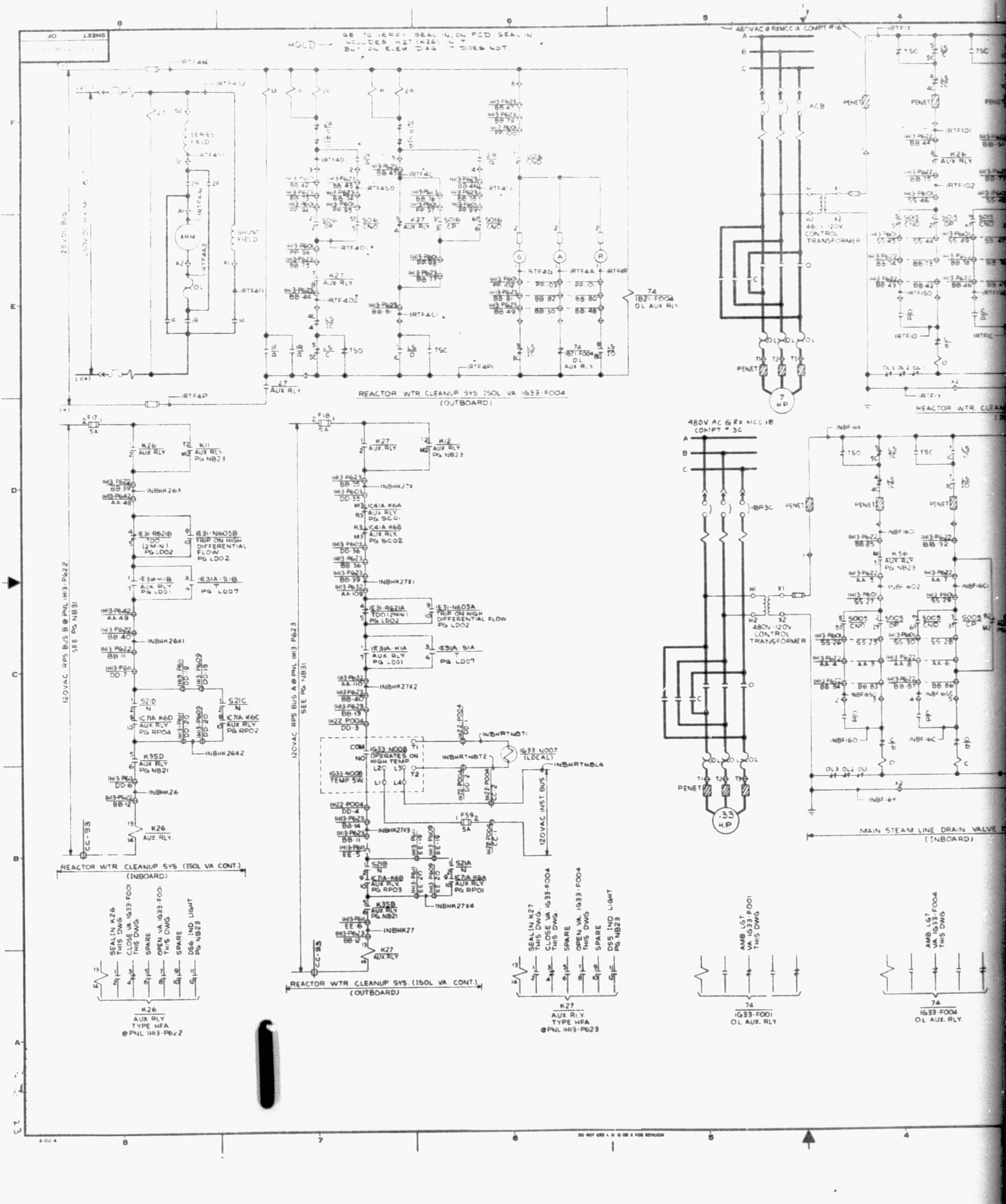
G.E. TYPE CR-2940 MAINTAINED CONTACTS
SELECTOR SWITCH DEVELOPMENT
@ MCB PNL 1H13-P601

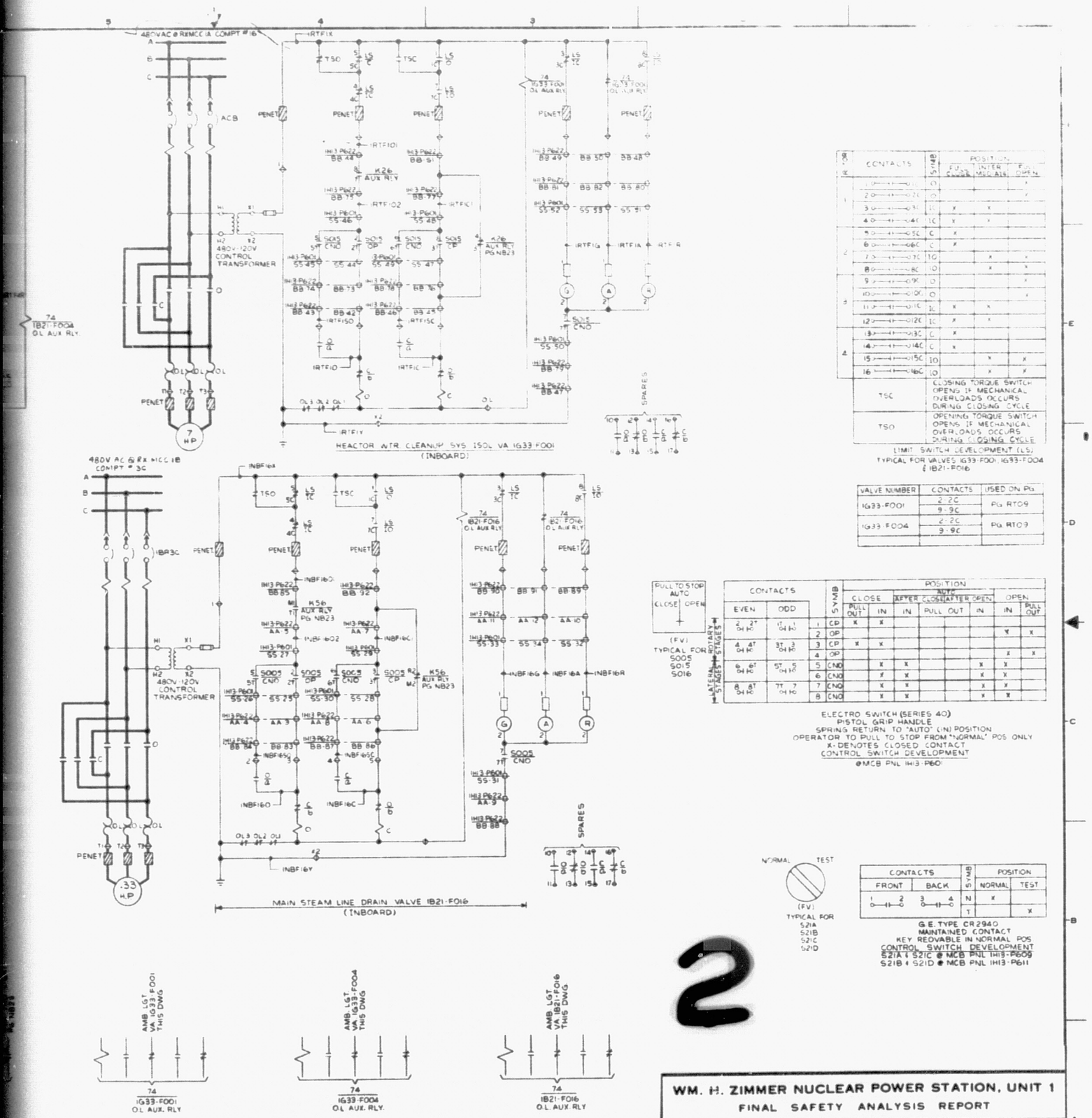
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ESSENTIAL COMPONENTS
▲ INCLUDED ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-22
PRIMARY CONTAINMENT AND REACTOR VESSEL ISOLATION SYSTEM ESD
(SHEET 12 of 15)


REACTOR WTR CLEANUP SYS. ISOL VA 1633-F004
(OUTBOARD)
REACTOR WTR CLEANUP SYS (ISOL VA CONT.)
(INBOARD)
REACTOR WTR CLEANUP SYS. (ISOL VA CONT.)
(OUTBOARD)
MAIN STEAM LINE DRAIN VALVE
(INBOARD)
480VAC @ REMCC IA COMPT # 1B
480V AC @ Rx MCC 1B COMPT # 3C
480VAC @ REMCC IA COMPT # 1C
480V-120V CONTROL TRANSFORMER
120VAC RPS BUS B @ PNL 1H13-P622
120VAC RPS BUS A @ PNL 1H13-P623
120VAC INST BUS
K26 AUX RLY TYPE HFA @PNL 1H13-P622
K27 AUX RLY TYPE HFA @PNL 1H13-P623
74 OL AUX RLY
74 OL AUX. RLY.
SEAL IN K26
CLOSE VA 1633-F001
SPARE
OPEN VA 1633-F001
SPARE
DS6 IND LIGHT
SEAL IN K27
CLOSE VA 1633-F004
SPARE
OPEN VA 1633-F004
SPARE
DS5 IND LIGHT
AMB LGT VA 1633-F001
AMB LGT VA 1633-F004
THIS DWG
PG NB23
SEE PG NB31
SEE PG 1-NB31



CONTACTS		SYMB	POSITION FULL OUT	POSITION INTER MED ALL	POSITION FULL IN
1	1-O-1	O			X
	2-O-2	O			X
	3-O-3	IC	X	X	
	4-O-4	IC	X	X	
2	5-O-5	C	X		
	6-O-6	C	X		
	7-O-7	IO		X	X
	8-O-8	IO		X	X
3	9-O-9	O			X
	10-O-10	O			X
	11-O-11	IC	X	X	
	12-O-12	IC	X	X	
4	13-O-13	C	X		
	14-O-14	C	X		
	15-O-15	IO		X	X
	16-O-16	IO		X	X
TSC			CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOADS OCCURS DURING CLOSING CYCLE		
TSO			OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOADS OCCURS DURING CLOSING CYCLE		

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVES 1G33-F001, 1G33-F004 & 1B21-F016

VALVE NUMBER	CONTACTS	USED ON PG
1G33-F001	2-2C	PG RT09
	9-9C	
1G33-F004	2-2C	PG RT09
	9-9C	

CONTACTS EVEN	CONTACTS ODD		SYMB	POSITION CLOSE PULL OUT	CLOSE IN	AUTO RETURN AFTER CLOSE IN	AUTO RETURN AFTER OPEN PULL OUT	OPEN IN	OPEN PULL OUT
2 2T 04 HC	1T 01 HC	1	CP	X	X				
		2	OP					X	X
4 4T 04 HC	3T 03 HC	3	CP	X	X				
		4	OP					X	X
6 6T 04 HC	5T 05 HC	5	CNO		X	X		X	X
		6	CNO		X	X		X	X
8 8T 04 HC	7T 07 HC	7	CNO		X	X		X	X
		8	CNO		X	X		X	X

PULL TO STOP AUTO CLOSE OPEN
(FV) TYPICAL FOR 5005 5015 5016
ROTARY 4 STAGES
LATCH 4 STAGES

ELECTRO SWITCH (SERIES 40)
PISTOL GRIP HANDLE
SPRING RETURN TO "AUTO" (N) POSITION
OPERATOR TO PULL TO STOP FROM "NORMAL" POS ONLY
X-DENOTES CLOSED CONTACT
CONTROL SWITCH DEVELOPMENT
@MCB PNL 1H13-P601

CONTACTS FRONT	CONTACTS BACK	SYMB	POSITION NORMAL	POSITION TEST
1-2	3-4	N	X	
		T		X

(FV) TYPICAL FOR 521A 521B 521C 521D

G.E. TYPE CR2940
MAINTAINED CONTACT
KEY REOVABLE IN NORMAL POS
CONTROL SWITCH DEVELOPMENT
S21A & S21C @ MCB PNL 1H13-P609
S21B & S21D @ MCB PNL 1H13-P611

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

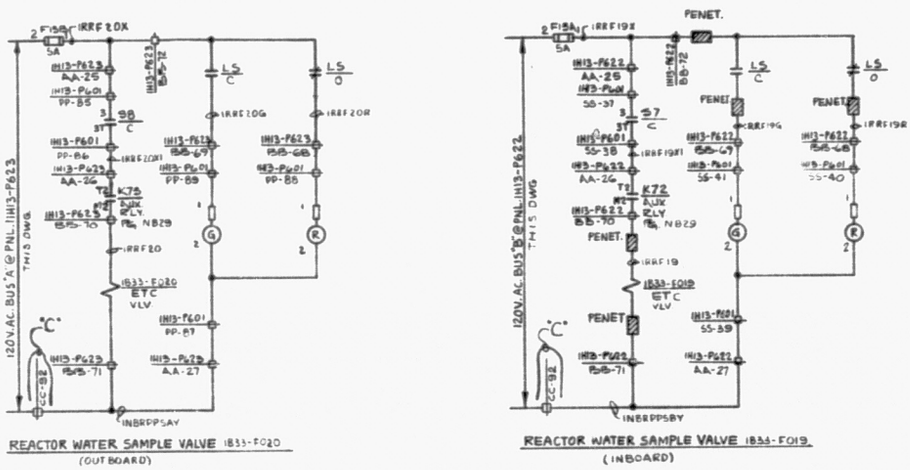
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-22

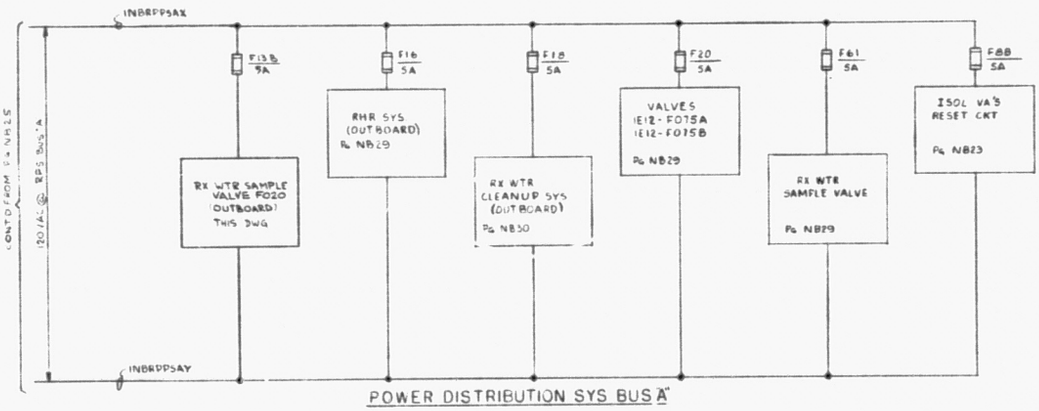
PRIMARY CONTAINMENT AND REACTOR VESSEL ISOLATION SYSTEM ESD

(SHEET 13 of 15)

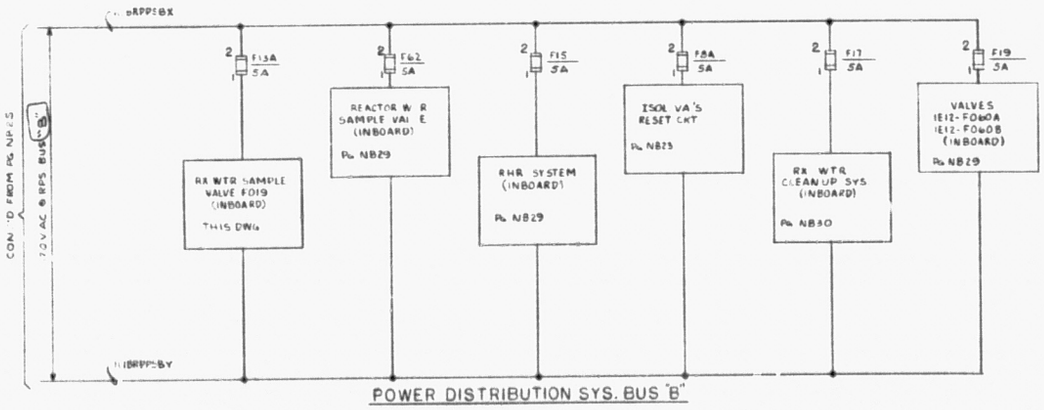


REACTOR WATER SAMPLE VALVE 1B33-F020 (OUTBOARD)

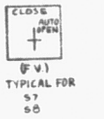
REACTOR WATER SAMPLE VALVE 1B33-F019 (INBOARD)



POWER DISTRIBUTION SYS BUS "A"



POWER DISTRIBUTION SYS. BUS "B"



CONTACTS				SYMB.	POSITION	
ODD		EVEN			CLOSE	AUTO OPEN
1T	1	2	2T	AJ		X
				AD		X
3T	3	4	4T	C	X	
				C	X	

GE TYPE SBM SW
BLACK PISTOL GRIP HANDEL
MAINTAINED CONTACT
CONTROL SWITCH DEVELOPMENT
@ MCB PNL 1H13-P601

F88
5A

VA'S
F CKT

F19
5A

ALVES
-F060A
-F060B
BOARD)

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

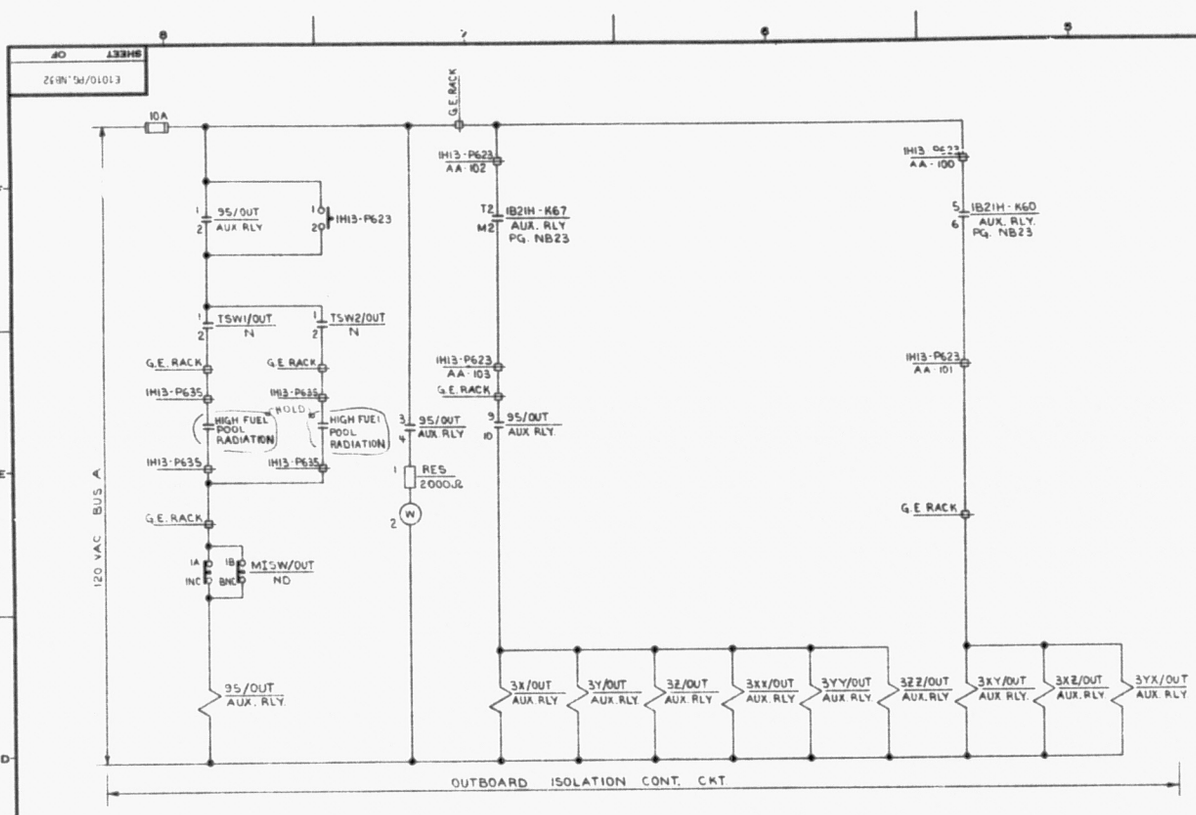
FIGURE 7.3-22

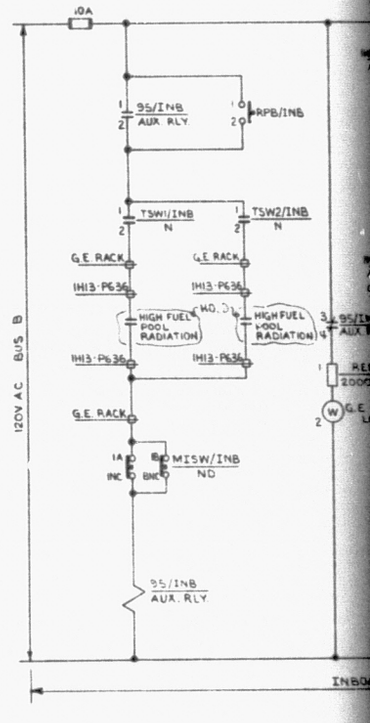
PRIMARY CONTAINMENT AND REACTOR VESSEL ISOLATION SYSTEM ESD

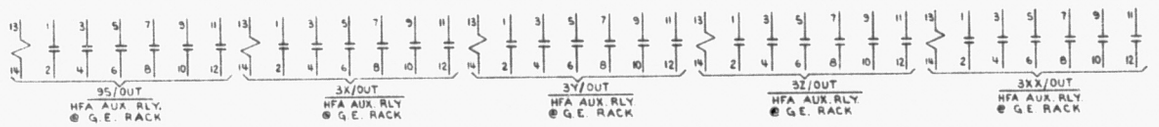
(SHEET 14 of 15)

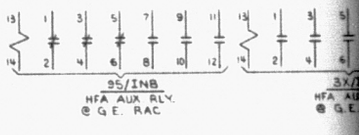
E1010/PG. NB92

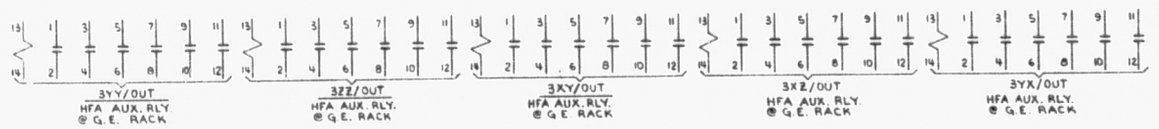
SHEET OF

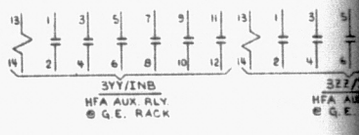












NORMAL TEST

(F.V.) TYPICAL FOR TSW1/INB TSW2/INB TSW1/OUT TSW2/OUT

CONTACTS FRONT	CONTACTS BACK	BLOCK	SYMB	POSITION NORMAL	POSITION TES
1 2		1	N	X	
	3 4		T		X
5 6		2	N	X	
	7 8		T		X

G.E. CR2940
MAINTAINED POSITION
KEY LOCK SEL SW KEY REMOVABLE IN 'NORMAL' POS.

TEST SWITCH DEVELOPMENT
@ G.E. RACK

(F.V.)

CONTACTS	BLOCK	SYMB	POSITION DISARM N	POSITION DISARM D	POSITION ARM N	POSITION ARM D
1A INC	1	ND	X	X	X	
1B BNC	2	ND	X	X	X	
2B 2ND	3	D				X

CUTLER HAMMER 10250T
COLLAR PUSHBUTTON

MANUAL ISOLATION PUSHBUTTON DEV.
@ G.E. RACK

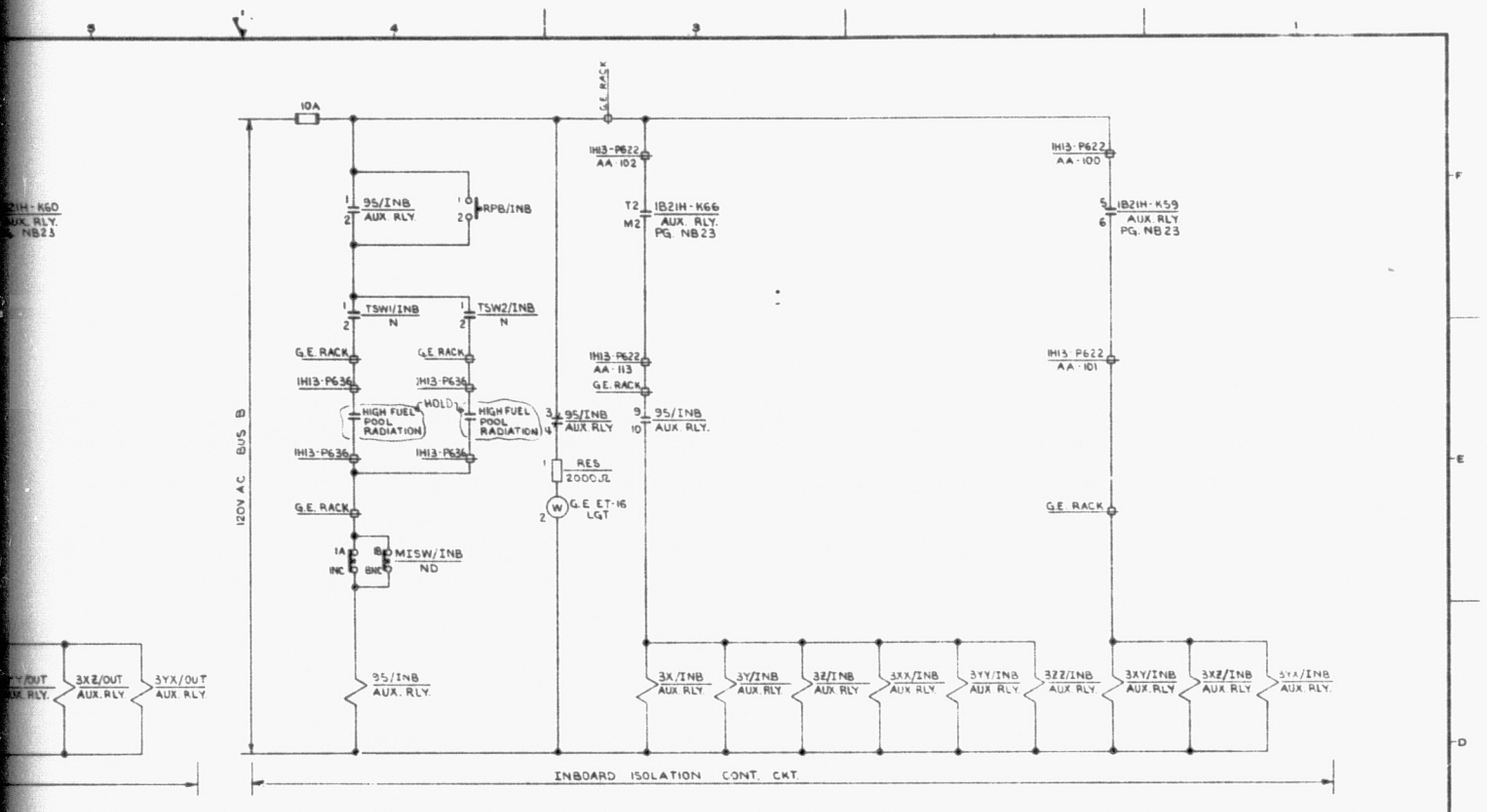
(F.V.) TYP FOR RPB/INB RPB/OUT

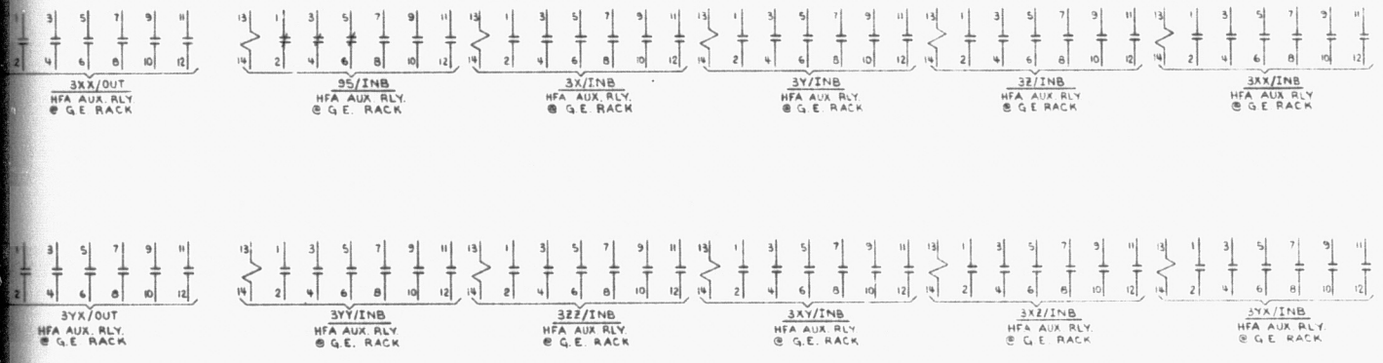
CONTACTS FRONT	CONTACTS BACK	BLOCK	SYMB	POSITION NORMAL	POSITION PRESSED
1 2		1	P		X
	3 4		N	X	
5 6		2	P		X
	7 8		N	X	

G.E. CR 2940 PUSHBUTTON

RESET PUSHBUTTON DEV.
@ G.E. RACK

DO NOT USE I, O, Q OR S FOR REVISION





(F.V.) TYP FOR RPB/INB RPB/OUT

CONTACTS FRONT	CONTACTS BACK	BLOCK	SYMB	POSITION NORMAL	POSITION PRESSED
1 — 2		1	P		X
	3 — 4		N	X	
5 — 6		2	P		X
	7 — 8		N	X	

G.E. CR2940 PUSHBUTTON

RESET PUSHBUTTON DEV. @ G.E. RACK

2

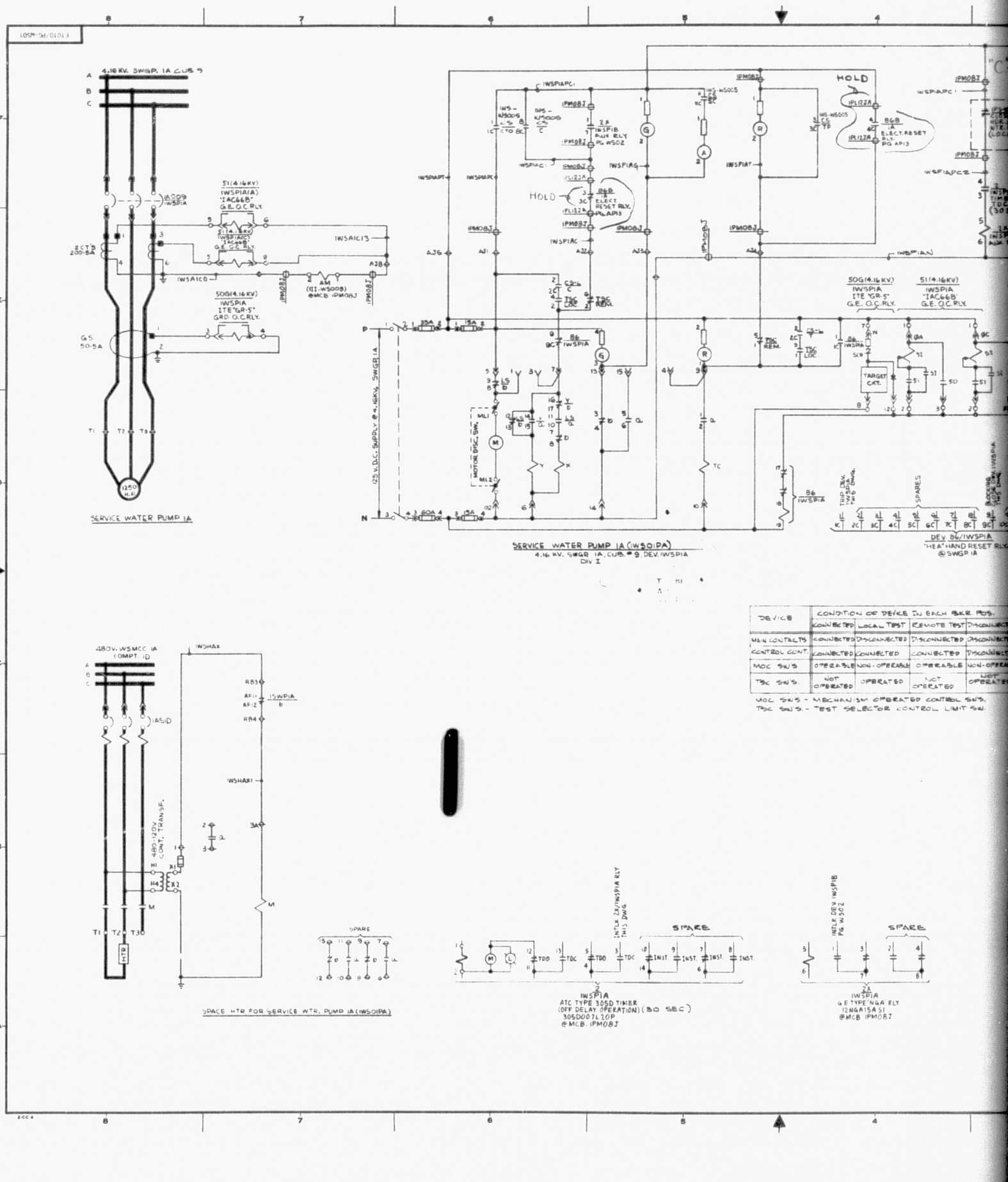
ESSENTIAL COMPONENTS INCLUDED

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-22

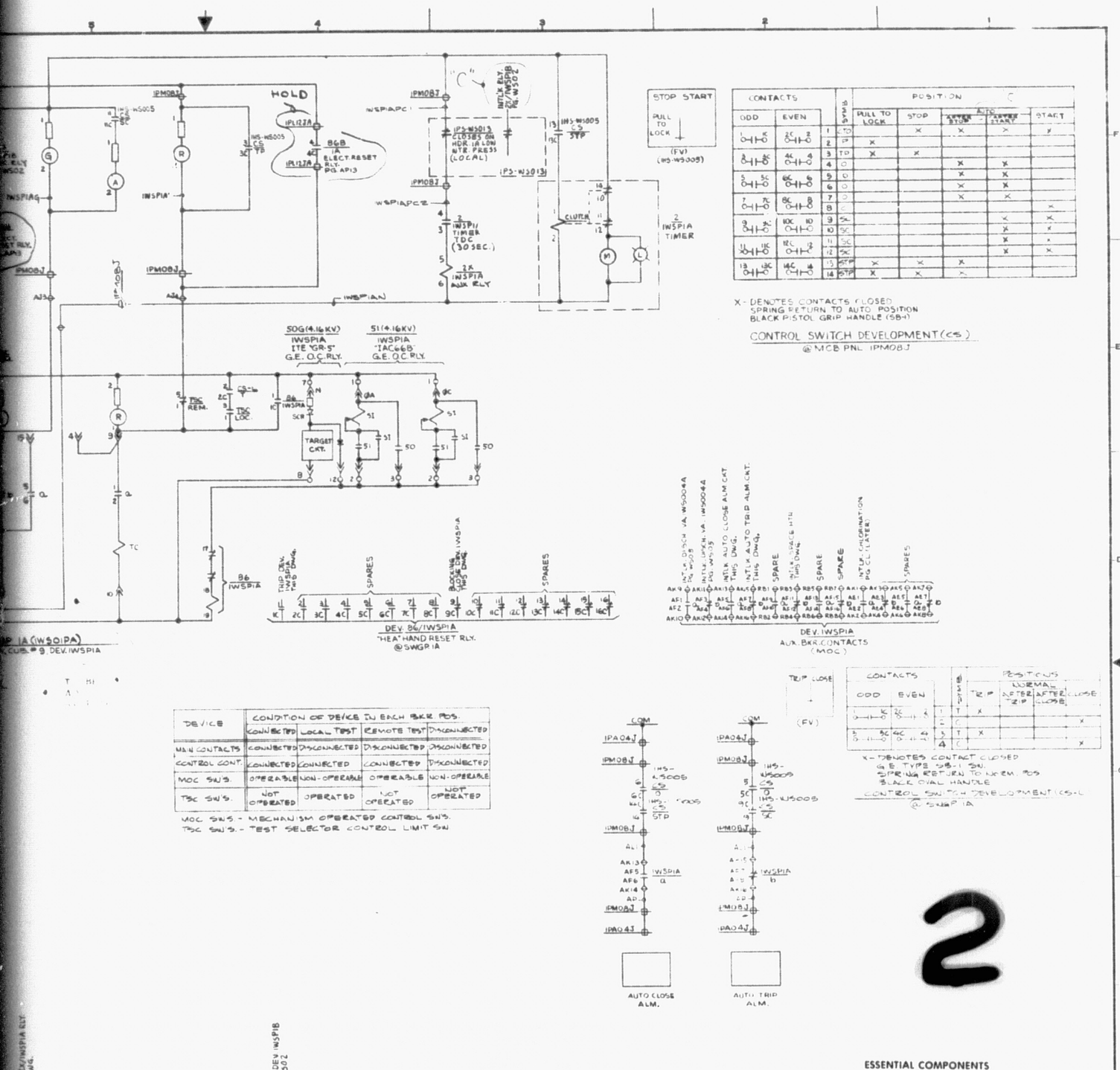
PRIMARY CONTAINMENT AND REACTOR VESSEL ISOLATION SYSTEM ESD

(SHEET 15 of 15)



DEVICE	CONDITION OF DEVICE IN EACH BKR. POS.			
	CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECT
MAIN CONTACTS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT.	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SW'S.	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SW'S.	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SW'S - MECHANISM OPERATED CONTROL SW'S.
TSC SW'S. - TEST SELECTOR CONTROL LIMIT SW.

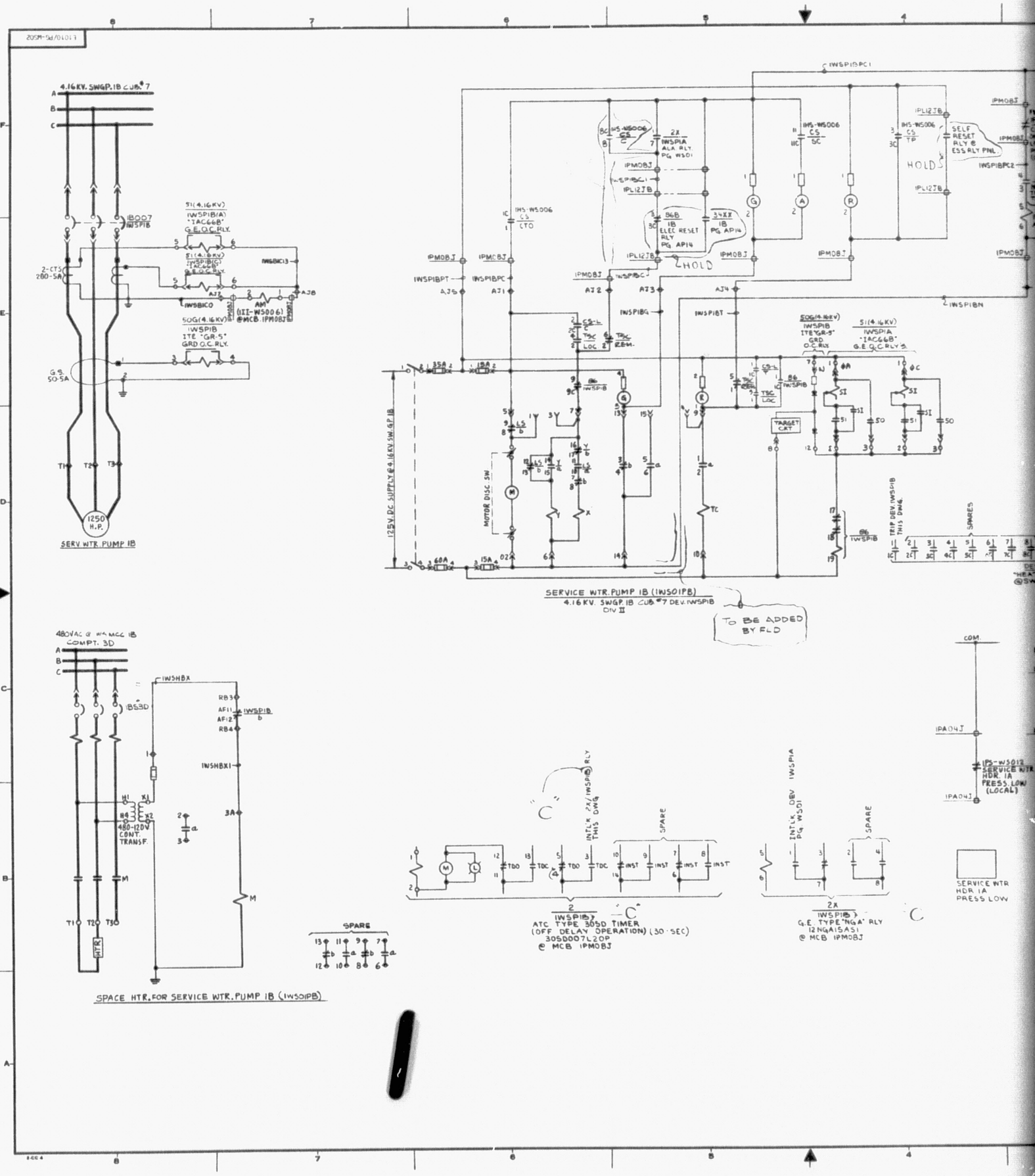


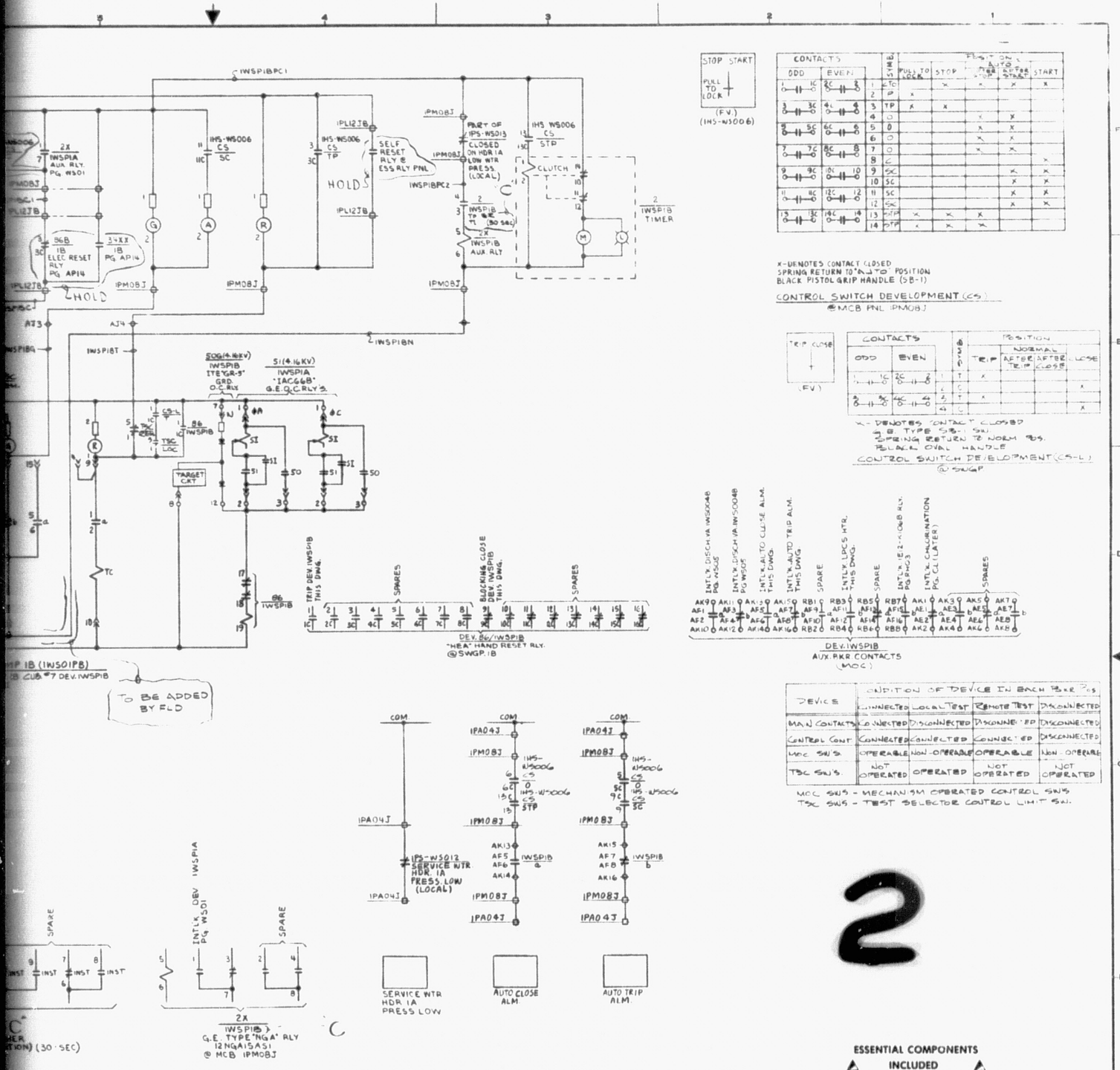
2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-23

ESSENTIAL SERVICE WATER SYSTEM ESD
(SHEET 1 of 15)

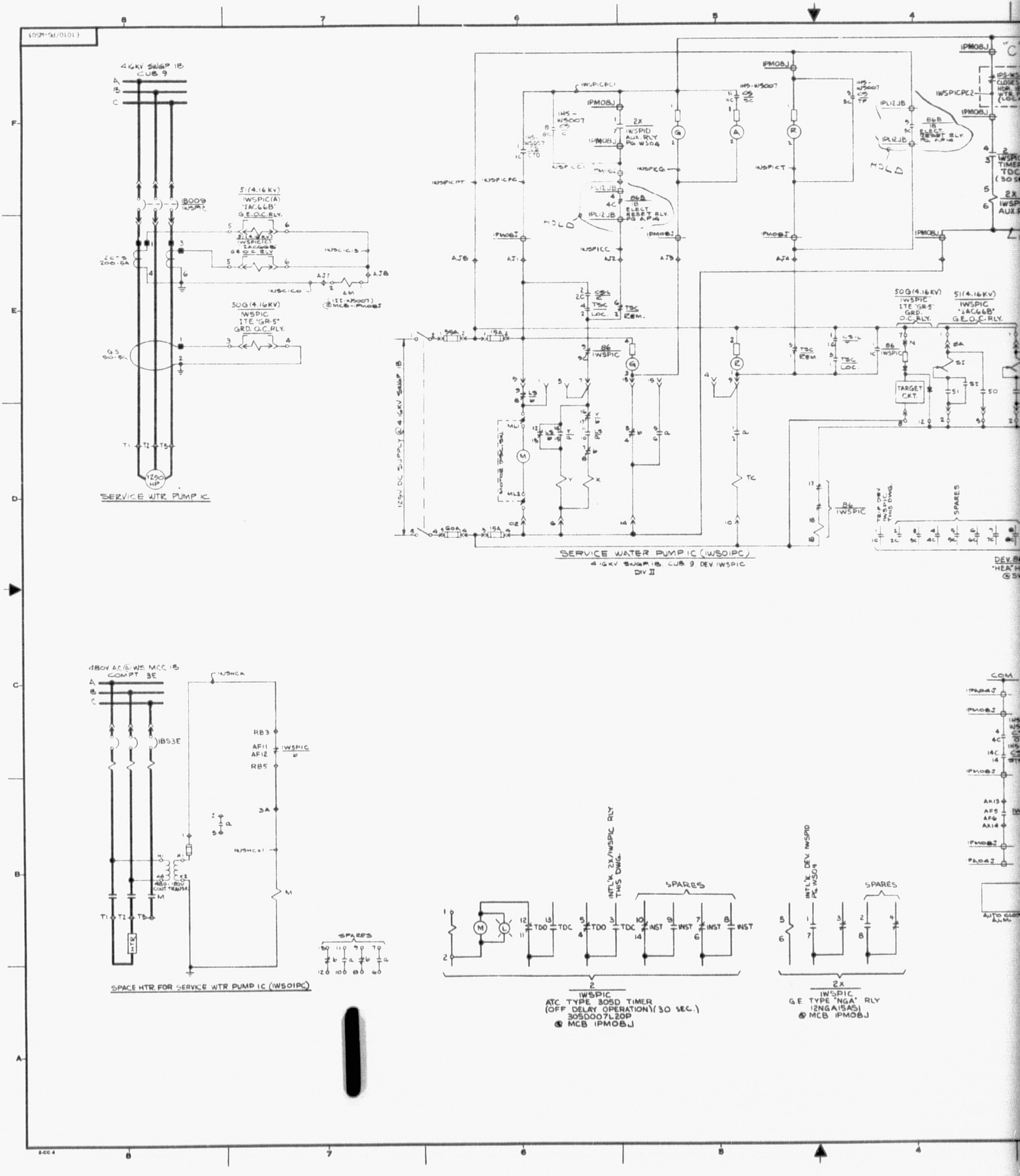

4.16KV. SWGP. IB CUB. 7
IBOO7
IWSPIB
51(4.16KV) IWSPIB(A) "IAC66B" G.E.O.C.RLY.
51(4.16KV) IWSPIB(C) "IAC66B" G.E.O.C.RLY.
2-CTS 200-5A
G.S. 50-5A
50G(4.16KV) IWSPIB ITE "GR-5" GRD O.C.RLY.
AM (II-WS006) @MCB. IPM08J
T1 T2 T3
1250 H.P.
SERV WTR. PUMP IB
IWSPIBPC1
IWS-WS006 CS SC
2X IWSPIA ALA. RLY. PG. WS01
IWS-WS006 CS TP
SELF RESET RLY & ESS RLY PNL.
HOLD
IPM08J
IPL12JB
IWSPIBPC2
IWS-WS006 CS CTO
86B IB ELEC RESET RLY PG. AP14
34XX IB PG. AP14
IWSPIBPT
IWSPIBPC
IWSPIBN
IWSPIBQ
IWSPIBT
TSC LOC
TSC REM.
86 IWSPIB
TARGET CKT
MOTOR DISC SW
125V.DC SUPPLY & 4.16KV SWGP. IB
TRIP DEV. IWSHB THIS DWG.
SPARES
SERVICE WTR. PUMP IB (IWS01PB)
4.16 KV. SWGP. IB CUB #7 DEV. IWSPIB
DIV. II
TO BE ADDED BY FLD
480VAC @ MCC IB COMPT. 3D
IBS3D
IWSHBX
IWSHBX1
480-120V CONT. TRANSF.
HTR
SPACE HTR. FOR SERVICE WTR. PUMP IB (IWS01PB)
SPARE
INTLK. OF IWSPIB RLY THIS DWG
ATC TYPE 305D TIMER (OFF DELAY OPERATION) (30 SEC) 305D007L20P @ MCB IPM08J
INTLK. OBV IWSPIA PG WS01
G.E. TYPE "NGA" RLY 12NGA15A51 @ MCB IPM08J
COM.
IPA04J
IPS-WS012 SERVICE WTR HDR. IA PRESS. LOW (LOCAL)
SERVICE WTR HDR. IA PRESS LOW

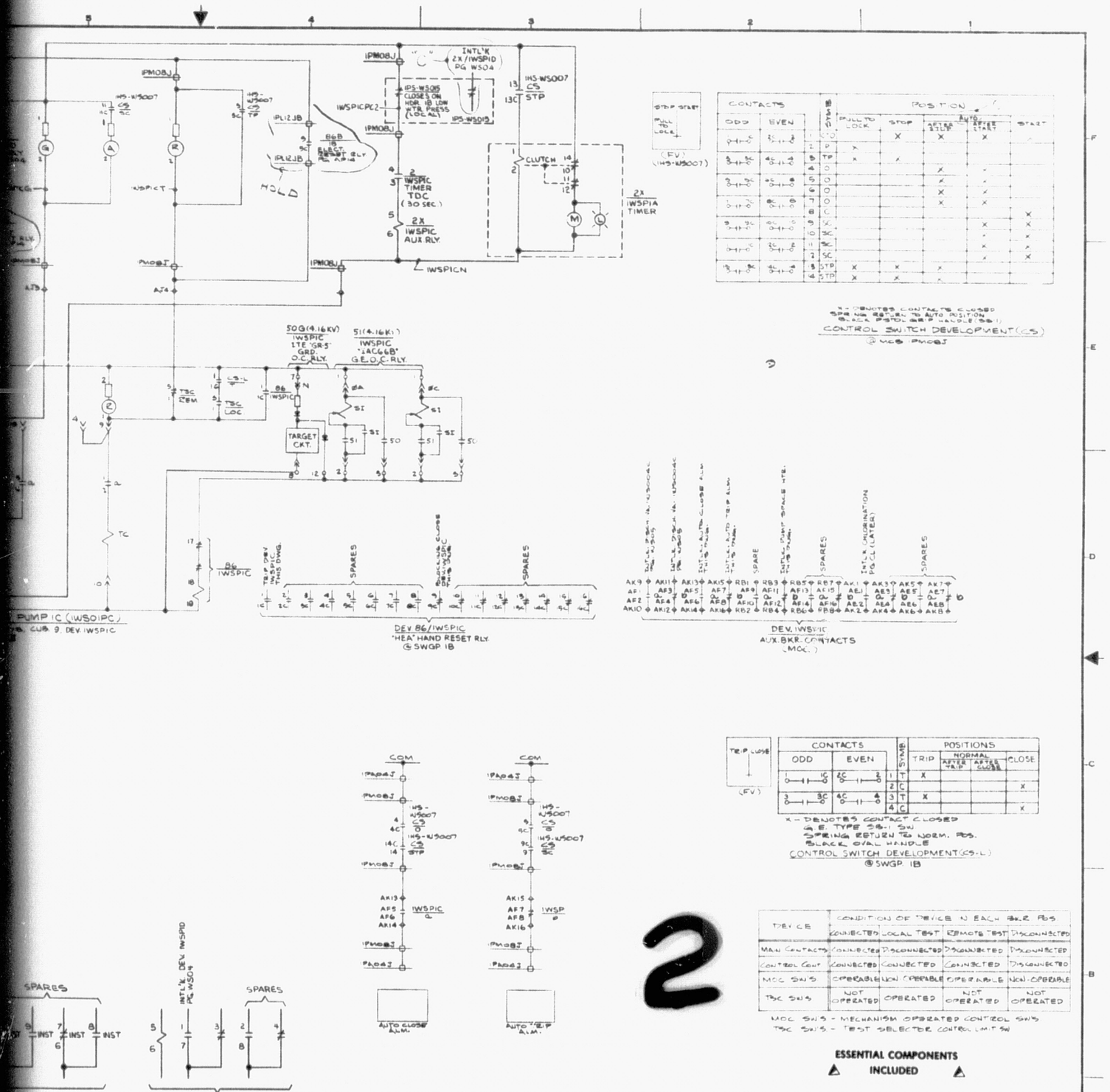


WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-23

ESSENTIAL SERVICE WATER SYSTEM ESD
(SHEET 2 of 15)


4.16KV SWGR 1B CUB 9
SERVICE WTR. PUMP 1C
SERVICE WATER PUMP 1C (1WS01PC)
4.16KV SWGR 1B, CUB 9 DEV 1WSPIC
DIV II
480V A.C. & W.S. MCC 1B COMPT 3E
SPACE HTR FOR SERVICE WTR PUMP 1C (1WS01PC)
SPARES
1WSPIC
ATC TYPE 305D TIMER
(OFF DELAY OPERATION) (30 SEC.)
305D0071L20P
@ MCB 1PM08J
2X
1WSPIC
G.E. TYPE 'NGA' RLY
12NGA15A51
@ MCB 1PM08J
TARGET CKT.
HOLD

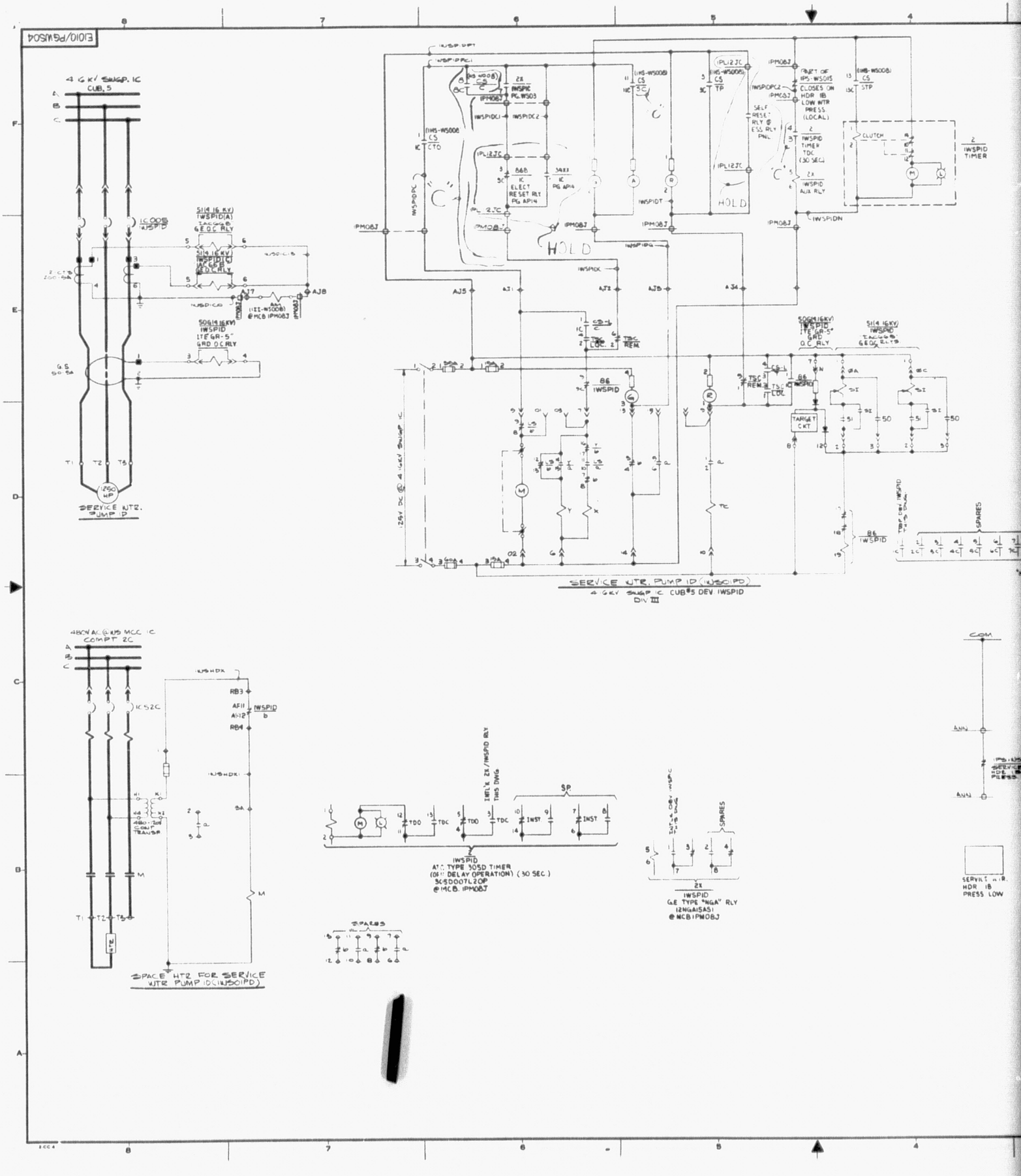


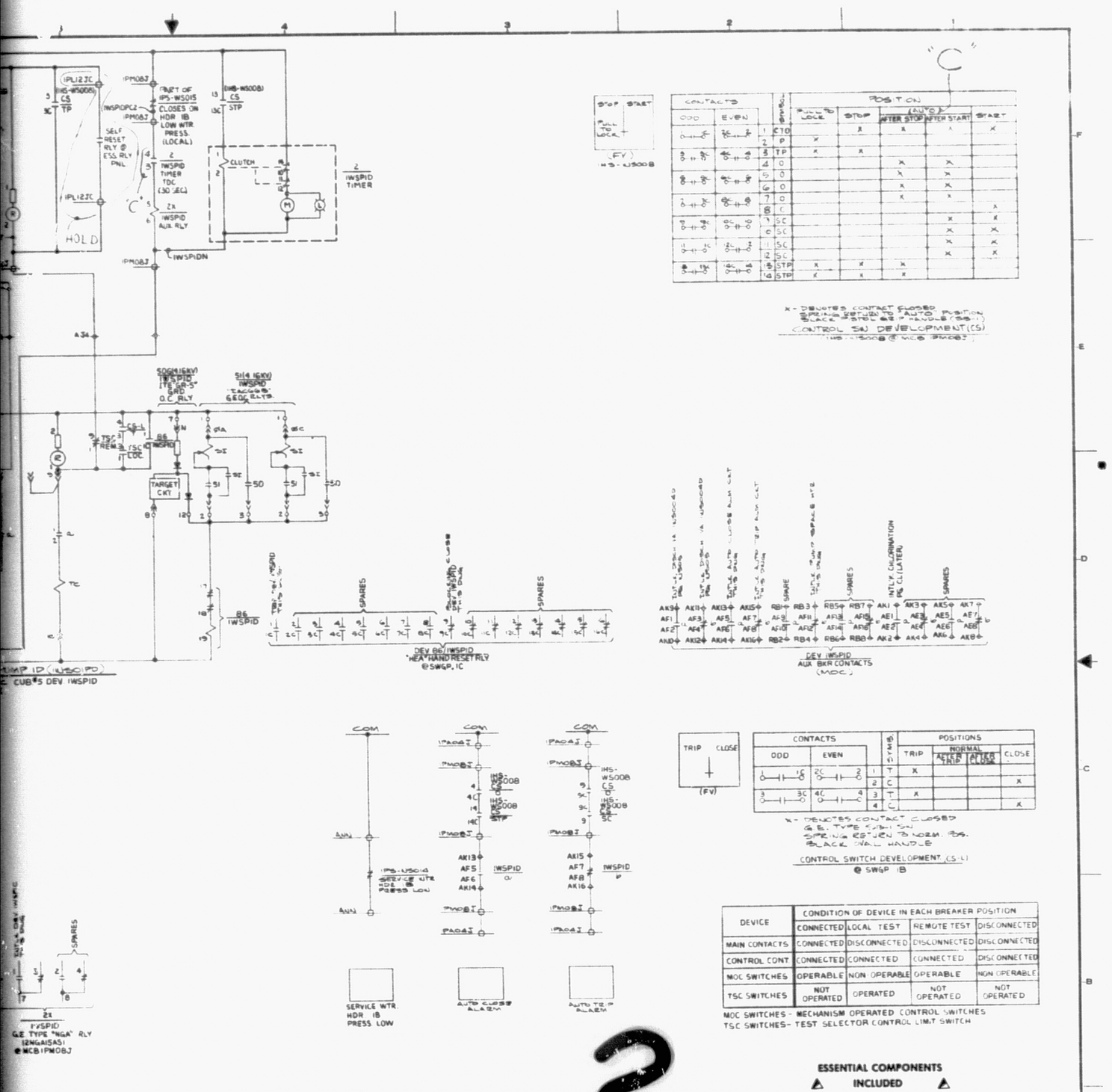
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-23

ESSENTIAL SERVICE WATER SYSTEM ESD
(SHEET 3 of 15)

E1010/PGM504





CONTACTS				POSITION				
ODD	EVEN			PULL TO LOCK	STOP	(AUTO) AFTER STOP	(AUTO) AFTER START	START
		1	CTO		X	X	X	X
		2	P	X				
		3	TP	X	X			
		4	O			X	X	
		5	O			X	X	
		6	O			X	X	
		7	O			X	X	
		8	C					X
		9	SC				X	X
		10	SC				X	X
		11	SC				X	X
		12	SC				X	X
		13	STP	X	X	X		
		14	STP	X	X	X		

X - DENOTES CONTACT CLOSED
CONTROL SW. DEVELOPMENT (CS)
IHS-W5008 @ MCB 1PM08J

DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION			
	CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTACTS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

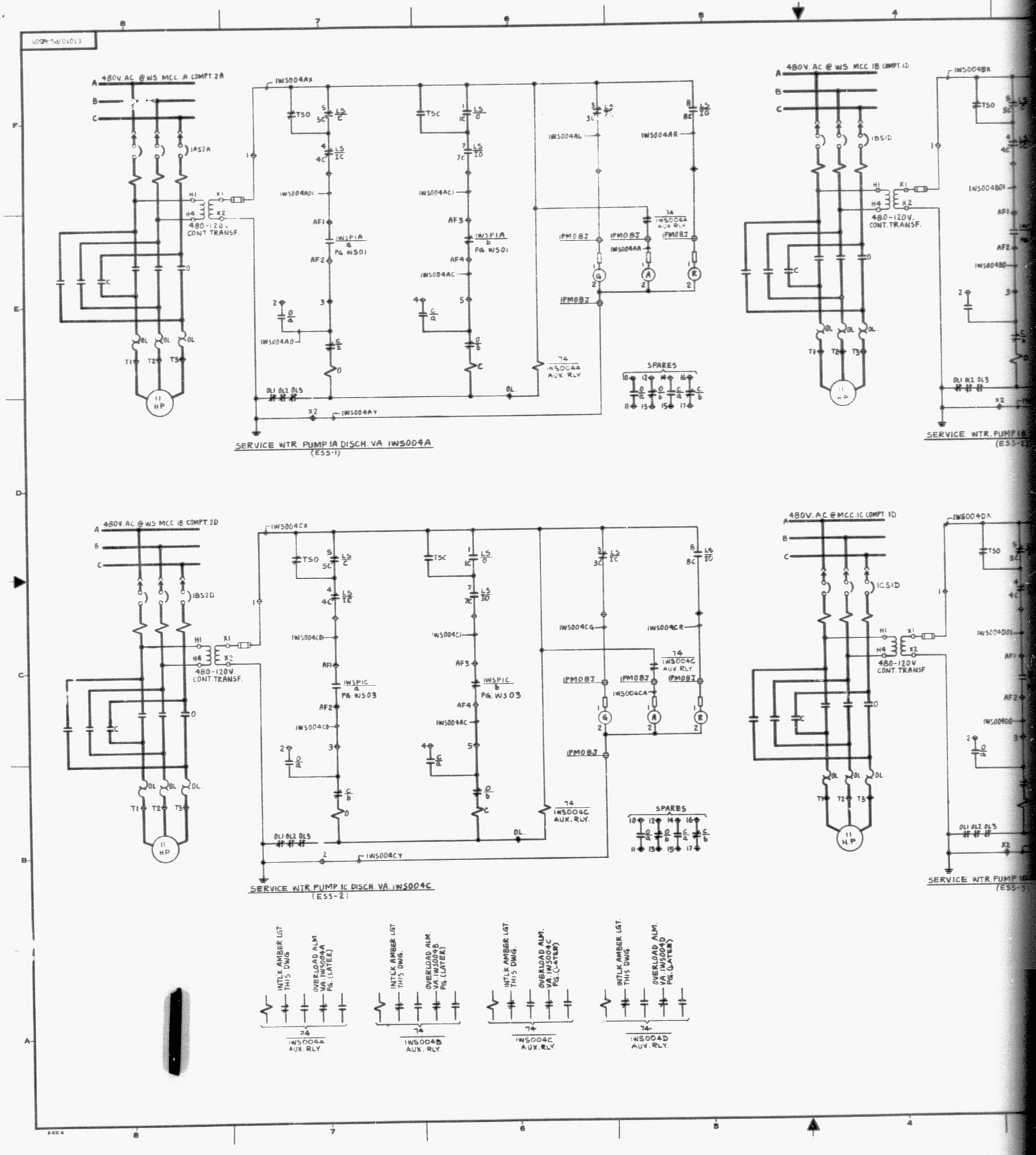
MOC SWITCHES - MECHANISM OPERATED CONTROL SWITCHES
TSC SWITCHES - TEST SELECTOR CONTROL LIMIT SWITCH

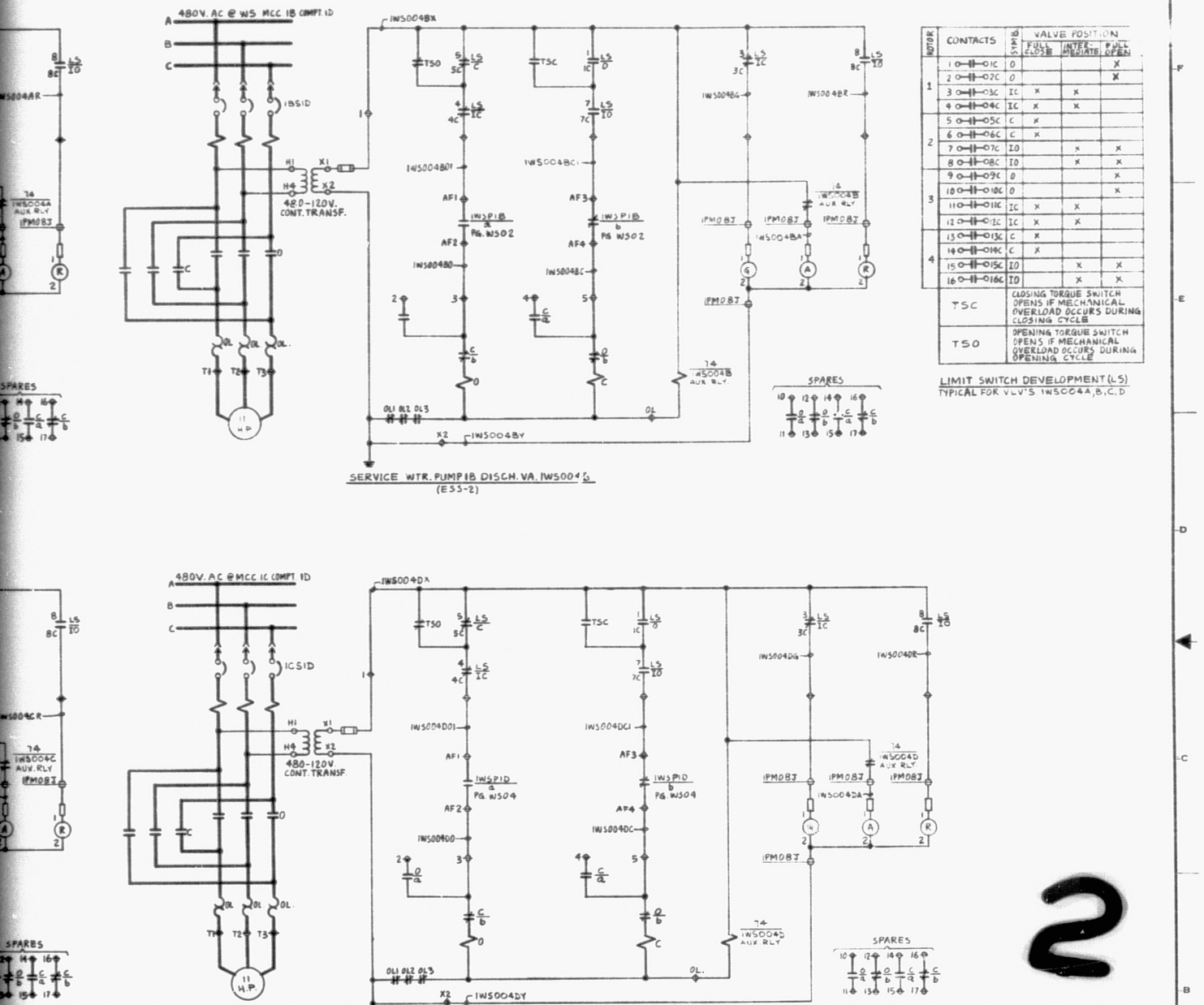
2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-23

ESSENTIAL SERVICE WATER SYSTEM ESD
(SHEET 4 of 15)


480V. AC @ WS MCC. 1A COMPT. 2A
IWS004AX
IAS2A
480-120V. CONT. TRANSF.
IWS004A01
IWS004AC1
IWS004AG
IWS004AR
IWS1P1A
PG. WS01
IPM08J
74 IWS004A AUX. RLY
IWS004AA
IWS004AO
IWS004AC
SPARES
11 HP
IWS004AY
SERVICE WTR. PUMP 1A DISCH. VA IWS004A
(ESS-1)
480V. AC @ WS MCC. 1B COMPT. 1D
IBS1D
IWS004BX
IWS004B01
IWS004BC
IWS004BG
IWS004BR
IWS1P1B
PG. WS01
IWS004BA
IWS004BO
IWS004BC
SERVICE WTR. PUMP 1B
(ESS-2)
480V. AC @ WS MCC. 1B COMPT. 2D
IBS2D
IWS004CX
IWS004C01
IWS004CC1
IWS004CG
IWS004CR
IWS1P1C
PG. WS03
IWS004CA
IWS004CO
IWS004CC
SERVICE WTR. PUMP 1C DISCH. VA. IWS004C
(ESS-2)
480V. AC @ MCC. 1C COMPT. 1D
ICS1D
IWS004DX
IWS004D01
IWS004DC
IWS004DG
IWS004DR
IWS004DA
IWS004DO
IWS004DC
SERVICE WTR. PUMP 1D
(ESS-2)
INTLK. AMBER LGT. THIS DWG.
OVERLOAD ALM. VIA IWS004A PG. (LATER)
74 IWS004A AUX. RLY.
OVERLOAD ALM. VIA IWS004B PG. (LATER)
74 IWS004B AUX. RLY.
OVERLOAD ALM. VIA IWS004C PG. (LATER)
74 IWS004C AUX. RLY.
OVERLOAD ALM. VIA IWS004D PG. (LATER)
74 IWS004D AUX. RLY.



MOTOR	CONTACTS	SYMB	VALVE POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1 — 01C	0			X
	2 — 02C	0			X
	3 — 03C	IC	X	X	
	4 — 04C	IC	X	X	
2	5 — 05C	C	X		
	6 — 06C	C	X		
	7 — 07C	IO		X	X
	8 — 08C	IO		X	X
3	9 — 09C	0			X
	10 — 10C	0			X
	11 — 11C	IC	X	X	
	12 — 12C	IC	X	X	
4	13 — 13C	C	X		
	14 — 14C	C	X		
	15 — 15C	IO		X	X
	16 — 16C	IO		X	X

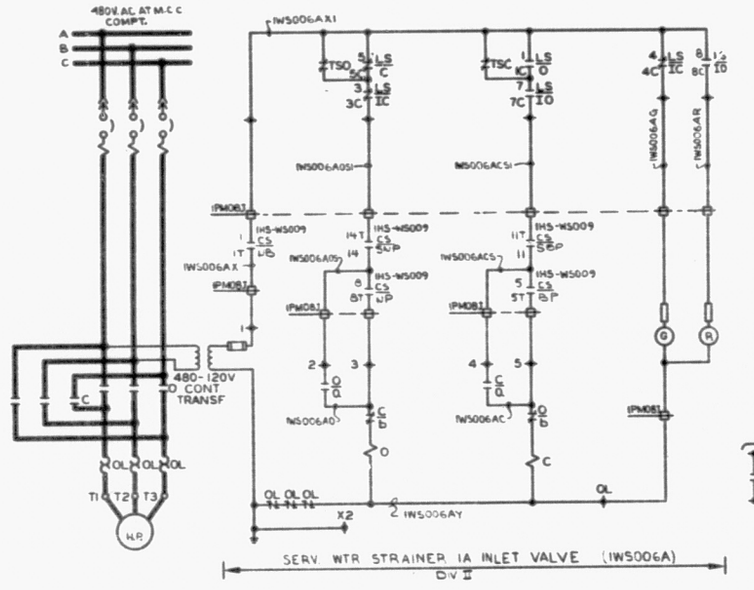
TSC	CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE
TSO	OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE

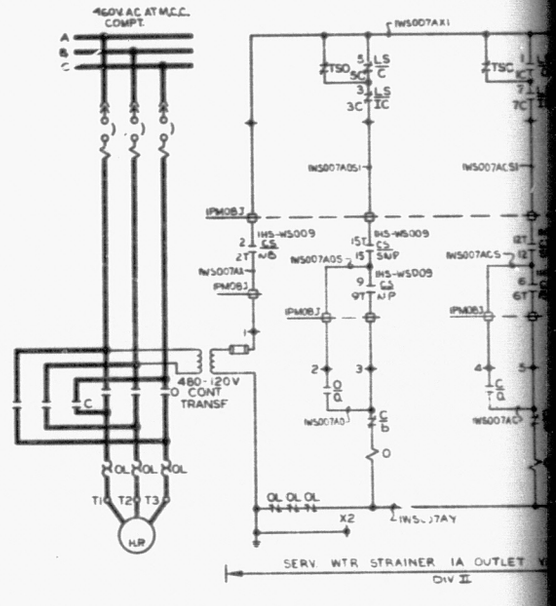
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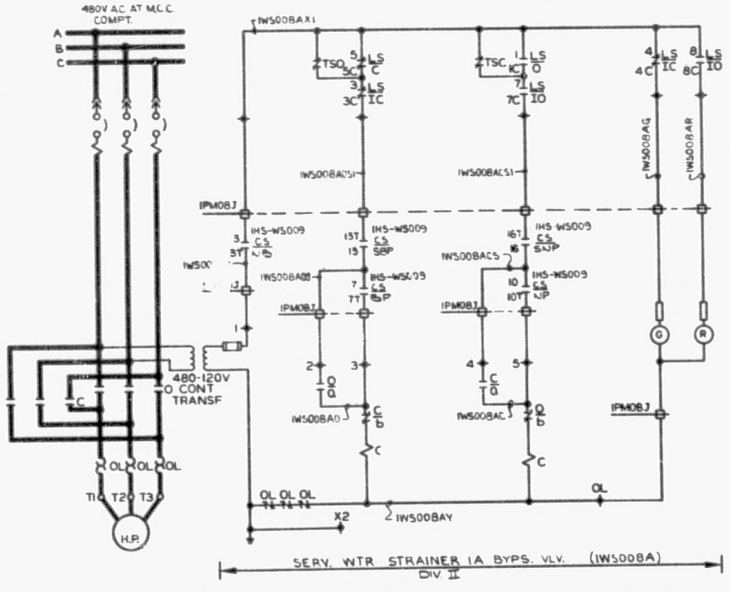
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

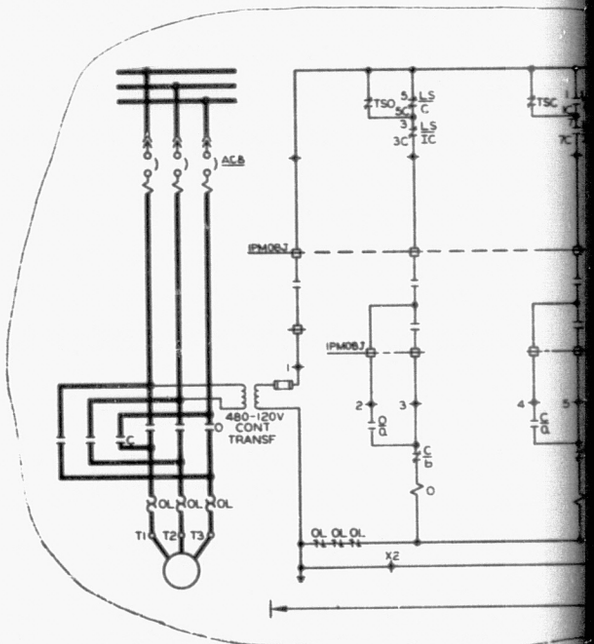
FIGURE 7.3-23

ESSENTIAL SERVICE WATER SYSTEM ESD
(SHEET 5 of 15)

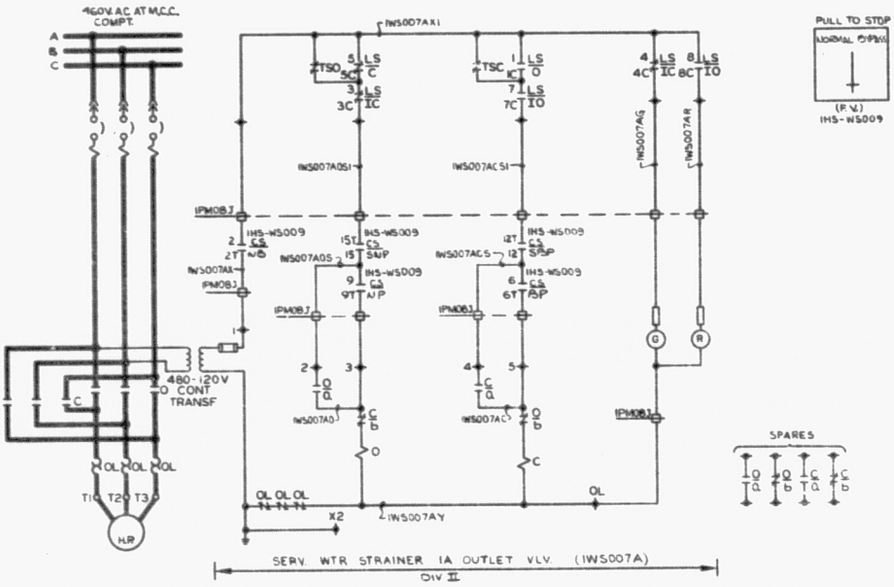

480V. A.C. AT M.C.C. COMPT.
A
B
C
480-120V CONT TRANSF
H.P.
IWS006AX1
IWS006A05I
IWS006AC5I
IWS006AG
IWS006AR
IPM08J
IWS006AX
IWS006A05
IWS006AC5
IWS006A0
IWS006AC
IWS006AY
SPARES
SERV. WTR. STRAINER 1A INLET VALVE (IWS006A)
DIV II


460V. A.C. AT M.C.C. COMPT.
480-120V CONT TRANSF
H.P.
IWS007AX1
IWS007A05I
IWS007AC5I
IPM08J
IWS007A05
IWS007AC5
IWS007A0
IWS007AC
IWS007AY
SERV. WTR. STRAINER 1A OUTLET V
DIV II


480V. A.C. AT M.C.C. COMPT.
A
B
C
480-120V CONT TRANSF
H.P.
IWS008AX1
IWS008A05I
IWS008AC5I
IWS008AG
IWS008AR
IPM08J
IWS008A05
IWS008AC5
IWS008A0
IWS008AC
IWS008AY
SPARES
SERV. WTR. STRAINER 1A BYPS. VLV. (IWS008A)
DIV II


AC&B
480-120V CONT TRANSF
H.P.
IPM08J
X2

1



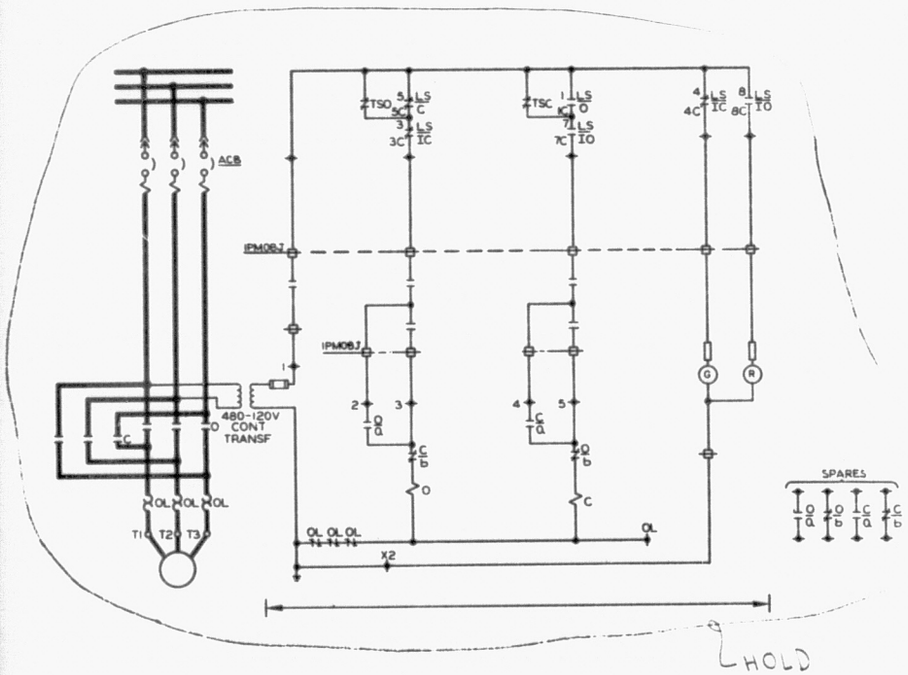
CONTACTS EVEN	CONTACTS ODD		SYMB	POSITION: NORMAL PULL OUT	BLANK IN	BLANK PULL OUT	BLANK IN	SPRING IN	SPRING PULL OUT
3 2T 0 1 0	1T 1 0 1 0	1	NP		X	X		X	
		2	NP		X	X		X	
4 4T 0 1 0	3T 3 0 1 0	3	NP		X	X		X	
		4	NP		X	X		X	
6 6T 0 1 0	5T 5 0 1 0	5	SP					X	X
		6	SP					X	X
8 8T 0 1 0	7T 7 0 1 0	7	SP					X	X
		8	NP	X	X				
10 10T 0 1 0	9T 9 0 1 0	9	NP	X	X				
		10	NP	X	X				
12 12T 0 1 0	11T 11 0 1 0	11	SNP				X	X	X
		12	SNP				X	X	X
14 14T 0 1 0	13T 13 0 1 0	13	SNP				X	X	X
		14	SNP	X	X	X	X		
16 16T 0 1 0	15T 15 0 1 0	15	SNP	X	X	X	X		
		16	SNP	X	X	X	X		

* DENOTES CONTACT CLOSED
BLACK OVAL GRIP HANDLE (SERIES 40 ELECTRO SWITCH)
ROTARY SPRING RETURN TO "BLANK" POSITION
SPRING RETURN TO "IN" POSITION

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL IPM08J

ROTOR	CONTACTS	SYMB	POSITION: FULL CLOSE	INTERMEDIATE	FULL OPEN
1	1 O—I—O 1C	O			X
	2 O—I—O 2C	O			X
	3 O—I—O 3C	IC	X	X	
	4 O—I—O 4C	IC	X	X	
2	5 O—I—O 5C	C	X		
	6 O—I—O 6C	C			
	7 O—I—O 7C	IO		X	X
	8 O—I—O 8C	IO		X	X
3	9 O—I—O 9C	O			X
	10 O—I—O 10C	O			X
	11 O—I—O 11C	IC	X	X	
	12 O—I—O 12C	IC	X	X	
4	13 O—I—O 13C	C	X		
	14 O—I—O 14C	C	X		
	15 O—I—O 15C	IO		X	X
	16 O—I—O 16C	IO		X	X
TSC			CLOSING TORQUE SW OPENS IF MACHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
TSO			OPENING TORQUE SW. OPENS IF MACHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVES: IWS006A, IWS007A, IWS008A



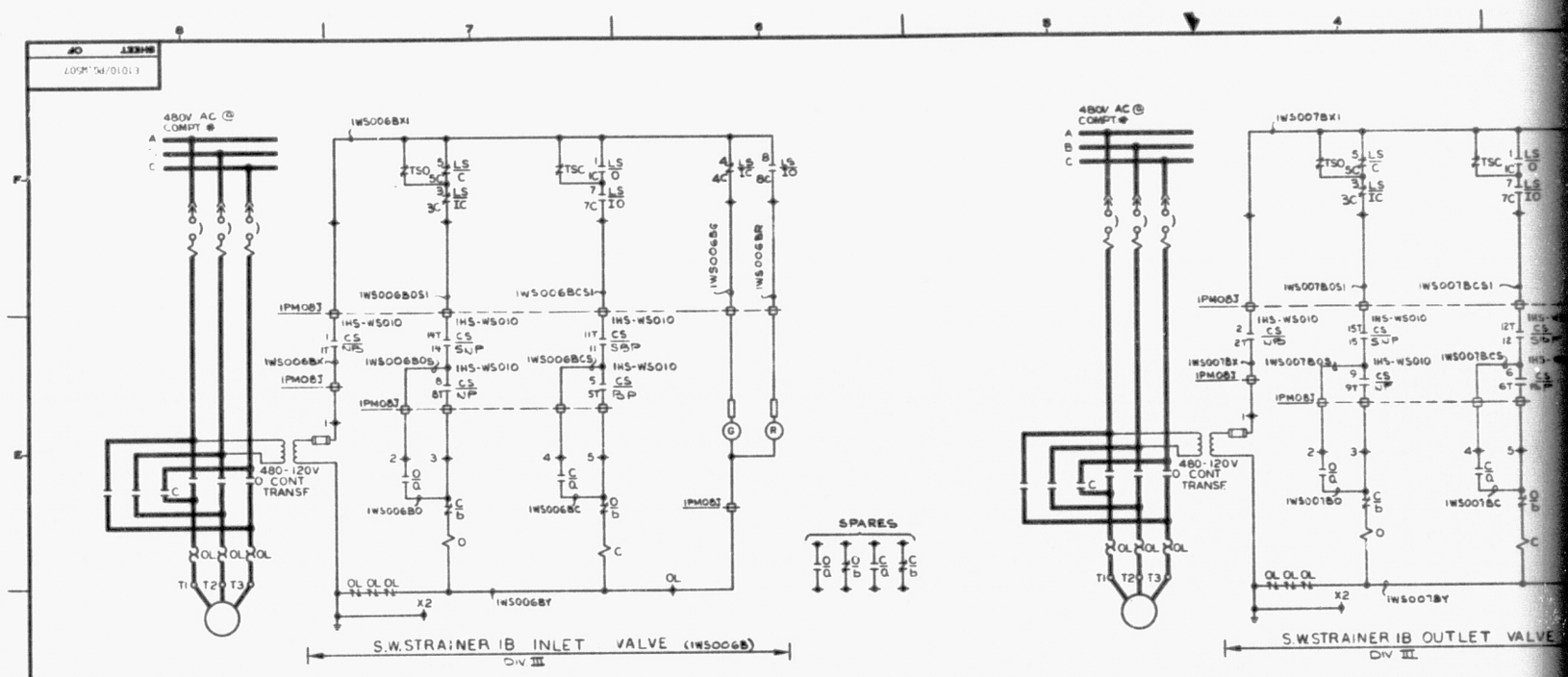
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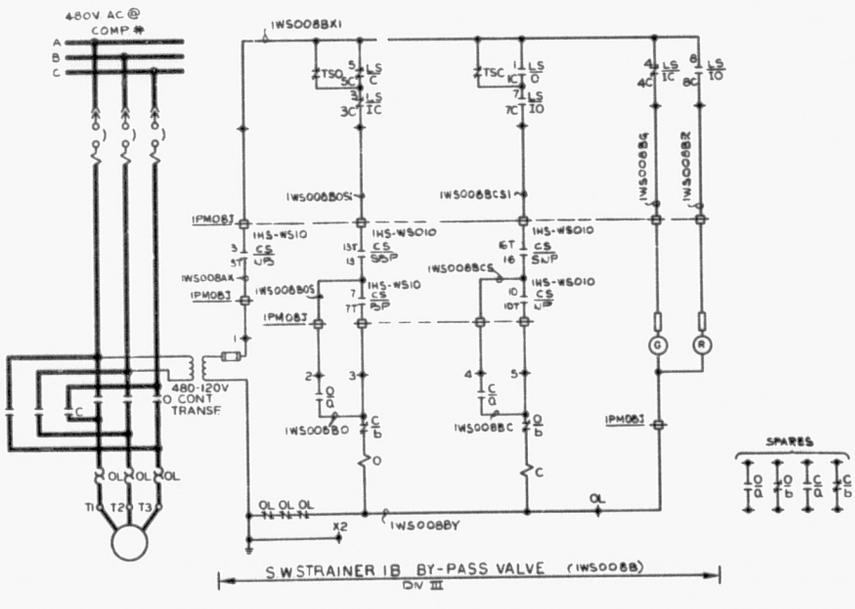
ESSENTIAL COMPONENTS
INCLUDED

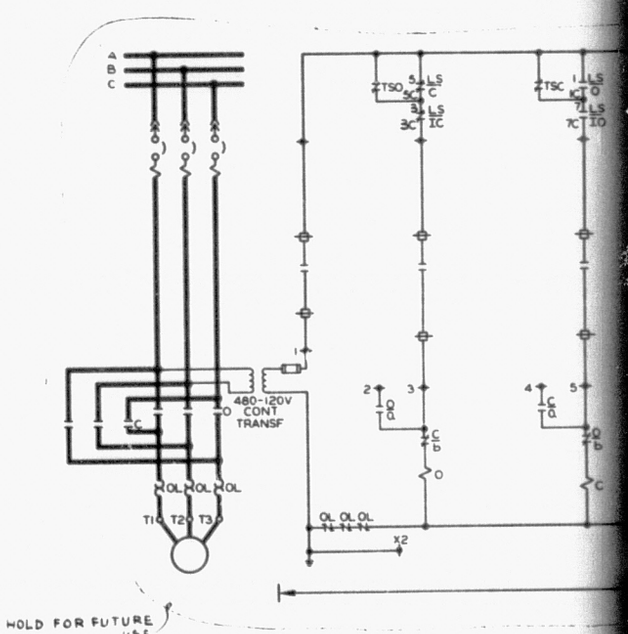
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

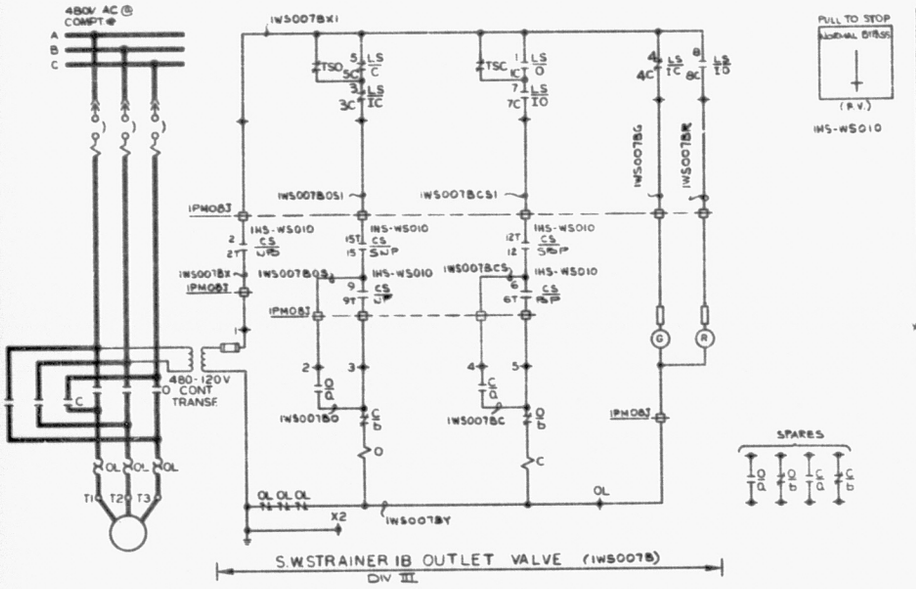
FIGURE 7.3-23

ESSENTIAL SERVICE WATER SYSTEM ESD
(SHEET 6 of 15)


480V AC @ COMPT #
A
B
C
1WS006BX1
TSO 5C LS C
3C LS IC
TSC 1C LS O
7C LS IO
4C LS IC
8C LS IO
1WS006BS1
1WS006BC1
1WS006BG
1WS006BR
1PM08J
IHS-WS010
1T CS UP
1WS006BX
14T CS SLP
1WS006BS
8T CS DP
11T CS SBP
1WS006BC
5T CS BP
480-120V O CONT TRANSF
C
OL OL OL
T1 T2 T3
2 3 4 5
OD CD
1WS006BO
1WS006BC
G
R
OL
X2
1WS006BY
SPARES
S.W.STRAINER 1B INLET VALVE (1WS006B)
DIV III
480V AC @ COMPT #
1WS007BX1
TSO 5C LS C
3C LS IC
TSC 1C LS O
7C LS IO
1WS007BS1
1WS007BC1
1PM08J
IHS-WS010
2T CS UP
1WS007BX
15T CS SLP
1WS007BS
9T CS DP
12T CS SBP
1WS007BC
6T CS BP
480-120V O CONT TRANSF
C
OL OL OL
T1 T2 T3
2 3 4 5
OD CD
1WS007BO
1WS007BC
OL
X2
1WS007BY
S.W.STRAINER 1B OUTLET VALVE
DIV III


480V AC @ COMP #
A
B
C
1WS008BX1
TSO 5C LS C
3C LS IC
TSC 1C LS O
7C LS IO
4C LS IC
8C LS IO
1WS008BS1
1WS008BC1
1WS008BG
1WS008BR
1PM08J
IHS-WS010
5T CS UP
1WS008BX
13T CS SBP
1WS008BS
7T CS BP
16T CS SUP
1WS008BC
10T CS UP
480-120V O CONT TRANSF
C
OL OL OL
T1 T2 T3
2 3 4 5
OD CD
1WS008BO
1WS008BC
G
R
OL
X2
1WS008BY
SPARES
S.W.STRAINER 1B BY-PASS VALVE (1WS008B)
DIV III


A
B
C
TSO 5C LS C
3C LS IC
TSC 1C LS O
7C LS IO
480-120V O CONT TRANSF
C
OL OL OL
T1 T2 T3
2 3 4 5
OD CD
OL OL OL
X2
HOLD FOR FUTURE USE



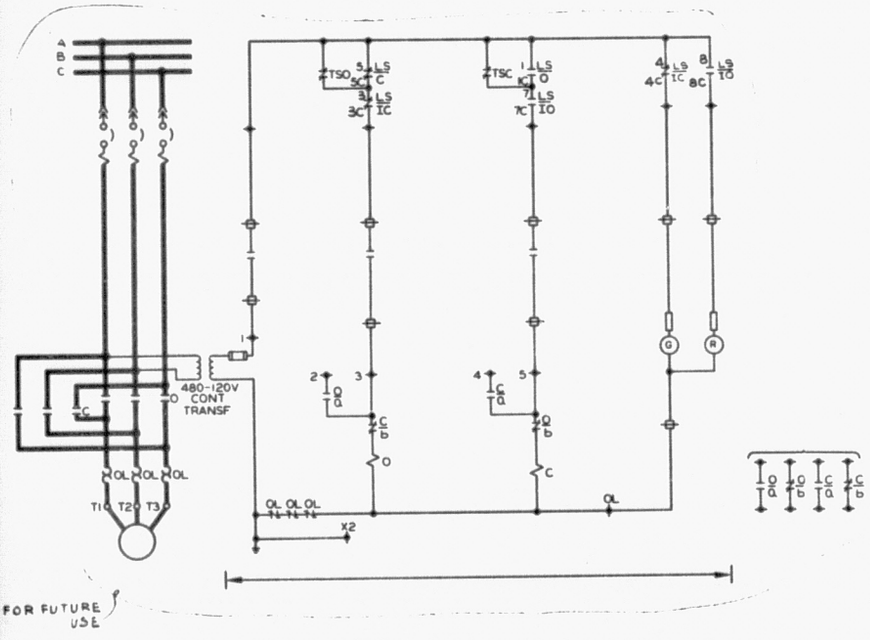
CONTACTS			SWG	POSITION					
EVEN	ODD			NORMAL		BLANK		BYPASS	
				PULL OUT	IN	IN	PULL OUT	IN	PULL OUT
2 0110 2T	1T 0110 1	1	NB		X	X		X	
		2	NB		X	X		X	
4 0110 4T	5T 0110 3	3	NB		X	X		X	
		4	NB		X	X		X	
6 0110 6T	5T 0110 5	5	BP					X	X
		6	BP					X	X
8 0110 8T	7T 0110 7	7	BP					X	X
		8	NP	X	X				
10 0110 10T	9T 0110 9	9	NP	X	X				
		10	NP	X	X				
12 0110 12T	11T 0110 11	11	SBP				X	X	X
		12	SBP				X	X	X
14 0110 14T	13T 0110 13	13	SBP				X	X	X
		14	SWP	X	X	X	X		
16 0110 16T	15T 0110 15	15	SWP	X	X	X	X		
		16	SWP	X	X	X	X		

X-DENOTES CONTACT CLOSED
BLACK OVAL GRIP HANDLE (SERIES 40 ELECTRO SWITCH)
ROTARY SPRING RETURN TO "BLANK" POSITION
SPRING RETURN TO "IN" POSITION

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL 1PM08J

POTOR	CONTACTS	SWG	POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1 O—I—O 1C	O			X
	2 O—I—O 2C	O			X
	3 O—I—O 3C	IC	X	X	
	4 O—I—O 4C	IC	X	X	
2	5 O—I—O 5C	C	X		
	6 O—I—O 6C	C	X		
	7 O—I—O 7C	IO		X	X
	8 O—I—O 8C	IO		X	X
3	9 O—I—O 9C	O			X
	10 O—I—O 10C	O			X
	11 O—I—O 11C	IC	X	X	
	12 O—I—O 12C	IC	X	X	
4	13 O—I—O 13C	C	X		
	14 O—I—O 14C	C	X		
	15 O—I—O 15C	IO		X	X
	16 O—I—O 16C	IO		X	X
TSC	CLOSING TORQUE SWT OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE				
TSO	OPENING TORQUE SWT OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE				

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVES: 1WS006B, 1WS007B, 1WS008B



ESSENTIAL COMPONENTS
INCLUDED

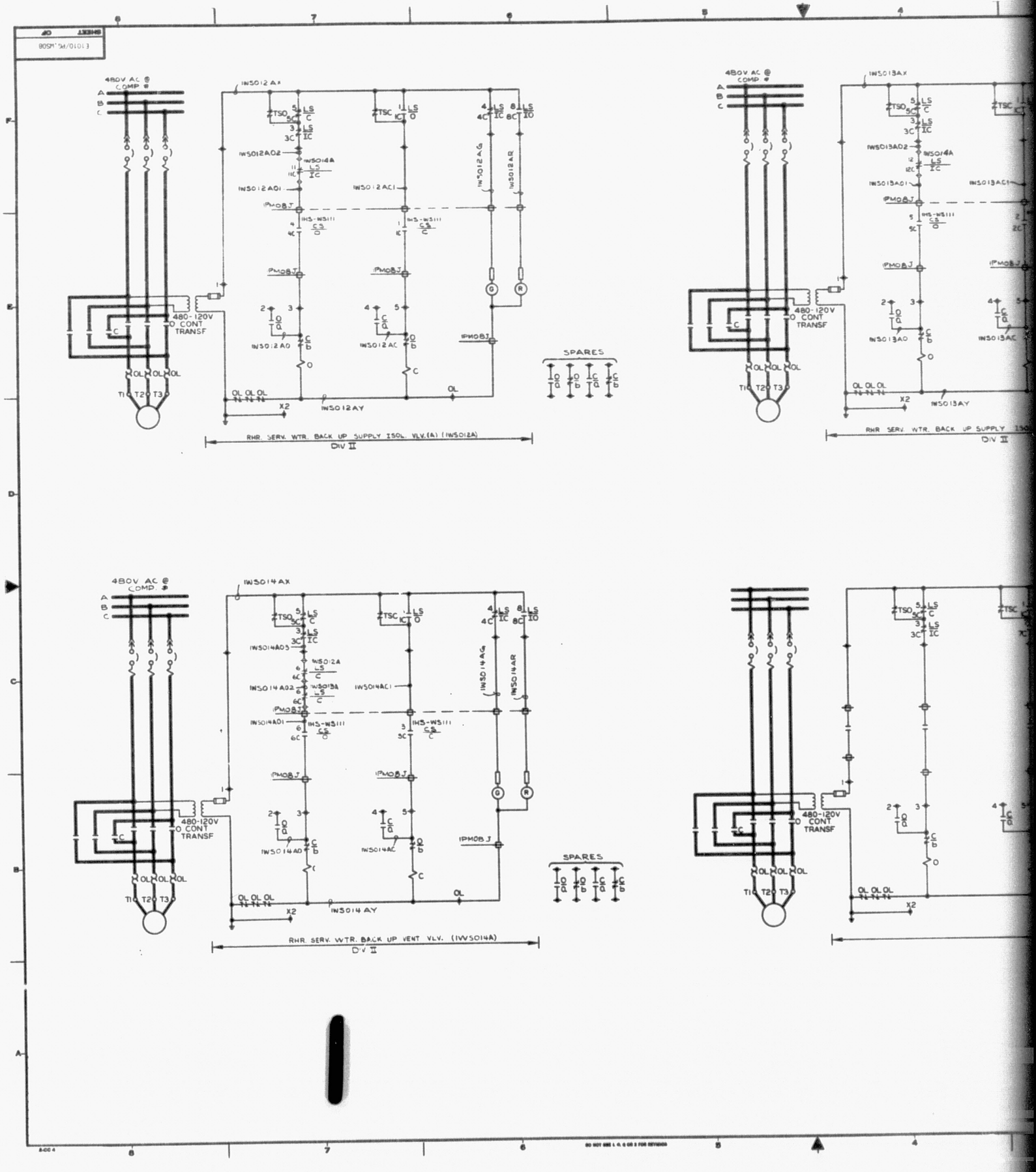
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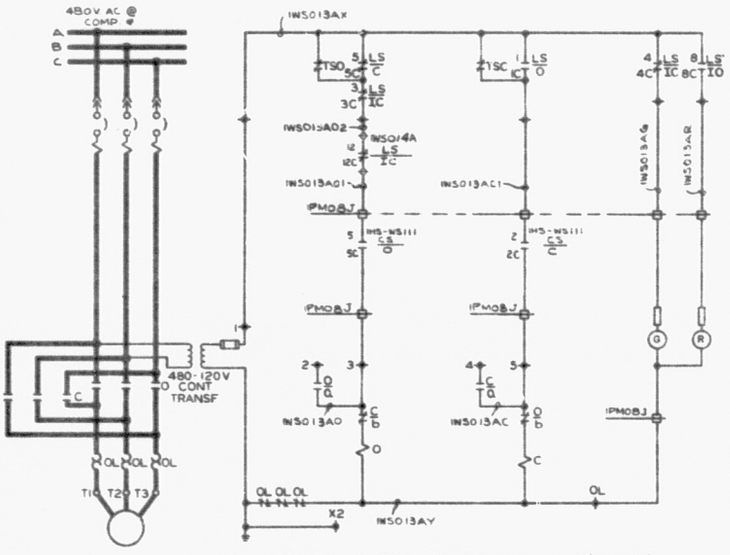
OLD FOR FUTURE USE

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-23

ESSENTIAL SERVICE WATER SYSTEM ESD
(SHEET 7 of 15)


480V AC @ COMP #
A
B
C
1WS012AX
TSO
TSC
LS
1WS012A02
1WS014A
1WS012A01
1WS012AC1
1WS012AG
1WS012AR
IPM08J
IHS-WS111
480-120V CONT TRANSF
1WS012A0
1WS012AC
SPARES
OL
T1
T2
T3
X2
1WS012AY
RHR. SERV. WTR. BACK UP SUPPLY ISOL. VLV.(A) (1WS012A)
DIV II
1WS013AX
1WS013A02
1WS013A01
1WS013AC1
1WS013A0
1WS013AC
1WS013AY
1WS014AX
1WS014A03
1WS012A
1WS013A
1WS014A02
1WS014A01
1WS014AC1
1WS014AG
1WS014AR
1WS014A0
1WS014AC
1WS014AY
RHR. SERV. WTR. BACK UP VENT VLV. (1VVS014A)

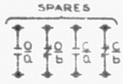




CONTACTS		SYMB.	POSITION	
ODD	EVEN		CLOSE	OPEN
1C O	2C O	1 C	X	
3C O	4C O	2 C	X	
		3 C		X
		4 C		X
5C O	6C O	5 O		X
		6 O		X

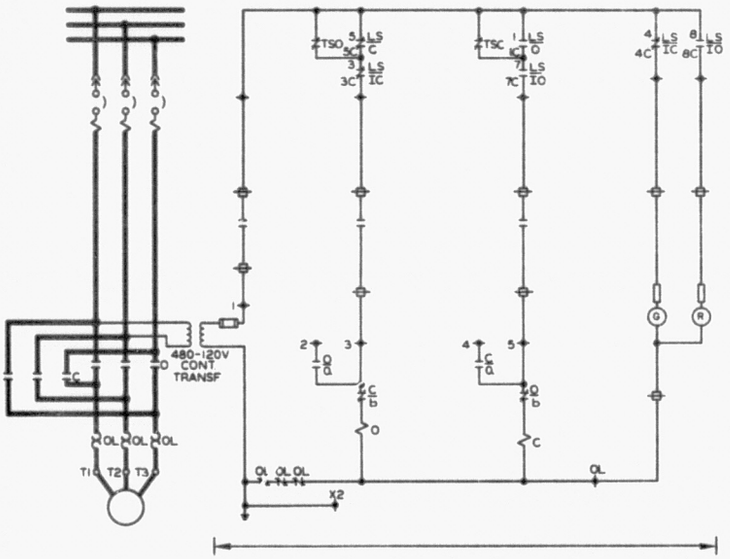
GE SBM SWITCH
MAINTAINED POSITION
CORBIN LOCK-IN HANDLE
X- DENOTES CONTACT CLOSED

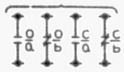
CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL 1PM08J



POSITION	CONTACTS	SYMB.	POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1 O—I—O 1C	O			X
	2 O—I—O 2C	O			X
	3 O—I—O 3C	IC	X	X	
	4 O—I—O 4C	IC	X	X	
2	5 O—I—O 5C	C	X		
	6 O—I—O 6C	C	X		
	7 O—I—O 7C	IO		X	X
	8 O—I—O 8C	IO		X	X
3	9 O—I—O 9C	O			X
	10 O—I—O 10C	O			X
	11 O—I—O 11C	IC	X	X	
	12 O—I—O 12C	IC	X	X	
4	13 O—I—O 13C	C	X		
	14 O—I—O 14C	C	X		
	15 O—I—O 15C	IO		X	X
	16 O—I—O 16C	IO		X	X
TSC			CLOSING TORQUE SWT OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
TSO			OPENING TORQUE SWT OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVES 1WS012A, 1WS013A, & 1WS014A





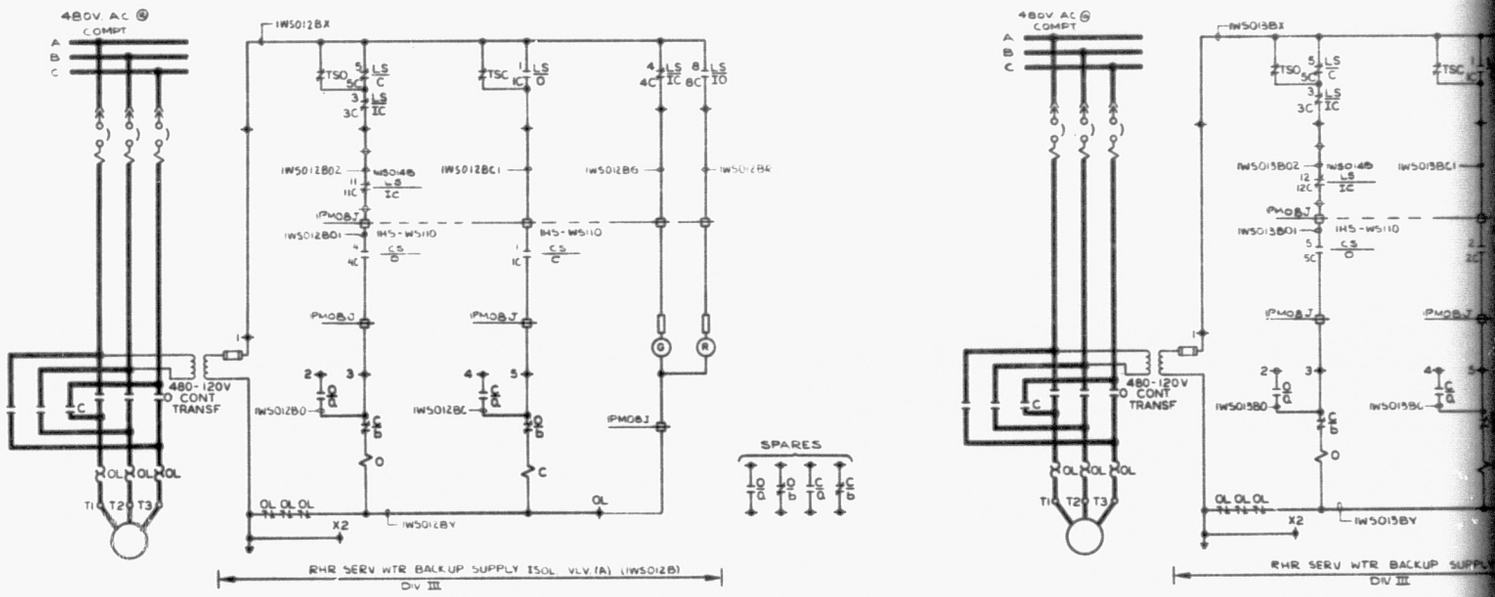
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ESSENTIAL COMPONENTS
▲ INCLUDED ▲

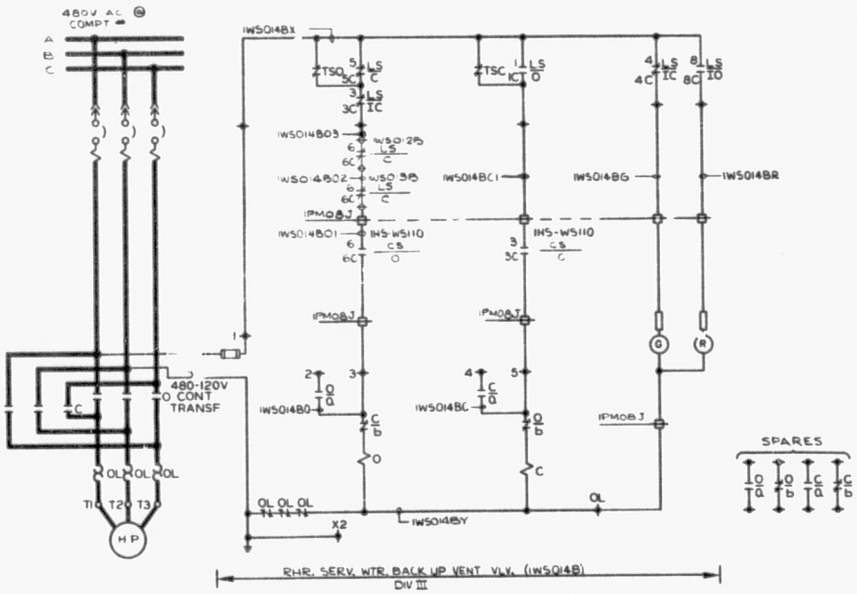
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

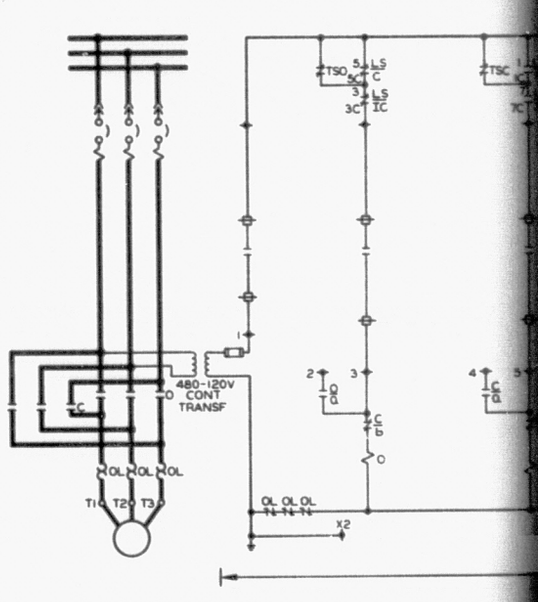
FIGURE 7.3-23

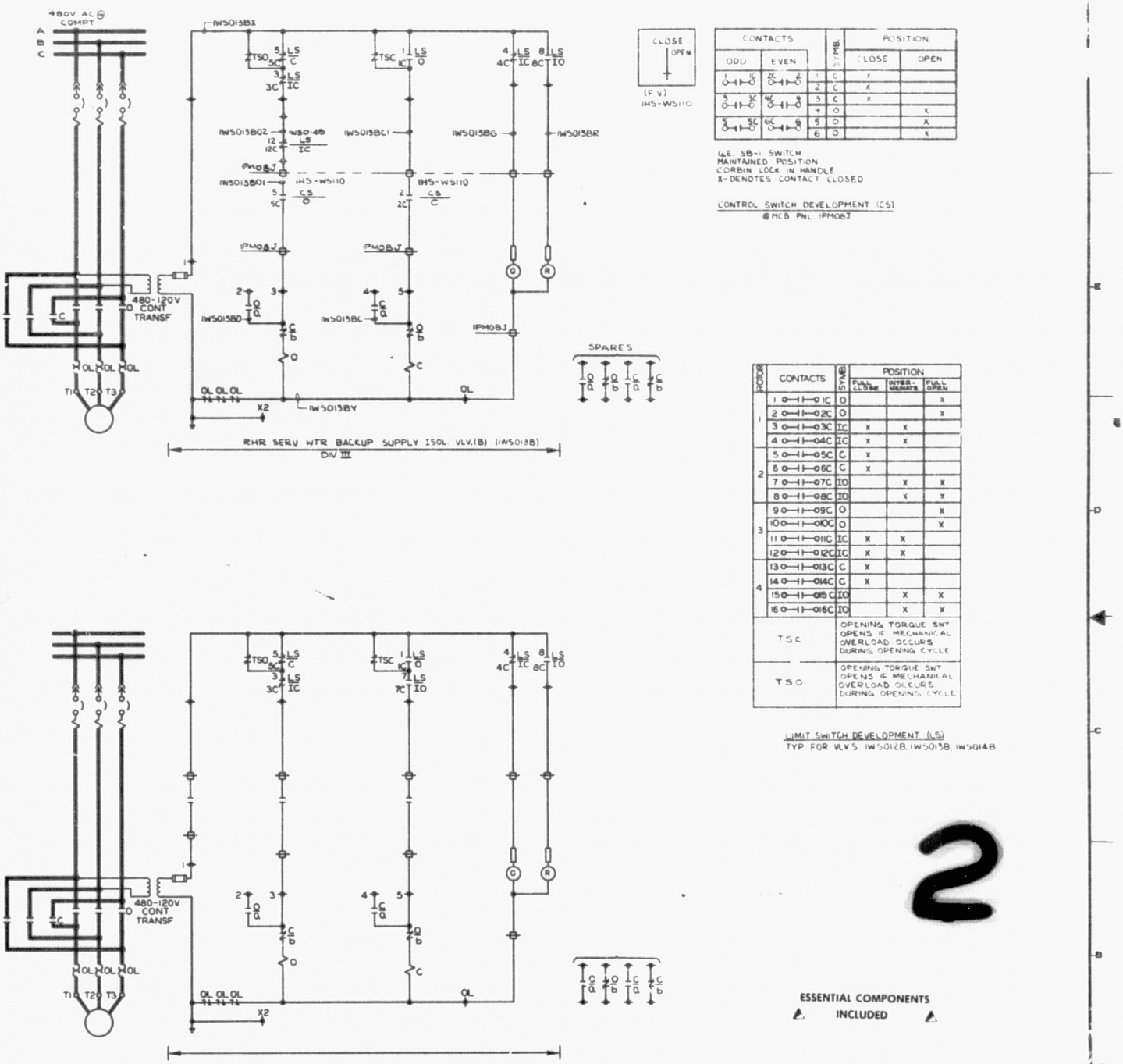
ESSENTIAL SERVICE WATER SYSTEM ESD
(SHEET 8 of 15)


480V AC
COMPT
A
B
C
480-120V
CONT
TRANSF
OL OL OL
T1 T2 T3
1W5012BX
1W5012B02
1W5012BC1
1W5012BG
1W5012BR
1W5012B01
1W5012B0
1W5012BC
1W5012BY
IPM08J
IW5012B-W5110
SPARES
X2
RHR SERV WTR BACKUP SUPPLY ISOL VLV (A) (1W5012B)
DIV III

480V AC
COMPT
A
B
C
480-120V
CONT
TRANSF
OL OL OL
T1 T2 T3
1W5013BX
1W5013B02
1W5013BC1
1W5013B01
1W5013B0
1W5013BC
1W5013BY
IPM08J
IW5013B-W5110
X2
RHR SERV WTR BACKUP SUPPL
DIV III


480V AC
COMPT
A
B
C
480-120V
CONT
TRANSF
OL OL OL
T1 T2 T3
H P
1W5014BX
1W5014B03
1W5014B02
1W5014BC1
1W5014BG
1W5014BR
1W5014B01
1W5014B0
1W5014BC
1W5014BY
IPM08J
IW5014B-W5110
SPARES
X2
RHR. SERV. WTR. BACK UP VENT VLV. (1W5014B)
DIV III


480-120V
CONT
TRANSF
OL OL OL
T1 T2 T3
X2



CONTACTS		SYMB.	POSITION	
ODD	EVEN		CLOSE	OPEN
1	2	C	X	
3	4	C	X	
5	6	C	X	
7	8	O		X
9	10	O		X
11	12	O		X

G.E. SB-1 SWITCH
MAINTAINED POSITION
CORBIN LOCK IN HANDLE
X-DENOTES CONTACT CLOSED

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL 1PM08J

MOTOR	CONTACTS	SYMB.	POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1 O—I—O 1C	O			X
	2 O—I—O 2C	O			X
	3 O—I—O 3C	IC	X	X	
	4 O—I—O 4C	IC	X	X	
2	5 O—I—O 5C	C	X		
	6 O—I—O 6C	C	X		
	7 O—I—O 7C	IO		X	X
	8 O—I—O 8C	IO		X	X
3	9 O—I—O 9C	O			X
	10 O—I—O 10C	O			X
	11 O—I—O 11C	IC	X	X	
	12 O—I—O 12C	IC	X	X	
4	13 O—I—O 13C	C	X		
	14 O—I—O 14C	C	X		
	15 O—I—O 15C	IO		X	X
	16 O—I—O 16C	IO		X	X
TSC			OPENING TORQUE SWT OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		
TSO			OPENING TORQUE SWT OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

LIMIT SWITCH DEVELOPMENT (LS)
TYP FOR VLVS 1WS012B, 1WS013B, 1WS014B

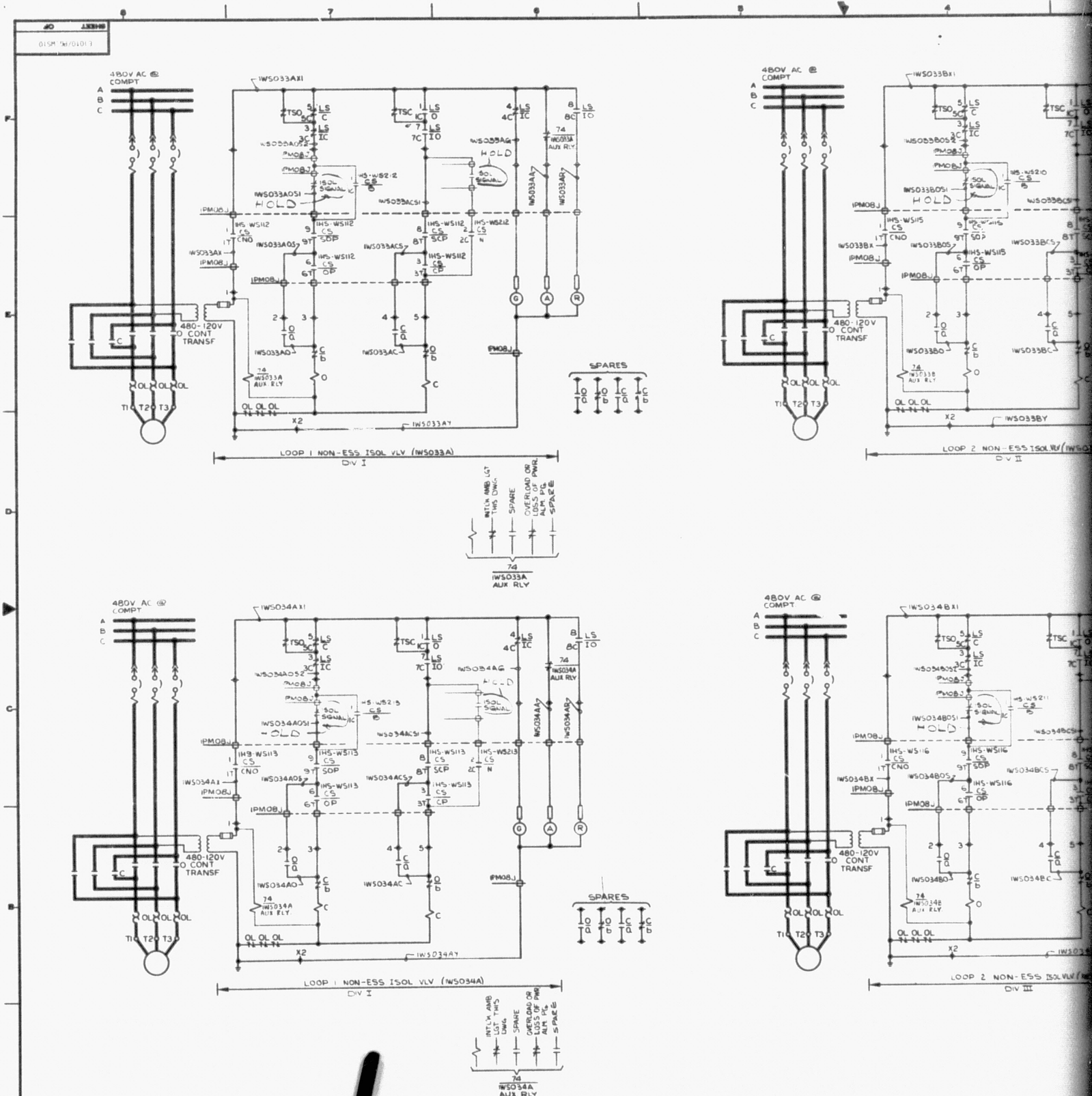
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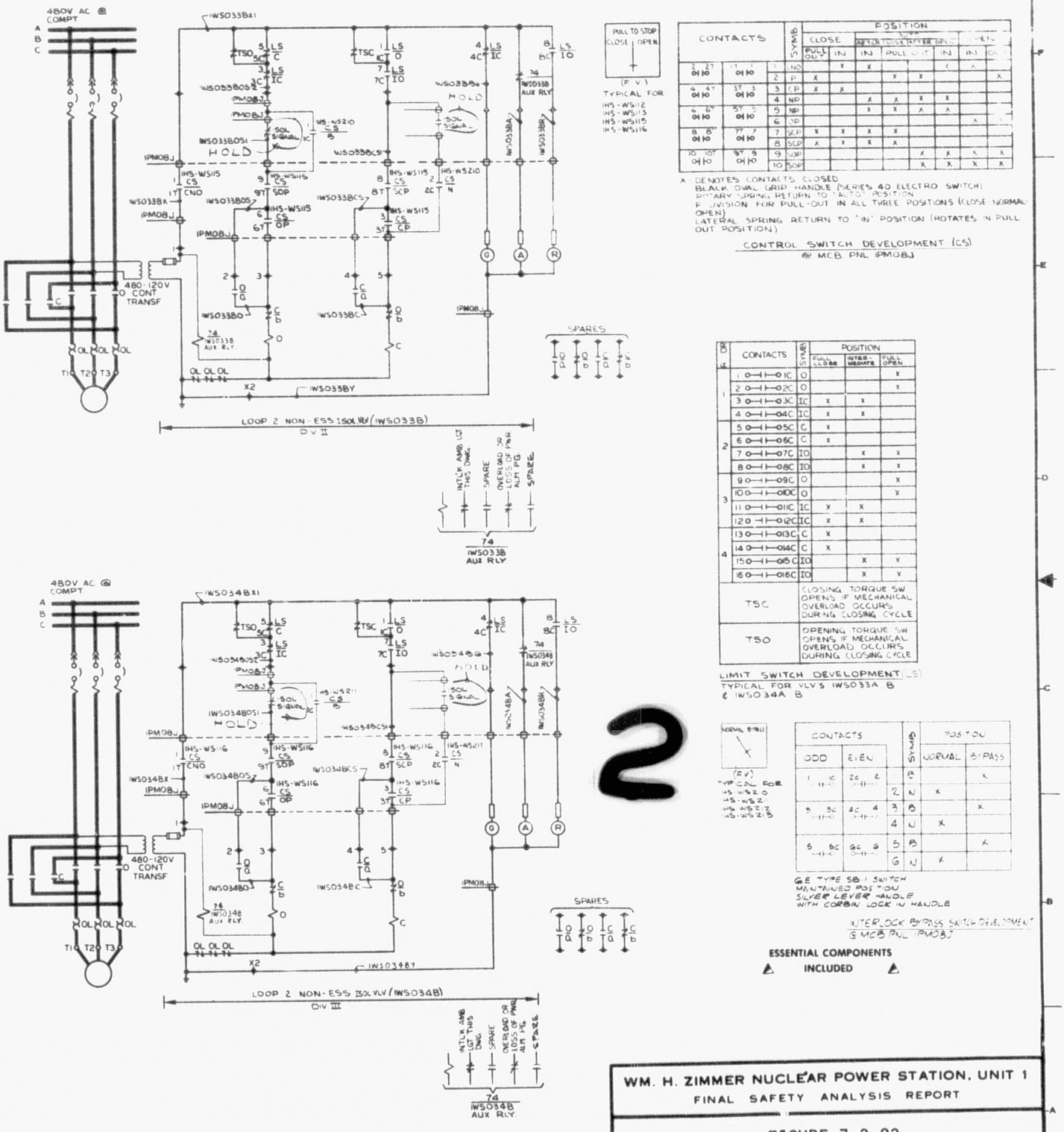
ESSENTIAL COMPONENTS
INCLUDED

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-23

ESSENTIAL SERVICE WATER SYSTEM ESD
(SHEET 9 of 15)


480V AC @ COMPT
A
B
C
IWS033AX1
IWS033AO5I
HOLD
IWS033AC5I
IWS033AG
IWS033AA
IWS033AR
IPM08J
480-120V CONT TRANSF
OL OL OL
T1 T2 T3
X2
IWS033AY
LOOP 1 NON-ESS ISOL VLV (IWS033A)
DIV I
SPARES
INTLK AMB LGT THIS DWG
SPARE
OVERLOAD OR LOSS OF PWR ALM PTS
SPARE
74 IWS033A AUX RLY
IWS033BX1
IWS033BO5I
HOLD
IWS033BC5I
IWS033BO
IWS033BC
IWS033BY
LOOP 2 NON-ESS ISOL VLV (IWS0
DIV II
IWS034AX1
IWS034AO5I
HOLD
IWS034AC5I
IWS034AG
IWS034AA
IWS034AR
IWS034AO
IWS034AC
IWS034AY
LOOP 1 NON-ESS ISOL VLV (IWS034A)
DIV I
74 IWS034A AUX RLY
IWS034BX1
IWS034BO5I
HOLD
IWS034BC5I
IWS034BO
IWS034BC
LOOP 2 NON-ESS ISOL VLV (
DIV III



CONTACTS			SYMB	POSITION					
				CLOSE		TYPE AFTER CLOSE	AFTER OPEN	OPEN	
PULL OUT	IN			IN	IN	PULL OUT	IN	IN	OUT
2 27 0 10	1 1 0 10	1	NO		X		X	X	
6 47 0 10	3 3 0 10	3	CP	X		X			X
		4	NO	X	X	X	X		
6 67 0 10	5 5 0 10	5	NO		X	X	X		
		6	SP					X	
8 87 0 10	7 7 0 10	7	SCP	X	X	X			
		8	SCP	X	X	X	X		
10 107 0 10	9 9 0 10	9	SOP				X	X	X
		10	SOP				X	X	X

X - DENOTES CONTACTS CLOSED
BLACK OVAL GRIP HANDLE (SERIES 40 ELECTRO SWITCH)
PRIMARY SPRING RETURN TO "AUTO" POSITION
PROVISION FOR PULL-OUT IN ALL THREE POSITIONS (CLOSE NORMAL-OPEN)
LATERAL SPRING RETURN TO "IN" POSITION (ROTATES IN PULL OUT POSITION)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL 1PM08J

OR LS	CONTACTS	SYMB	POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1 O—I—O 1C	O			X
	2 O—I—O 2C	O			X
	3 O—I—O 3C	IC	X	X	
	4 O—I—O 4C	IC	X	X	
2	5 O—I—O 5C	C	X		
	6 O—I—O 6C	C	X		
	7 O—I—O 7C	IO		X	X
	8 O—I—O 8C	IO		X	X
3	9 O—I—O 9C	O			X
	10 O—I—O 10C	O			X
	11 O—I—O 11C	IC	X	X	
	12 O—I—O 12C	IC	X	X	
4	13 O—I—O 13C	C	X		
	14 O—I—O 14C	C	X		
	15 O—I—O 15C	IO		X	X
	16 O—I—O 16C	IO		X	X
TSC	CLOSING TORQUE SW OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE				
TSO	OPENING TORQUE SW OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE				

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VLV'S 1WS033A B
& 1WS034A B

2

NORMAL BYPASS
(F.V.)
TYPICAL FOR HS-WS2.0 HS-WS2.1 HS-WS2.2 HS-WS2.3

CONTACTS				SYMB	POSITION	
ODD		EVEN			NORMAL	BYPASS
1 1C 0		2C 2		B		X
			2	N	X	
3 3C 0		4C 4		B		X
			4	N	X	
5 5C 0		6C 6		B		X
			6	N	X	

GE TYPE SB-1 SWITCH
MAINTAINED POSITION
SILVER LEVER HANDLE
WITH CORBIN LOCK IN HANDLE

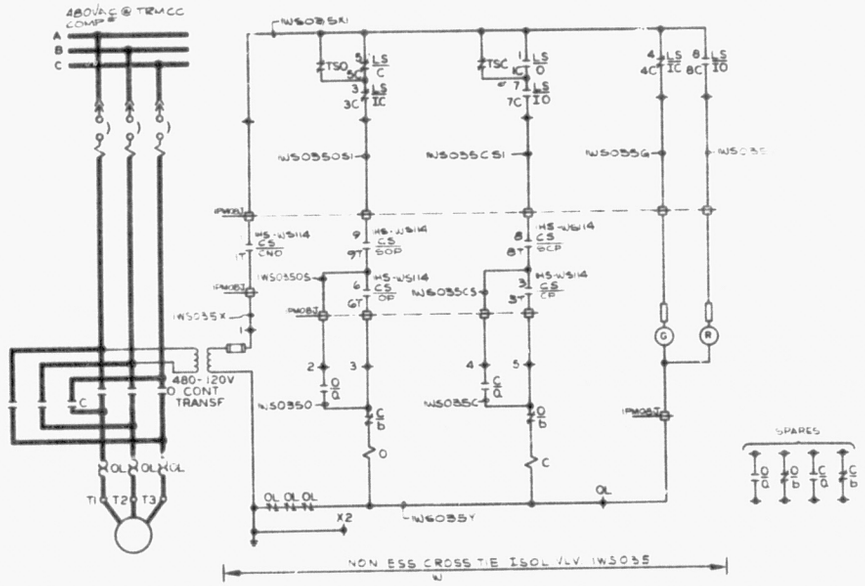
INTERLOCK BYPASS SWITCH DEVELOPMENT
@ MCB PNL 1PM08J

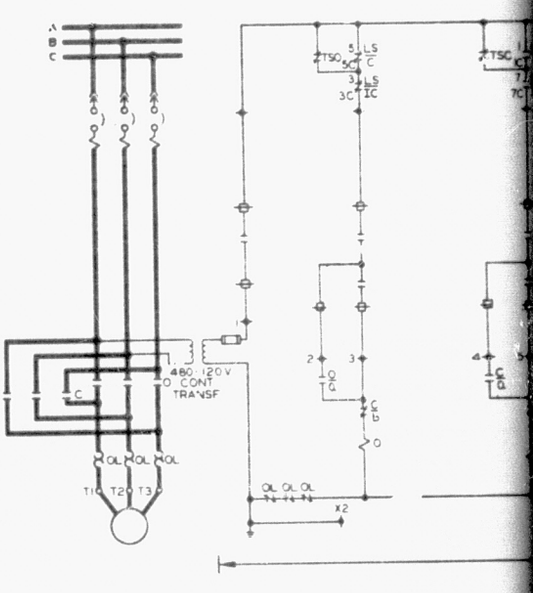
ESSENTIAL COMPONENTS
INCLUDED

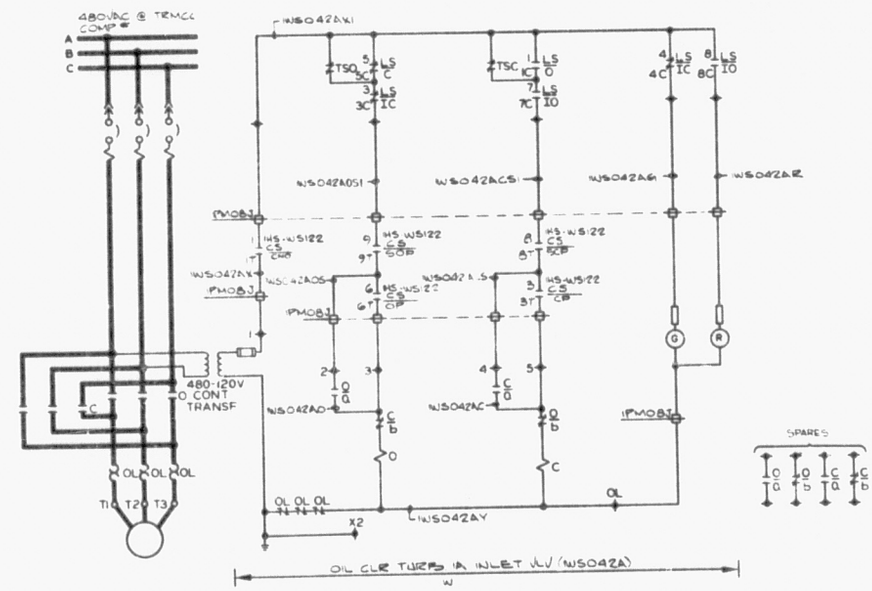
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

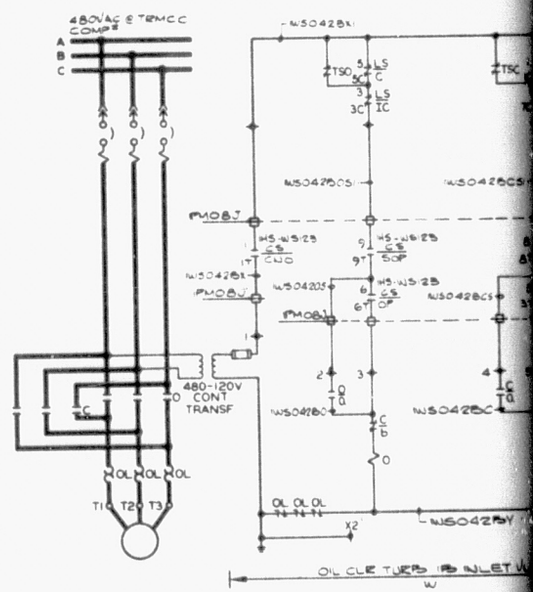
FIGURE 7.3-23

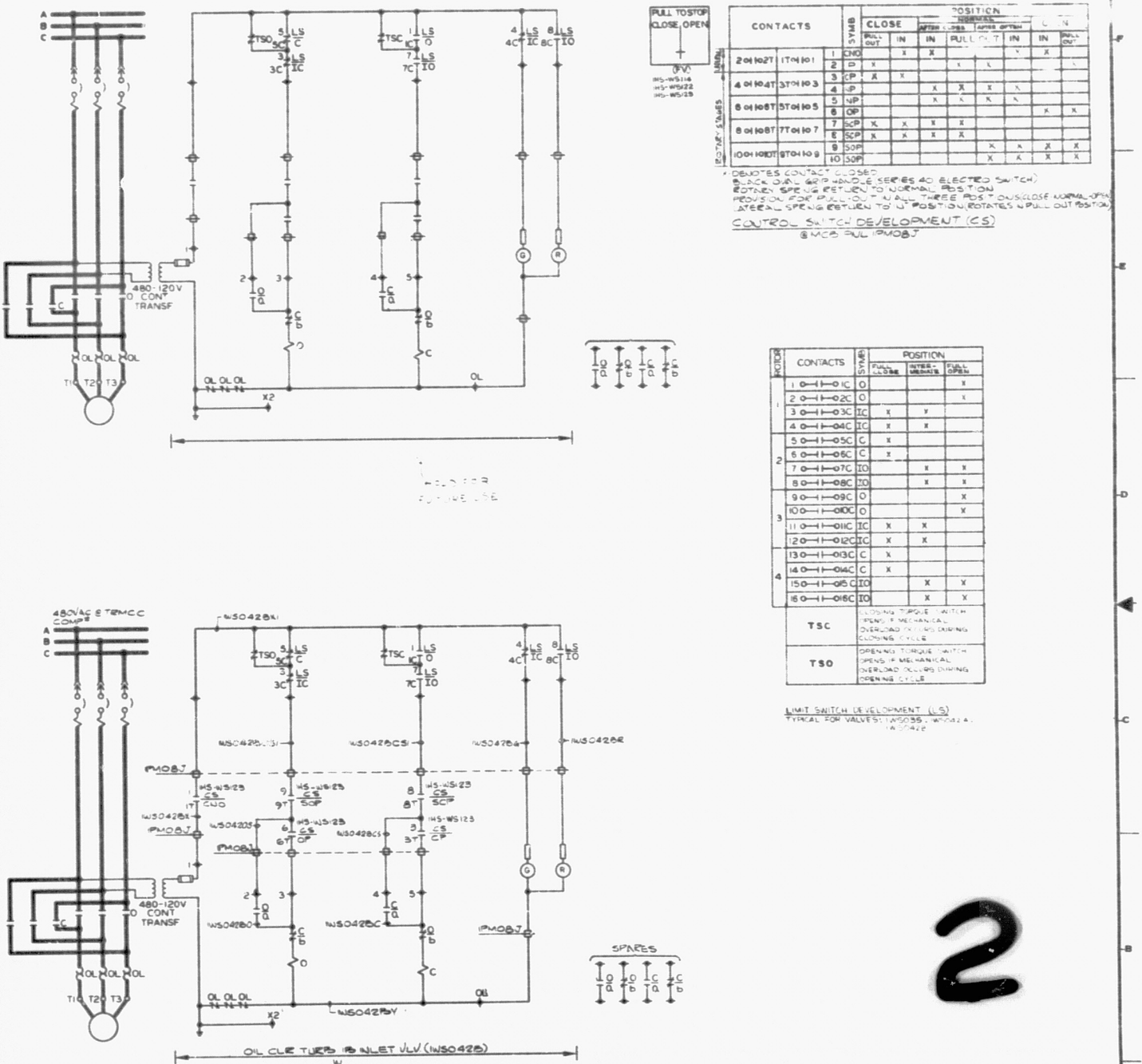
ESSENTIAL SERVICE WATER SYSTEM ESD (SHEET 10 of 15)


480VAC @ TRMCC COMP#
A
B
C
480-120V CONT TRANSF
OL OL OL
T1 T2 T3
X2
NON ESS CROSS TIE ISOL VLV. (WS035)
SPARES


480-120V CONT TRANSF
OL OL OL
T1 T2 T3
X2


480VAC @ TRMCC COMP#
A
B
C
480-120V CONT TRANSF
OL OL OL
T1 T2 T3
X2
OIL CLR TURB 1A INLET VLV (WS042A)
SPARES


480VAC @ TRMCC COMP#
A
B
C
480-120V CONT TRANSF
OL OL OL
T1 T2 T3
X2



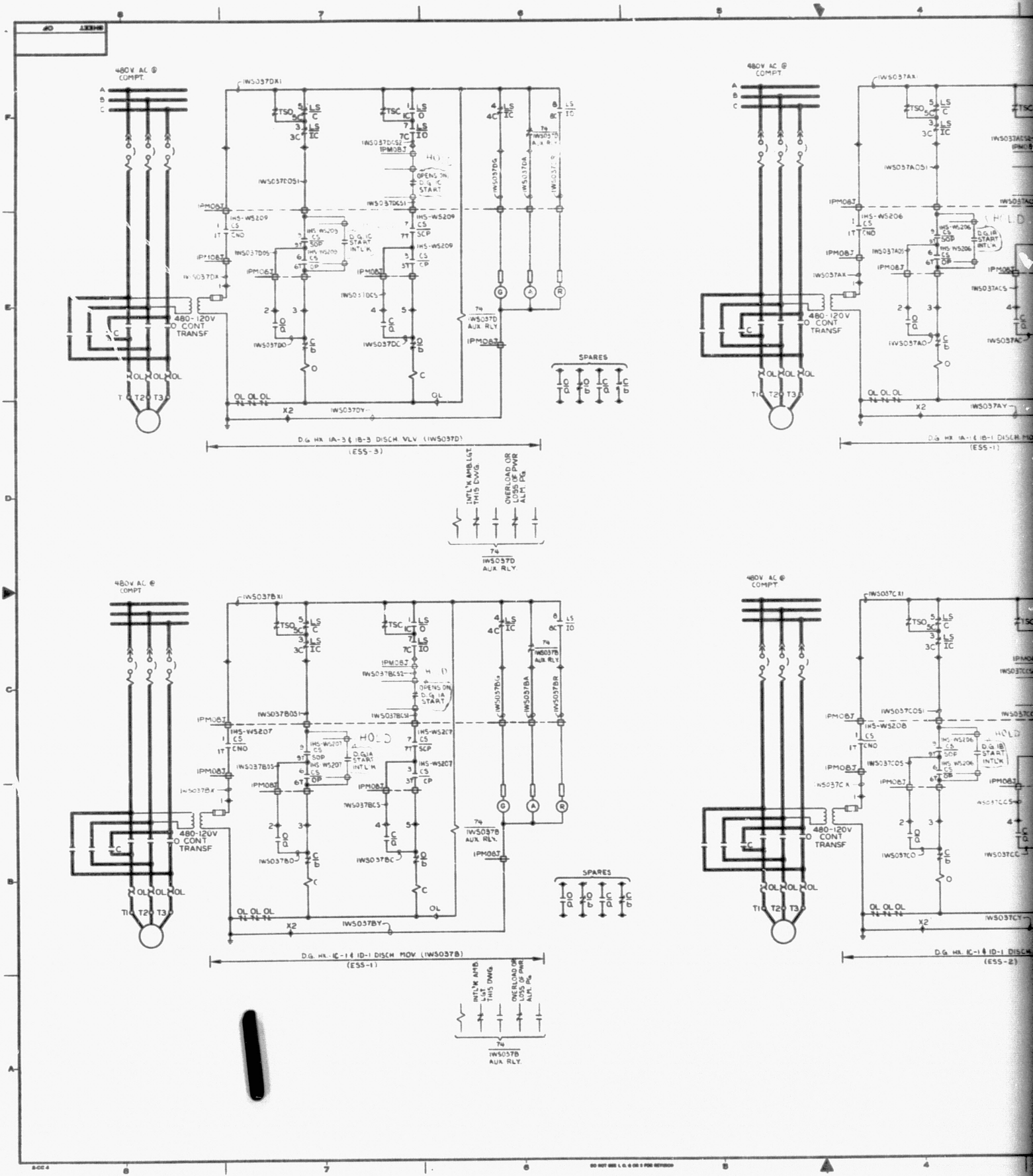
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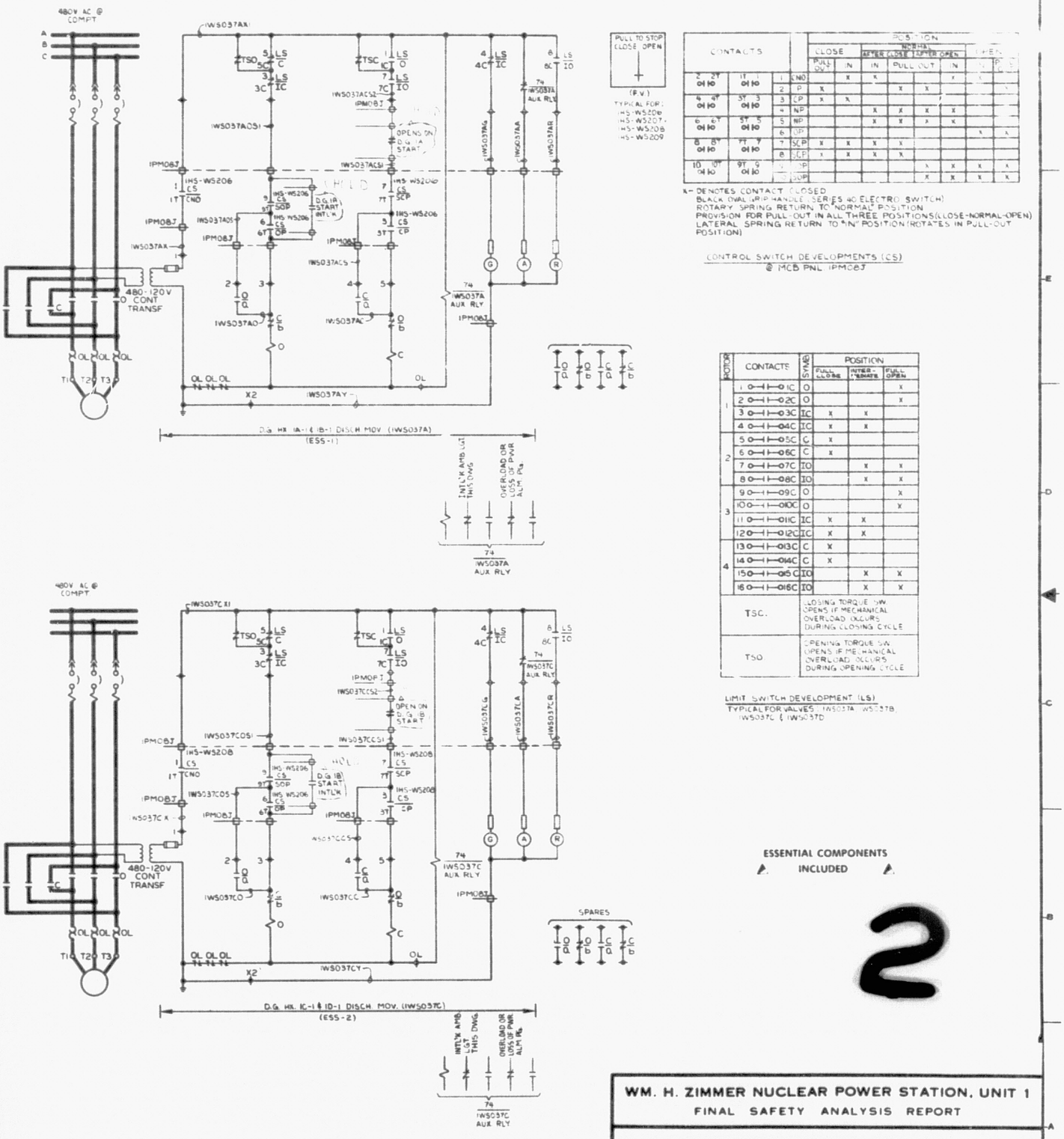
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-23

ESSENTIAL SERVICE WATER SYSTEM ESD

(SHEET 11 of 15)


480V AC @ COMPT.
480-120V CONT TRANSF
D.G. HX 1A-3 & 1B-3 DISCH. VLV. (1WS037D)
(ESS-3)
74 1WS037D AUX RLY.
SPARES
INTL'K AMB. LGT THIS DWG.
OVERLOAD OR LOSS OF PWR ALM. PNL
480V AC @ COMPT.
480-120V CONT TRANSF
D.G. HX 1A-1 & 1B-1 DISCH. MOV
(ESS-1)
480V AC @ COMPT.
480-120V CONT TRANSF
D.G. HX. 1C-1 & 1D-1 DISCH MOV. (1WS037B)
(ESS-1)
74 1WS037B AUX RLY.
SPARES
INTL'K AMB. LGT THIS DWG.
OVERLOAD OR LOSS OF PWR ALM. PNL
480V AC @ COMPT.
480-120V CONT TRANSF
D.G. HX. 1C-1 & 1D-1 DISCH
(ESS-2)



CONTACTS				POSITION							
				CLOSE		NORMAL				OPEN	
				PULL OUT	IN	AFTER CLOSE	IN	PULL OUT	IN	TP	SP
2 2Y 01 10	1T 1 01 10	1	CNO		X	X			X		
		2	P	X			X	X			X
4 4Y 01 10	3T 3 01 10	3	CP	X	X						
		4	NP			X	X	X	X		
6 6Y 01 10	5T 5 01 10	5	NP			X	X	X	X		
		6	OP							X	X
8 8Y 01 10	7T 7 01 10	7	SCP	X	X	X	X				
		8	SCP	X	X	X	X				
10 10Y 01 10	9T 9 01 10	9	SP					X	X	X	X
		10	SOP					X	X	X	X

X- DENOTES CONTACT CLOSED
BLACK OVAL (RIP HANDLE) SERIES 40 ELECTRO SWITCH)
ROTARY SPRING RETURN TO "NORMAL" POSITION
PROVISION FOR PULL-OUT IN ALL THREE POSITIONS (CLOSE-NORMAL-OPEN)
LATERAL SPRING RETURN TO "IN" POSITION (ROTATES IN PULL-OUT POSITION)

CONTROL SWITCH DEVELOPMENTS (CS)
@ MCB PNL 1PM08J

MOTOR	CONTACTS	SYMBL	POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1 o—I—o 1C	O			X
	2 o—I—o 2C	O			X
	3 o—I—o 3C	IC	X	X	
	4 o—I—o 4C	IC	X	X	
2	5 o—I—o 5C	C	X		
	6 o—I—o 6C	C	X		
	7 o—I—o 7C	IO		X	X
	8 o—I—o 8C	IO		X	X
3	9 o—I—o 9C	O			X
	10 o—I—o 10C	O			X
	11 o—I—o 11C	IC	X	X	
	12 o—I—o 12C	IC	X	X	
4	13 o—I—o 13C	C	X		
	14 o—I—o 14C	C	X		
	15 o—I—o 15C	IO		X	X
	16 o—I—o 16C	IO		X	X
TSC.		LOSING TORQUE SW. OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE			
TSO.		OPENING TORQUE SW. OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE			

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVES: 1WS037A, WS037B, 1WS037C & 1WS037D

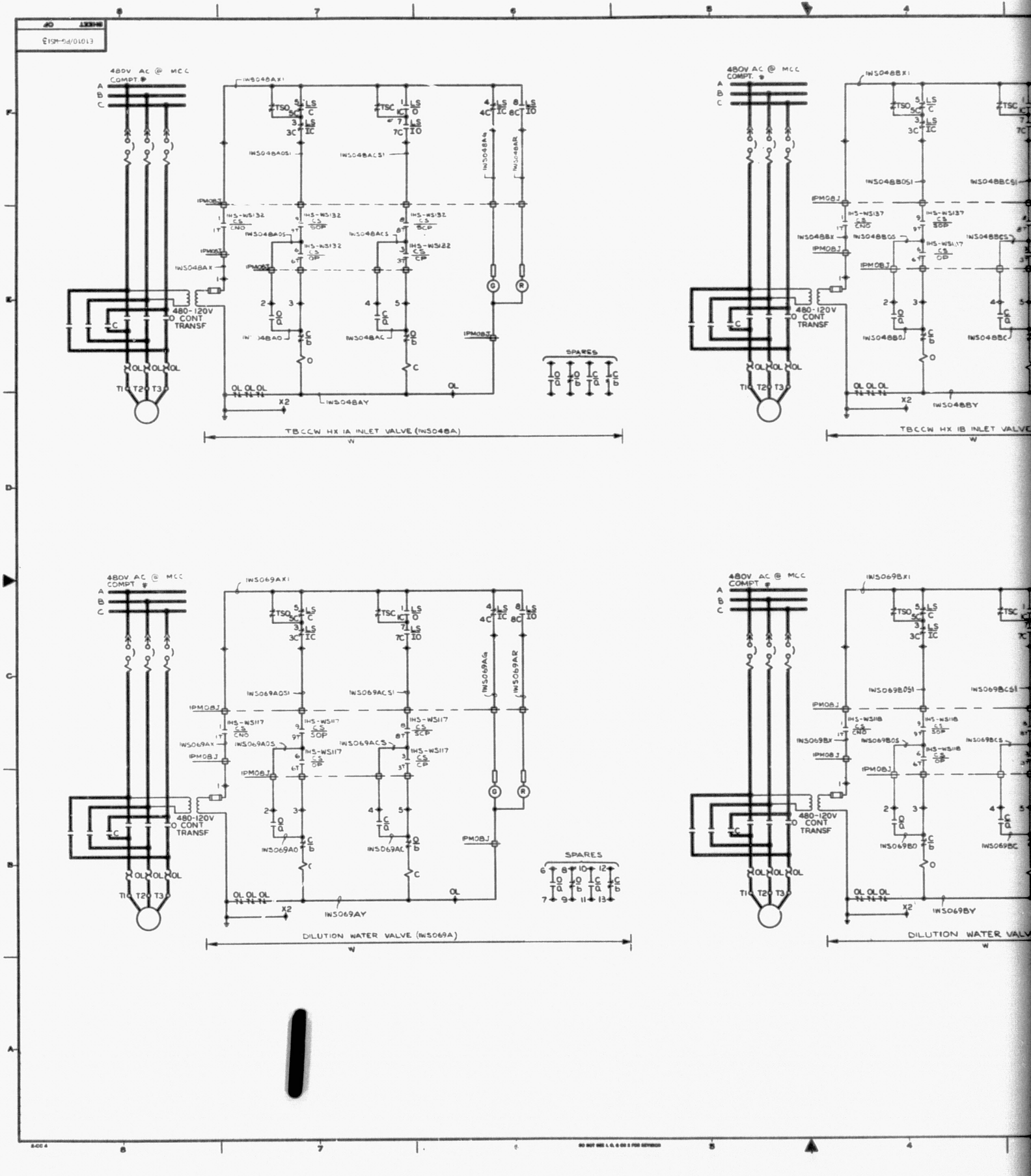
ESSENTIAL COMPONENTS
INCLUDED

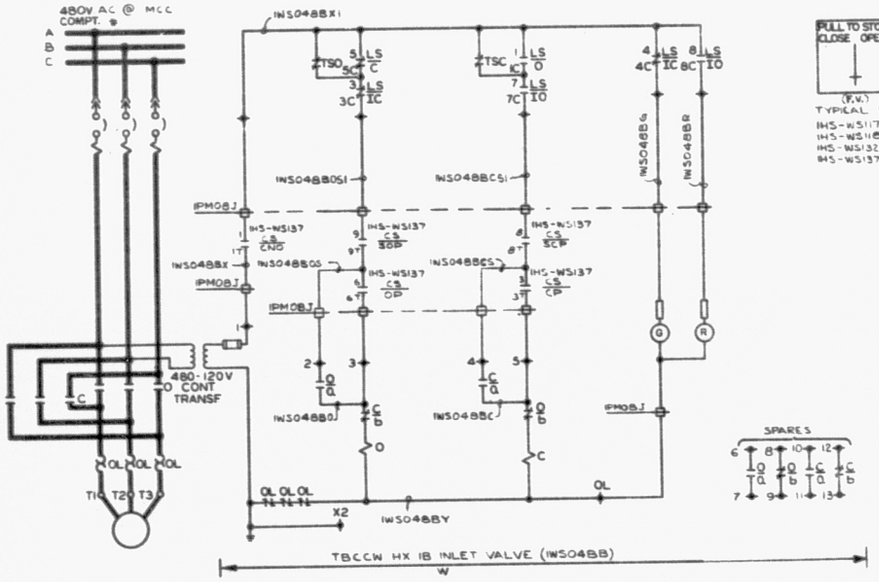
2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-23

ESSENTIAL SERVICE WATER SYSTEM ESD
(SHEET 12 of 15)


480V AC @ MCC COMPT. #
A
B
C
480-120V CONT TRANSF
T1 T2 T3
OL OL OL
X2
IWS048AX1
IWS048A0S1
IWS048ACS1
IWS048A0
IWS048AC
IWS048AY
IPM08J
SPARES
TBCCW HX 1A INLET VALVE (IWS048A)
W
IWS048BX1
IWS048B0S1
IWS048BCS1
IWS048B0
IWS048BC
IWS048BY
TBCCW HX 1B INLET VALVE
IWS069AX1
IWS069A0S1
IWS069ACS1
IWS069A0
IWS069AC
IWS069AY
DILUTION WATER VALVE (IWS069A)
IWS069BX1
IWS069B0S1
IWS069BCS1
IWS069B0
IWS069BC
IWS069BY
DILUTION WATER VALV



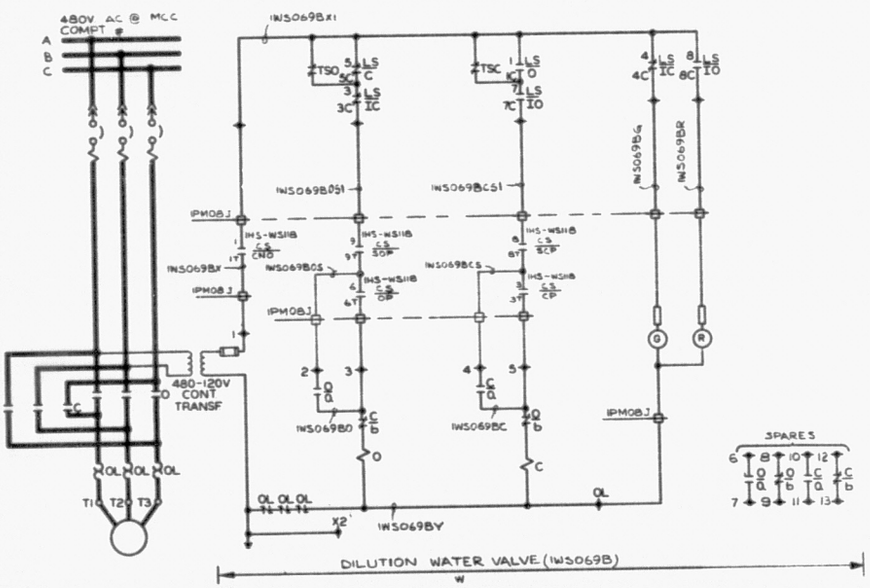
CONTACTS		SYMB	POSITION					
			CLOSE		AFTER CLOSING		OPEN	
			PULL OUT	IN	IN	PULL OUT	IN	PULL OUT
2 o| |o 2T	1 T o| |o 1	1 CNO		X	X		X	
		2 P	X			X		X
4 o| |o 4T	3 T o| |o 3	3 CP	X	X				
		4 NP			X	X	X	X
6 o| |o 6T	5 T o| |o 5	5 NP			X	X	X	X
		6 OP						
8 o| |o 8T	7 T o| |o 7	7 SCP	X	X	X	X		
		8 SCP	X	X	X	X		
10 o| |o 10T	9 T o| |o 9	9 SOP					X	X
		10 SOP					X	X

X-DENOTES CONTACT CLOSED
BLACK OVAL GRIP HANDLE (SERIES 40 ELECTRO SWITCH)
ROTARY SPRING RETURN TO "NORMAL" POSITION
PROVISION FOR PULL-OUT IN ALL THREE POSITIONS (CLOSE-NORMAL-OPEN)
LATERAL SPRING RETURN TO "IN" POSITION (ROTATES IN PULL-OUT POSITION)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL. 1PM08J

MOTOR	CONTACTS	SYMB	POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1 o—| |—o 1C	O			X
	2 o—| |—o 2C	O			X
	3 o—| |—o 3C	IC	X	X	
	4 o—| |—o 4C	IC	X	X	
2	5 o—| |—o 5C	C	X		
	6 o—| |—o 6C	C	X		
	7 o—| |—o 7C	IO		X	X
	8 o—| |—o 8C	IO		X	X
3	9 o—| |—o 9C	O			X
	10 o—| |—o 10C	O			X
	11 o—| |—o 11C	IC	X	X	
	12 o—| |—o 12C	IC	X	X	
4	13 o—| |—o 13C	C	X		
	14 o—| |—o 14C	C	X		
	15 o—| |—o 15C	IO		X	X
	16 o—| |—o 16C	IO		X	X
TSC		CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE			
TSO		OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE			

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVES: 1WS048A, B 1WS049A, B

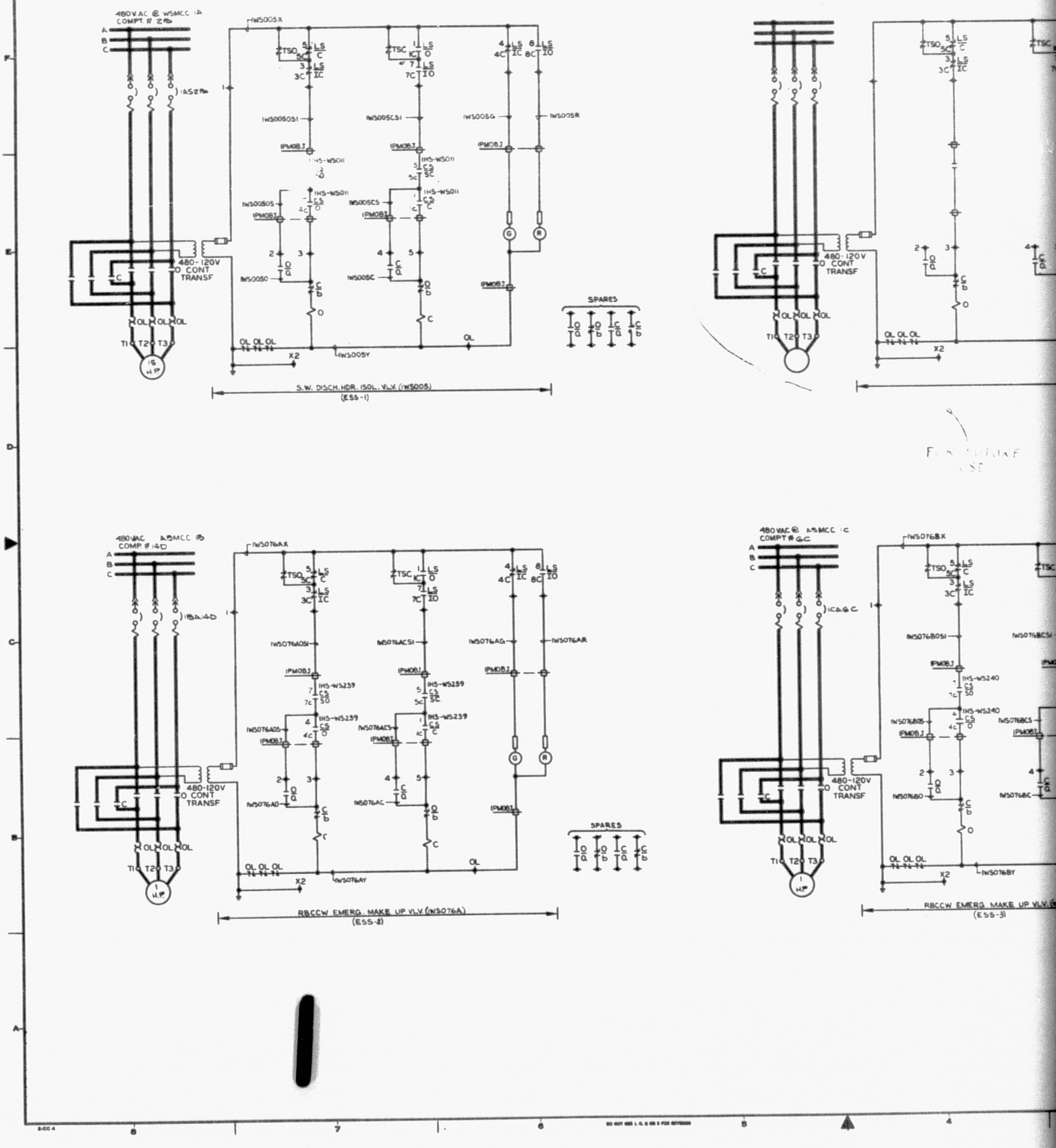


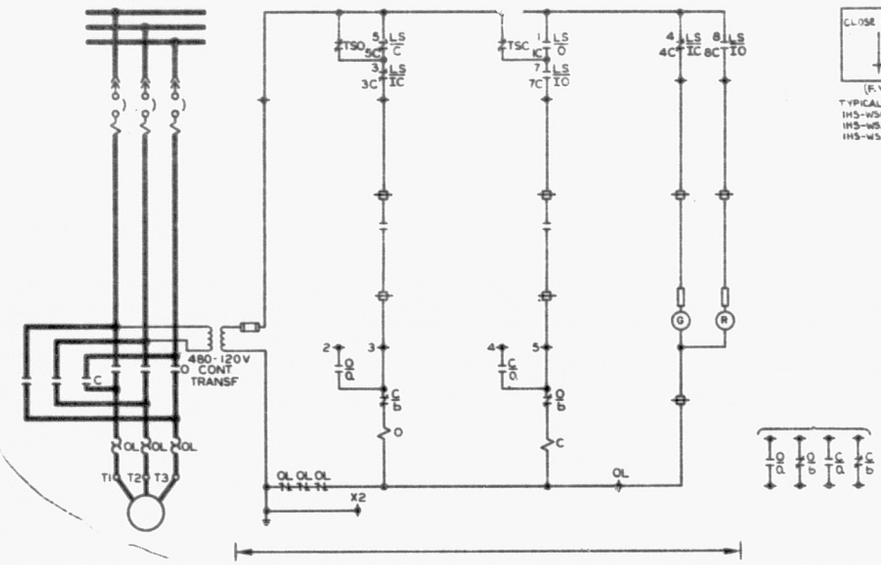
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-23

ESSENTIAL SERVICE WATER SYSTEM ESD
(SHEET 13 of 15)


480 V.AC @ WSMCC 1A
COMPT. # 2F
480-120V CONT TRANSF
15 HP
SPARES
S.W. DISCH. HDR. ISOL. VLV. (IWS005)
(ESS-1)
480 VAC @ WSMCC 1B
COMPT # 14D
480-120V CONT TRANSF
1 HP
SPARES
RBCCW EMERG. MAKE UP VLV. (IWS076A)
(ESS-2)
480 VAC @ WSMCC 1C
COMPT # 6C
480-120V CONT TRANSF
1 HP
RBCCW EMERG. MAKE UP VLV.
(ESS-3)



CLOSE OPEN

(F.V.)

TYPICAL FOR:
IHS-WS011
IHS-WS239
IHS-WS240

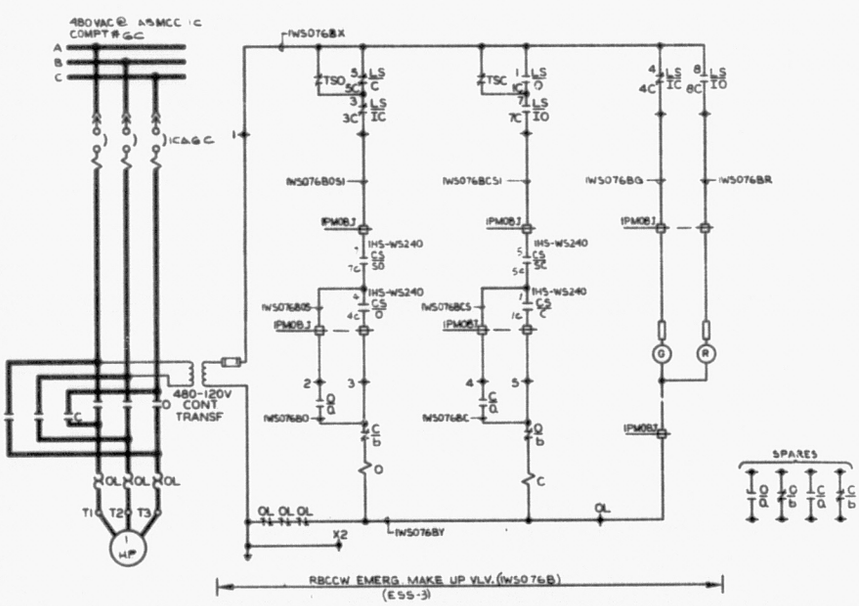
CONTACTS			SYMB.	POSITION			
				CLOSE	NORMAL AFTER CLOSE	NORMAL AFTER OPEN	OPEN
2 or 102C	1C or 101	1	C	X			
		2	N		X	X	
4 or 104C	3C or 103	3	N		X	X	
		4	O				X
6 or 106C	5C or 105	5	SC	X	X		
		6	SC	X	X		
8 or 108C	7C or 107	7	SO			X	X
		8	SO			X	X

X- DENOTES CONTACT CLOSED
PISTOL GRIP HANDLE G.E. SBI SWITCH
ROTARY SPRING RETURN TO NORMAL POSITION
W/CORBIN LOCKIN HANDLE

CONTROL SWITCH DEVELOPMENT (CS)
AT MCB PNL 1PM08J

ROTOR	CONTACTS	SYMB.	POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1 O—I—O 1C	O			X
	2 O—I—O 2C	O			X
	3 O—I—O 3C	IC	X	X	
	4 O—I—O 4C	IC	X	X	
2	5 O—I—O 5C	C	X		
	6 O—I—O 6C	C	X		
	7 O—I—O 7C	IO		X	X
	8 O—I—O 8C	IO		X	X
3	9 O—I—O 9C	O			X
	10 O—I—O 10C	O			X
	11 O—I—O 11C	IC	X	X	
	12 O—I—O 12C	IC	X	X	
4	13 O—I—O 13C	C	X		
	14 O—I—O 14C	C	X		
	15 O—I—O 15C	IO		X	X
	16 O—I—O 16C	IO		X	X
TSC			CLOSING TORQUE SW OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
TSO			OPENING TORQUE SW OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVES 1WS005, 1WS07GA, 1WS07GB



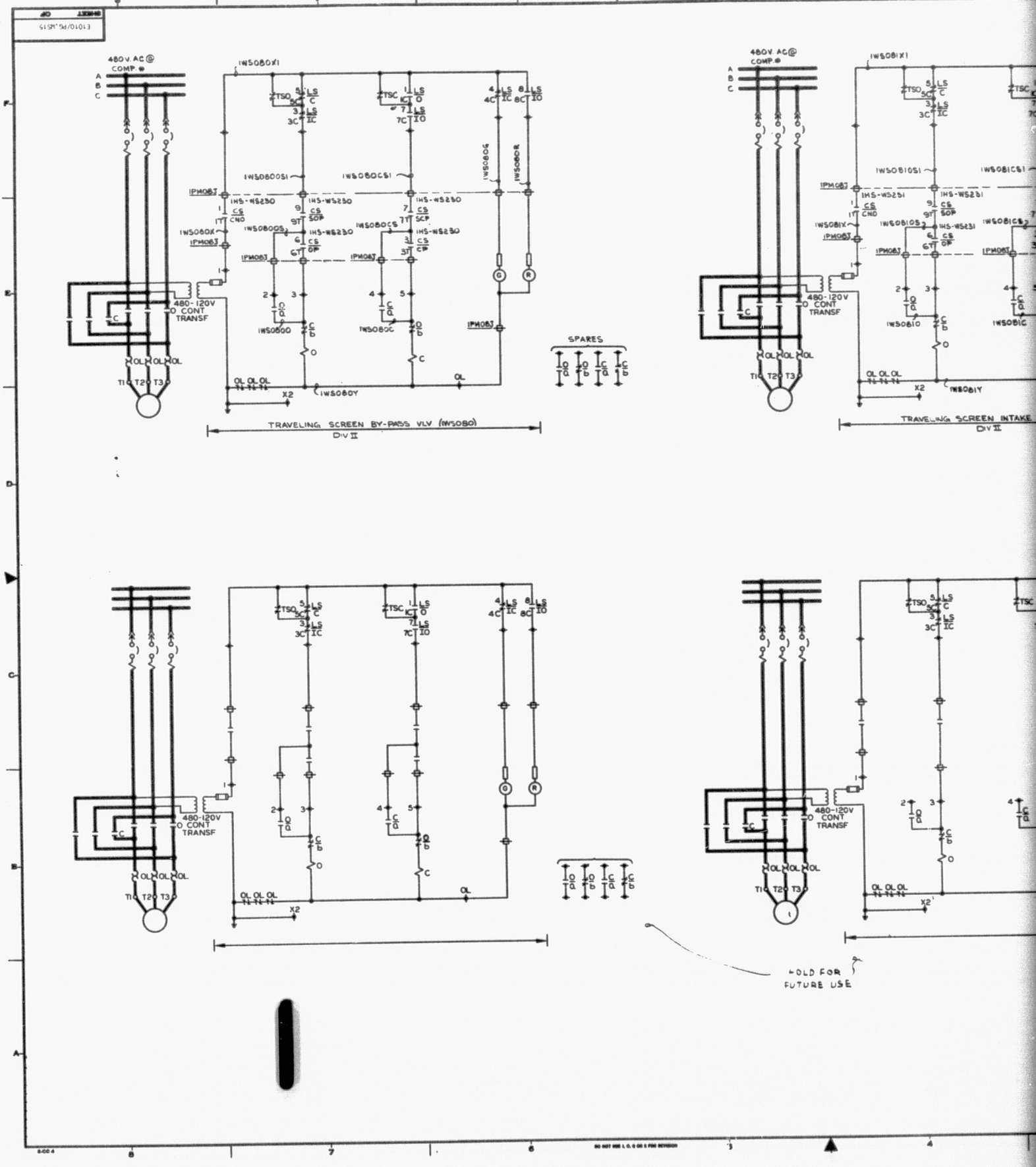
ESSENTIAL COMPONENTS
INCLUDED

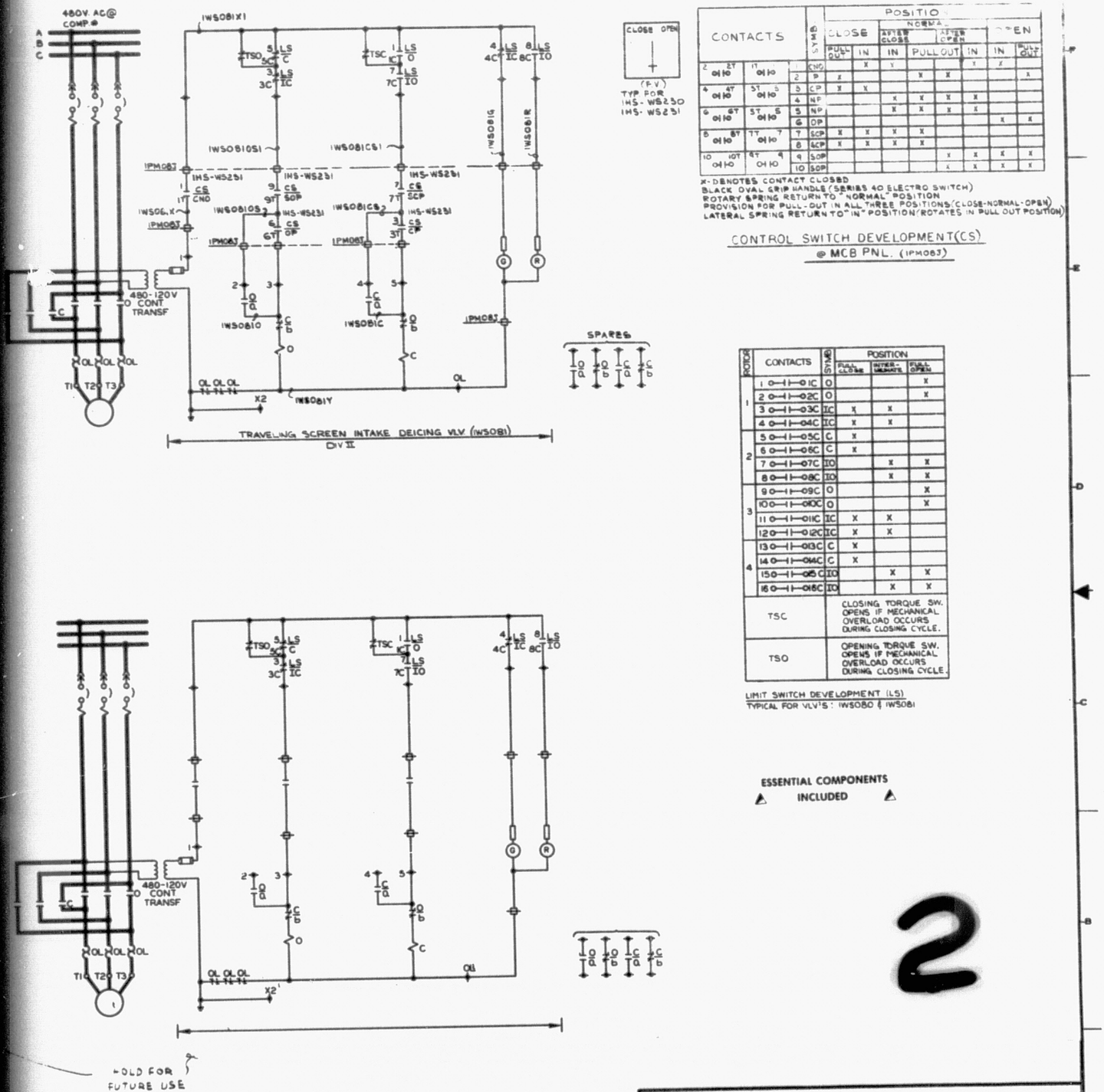
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-23

ESSENTIAL SERVICE WATER SYSTEM ESD
(SHEET 14 of 15)

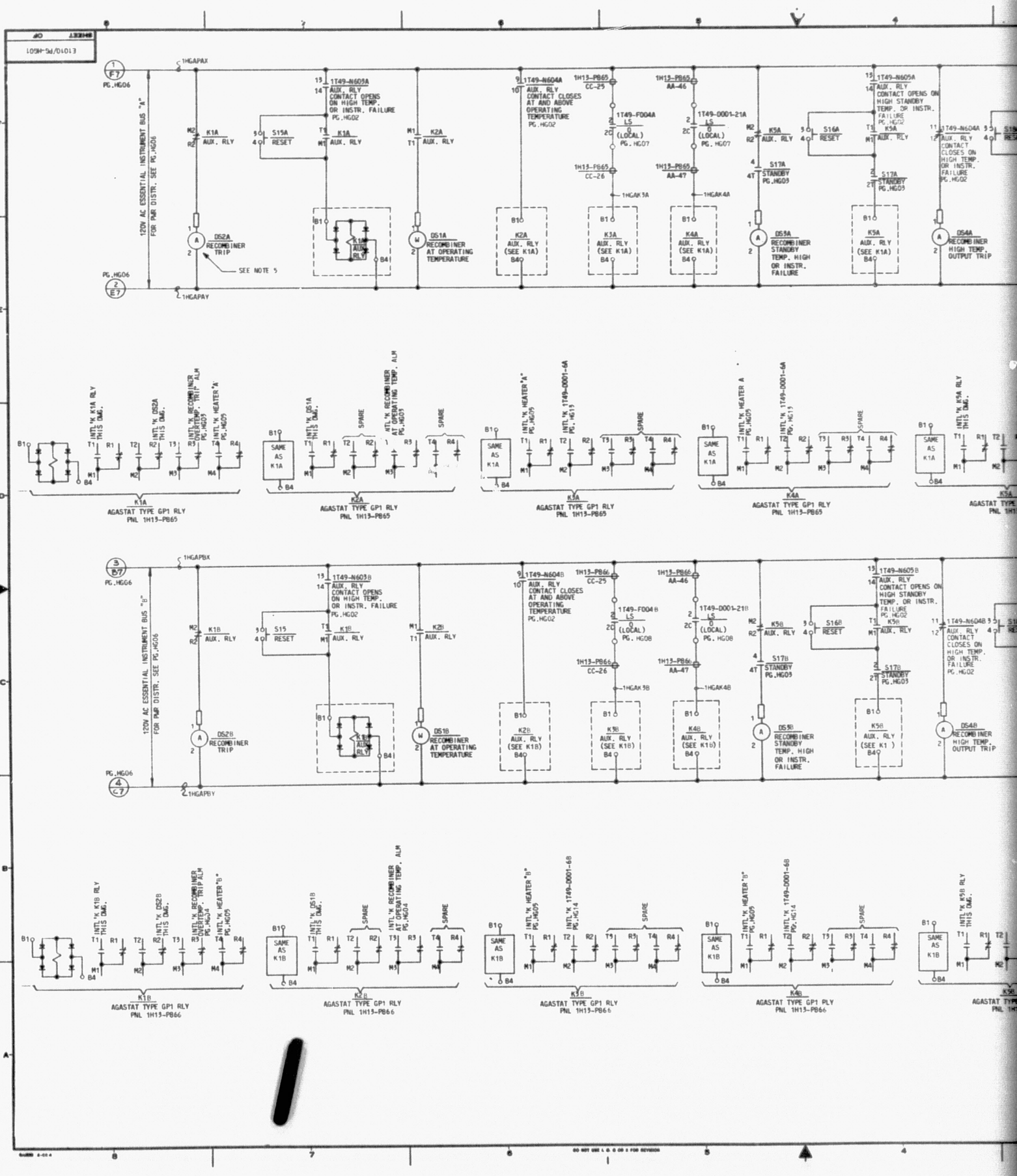

480V AC @ COMP.
A
B
C
1WS080X1
1TSO
1TSC
1LS
3C
7C
4C
8C
1WS080S1
1WS080C1
1WS080S
1WS080R
1PM08J
1HS-WS230
1CS
CNO
SOP
SCP
1WS080X
1WS080S
1WS080C
1WS080O
1WS080C
1PM08J
480-120V CONT TRANSF
OL
T1
T2
T3
X2
1WS080Y
TRAVELING SCREEN BY-PASS VLV (WS080)
DIV II
SPARES
1WS081X1
1WS081S1
1WS081C1
1HS-WS231
1WS081X
1WS081S
1WS081C
1WS081O
1WS081C
1WS081Y
TRAVELING SCREEN INTAKE
DIV II
HOLD FOR FUTURE USE

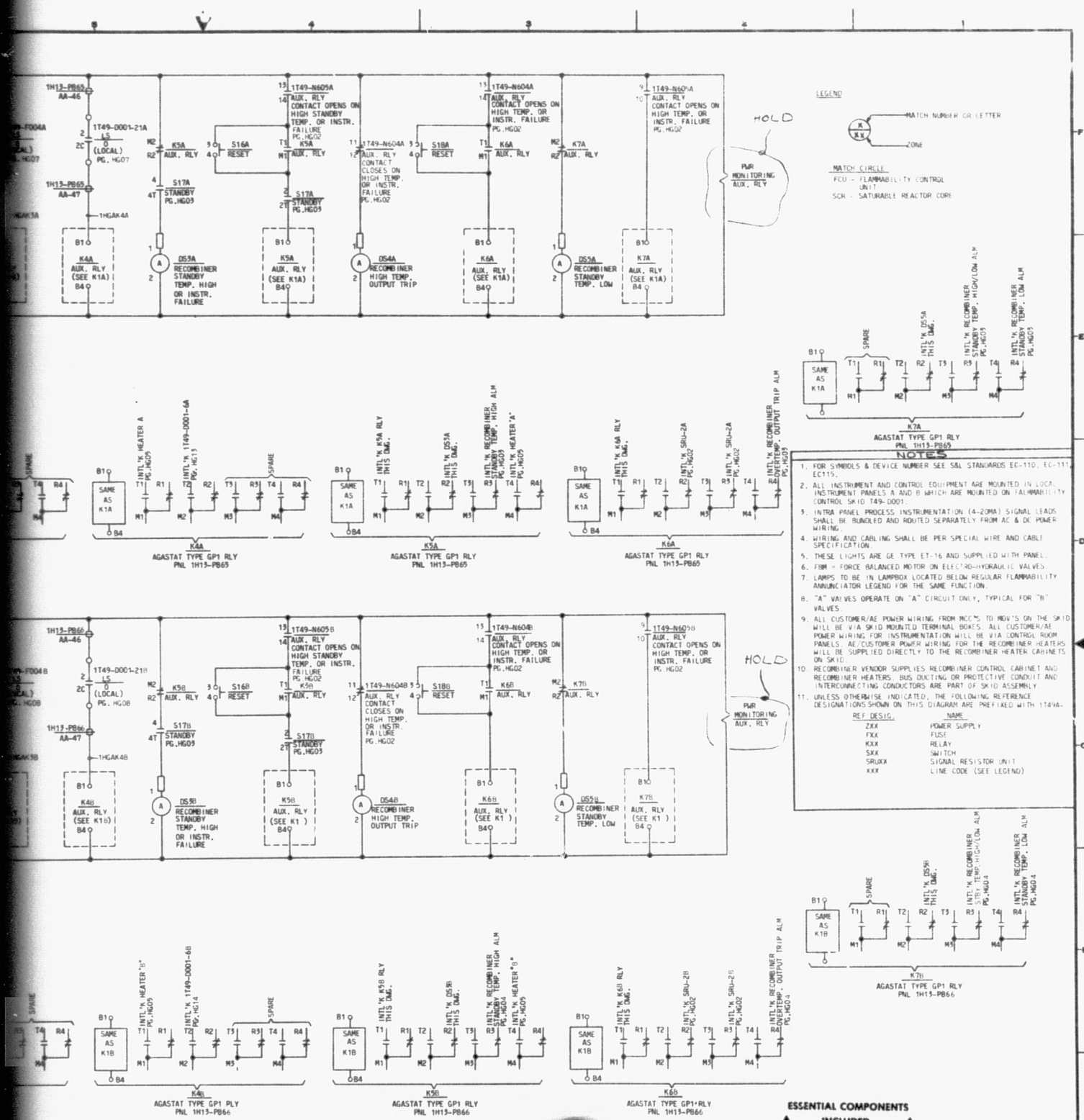


WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-23

ESSENTIAL SERVICE WATER SYSTEM ESD
(SHEET 15 of 15)


E101D/PS-H601
120V AC ESSENTIAL INSTRUMENT BUS "A" FOR PWR DISTR. SEE PG.HG06
1HGAPAX
1HGAPAY
PG.HG06
K1A AUX. RLY
S15A RESET
1T49-N605A AUX. RLY CONTACT OPENS ON HIGH TEMP. OR INSTR. FAILURE PG.HG02
K2A AUX. RLY
1T49-N604A AUX. RLY CONTACT CLOSES AT AND ABOVE OPERATING TEMPERATURE PG.HG02
1H13-PB65 CC-25
1T49-FD04A LS (LOCAL) PG.HG07
1H13-PB65 CC-26
1H13-PB62 AA-46
1T49-D001-21A LS (LOCAL) PG.HG07
1H13-PB65 AA-47
1HGAK3A
1HGAK4A
K5A AUX. RLY
S16A RESET
S17A STANDBY PG.HG09
1T49-N604A AUX. RLY CONTACT CLOSES ON HIGH TEMP. OR INSTR. FAILURE PG.HG02
DS2A RECOMBINER TRIP
SEE NOTE 5
DS1A RECOMBINER AT OPERATING TEMPERATURE
K2A AUX. RLY (SEE K1A) B4Q
K3A AUX. RLY (SEE K1A) B4Q
K4A AUX. RLY (SEE K1A) B4Q
DS5A RECOMBINER STANDBY TEMP. HIGH OR INSTR. FAILURE
K5A AUX. RLY (SEE K1A) B4Q
DS4A RECOMBINER HIGH TEMP. OUTPUT TRIP
INTL'K K1A RLY THIS DWG.
INTL'K DS2A THIS DWG.
INTL'K RECOMBINER OVERTEMP. TRIP ALM PG.HG09
INTL'K HEATER "A" PG.HG09
INTL'K DS1A THIS DWG.
SPARE
ATL'K RECOMBINER AT OPERATING TEMP. ALM PG.HG09
INTL'K HEATER "A" PG.HG09
INTL'K 1T49-D001-6A PG.HG13
INTL'K K5A RLY THIS DWG.
K1A AGASTAT TYPE GP1 RLY PNL 1H13-PB65
K2A AGASTAT TYPE GP1 RLY PNL 1H13-PB65
K3A AGASTAT TYPE GP1 RLY PNL 1H13-PB65
K4A AGASTAT TYPE GP1 RLY PNL 1H13-PB65
1HGAPBX
1HGAPBY
120V AC ESSENTIAL INSTRUMENT BUS "B" FOR PWR DISTR. SEE PG.HG06
K1B AUX. RLY
S15 RESET
1T49-N603B AUX. RLY CONTACT OPENS ON HIGH TEMP. OR INSTR. FAILURE PG.HG02
K2B AUX. RLY
1T49-N604B AUX. RLY CONTACT CLOSES AT AND ABOVE OPERATING TEMPERATURE PG.HG02
1H13-PB66 CC-25
1T49-FD04B LS (LOCAL) PG.HG08
1H13-PB66 CC-26
1H13-PB66 AA-46
1T49-D001-21B LS (LOCAL) PG.HG08
1H13-PB66 AA-47
1HGAK3B
1HGAK4B
K5B AUX. RLY
S16B RESET
S17B STANDBY PG.HG09
1T49-N604B AUX. RLY CONTACT CLOSES ON HIGH TEMP. OR INSTR. FAILURE PG.HG02
DS2B RECOMBINER TRIP
DS1B RECOMBINER AT OPERATING TEMPERATURE
K2B AUX. RLY (SEE K1B) B4Q
K3B AUX. RLY (SEE K1B) B4Q
K4B AUX. RLY (SEE K1B) B4Q
DS5B RECOMBINER STANDBY TEMP. HIGH OR INSTR. FAILURE
K5B AUX. RLY (SEE K1) B4Q
DS4B RECOMBINER HIGH TEMP. OUTPUT TRIP
INTL'K K1B RLY THIS DWG.
INTL'K DS2B THIS DWG.
INTL'K RECOMBINER OVERTEMP. TRIP ALM PG.HG04
INTL'K HEATER "B" PG.HG09
INTL'K DS1B THIS DWG.
SPARE
INTL'K RECOMBINER AT OPERATING TEMP. ALM PG.HG04
INTL'K HEATER "B" PG.HG09
INTL'K 1T49-D001-6B PG.HG14
INTL'K K5B RLY THIS DWG.
K1B AGASTAT TYPE GP1 RLY PNL 1H13-PB66
K2B AGASTAT TYPE GP1 RLY PNL 1H13-PB66
K3B AGASTAT TYPE GP1 RLY PNL 1H13-PB66
K4B AGASTAT TYPE GP1 PLY PNL 1H13-PB66
DO NOT USE L O G O O S FOR REVISION



NOTES

1. FOR SYMBOLS & DEVICE NUMBER SEE S&L STANDARDS EC-110, EC-111, EC115.
2. ALL INSTRUMENT AND CONTROL EQUIPMENT ARE MOUNTED IN LOCAL INSTRUMENT PANELS A AND B WHICH ARE MOUNTED ON FLAMMABILITY CONTROL SKID T49-D001.
3. INTRA PANEL PROCESS INSTRUMENTATION (4-20MA) SIGNAL LEADS SHALL BE BUNDLED AND ROUTED SEPARATELY FROM AC & DC POWER WIRING.
4. WIRING AND CABLING SHALL BE PER SPECIAL WIRE AND CABLE SPECIFICATION.
5. THESE LIGHTS ARE GE TYPE ET-16 AND SUPPLIED WITH PANEL.
6. FBM = FORCE BALANCED MOTOR ON ELECTRO-HYDRAULIC VALVES.
7. LAMPS TO BE IN LAMPBOX LOCATED BELOW REGULAR FLAMMABILITY ANNUNCIATOR LEGEND FOR THE SAME FUNCTION.
8. "A" VALVES OPERATE ON "A" CIRCUIT ONLY, TYPICAL FOR "B" VALVES.
9. ALL CUSTOMER/AE POWER WIRING FROM MCC'S TO MOV'S ON THE SKID WILL BE VIA SKID MOUNTED TERMINAL BOXES. ALL CUSTOMER/AE POWER WIRING FOR INSTRUMENTATION WILL BE VIA CONTROL ROOM PANELS. AE/CUSTOMER POWER WIRING FOR THE RECOMBINER HEATERS WILL BE SUPPLIED DIRECTLY TO THE RECOMBINER HEATER CABINETS ON SKID.
10. RECOMBINER VENDOR SUPPLIES RECOMBINER CONTROL CABINET AND RECOMBINER HEATERS. BUS DUCTING OR PROTECTIVE CONDUIT AND INTERCONNECTING CONDUCTORS ARE PART OF SKID ASSEMBLY.
11. UNLESS OTHERWISE INDICATED, THE FOLLOWING REFERENCE DESIGNATIONS SHOWN ON THIS DIAGRAM ARE PREFIXED WITH 1T49A-

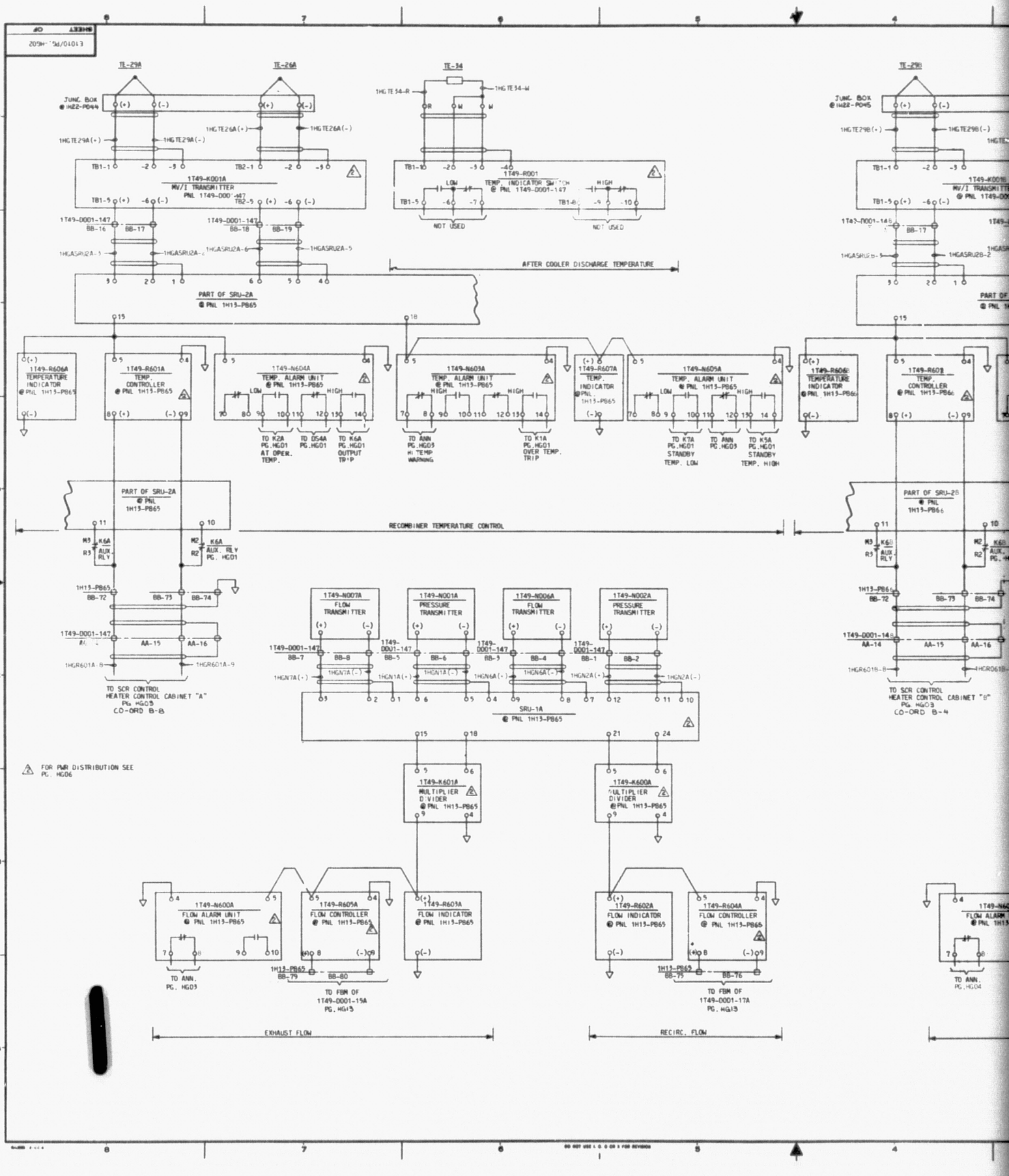
REF DESIG.	NAME
ZXX	POWER SUPPLY
FXX	FUSE
KXX	RELAY
SXX	SWITCH
SRUXX	SIGNAL RESISTOR UNIT
XXX	LINE CODE (SEE LEGEND)

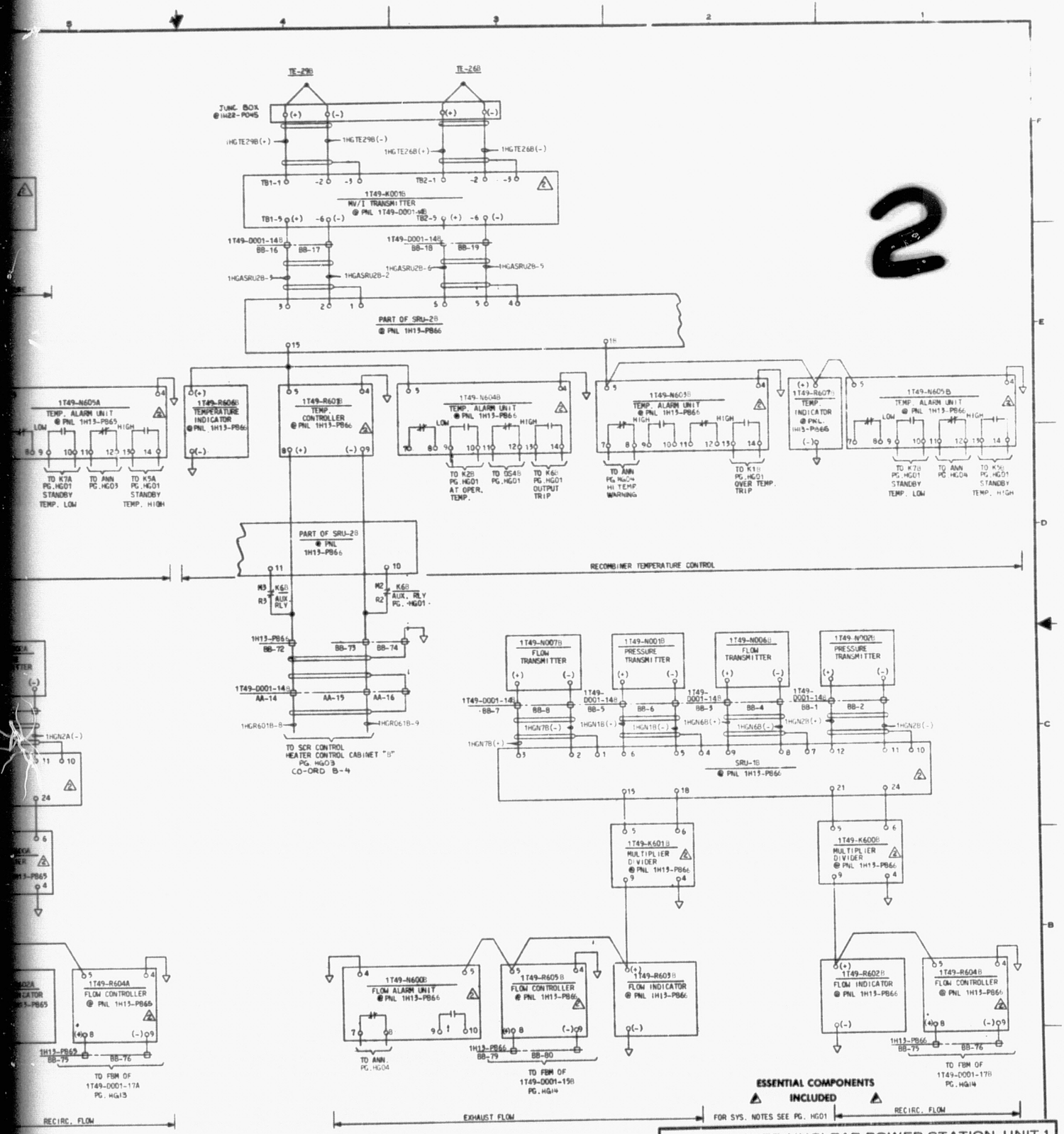
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-25
COMBUSTIBLE GAS CONTROL RECOMBINER SYSTEM
(SHEET 1 OF 14)

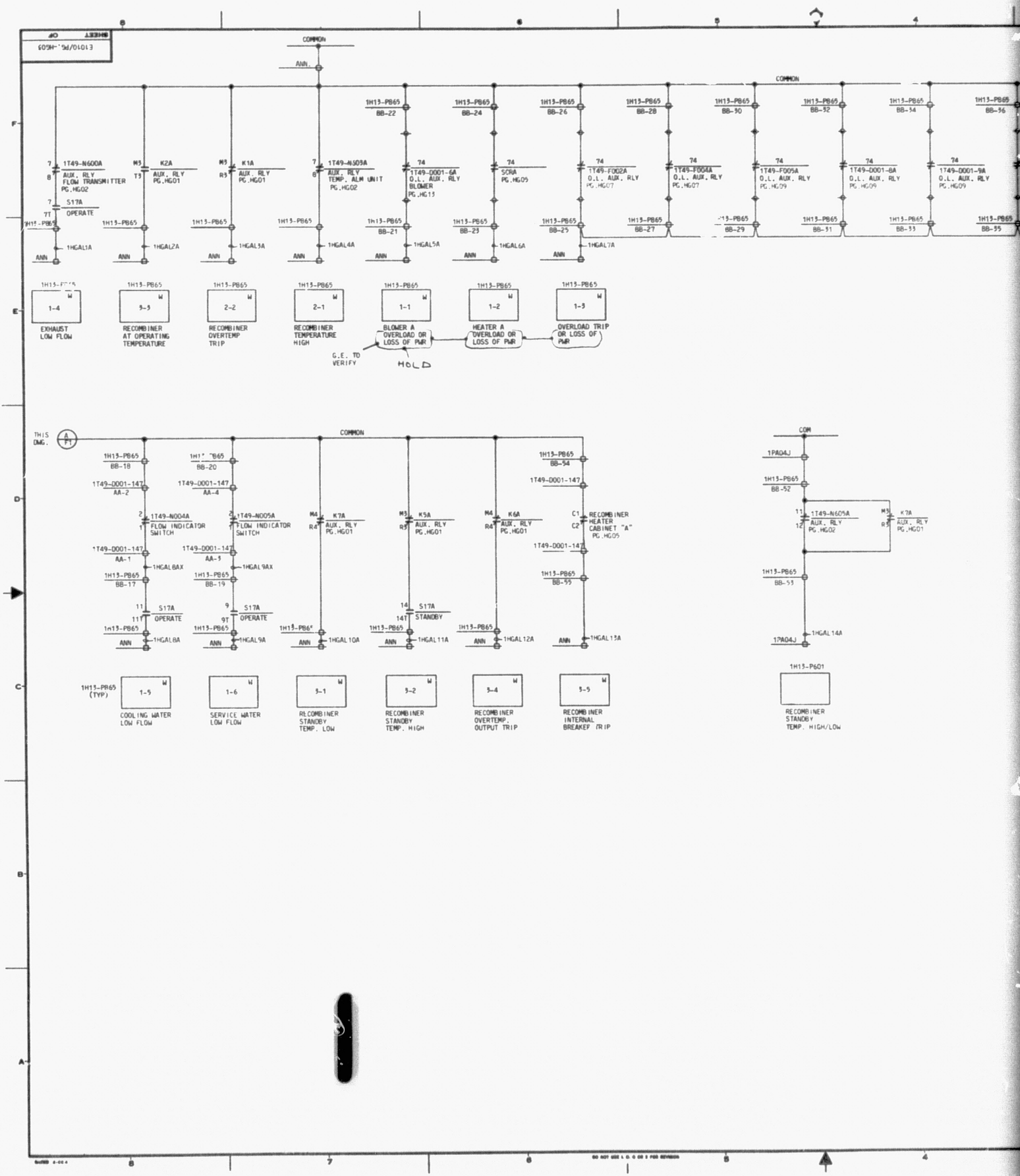

TE-29A
TE-26A
TE-34
TE-29B
JUNC. BOX @ 1H22-P044
1HGTE29A(+)
1HGTE29A(-)
1HGTE26A(+)
1HGTE26A(-)
1T49-K001A MV/I TRANSMITTER PNL 1T49-D001-147
1T49-D001-147 BB-16 BB-17 BB-18 BB-19
1HGASRU2A-3
1HGASRU2A-4
1HGASRU2A-6
1HGASRU2A-5
PART OF SRU-2A @ PNL 1H13-PB65
AFTER COOLER DISCHARGE TEMPERATURE
1HGTE54-R
1HGTE54-W
1T49-R001 TEMP. INDICATOR SWITCH @ PNL 1T49-D001-147
LOW
HIGH
NOT USED
JUNC. BOX @ 1H22-P045
1HGTE29B(+)
1HGTE29B(-)
1HGASRU2B-5
1HGASRU2B-2
1T49-R606A TEMPERATURE INDICATOR @ PNL 1H13-PB65
1T49-R601A TEMP. CONTROLLER @ PNL 1H13-PB65
1T49-N604A TEMP. ALARM UNIT @ PNL 1H13-PB65
1T49-N603A TEMP. ALARM UNIT @ PNL 1H13-PB65
1T49-R607A TEMP. INDICATOR @ PNL 1H13-PB65
1T49-N605A TEMP. ALARM UNIT @ PNL 1H13-PB65
1T49-R606B TEMPERATURE INDICATOR @ PNL 1H13-PB66
1T49-R603 TEMP. CONTROLLER @ PNL 1H13-PB66
TO K2A PG.HG01 AT OPER. TEMP.
TO D54A PG.HG01
TO K6A PG.HG01 OUTPUT TRIP
TO ANN PG.HG05 HI TEMP WARNING
TO K1A PG.HG01 OVER TEMP. TRIP
TO K7A PG.HG01 STANDBY TEMP. LOW
TO ANN PG.HG05
TO K5A PG.HG01 STANDBY TEMP. HIGH
PART OF SRU-2A @ PNL 1H13-PB65
RECOMBINER TEMPERATURE CONTROL
PART OF SRU-2B @ PNL 1H13-PB66
M3 K6A AUX. RLY
M2 K6A AUX. RLY PG. HG01
1H13-PB65 BB-72 BB-73 BB-74
1T49-D001-147 AA-15 AA-16
1HGR601A-8
1HGR601A-9
TO SCR CONTROL HEATER CONTROL CABINET "A" PG. HG05 CO-ORD B-8
1T49-N007A FLOW TRANSMITTER
1T49-N001A PRESSURE TRANSMITTER
1T49-N006A FLOW TRANSMITTER
1T49-N002A PRESSURE TRANSMITTER
1T49-D001-147 BB-7 BB-8 BB-5 BB-6 BB-3 BB-4 BB-1 BB-2
1HGN7A(+)
1HGN7A(-)
1HGN1A(+)
1HGN1A(-)
1HGN6A(+)
1HGN6A(-)
1HGN2A(+)
1HGN2A(-)
SRU-1A @ PNL 1H13-PB65
1T49-K601A MULTIPLIER DIVIDER @ PNL 1H13-PB65
1T49-K600A MULTIPLIER DIVIDER @ PNL 1H13-PB65
FOR PWR DISTRIBUTION SEE PG. HG06
1T49-N600A FLOW ALARM UNIT @ PNL 1H13-PB65
1T49-R605A FLOW CONTROLLER @ PNL 1H13-PB65
1T49-R603A FLOW INDICATOR @ PNL 1H13-PB65
1T49-R602A FLOW INDICATOR @ PNL 1H13-PB65
1T49-R604A FLOW CONTROLLER @ PNL 1H13-PB65
TO ANN. PG. HG09
1H13-PB65 BB-79 BB-80
TO FBM OF 1T49-D001-15A PG. HG13
1H13-PB65 BB-75 BB-76
TO FBM OF 1T49-D001-17A PG. HG13
TO ANN. PG. HG04
EXHAUST FLOW
RECIRC. FLOW

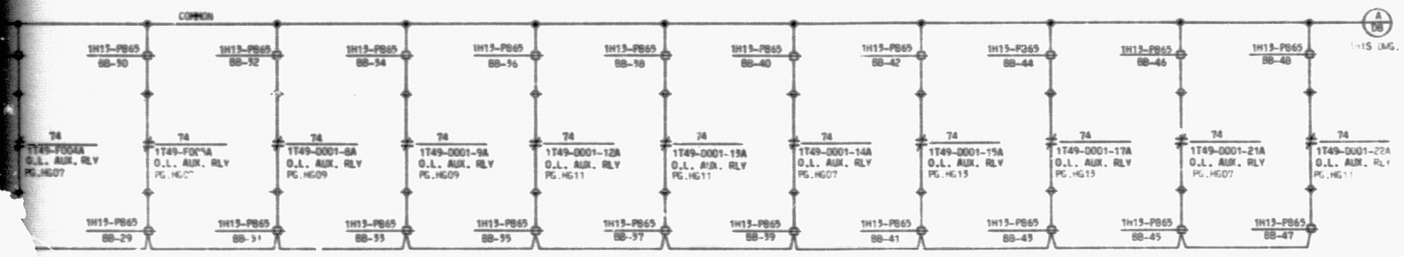


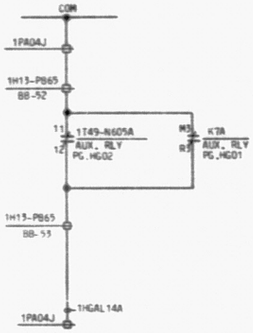
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-25
COMBUSTIBLE GAS CONTROL
RECOMBINER SYSTEM
(SHEET 2 OF 14)


COMMON
ANN.
1T49-N600A
AUX. RLY
FLOW TRANSMITTER
PG.HG02
K2A
AUX. RLY
PG.HG01
K1A
AUX. RLY
PG.HG01
1T49-N609A
AUX. RLY
TEMP. ALM UNIT
PG.HG02
1T49-D001-6A
O.L. AUX. RLY
BLOWER
PG.HG13
SCRA
PG.HG05
1T49-F002A
O.L. AUX. RLY
PG.HG07
1T49-F004A
O.L. AUX. RLY
PG.HG07
1T49-F005A
O.L. AUX. RLY
PG.HG09
1T49-D001-8A
O.L. AUX. RLY
PG.HG09
1T49-D001-9A
O.L. AUX. RLY
PG.HG09
S17A
OPERATE
1H13-PB65
BB-22
BB-24
BB-26
BB-28
BB-90
BB-92
BB-94
BB-96
BB-21
BB-23
BB-25
BB-27
BB-29
BB-91
BB-93
BB-95
1HGAL1A
1HGAL2A
1HGAL3A
1HGAL4A
1HGAL5A
1HGAL6A
1HGAL7A
ANN
1-4
EXHAUST
LOW FLOW
3-3
RECOMBINER
AT OPERATING
TEMPERATURE
2-2
RECOMBINER
OVERTEMP
TRIP
2-1
RECOMBINER
TEMPERATURE
HIGH
1-1
BLOWER A
OVERLOAD OR
LOSS OF PWR
1-2
HEATER A
OVERLOAD OR
LOSS OF PWR
1-3
OVERLOAD TRIP
OR LOSS OF
PWR
G.E. TO
VERIFY
HOLD
THIS
DWG.
A
F1
1T49-D001-147
AA-2
AA-4
AA-1
AA-3
1T49-N004A
FLOW INDICATOR
SWITCH
1T49-N005A
FLOW INDICATOR
SWITCH
K7A
AUX. RLY
PG.HG01
K5A
AUX. RLY
PG.HG01
K6A
AUX. RLY
PG.HG01
RECOMBINER
HEATER
CABINET "A"
PG.HG05
1HGAL8AX
1HGAL9AX
1HGAL8A
1HGAL9A
1HGAL10A
1HGAL11A
1HGAL12A
1HGAL13A
BB-18
BB-20
BB-17
BB-19
BB-54
BB-55
1-5
COOLING WATER
LOW FLOW
1-6
SERVICE WATER
LOW FLOW
3-1
RECOMBINER
STANDBY
TEMP. LOW
3-2
RECOMBINER
STANDBY
TEMP. HIGH
3-4
RECOMBINER
OVERTEMP.
OUTPUT TRIP
3-5
RECOMBINER
INTERNAL
BREAKER TRIP
COM
1PA04J
1T49-N605A
AUX. RLY
PG.HG02
1HGAL14A
1H13-P601
RECOMBINER
STANDBY
TEMP. HIGH/LOW







CONTACTS ODD	CONTACTS EVEN		SYMBOL	POSITION STANDBY	POSITION OPERATE	USED ON
1T 1	2 2T	1	OPER.		X	SP
		2	STDBY	X		PG.HG01
3T 3	4 4T	3	OPER.		X	SP
		4	STDBY	X		PG.HG01
5T 5	6 6T	5	OPER		X	PG.HG05
		6	STDBY	X		PG.HG05
7T 7	8 8T	7	OPER		X	THIS DWG.
		8	STDBY	X		SP.
9T 9	10 10T	9	OPER.		X	THIS DWG.
		10	STDBY	X		SP
11T 11	12 12T	11	OPER.		X	THIS DWG.
		12	STDBY	X		SP.
13T 13	14 14T	13	OPER.		X	SP
		14	STDBY	X		THIS DWG.

G.E TYPE "S8M" SW.
MAINTAINED POSITION.

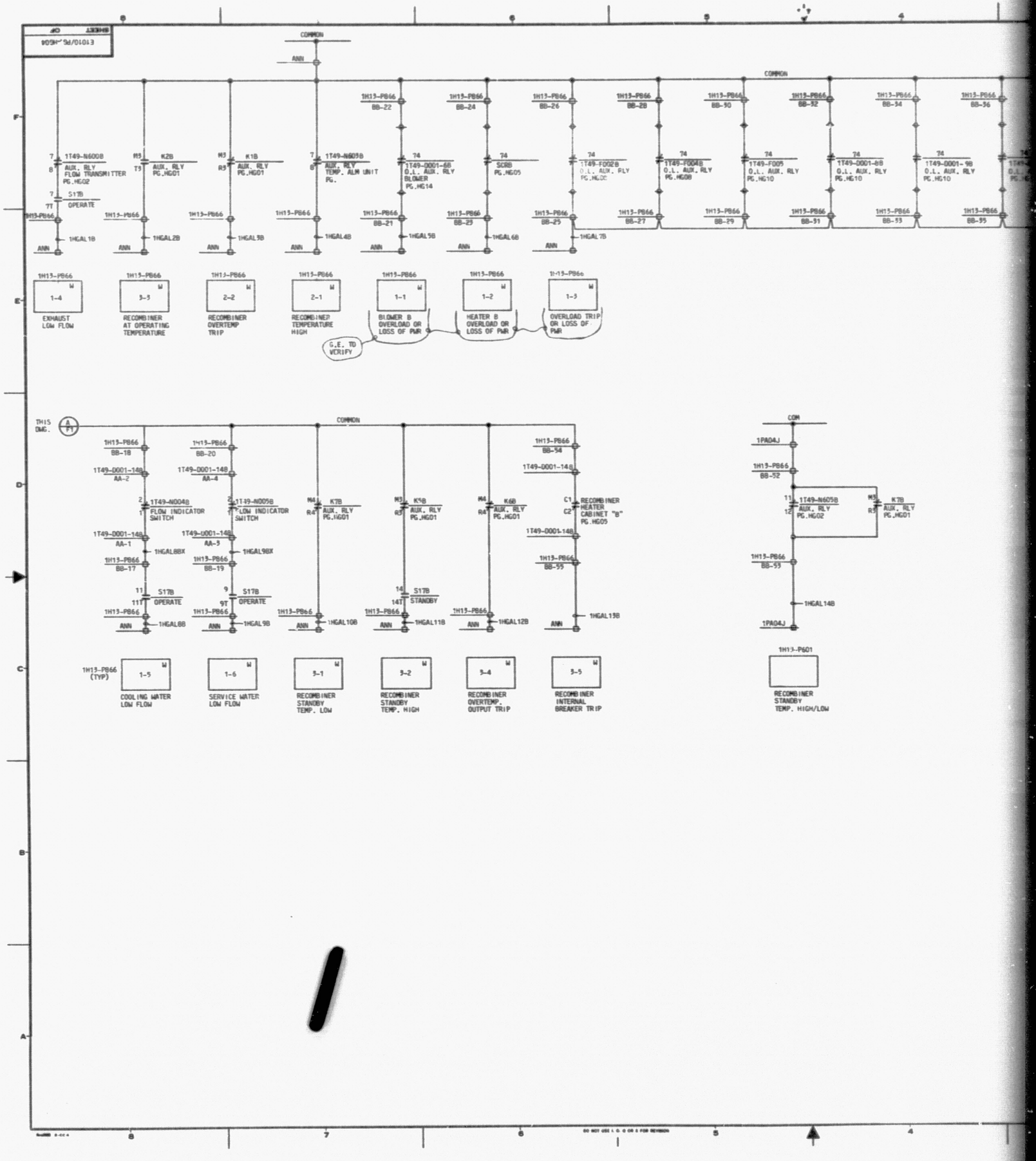
X - DENOTES CONTACT CLOSED

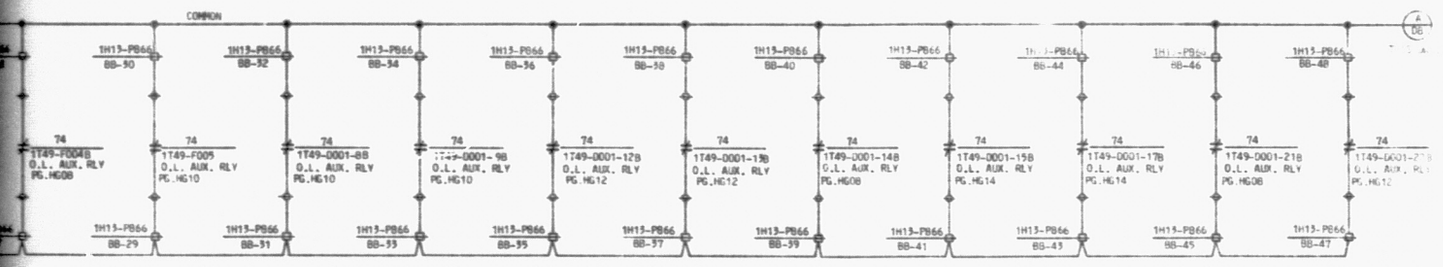
CONTROL SWITCH DEVELOPMENT
@ PNL 1H13-P865

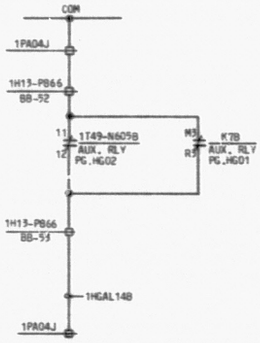
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-25
COMBUSTIBLE GAS CONTROL
RECOMBINER SYSTEM
(SHEET 3 OF 14)


SHEET OF
E1010/PS_N604
COMMON
ANN
1H13-PB66
BB-22
BB-24
BB-26
BB-28
BB-30
BB-32
BB-34
BB-36
1T49-N600B
AUX. RLY
FLOW TRANSMITTER
PG.HG02
K2B
AUX. RLY
PG.HG01
K1B
AUX. RLY
PG.HG01
1T49-N605B
AUX. RLY
TEMP. ALM UNIT
PG.
1T49-0001-6B
O.L. AUX. RLY
BLOWER
PG.HG14
SCRB
PG.HG05
1T49-F002B
O.L. AUX. RLY
PG.HG0C
1T49-F004B
O.L. AUX. RLY
PG.HG08
1T49-F005
O.L. AUX. RLY
PG.HG10
1T49-0001-8B
O.L. AUX. RLY
PG.HG10
1T49-0001-9B
O.L. AUX. RLY
PG.HG10
S17B
OPERATE
1H13-PB66
BB-21
BB-23
BB-25
BB-27
BB-29
BB-31
BB-33
BB-35
1HGAL1B
1HGAL2B
1HGAL3B
1HGAL4B
1HGAL5B
1HGAL6B
1HGAL7B
1H13-PB66
1-4
EXHAUST
LOW FLOW
3-3
RECOMBINER
AT OPERATING
TEMPERATURE
2-2
RECOMBINER
OVERTEMP
TRIP
2-1
RECOMBINER
TEMPERATURE
HIGH
1-1
BLOWER B
OVERLOAD OR
LOSS OF PWR
1-2
HEATER B
OVERLOAD OR
LOSS OF PWR
1-3
OVERLOAD TRIP
OR LOSS OF
PWR
G.E. TO
VERIFY
THIS
DWG.
A
P1
COMMON
BB-18
BB-20
BB-54
1T49-0001-14B
AA-2
AA-4
1T49-N004B
FLOW INDICATOR
SWITCH
1T49-N005B
FLOW INDICATOR
SWITCH
K7B
AUX. RLY
PG.HG01
K5B
AUX. RLY
PG.HG01
K6B
AUX. RLY
PG.HG01
RECOMBINER
HEATER
CABINET "B"
PG.HG05
AA-1
AA-5
1HGAL8BX
1HGAL9BX
BB-17
BB-19
BB-55
S17B
OPERATE
S17B
STANDBY
1HGAL8B
1HGAL9B
1HGAL10B
1HGAL11B
1HGAL12B
1HGAL13B
1H13-PB66
(TYP)
1-5
COOLING WATER
LOW FLOW
1-6
SERVICE WATER
LOW FLOW
3-1
RECOMBINER
STANDBY
TEMP. LOW
3-2
RECOMBINER
STANDBY
TEMP. HIGH
3-4
RECOMBINER
OVERTEMP.
OUTPUT TRIP
3-5
RECOMBINER
INTERNAL
BREAKER TRIP
COM
1PA04J
1HGAL14B
1H13-P601
RECOMBINER
STANDBY
TEMP. HIGH/LOW
DO NOT USE I, O, Q OR X FOR REVISION







CONTACTS ODD	CONTACTS EVEN		SYMBOL	POSITION STANDBY	POSITION OPERATE	USED ON
1T 1	2 2T	1	OPER.		X	SP.
		2	STDBY	X		PG.HG01
3T 3	4 4T	3	OPER.		X	SP.
		4	STDBY	X		PG.HG01
5T 5	6 6T	5	OPER		X	PG.HG05
		6	STDBY	X		PG.HG05
7T 7	8 8T	7	OPER		X	TH1S DWG.
		8	STDBY	X		SP.
9T 9	10 10T	9	OPER.		X	TH1S DWG.
		10	STDBY	X		SP.
11T 11	12 12T	11	OPER.		X	TH1S DWG.
		12	STDBY	X		SP.
13T 13	14 14T	13	OPER.		X	SP.
		14	STDBY	X		TH1S DWG.

G.E. TYPE "SBM" SW.
MAINTAINED POSITION.
X - DENOTES CONTACT CLOSED

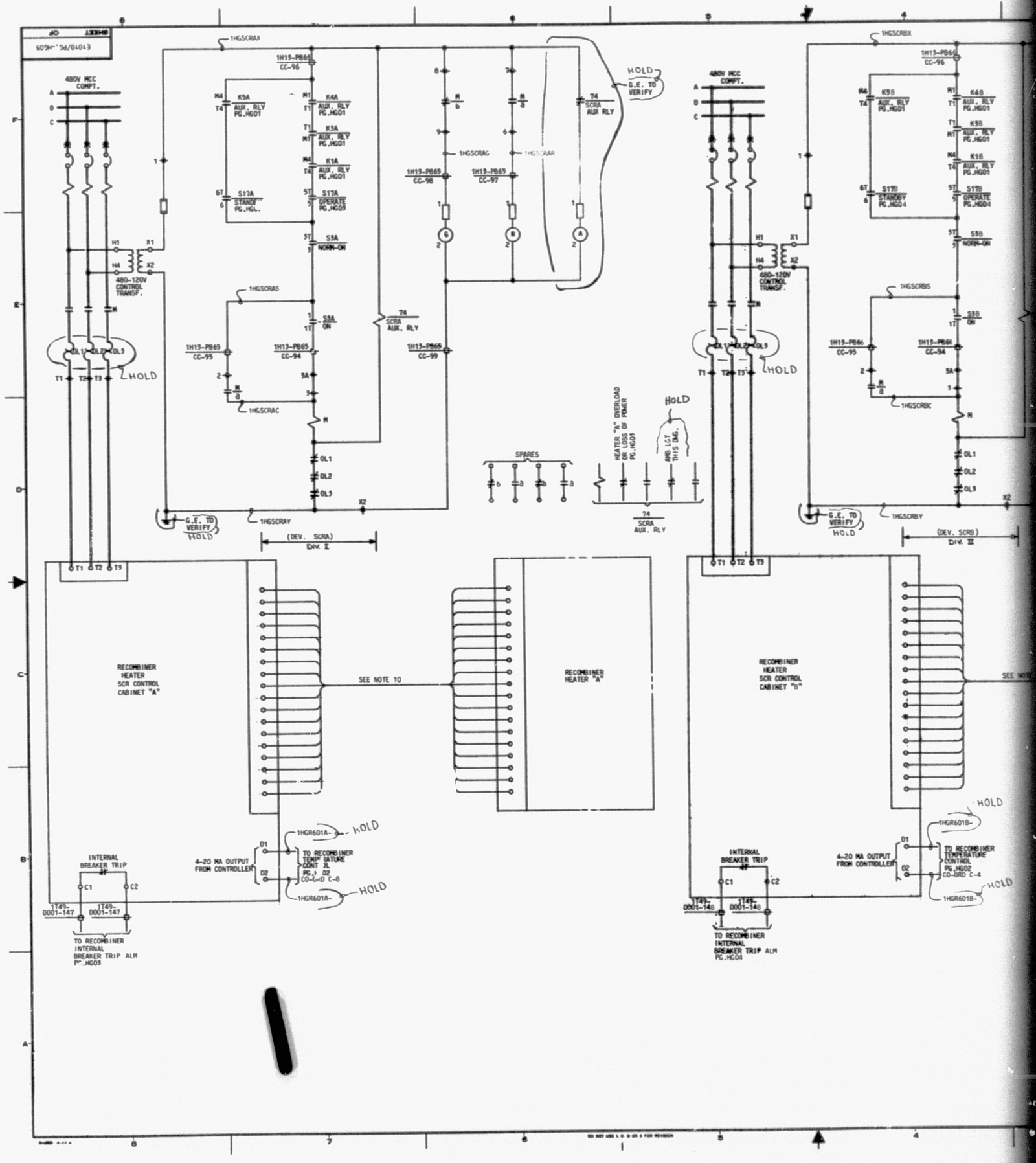
CONTROL SWITCH DEVELOPMENT
PNL 1H13-PB66

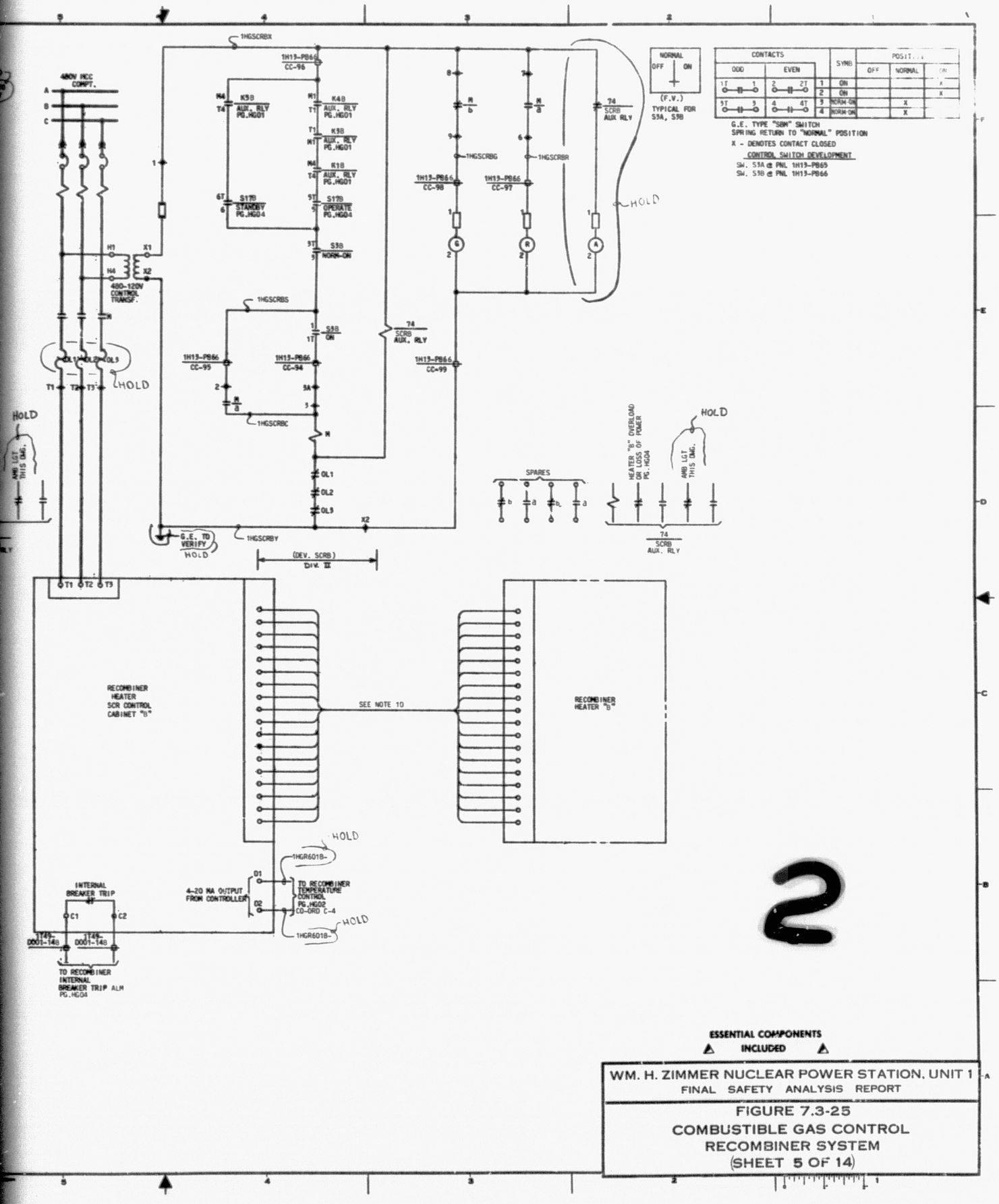
2

ESSENTIAL COMPONENTS
INCLUDED

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-25
COMBUSTIBLE GAS CONTROL
RECOMBINER SYSTEM
(SHEET 4 OF 14)


480V MCC COMPT.
480-120V CONTROL TRANSF.
1HGSCRAX
1HGSCRAS
1HGSCRAC
1HGSCRAG
1HGSCRAR
1HGSCRAY
1HGSCRBX
1HGSCRBS
1HGSCRBC
1HGSCRBY
HOLD
G.E. TO VERIFY
SCRA AUX RLY
SPARES
HEATER "A" OVERLOAD OR LOSS OF POWER PG.HG03
AMB LGT THIS DWG.
(DEV. SCRA) Div. I
(DEV. SCRB) Div. II
RECOMBINER HEATER SCR CONTROL CABINET "A"
RECOMBINER HEATER "A"
RECOMBINER HEATER SCR CONTROL CABINET "B"
SEE NOTE 10
INTERNAL BREAKER TRIP
4-20 MA OUTPUT FROM CONTROLLER
TO RECOMBINER TEMP MATURE CONT JL PG.J CO-ORD C-8
TO RECOMBINER TEMPERATURE CONTROL PG.HG02 CO-ORD C-4
TO RECOMBINER INTERNAL BREAKER TRIP ALM PG.HG03
TO RECOMBINER INTERNAL BREAKER TRIP ALM PG.HG04
1HGR601A-
1HGR601B-

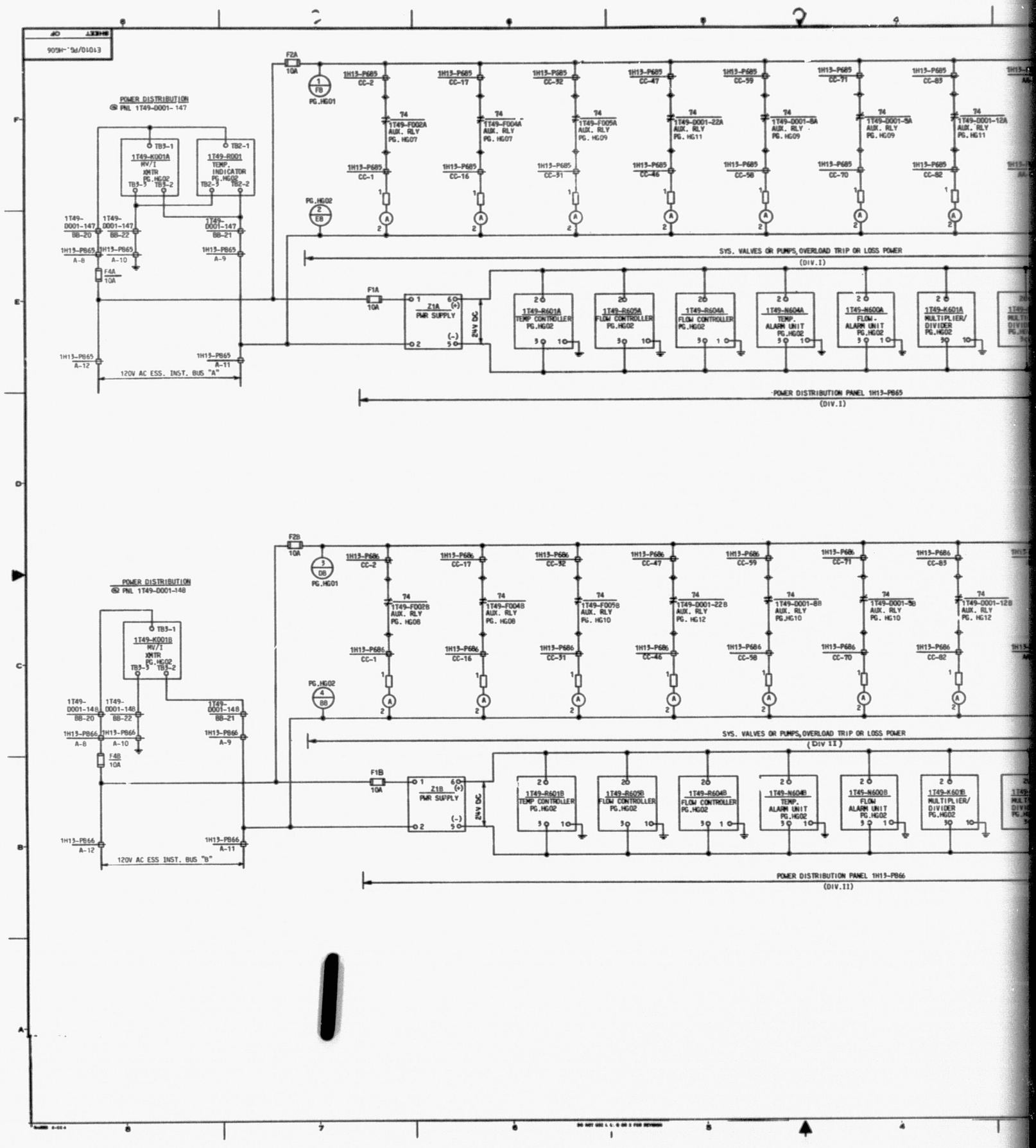


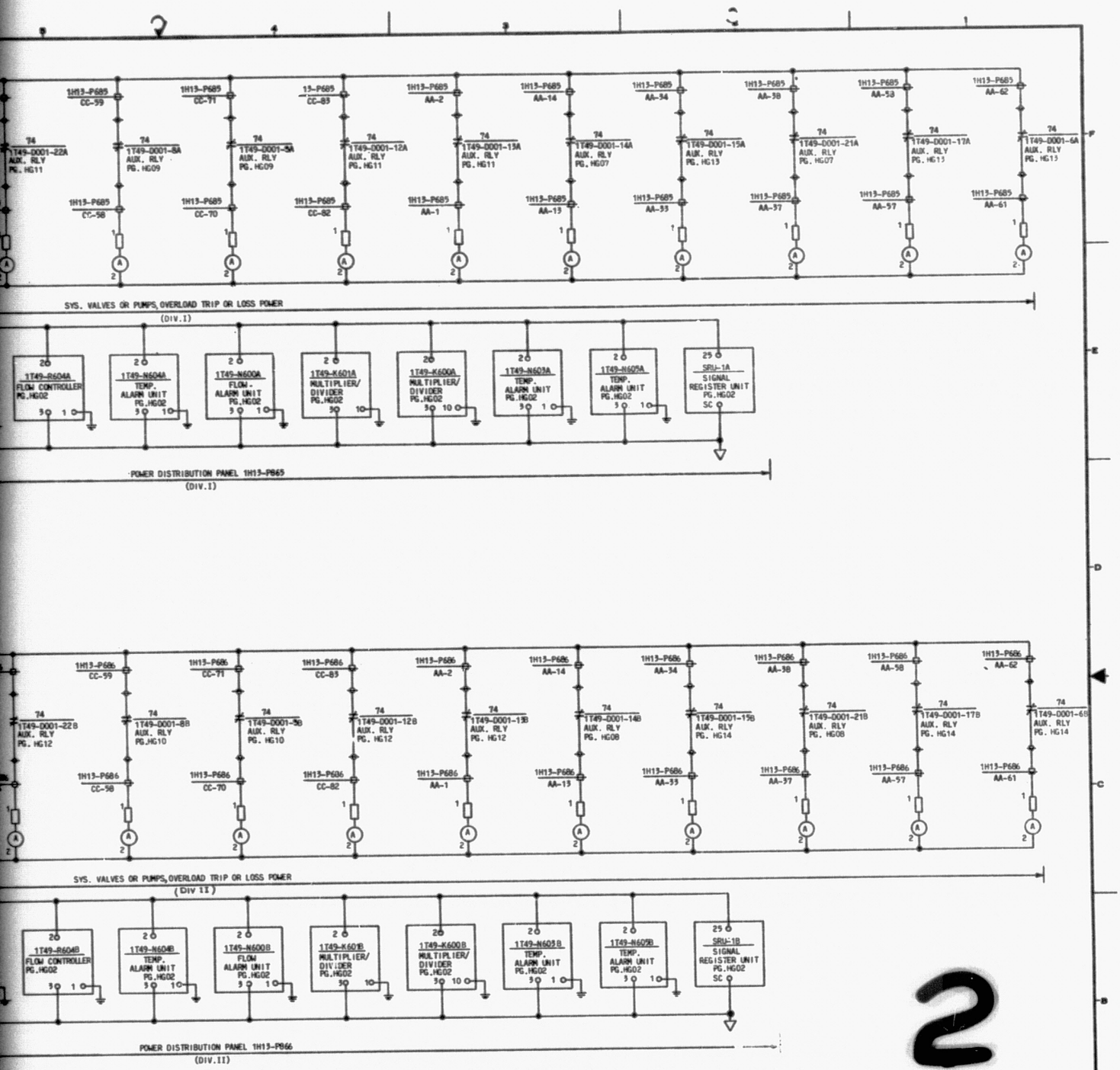
2

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-25
COMBUSTIBLE GAS CONTROL
RECOMBINER SYSTEM
(SHEET 5 OF 14)


POWER DISTRIBUTION
@ PNL 1T49-D001-147
F2A
10A
1 FB
PG.HG01
PG.HG02
2 EB
1H13-P685 CC-2
1H13-P685 CC-17
1H13-P685 CC-32
1H13-P685 CC-47
1H13-P685 CC-59
1H13-P685 CC-71
1H13-P685 CC-83
1H13-P685 CC-1
1H13-P685 CC-16
1H13-P685 CC-31
1H13-P685 CC-46
1H13-P685 CC-58
1H13-P685 CC-70
1H13-P685 CC-82
1T49-F002A AUX. RLY PG. HG07
1T49-F004A AUX. RLY PG. HG07
1T49-F005A AUX. RLY PG. HG09
1T49-D001-22A AUX. RLY PG. HG11
1T49-D001-8A AUX. RLY PG. HG09
1T49-D001-5A AUX. RLY PG. HG09
1T49-D001-12A AUX. RLY PG. HG11
1T49-K001A RV/T XMTR PG.HG02
1T49-R001 TEMP. INDICATOR PG.HG02
TB3-1
TB3-2
TB2-1
TB2-2
1T49-D001-147 BB-20
1T49-D001-147 BB-22
1T49-D001-147 BB-21
1H13-P865 A-8
1H13-P865 A-10
1H13-P865 A-9
F4A 10A
F1A 10A
Z1A PWR SUPPLY
24V DC
1T49-R601A TEMP CONTROLLER PG.HG02
1T49-R605A FLOW CONTROLLER PG.HG02
1T49-R604A FLOW CONTROLLER PG.HG02
1T49-N604A TEMP. ALARM UNIT PG.HG02
1T49-N600A FLOW ALARM UNIT PG.HG02
1T49-K601A MULTIPLIER/ DIVIDER PG.HG02
1H13-P865 A-12
1H13-P865 A-11
120V AC ESS. INST. BUS "A"
SYS. VALVES OR PUMPS, OVERLOAD TRIP OR LOSS POWER (DIV.I)
POWER DISTRIBUTION PANEL 1H13-P865 (DIV.I)
POWER DISTRIBUTION
@ PNL 1T49-D001-148
F2B
10A
3 DB
PG.HG01
PG.HG02
4 BB
1H13-P686 CC-2
1H13-P686 CC-17
1H13-P686 CC-32
1H13-P686 CC-47
1H13-P686 CC-59
1H13-P686 CC-71
1H13-P686 CC-83
1H13-P686 CC-1
1H13-P686 CC-16
1H13-P686 CC-31
1H13-P686 CC-46
1H13-P686 CC-58
1H13-P686 CC-70
1H13-P686 CC-82
1T49-F002B AUX. RLY PG. HG08
1T49-F004B AUX. RLY PG. HG08
1T49-F005B AUX. RLY PG. HG10
1T49-D001-22B AUX. RLY PG. HG12
1T49-D001-8B AUX. RLY PG.HG10
1T49-D001-5B AUX. RLY PG. HG10
1T49-D001-12B AUX. RLY PG. HG12
1T49-K001B RV/T XMTR PG.HG02
TB3-1
TB3-2
1T49-D001-148 BB-20
1T49-D001-148 BB-22
1T49-D001-148 BB-21
1H13-P866 A-8
1H13-P866 A-10
1H13-P866 A-9
F4B 10A
F1B 10A
Z1B PWR SUPPLY
24V DC
1T49-R601B TEMP CONTROLLER PG.HG02
1T49-R605B FLOW CONTROLLER PG.HG02
1T49-R604B FLOW CONTROLLER PG.HG02
1T49-N604B TEMP. ALARM UNIT PG.HG02
1T49-N600B FLOW ALARM UNIT PG.HG02
1T49-K601B MULTIPLIER/ DIVIDER PG.HG02
1H13-P866 A-12
1H13-P866 A-11
120V AC ESS INST. BUS "B"
SYS. VALVES OR PUMPS, OVERLOAD TRIP OR LOSS POWER (DIV II)
POWER DISTRIBUTION PANEL 1H13-P866 (DIV.II)



ESSENTIAL COMPONENTS

▲ **INCLUDED** ▲

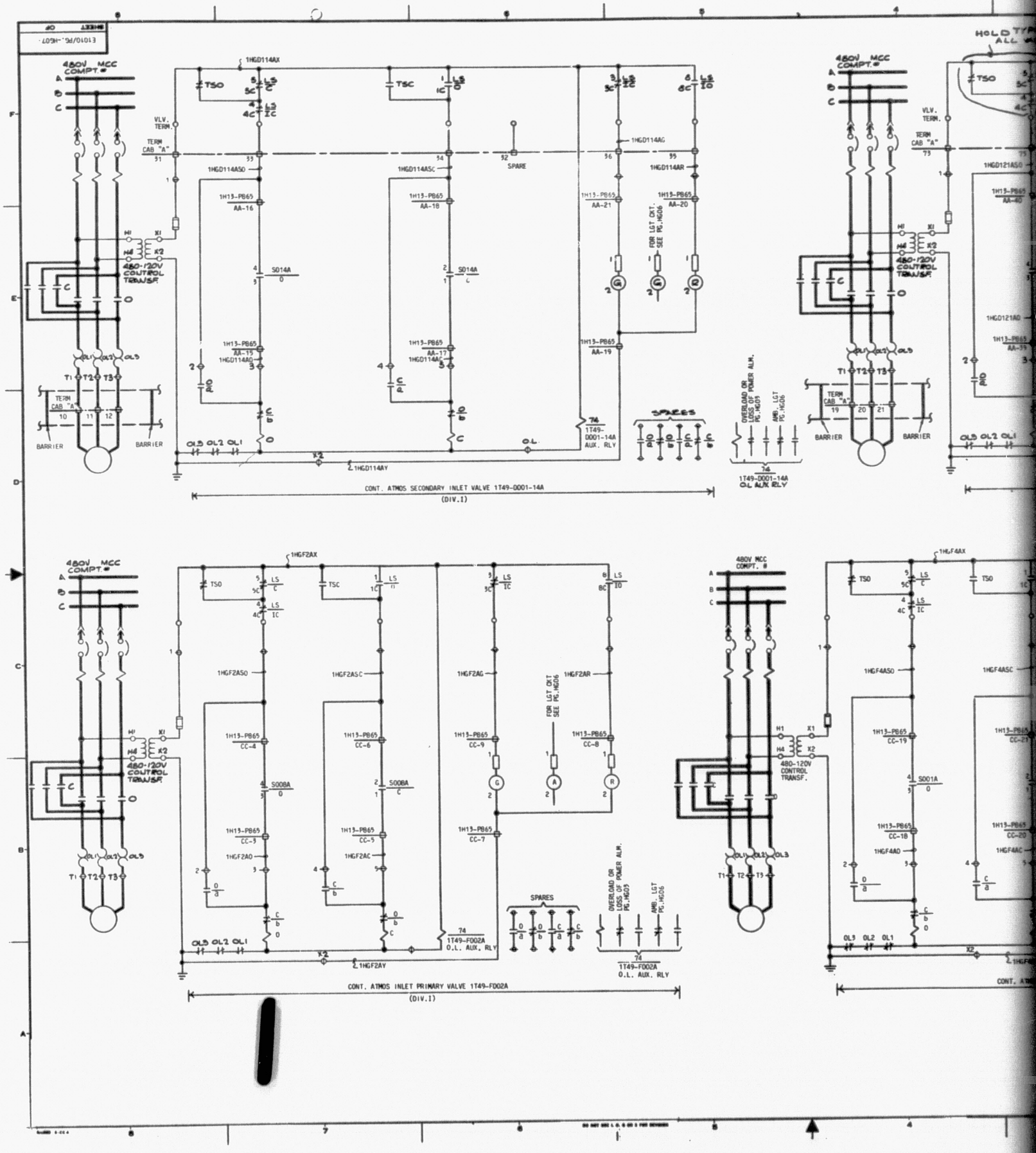
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1

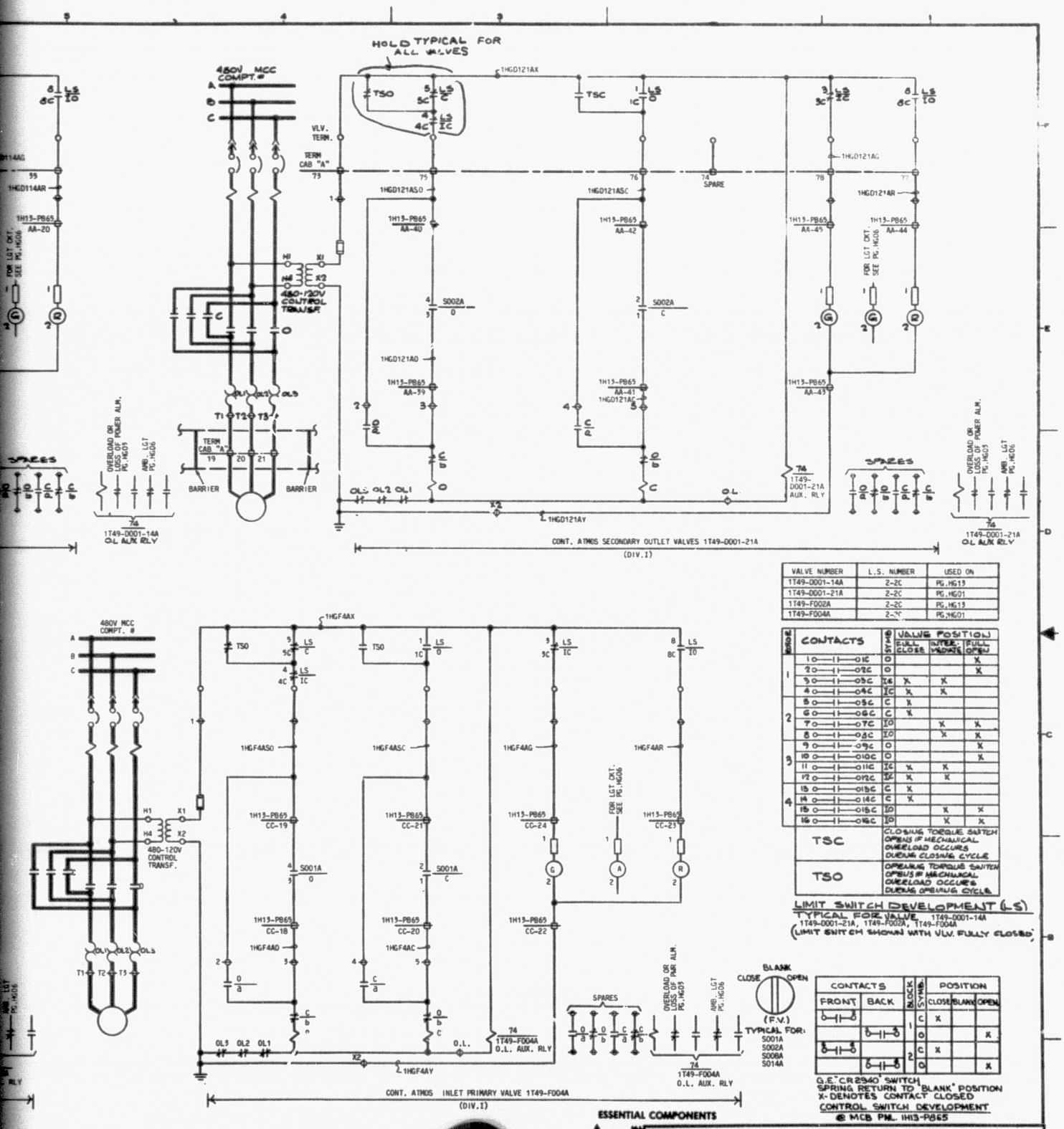
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-25

COMBUSTIBLE GAS CONTROL RECOMBINER SYSTEM

(SHEET 6 OF 14)


480V MCC COMPT.#
1HGD114AX
TSO
TSC
VLV. TERM.
TERM CAB "A"
1HGD114ASO
1HGD114ASC
1HGD114AG
1HGD114AR
SPARE
1H13-PB65 AA-16
1H13-PB65 AA-18
1H13-PB65 AA-21
1H13-PB65 AA-20
FOR LGT CKT. SEE PG.HG06
S014A
1H13-PB65 AA-19
1H13-PB65 AA-17
1HGD114AE
480-120V CONTROL TRANSF.
OL3 OL2 OL1
T1 T2 T3
BARRIER
1T49-D001-14A AUX. RLY
SPARES
OVERLOAD OR LOSS OF POWER ALM. PG.HG05
AMB. LGT PG.HG06
1T49-D001-14A OL AUX RLY
1HGD114AY
CONT. ATMOS SECONDARY INLET VALVE 1T49-D001-14A
(DIV.I)
HOLD TYP
ALL
1HGD121ASO
1HGD121AO
1HGF2AX
1HGF2ASO
1HGF2ASC
1HGF2AG
1HGF2AR
1H13-PB65 CC-4
1H13-PB65 CC-6
1H13-PB65 CC-9
1H13-PB65 CC-8
S008A
1H13-PB65 CC-3
1H13-PB65 CC-5
1H13-PB65 CC-7
1HGF2AO
1HGF2AC
1T49-F002A O.L. AUX. RLY
1HGF2AY
CONT. ATMOS INLET PRIMARY VALVE 1T49-F002A
(DIV.I)
1HGF4AX
1HGF4ASO
1HGF4ASC
1H13-PB65 CC-19
1H13-PB65 CC-18
S001A
1HGF4AO
1HGF4AC
CONT. ATM



VALVE NUMBER	L.S. NUMBER	USED ON
1T49-D001-14A	2-2C	PG.HG13
1T49-D001-21A	2-2C	PG.HG01
1T49-F002A	2-2C	PG.HG13
1T49-F004A	2-2C	PG.HG01

CONTACTS		SYMB	VALVE POSITION: FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1C	O			X
	2C	O			X
2	3C	IC	X	X	
	4C	IC	X	X	
	5C	C	X		
	6C	C	X		
3	7C	IO		X	X
	8C	IO		X	X
	9C	O			X
	10C	O			X
4	11C	IC	X	X	
	12C	IC	X	X	
	13C	C	X		
	14C	C	X		
	15C	IO		X	X
	16C	IO		X	X
TSC			CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
TSO			OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVE 1T49-0001-14A
1T49-0001-21A, 1T49-F002A, 1T49-F004A
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

CONTACTS		BLOCK	POSITION		
FRONT	BACK	SYMB.	CLOSE	BLANK	OPEN
		1 C	X		
		1 O			X
		2 C	X		
		2 O			X

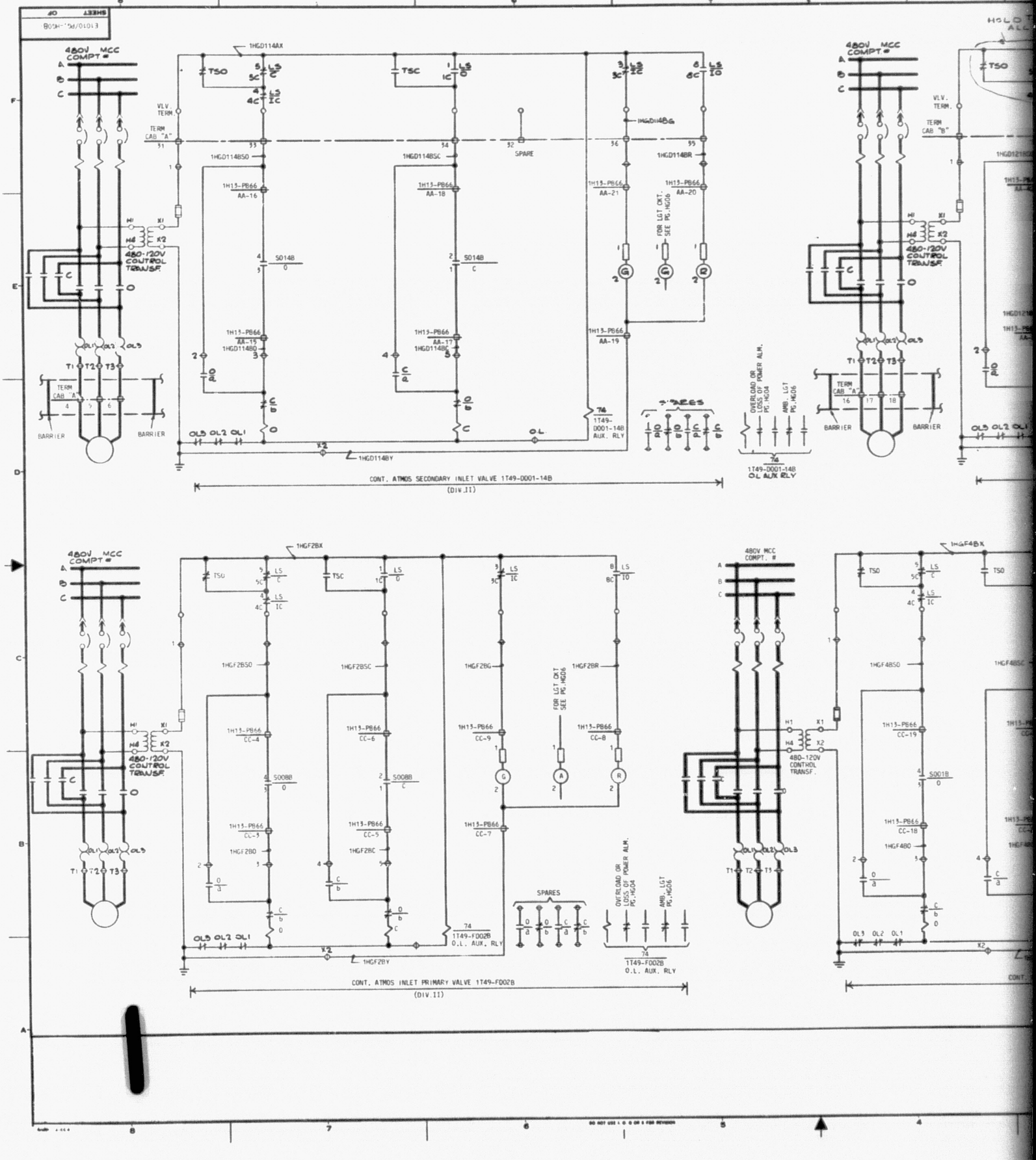
G.E. "CR2940" SWITCH
SPRING RETURN TO "BLANK" POSITION
X-DENOTES CONTACT CLOSED
CONTROL SWITCH DEVELOPMENT
@ MCB PNL. 1H13-P865

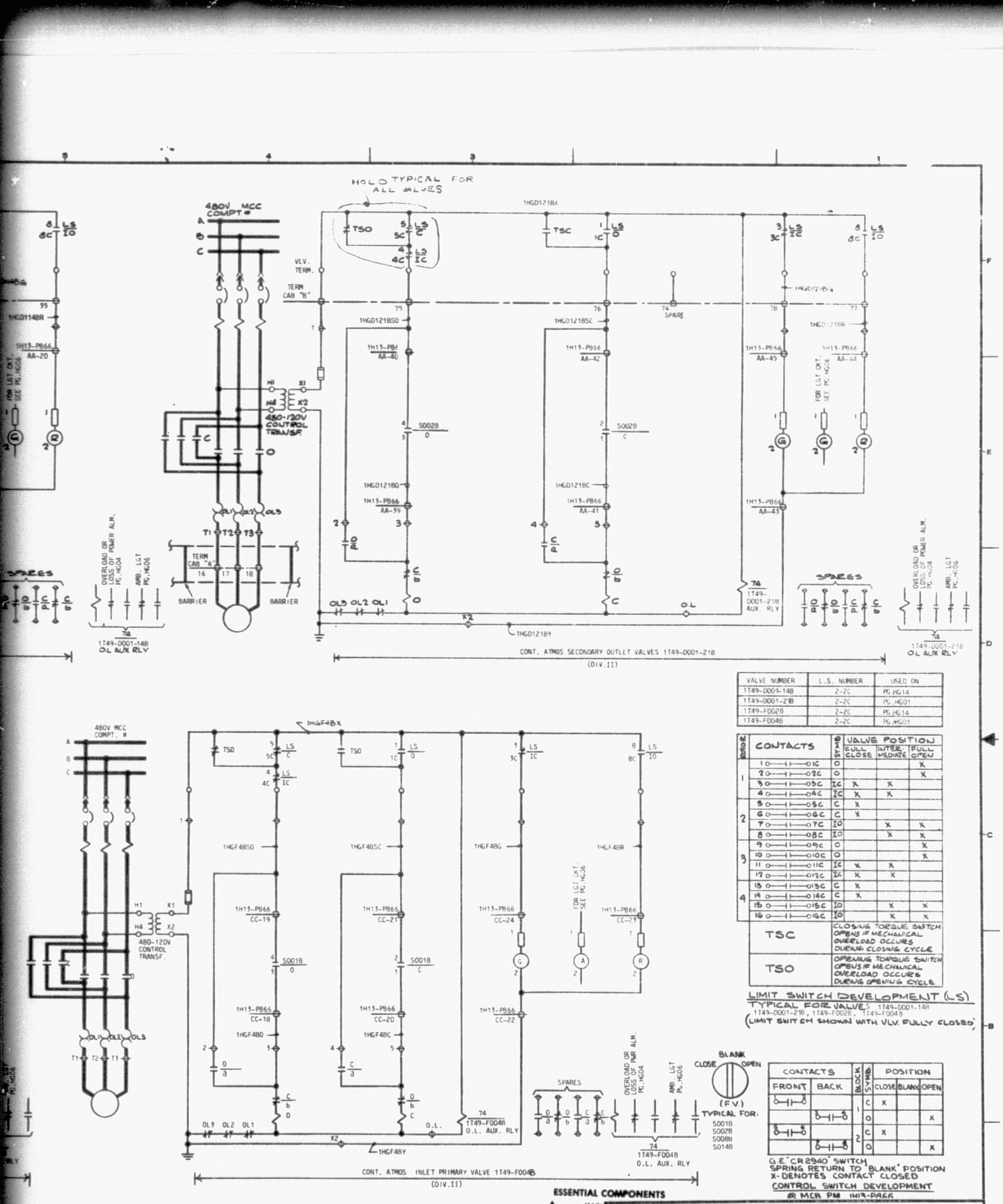
ESSENTIAL COMPONENTS

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-25
COMBUSTIBLE GAS CONTROL
RECOMBINER SYSTEM
(SHEET 7 OF 14)


480V MCC COMPT #
1HGD114AX
TSO
TSC
LS
VLV. TERM.
TERM CAB "A"
1HGD114BSO
1HGD114BSC
SPARE
1HGD114BR
1HGDH48G
1H13-PB66
AA-16
AA-18
AA-21
AA-20
AA-19
AA-17
FOR LGT CKT. SEE PG. HG06
SO14B
480-120V CONTROL TRANSF.
OL3 OL2 OL1
TERM CAB "A"
BARRIER
1HGD114BY
74
1T49-D001-14B AUX. RLY
SPARES
OVERLOAD OR LOSS OF POWER ALM. PG. HG04
AMB. LGT PG. HG06
1T49-D001-14B OL AUX RLY
CONT. ATMOS SECONDARY INLET VALVE 1T49-D001-14B
(DIV.II)
480V MCC COMPT #
1HGF2BX
1HGF2BSO
1HGF2BSC
1HGF2BG
1HGF2BR
1HGF2BO
1HGF2BC
SO08B
480-120V CONTROL TRANSF.
1HGF2BY
1T49-F002B O.L. AUX. RLY
CONT. ATMOS INLET PRIMARY VALVE 1T49-F002B
(DIV.II)
1HGF4BX
1HGF4BSO
1HGF4BSC
1HGF4BO
SO01B
480-120V CONTHOL TRANSF.



VALVE NUMBER	L.S. NUMBER	USED ON
1T49-D001-14B	2-2C	PG.HG14
1T49-D001-21B	2-2C	PG.HG01
1T49-F002B	2-2C	PG.HG14
1T49-F004B	2-2C	PG.HG01

MOTOR	CONTACTS	SYMB	VALVE POSITION FULL CLOSE	INTERMEDIATE	FULL OPEN
1	1 O—|—O 1C	O			X
	2 O—|—O 2C	O			X
	3 O—|—O 3C	IC	X	X	
	4 O—|—O 4C	IC	X	X	
2	5 O—|—O 5C	C	X		
	6 O—|—O 6C	C	X		
	7 O—|—O 7C	IO		X	X
	8 O—|—O 8C	IO		X	X
3	9 O—|—O 9C	O			X
	10 O—|—O 10C	O			X
	11 O—|—O 11C	IC	X	X	
	12 O—|—O 12C	IC	X	X	
4	13 O—|—O 13C	C	X		
	14 O—|—O 14C	C	X		
	15 O—|—O 15C	IO		X	X
	16 O—|—O 16C	IO		X	X
TSC	CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE				
TSO	OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE				

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVES 1T49-D001-14B, 1T49-D001-21B, 1T49-F002B, 1T49-F004B
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

CONTACTS FRONT	CONTACTS BACK	BLOCK	SYMB.	POSITION CLOSE	BLANK	OPEN
		1	C	X		
			O			X
		2	C	X		
			O			X

BLANK
CLOSE OPEN
(F.V.)
TYPICAL FOR: S001B, S002B, S008B, S014B

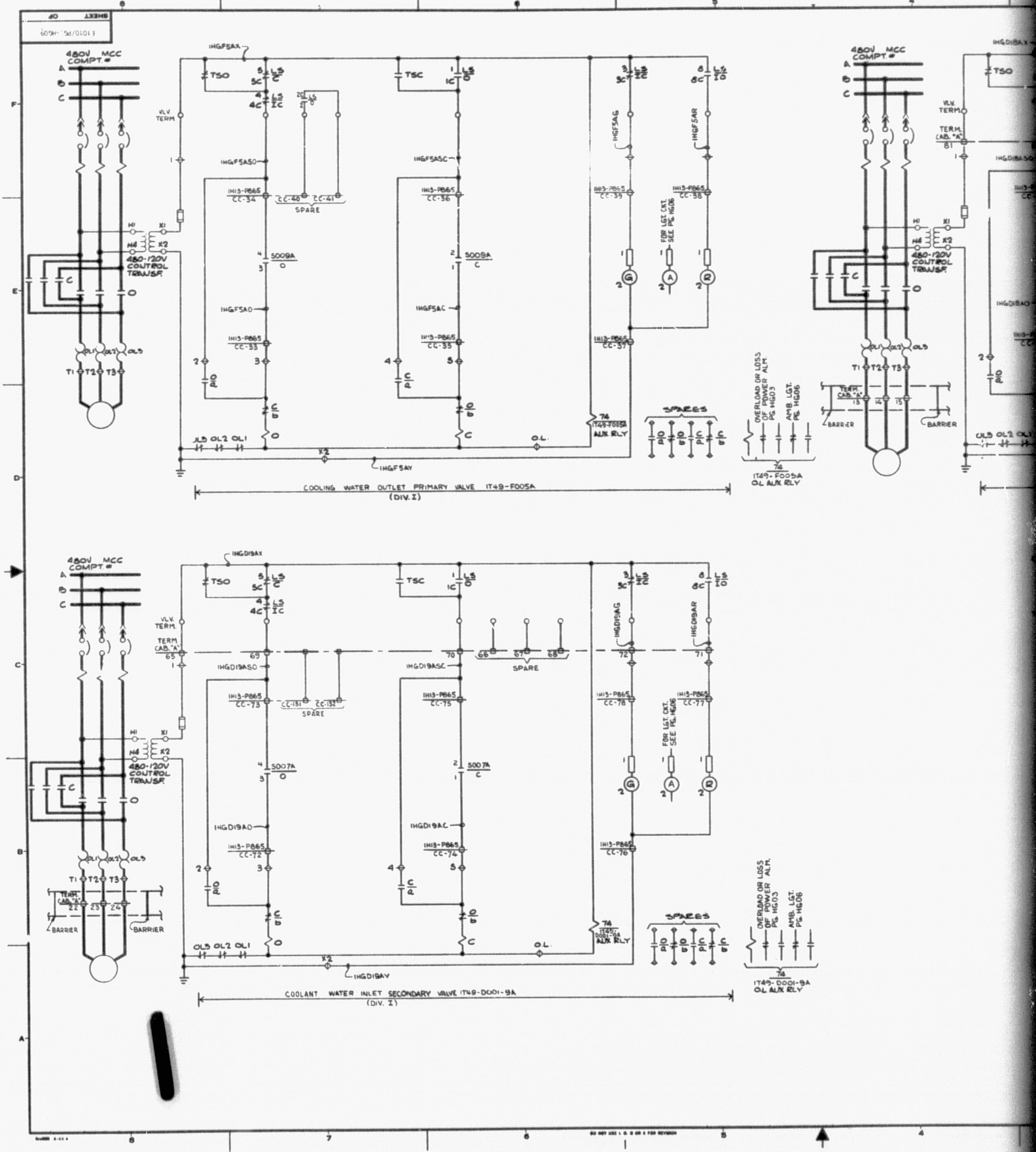
G.E. "CR2940" SWITCH
SPRING RETURN TO "BLANK" POSITION
X-DENOTES CONTACT CLOSED
CONTROL SWITCH DEVELOPMENT
@ MCB PNL 1H13-P866

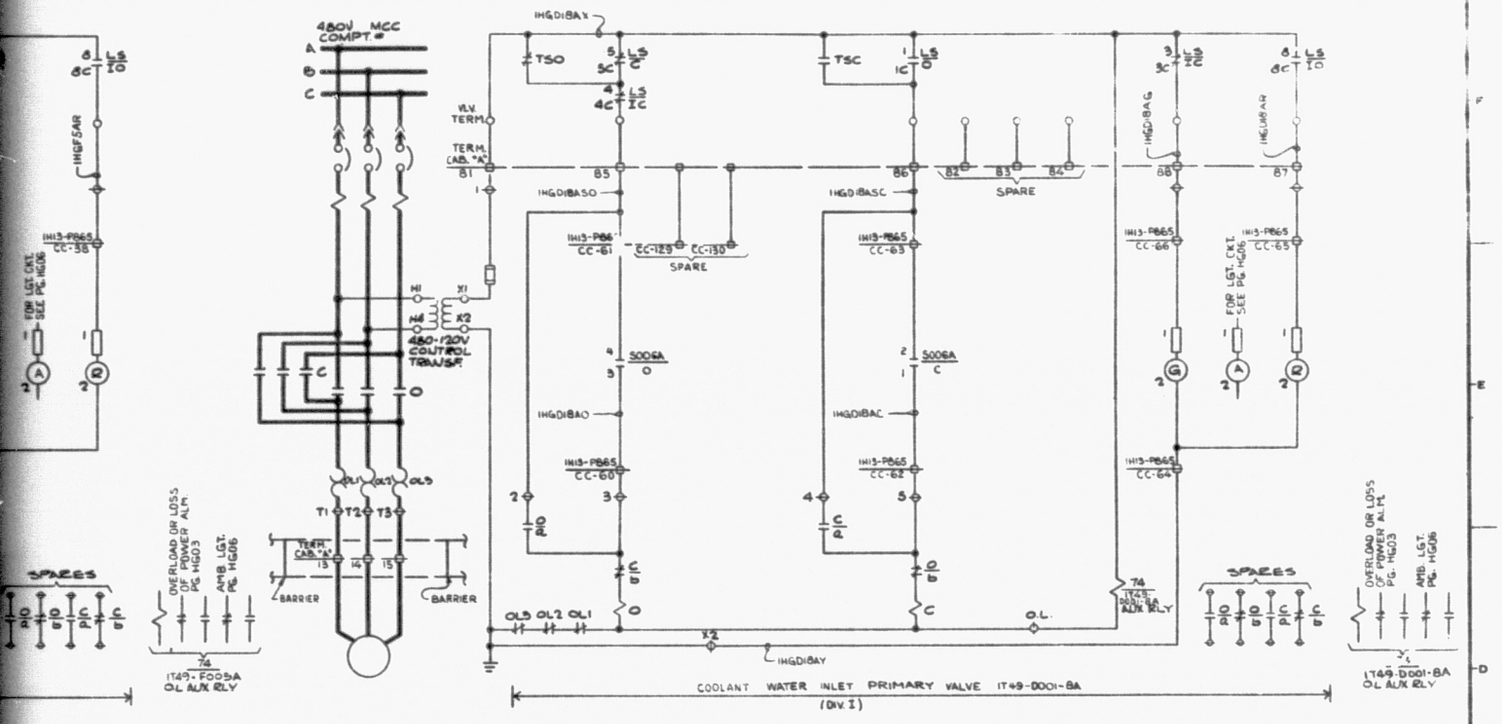
ESSENTIAL COMPONENTS
INCL

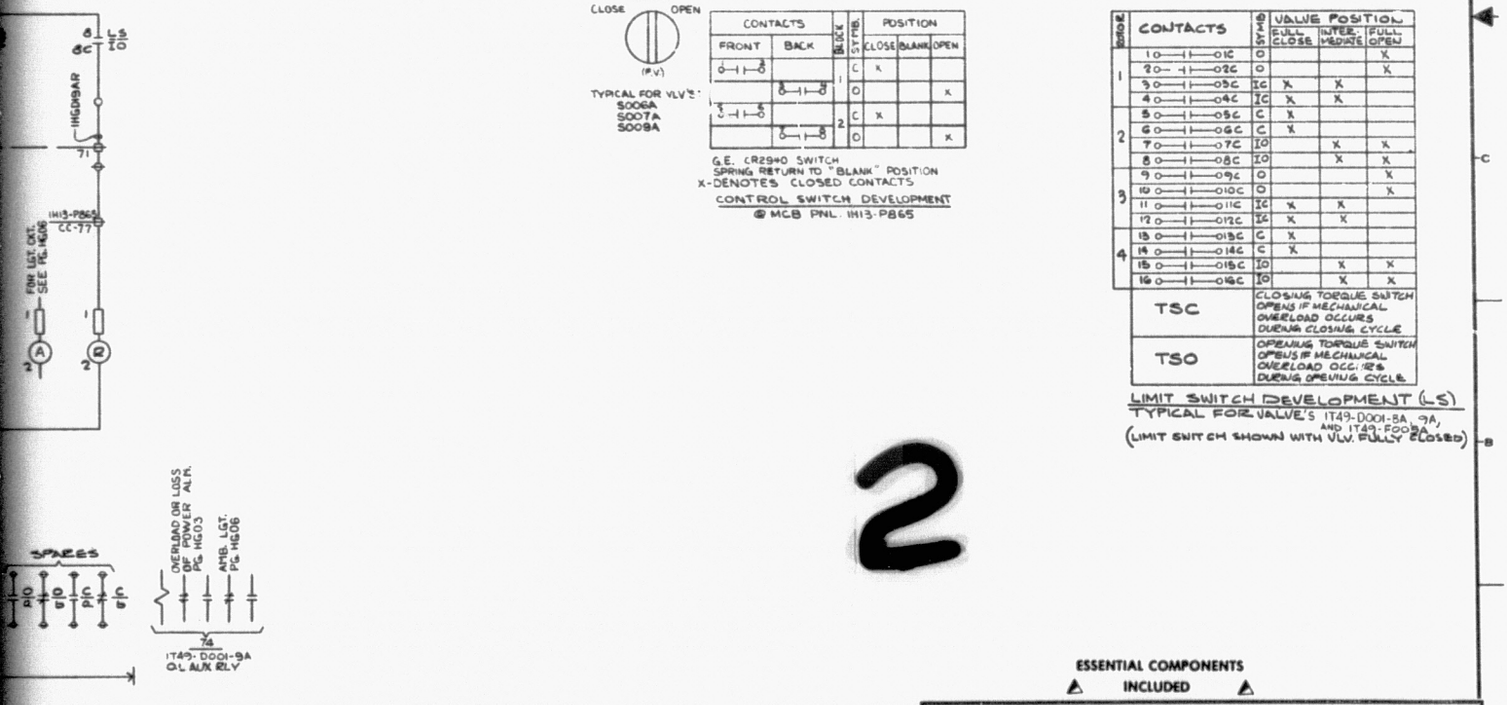
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-25
COMBUSTIBLE GAS CONTROL
RECOMBINER SYSTEM
(SHEET 8 OF 14)

2


480V MCC COMPT #
480-120V CONTROL TRANSF.
VLV. TERM.
TERM. CAB. "A"
IHGF5AX
IHGF5ASO
IHGF5ASC
IHGF5AG
IHGF5AR
IHGF5AO
IHGF5AC
IHGF5AY
SPARE
FOR LGT. CKT. SEE PG. HG06
SPARES
OVERLOAD OR LOSS OF POWER ALM. PG. HG03
AMB. LGT. PG. HG06
IT49-F005A OL AUX RLY
COOLING WATER OUTLET PRIMARY VALVE IT49-F005A (DIV. I)
IHGD19AX
IHGD19ASO
IHGD19ASC
IHGD19AG
IHGD19AR
IHGD19AO
IHGD19AC
IHGD19AY
IT49-D001-9A OL AUX RLY
COOLANT WATER INLET SECONDARY VALVE IT49-D001-9A (DIV. I)
BARRIER





CONTACTS		BLOCK	POSITION		
FRONT	BACK		CLOSE	BLANK	OPEN
		C	X		
		O			X
		C	X		
		O			X

G.E. CR2940 SWITCH
SPRING RETURN TO "BLANK" POSITION
X-DENOTES CLOSED CONTACTS

CONTROL SWITCH DEVELOPMENT
@ MCB PNL. 1H13-P865

BANK	CONTACTS	SYMB	VALVE POSITION FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1 O—| |—O 1C	O			X
	2 O—| |—O 2C	O			X
	3 O—| |—O 3C	IC	X	X	
	4 O—| |—O 4C	IC	X	X	
2	5 O—| |—O 5C	C	X		
	6 O—| |—O 6C	C	X		
	7 O—| |—O 7C	IO		X	X
	8 O—| |—O 8C	IO		X	X
3	9 O—| |—O 9C	O			X
	10 O—| |—O 10C	O			X
	11 O—| |—O 11C	IC	X	X	
	12 O—| |—O 12C	IC	X	X	
4	13 O—| |—O 13C	C	X		
	14 O—| |—O 14C	C	X		
	15 O—| |—O 15C	IO		X	X
	16 O—| |—O 16C	IO		X	X
TSC			CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
TSO			OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCC. IS DURING OPENING CYCLE		

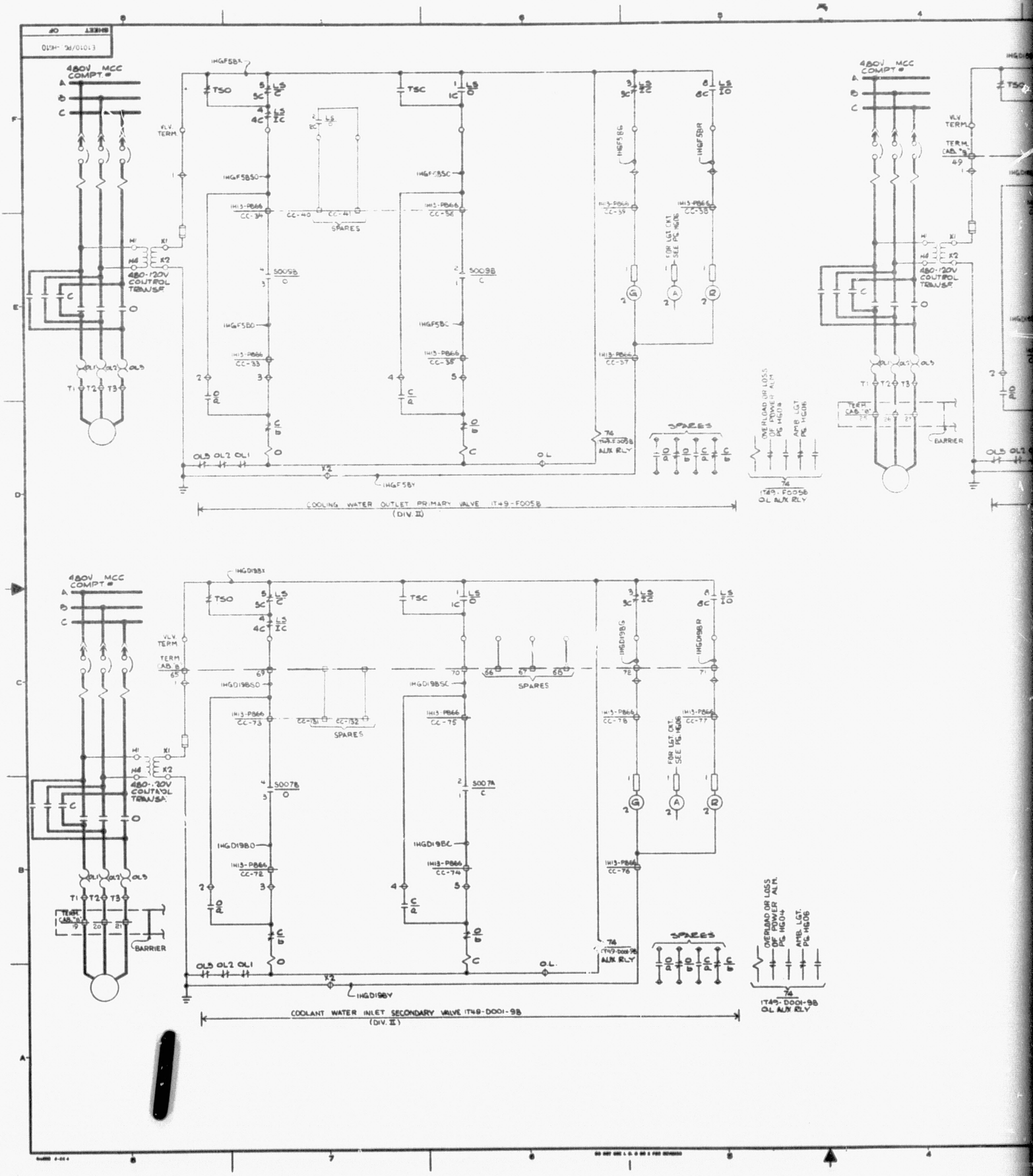
LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVE'S 1T49-D001-8A, 9A, AND 1T49-F005A
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

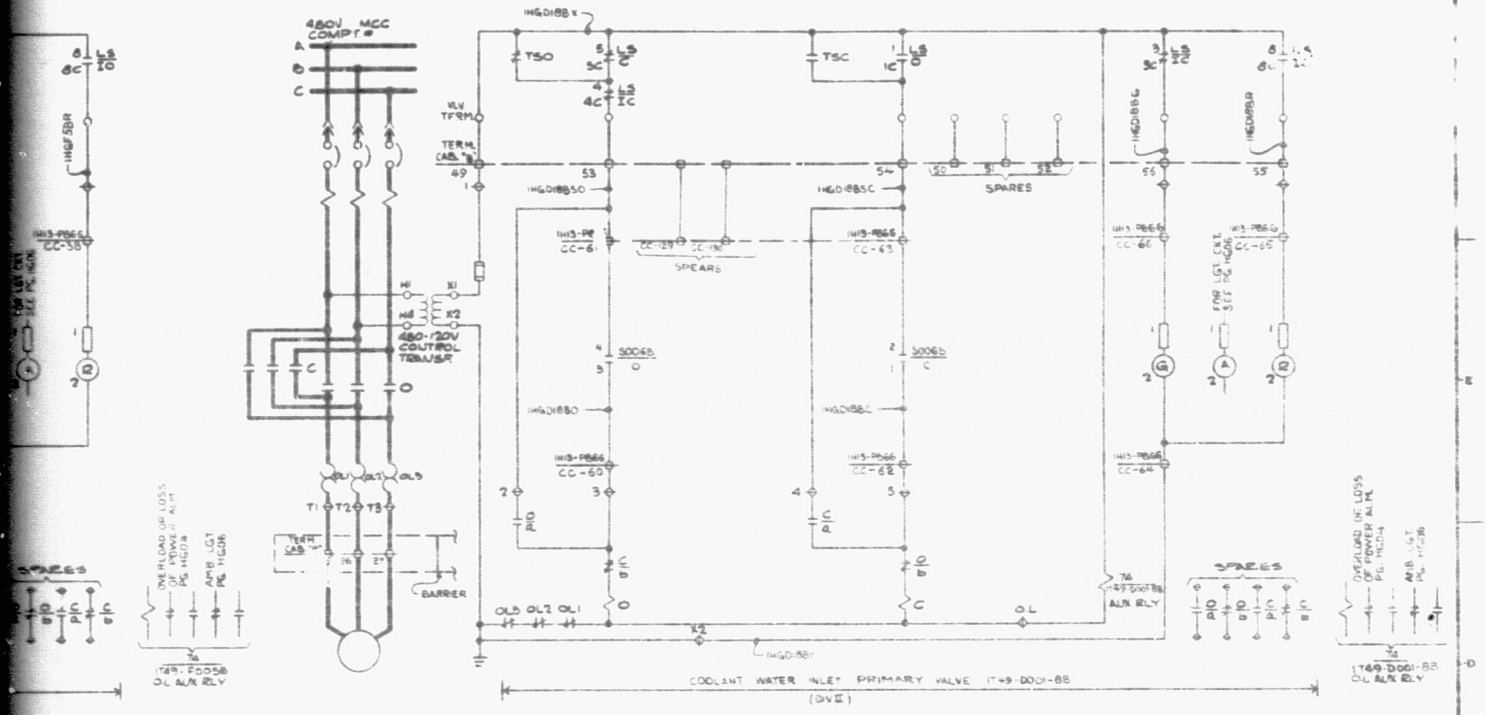
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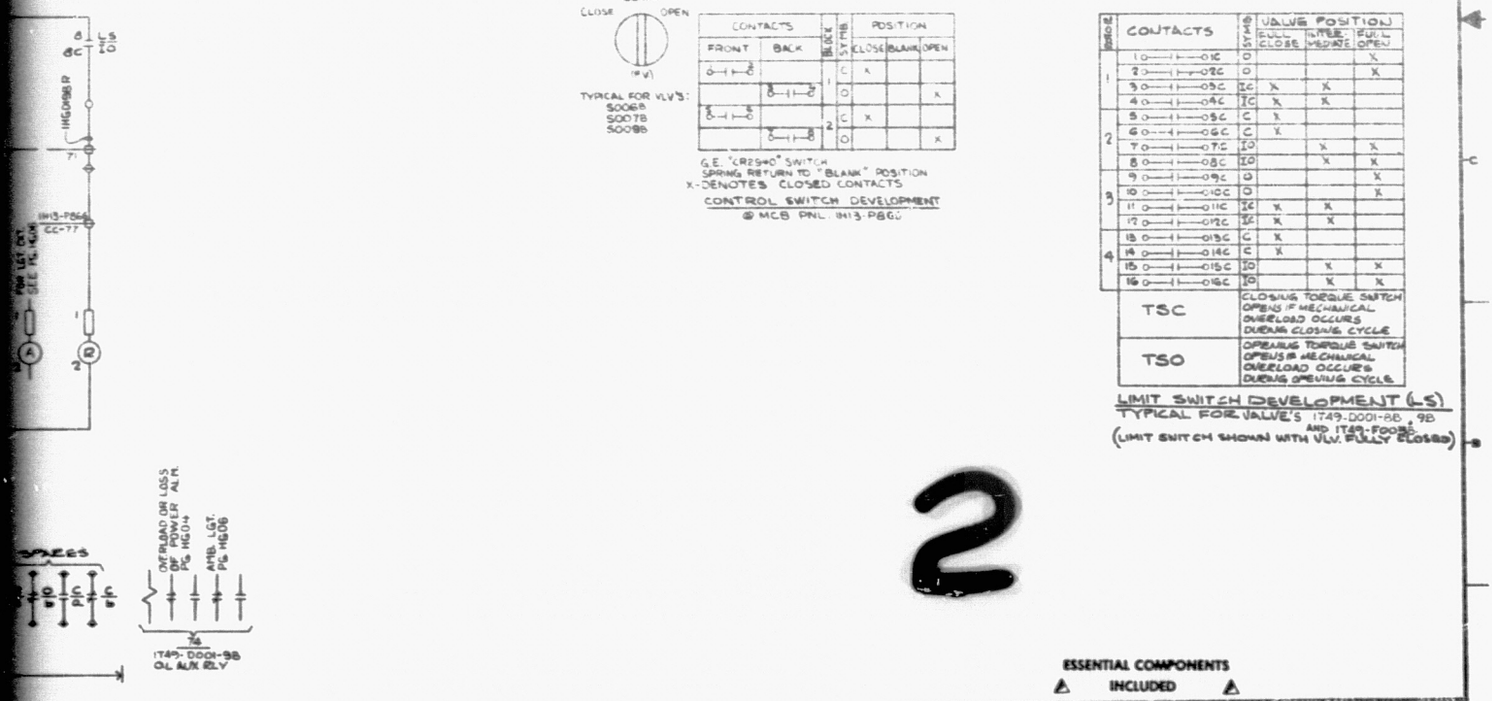
ESSENTIAL COMPONENTS
INCLUDED

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-25
COMBUSTIBLE GAS CONTROL
RECOMBINER SYSTEM
(SHEET 9 OF 14)


480V MCC COMPT.
480-120V CONTROL TRANSF
VLV. TERM
TERM. CAB. "B"
BARRIER
SPARES
SPARES
SPARES
SPARES
OVERLOAD OR LOSS OF POWER ALM. PG HG04
AMB. LGT. PG HG06
OVERLOAD OR LOSS OF POWER ALM. PG HG04
AMB. LGT. PG HG06
FOR LGT CKT. SEE PG. HG06
FOR LGT CKT. SEE PG. HG06
OL3 OL2 OL1
OL3 OL2 OL1
OL
OL
IHGF5BX
IHGF5BY
IHGF5BC
IHGF5BR
IHGF5BS
IHGF5BO
IHGD19BX
IHGD19BY
IHGD19BC
IHGD19BR
IHGD19BS
IHGD19BO
IT49-F005B AUX RLY
IT49-D001-9B AUX RLY
IT49-F005B OL AUX RLY
IT49-D001-9B OL AUX RLY
COOLING WATER OUTLET PRIMARY VALVE IT49-F005B (DIV. II)
COOLANT WATER INLET SECONDARY VALVE IT49-D001-9B (DIV. II)





BLOCK	CONTACTS FRONT	CONTACTS BACK	SYMB	POSITION CLOSE	POSITION BLANK	POSITION OPEN
1			C	X		
			O			X
2			C	X		
			O			X

G.E. "CR2940" SWITCH
SPRING RETURN TO "BLANK" POSITION
X-DENOTES CLOSED CONTACTS

CONTROL SWITCH DEVELOPMENT
@ MCB PNL. 1H13-P860

BLOCK	CONTACTS	SYMB	VALVE POSITION FULL CLOSE	VALVE POSITION MIDDLE INTERMEDIATE	VALVE POSITION FULL OPEN
1	1 O—⊣ ⊢—O 1C	O			X
	2 O—⊣ ⊢—O 2C	O			X
	3 O—⊣ ⊢—O 3C	IC	X	X	
	4 O—⊣ ⊢—O 4C	IC	X	X	
2	5 O—⊣ ⊢—O 5C	C	X		
	6 O—⊣ ⊢—O 6C	C	X		
	7 O—⊣ ⊢—O 7C	IO		X	X
	8 O—⊣ ⊢—O 8C	IO		X	X
3	9 O—⊣ ⊢—O 9C	O			X
	10 O—⊣ ⊢—O 10C	O			X
	11 O—⊣ ⊢—O 11C	IC	X	X	
	12 O—⊣ ⊢—O 12C	IC	X	X	
4	13 O—⊣ ⊢—O 13C	C	X		
	14 O—⊣ ⊢—O 14C	C	X		
	15 O—⊣ ⊢—O 15C	IO		X	X
	16 O—⊣ ⊢—O 16C	IO		X	X

TSC	CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE
TSO	OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE

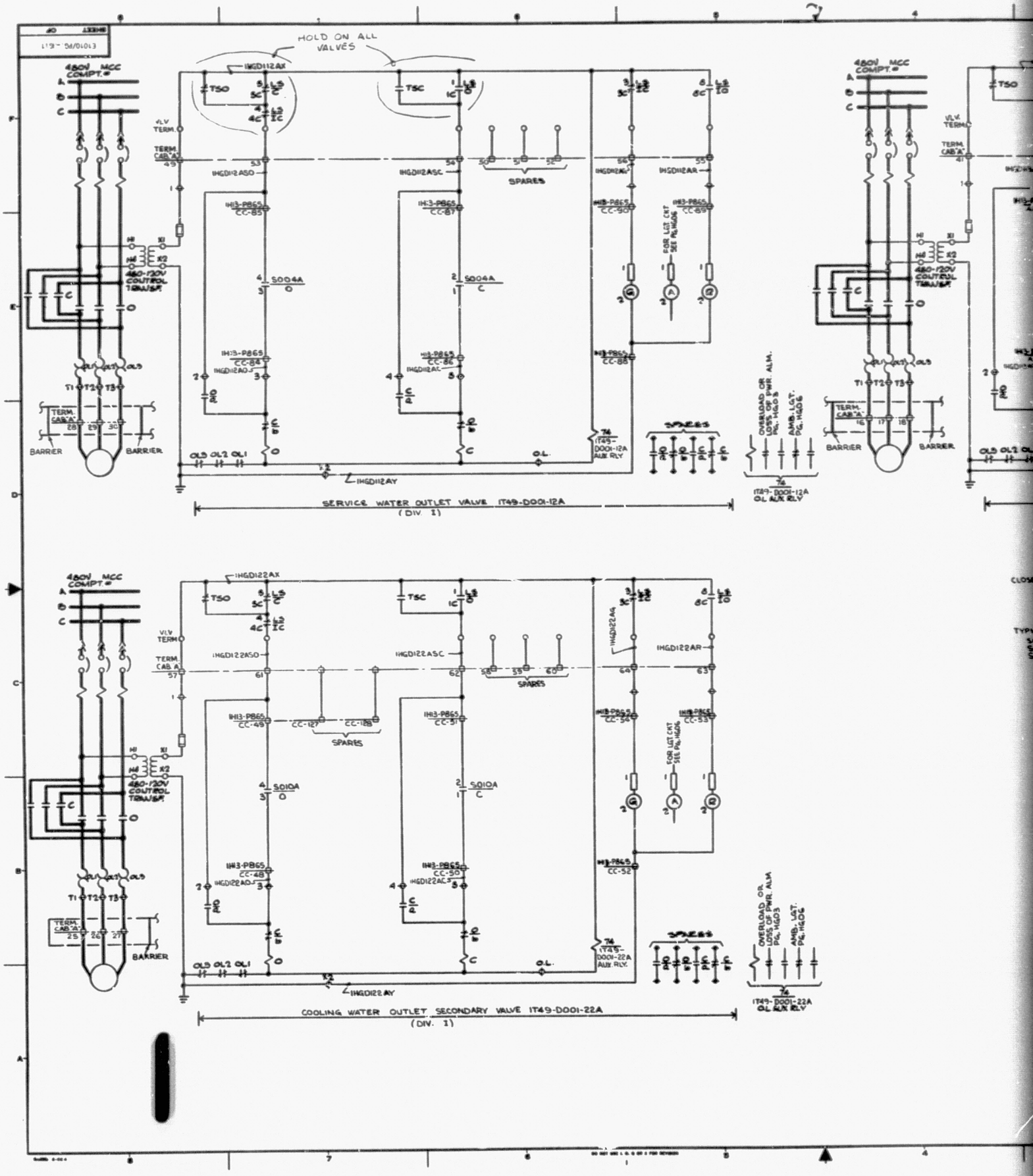
LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VALVE'S 1T49-D001-BB, 9B AND 1T49-F008B
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

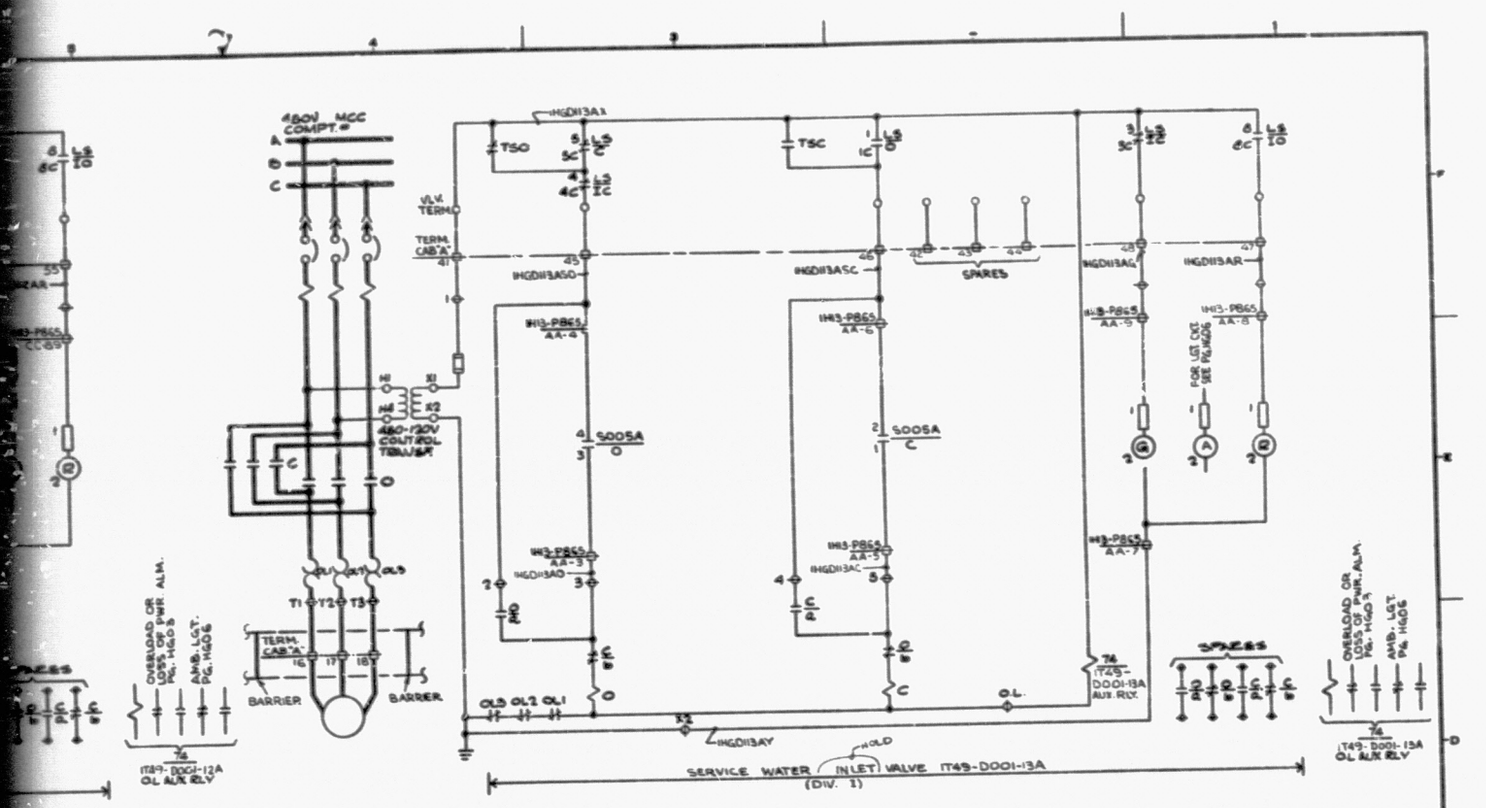
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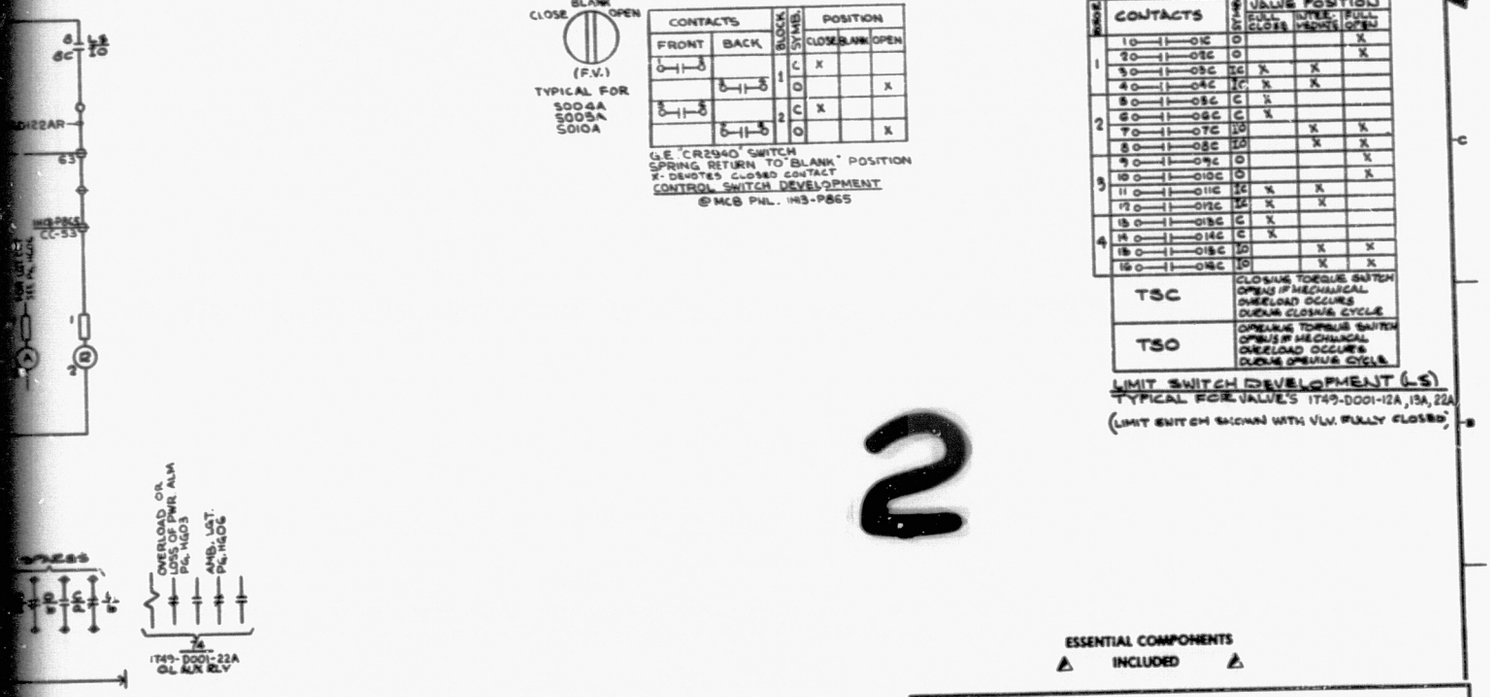
ESSENTIAL COMPONENTS
INCLUDED

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-25
COMBUSTIBLE GAS CONTROL
RECOMBINER SYSTEM
(SHEET 10 OF 14)


HOLD ON ALL VALVES
480V MCC COMPT.
1HGD112AX
TSO
TSC
VLV. TERM.
TERM. CAB. A
1HGD112ASO
1HGD112ASC
1HGD112AR
SPARES
1H13-P865 CC-85
1H13-P865 CC-87
1H13-P865 CC-90
1H13-P865 CC-89
FOR LGT. CKT SEE PG. H606
S004A
1H13-P865 CC-84
1H13-P865 CC-86
1H13-P865 CC-88
480-120V CONTROL TRANS'FR
OL3 OL2 OL1
T1 T2 T3
TERM. CAB. A
BARRIER
OL.
1HGD112AY
74 1T49-D001-12A AUX. RLY.
OVERLOAD OR LOSS OF PWR. ALM. PG. H603
AMB. LGT. PG. H606
1T49-D001-12A OL AUX RLY
SERVICE WATER OUTLET VALVE 1T49-D001-12A
(DIV. 1)
1HGD122AX
1HGD122ASO
1HGD122ASC
1HGD122AR
1HGD122AG
1H13-P865 CC-49
1H13-P865 CC-51
1H13-P865 CC-54
1H13-P865 CC-53
CC-127
CC-128
1H13-P865 CC-48
1H13-P865 CC-50
1H13-P865 CC-52
S010A
1HGD122AY
1T49-D001-22A AUX. RLY.
1T49-D001-22A OL AUX RLY
COOLING WATER OUTLET SECONDARY VALVE 1T49-D001-22A
(DIV. 1)



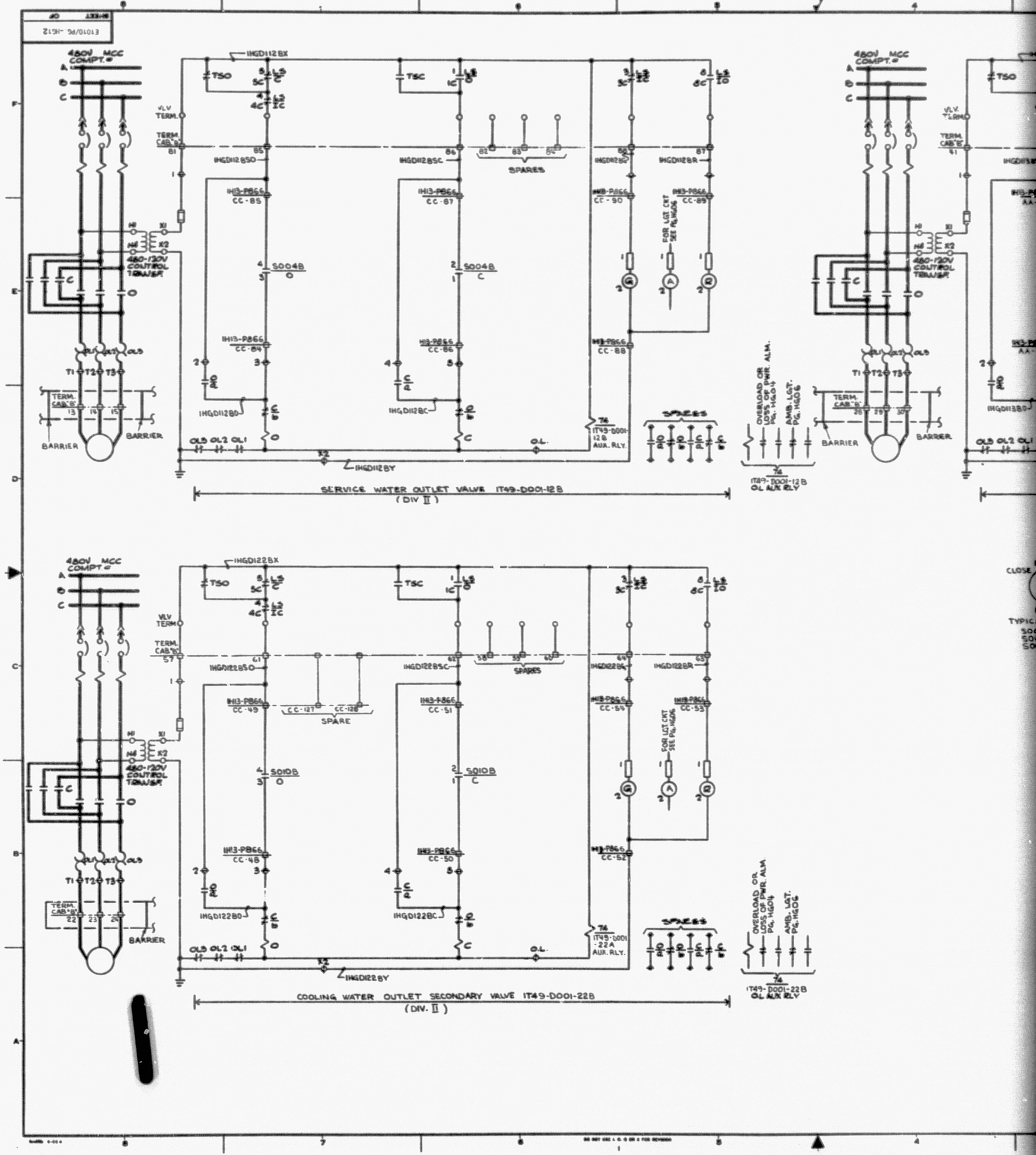


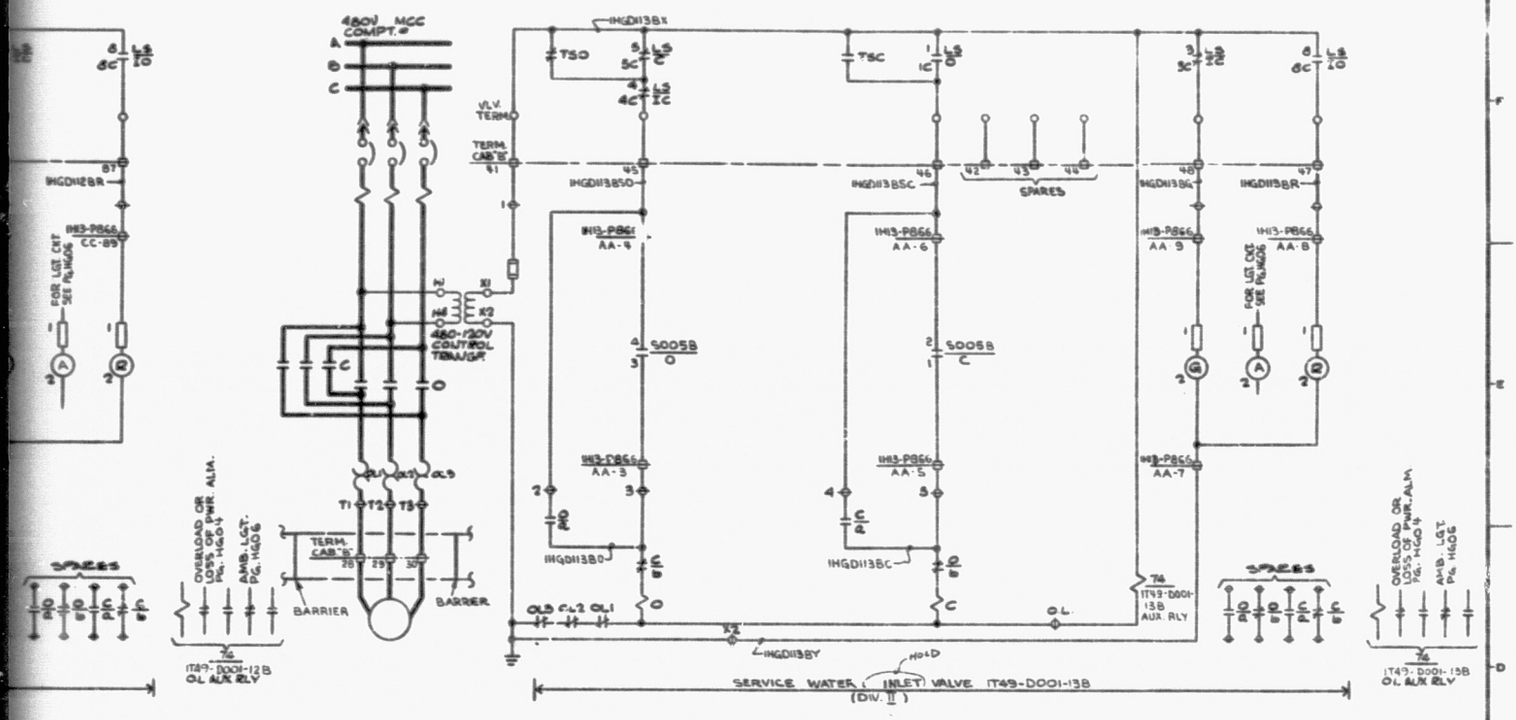
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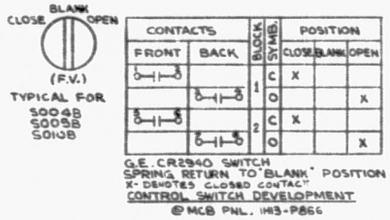
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-25
COMBUSTIBLE GAS CONTROL
RECOMBINER SYSTEM
(SHEET 11 OF 14)


480V MCC COMPT.
1HGD112BX
TSO
TSC
VLV TERM.
TERM. CAB."B"
1HGD112BSO
1HGD112BSC
SPARES
1H13-P866 CC-85
1H13-P866 CC-87
1H13-P866 CC-90
1H13-P866 CC-89
FOR LGT. CKT SEE Pid. HG06
480-120V CONTROL TRANS'R
OL1 OL2 OL3
T1 T2 T3
TERM. CAB."B"
BARRIER
1H13-P866 CC-84
1H13-P866 CC-86
1H13-P866 CC-88
1HGD112BO
1HGD112BC
IT49-D001-12B AUX. RLY.
OVERLOAD OR LOSS OF PWR. ALM. Pid. HG04
AMB. LGT. Pid. HG06
1T49-D001-12B OL AUX RLY
1HGD112BY
SERVICE WATER OUTLET VALVE 1T49-D001-12B
(DIV II)
1HGD122BX
1HGD122BSO
1HGD122BSC
1H13-P866 CC-49
CC-127
CC-128
SPARE
1H13-P866 CC-51
1H13-P866 CC-54
1H13-P866 CC-53
1H13-P866 CC-48
1H13-P866 CC-50
1H13-P866 CC-52
1HGD122BO
1HGD122BC
IT49-D001-22A AUX. RLY.
1T49-D001-22B OL AUX RLY
1HGD122BY
COOLING WATER OUTLET SECONDARY VALVE 1T49-D001-22B
(DIV. II)





TYPICAL FOR
S0048
S0058
S0108

CONTACTS		BLOCK	SYMB.	POSITION		
FRONT	BACK			CLOSE	BLANK	OPEN
		1	C	X		
			O			X
		2	C	X		
			O			X

G.E. CR2940 SWITCH
SPRING RETURN TO "BLANK" POSITION
X- DENOTES CLOSED CONTACT
CONTROL SWITCH DEVELOPMENT
@ MCB PNL. 1H13-P866

BLOCK	CONTACTS	SYMB.	VALVE POSITION FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1O—1—01E	O			X
	2O—1—02E	O			X
	3O—1—03C	IC	X	X	
	4O—1—04C	IC	X	X	
2	5O—1—05E	C	X		
	6O—1—06E	C	X		
	7O—1—07C	IO		X	X
	8O—1—08C	IO		X	X
3	9O—1—09E	O			X
	10O—1—010C	O			X
	11O—1—011C	IC	X	X	
	12O—1—012C	IC	X	X	
4	13O—1—013C	C	X		
	14O—1—014C	C	X		
	15O—1—015C	IO		X	X
	16O—1—016C	IO		X	X
TSC			CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
TSO			OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

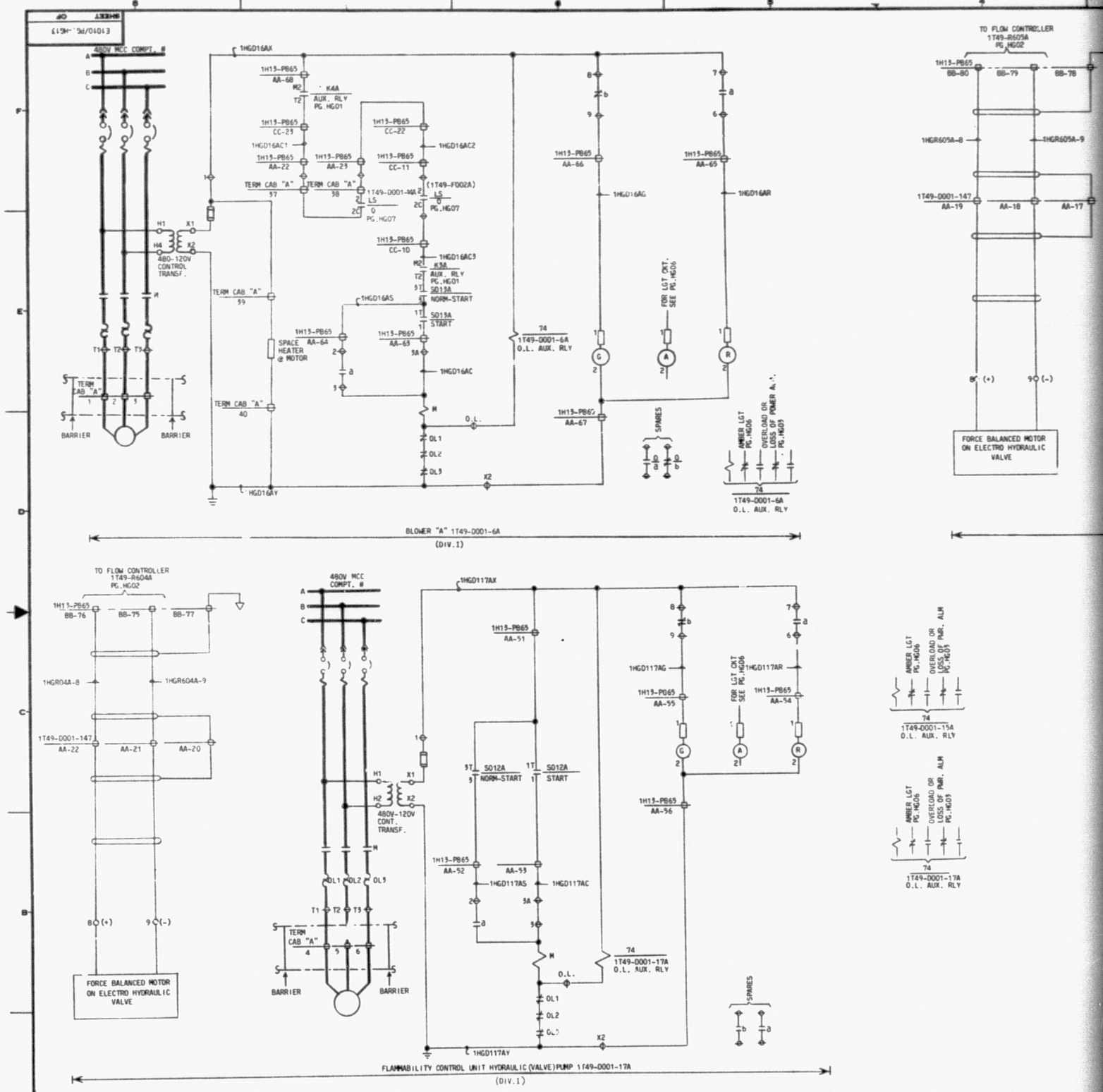
LIMIT SWITCH DEVELOPMENT (L-S)
TYPICAL FOR VALVES 1T49-D001-12B, 13B, 22B
(LIMIT SWITCH SHOWN WITH VLV. FULLY CLOSED)

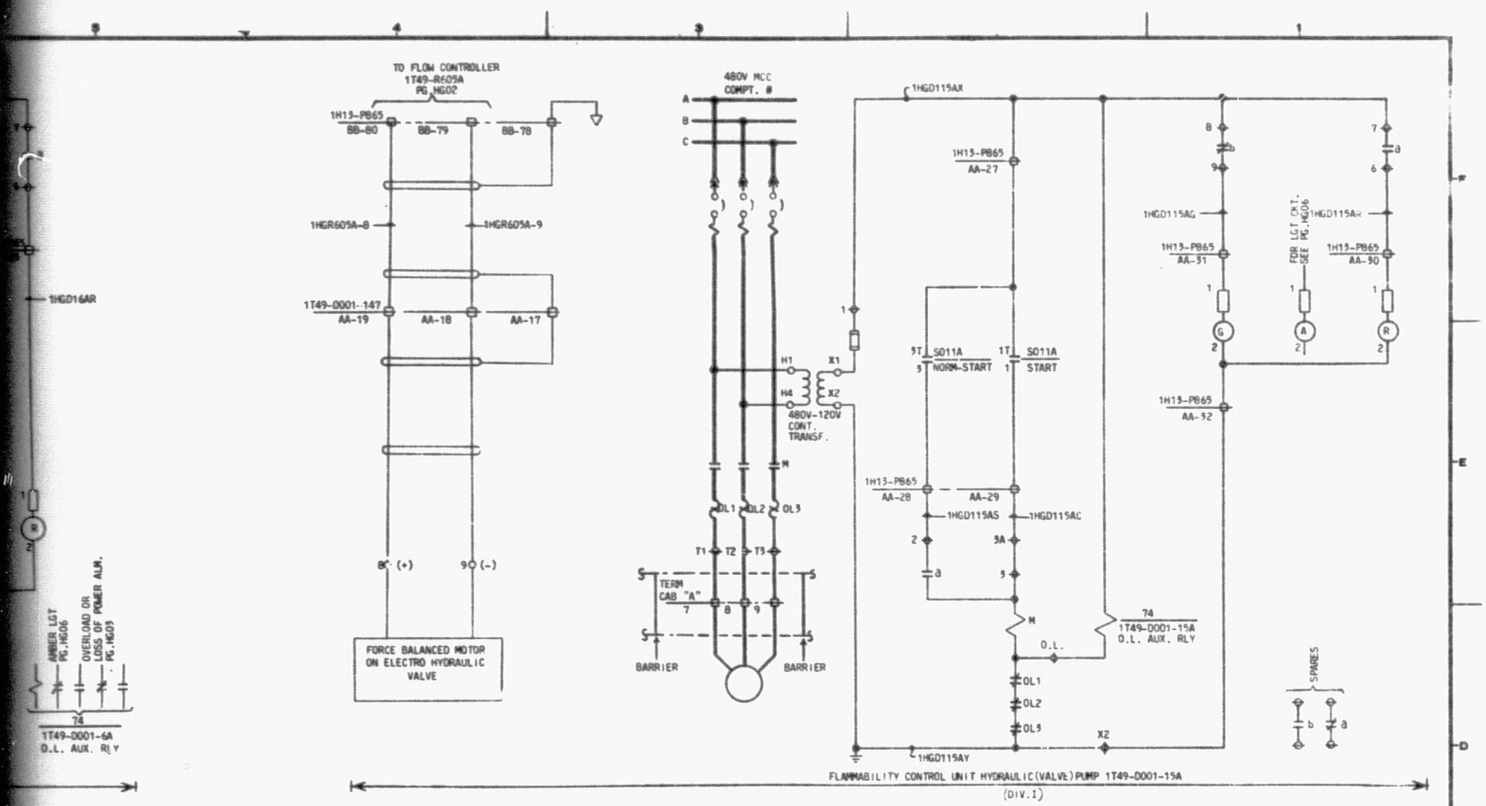
2

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-25
COMBUSTIBLE GAS CONTROL
RECOMBINER SYSTEM
(SHEET 12 OF 14)


480V MCC COMPT. #
1HGD16AX
1H13-PB65 AA-68
K4A AUX. RLY PG.HG01
1H13-PB65 CC-23
1H13-PB65 CC-22
1HGD16AC1
1HGD16AC2
1H13-PB65 AA-22
1H13-PB65 AA-23
1H13-PB65 CC-11
TERM CAB "A" 37
TERM CAB "A" 38
1T49-0001-HA2
(1T49-F002A)
PG.HG07
1H13-PB65 CC-10
1HGD16AC3
K3A AUX. RLY PG.HG01
SO13A NORM-START
SO13A START
TERM CAB "A" 59
1HGD16AS
1H13-PB65 AA-64
1H13-PB65 AA-63
SPACE HEATER @ MOTOR
1HGD16AC
TERM CAB "A" 40
480-120V CONTROL TRANSF.
1H13-PB65 AA-66
1H13-PB65 AA-65
1HGD16AG
1HGD16AR
74 1T49-0001-6A O.L. AUX. RLY
FOR LGT CKT. SEE PG.HG06
1H13-PB65 AA-67
SPARES
AMBER LGT PG.HG06
OVERLOAD OR LOSS OF POWER A.C. PG.HG05
74 1T49-0001-6A O.L. AUX. RLY
TERM CAB "A"
BARRIER
BARRIER
O.L.
OL1
OL2
OL3
1HGD16AY
BLOWER "A" 1T49-0001-6A
(DIV.1)
TO FLOW CONTROLLER 1T49-R605A PG.HG02
1H13-PB65 BB-80
BB-79
BB-78
1HGR605A-8
1HGR605A-9
1T49-0001-147 AA-19
AA-18
AA-17
8 (+)
9 (-)
FORCE BALANCED MOTOR ON ELECTRO HYDRAULIC VALVE
TO FLOW CONTROLLER 1T49-R604A PG.HG02
1H13-PB65 BB-76
BB-75
BB-77
1HGR04A-8
1HGR604A-9
1T49-0001-147 AA-22
AA-21
AA-20
8 (+)
9 (-)
FORCE BALANCED MOTOR ON ELECTRO HYDRAULIC VALVE
480V MCC COMPT. #
1HGD117AX
1H13-PB65 AA-51
1HGD117AG
1HGD117AR
1H13-PB65 AA-55
1H13-PB65 AA-54
FOR LGT CKT. SEE PG.HG06
SO12A NORM-START
SO12A START
480V-120V CONT. TRANSF.
1H13-PB65 AA-56
1H13-PB65 AA-52
AA-53
1HGD117AS
1HGD117AC
74 1T49-0001-17A O.L. AUX. RLY
O.L.
OL1
OL2
OL3
TERM CAB "A"
BARRIER
BARRIER
SPARES
1HGD117AY
FLAMMABILITY CONTROL UNIT HYDRAULIC (VALVE) PUMP 1T49-0001-17A
(DIV.1)
AMBER LGT PG.HG06
OVERLOAD OR LOSS OF PWR. ALM PG.HG05
74 1T49-0001-15A O.L. AUX. RLY
AMBER LGT PG.HG06
OVERLOAD OR LOSS OF PWR. ALM PG.HG05
74 1T49-0001-17A O.L. AUX. RLY



NORMAL
STOP START
(F.V.)
TYPICAL FOR:
S011A
S012A
S013A

CONTACTS				SYMBOL	POSITION		
ODD		EVEN			STOP	NORMAL	START
1T	1	2	2T	1 START			X
				2 START			X
5T	5	4	4T	5 NORM. START		X	X
				4 NORM. START		X	X

G.E. TYPE "SBM" SWITCH
SPRING RETURN TO "NORMAL" POSITION
X - DENOTES CONTACT CLOSED

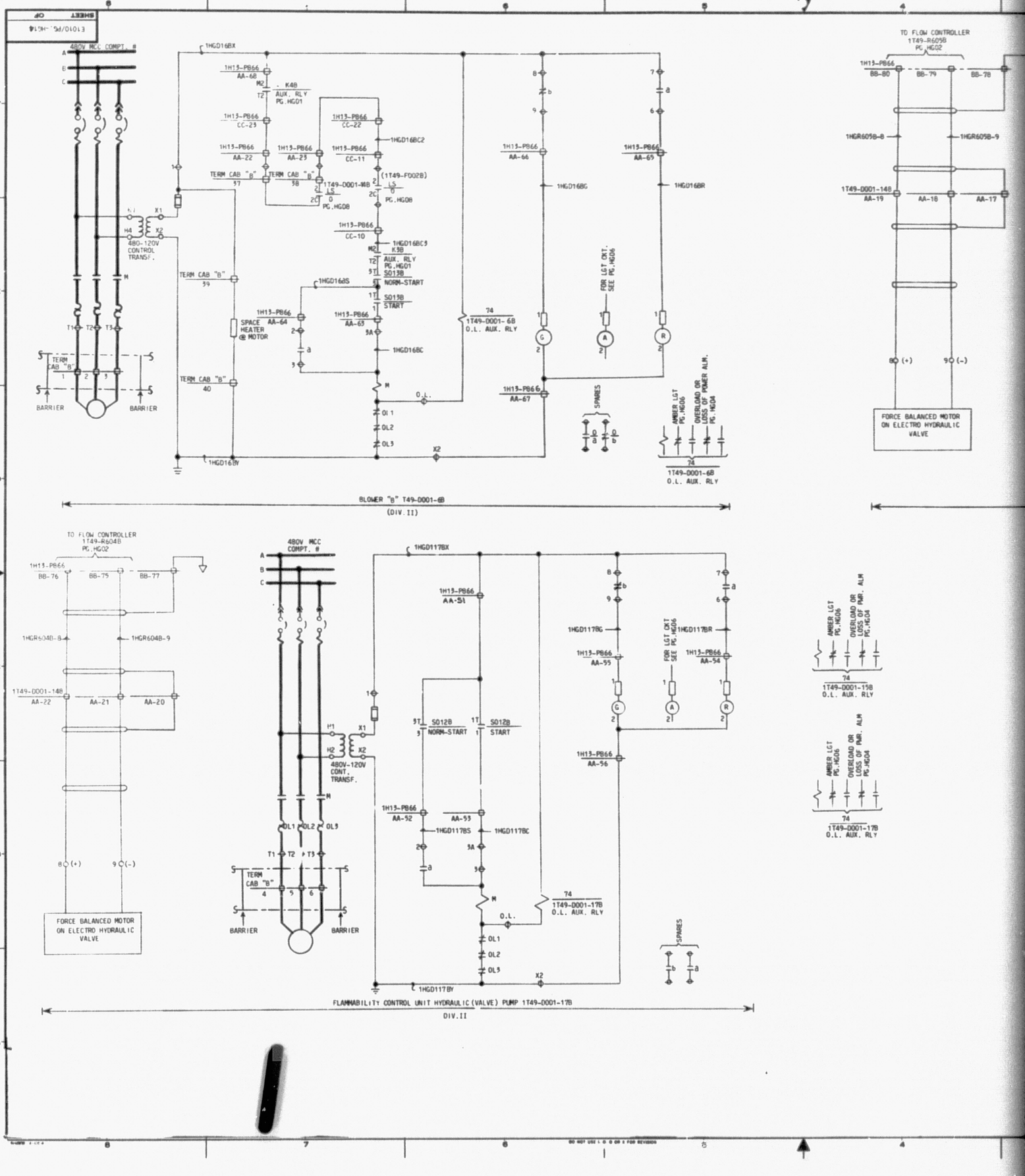
CONTROL SWITCH DEVELOPMENT
PNL 1H13-PB65

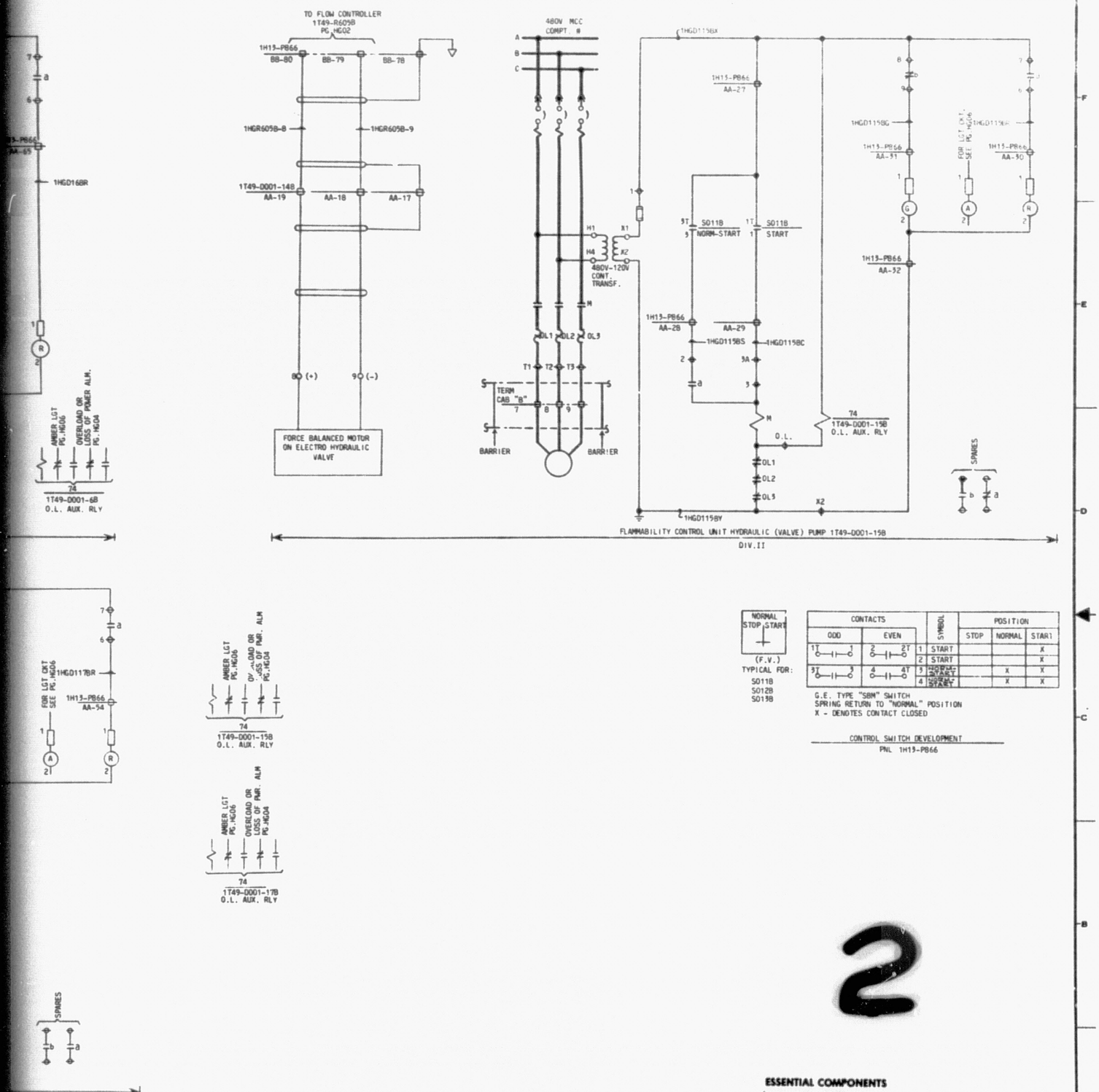
2

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-25
COMBUSTIBLE GAS CONTROL
RECOMBINER SYSTEM
(SHEET 13 OF 14)


SHEET OF
E1010/P6-H614
480V MCC COMPT. #
1HGD16BX
1H13-PB66 AA-68
M2 K4B AUX. RLY PG.HG01
T2
1H13-PB66 CC-23
1H13-PB66 AA-22
1H13-PB66 AA-23
1H13-PB66 CC-22
1HGD16BC2
1H13-PB66 CC-11
TERM CAB "B" 37
TERM CAB "B" 38
1T49-D001-MB (1T49-F002B)
LS PG.HG08
1H13-PB66 CC-10
1HGD16BC3
K3B AUX. RLY PG.HG01
S013B NORM-START
S013B START
1HGD16BS
1H13-PB66 AA-64
1H13-PB66 AA-65
SPACE HEATER @ MOTOR
TERM CAB "B" 39
TERM CAB "B" 40
1HGD16BC
H1 X1
H2 X2
480-120V CONTROL TRANSF.
T1 T2 T3
TERM CAB "B"
BARRIER
BARRIER
M
O.L.
OL1
OL2
OL3
1HGD16BY
X2
74 1T49-D001-6B O.L. AUX. RLY
1H13-PB66 AA-66
1H13-PB66 AA-65
1HGD16BG
1HGD16BR
FOR LGT CKT. SEE PG.HG06
1H13-PB66 AA-67
SPARES
AMBER LGT PG.HG06
OVERLOAD OR LOSS OF POWER ALM. PG.HG04
74 1T49-D001-6B O.L. AUX. RLY
BLOWER "B" T49-D001-6B
(DIV. II)
TO FLOW CONTROLLER 1T49-R605B PG.HG02
1H13-PB66 BB-80
BB-79
BB-78
1HGR605B-8
1HGR605B-9
1T49-D001-14B AA-19
AA-18
AA-17
80 (+)
90 (-)
FORCE BALANCED MOTOR ON ELECTRO HYDRAULIC VALVE
TO FLOW CONTROLLER 1T49-R604B PG.HG02
1H13-PB66 BB-76
BB-75
BB-77
1HGR604B-8
1HGR604B-9
1T49-D001-14B AA-22
AA-21
AA-20
80 (+)
90 (-)
FORCE BALANCED MOTOR ON ELECTRO HYDRAULIC VALVE
480V MCC COMPT. #
1HGD117BX
1H13-PB66 AA-51
1HGD117BG
1HGD117BR
1H13-PB66 AA-55
1H13-PB66 AA-54
FOR LGT CKT SEE PG.HG06
S012B NORM-START
S012B START
1H13-PB66 AA-56
1H13-PB66 AA-52
AA-53
1HGD117BS
1HGD117BC
H1 X1
H2 X2
480V-120V CONT. TRANSF.
M
OL1 OL2 OL3
T1 T2 T3
TERM CAB "B"
BARRIER
BARRIER
O.L.
OL1
OL2
OL3
1HGD117BY
X2
74 1T49-D001-17B O.L. AUX. RLY
SPARES
AMBER LGT PG.HG06
OVERLOAD OR LOSS OF PWR. ALM PG.HG04
74 1T49-D001-15B O.L. AUX. RLY
AMBER LGT PG.HG06
OVERLOAD OR LOSS OF PWR. ALM PG.HG04
74 1T49-D001-17B O.L. AUX. RLY
FLAMMABILITY CONTROL UNIT HYDRAULIC (VALVE) PUMP 1T49-D001-17B
DIV. II



NORMAL
STOP START
(F.V.)
TYPICAL FOR:
SO11B
SO12B
SO13B

CONTACTS				SYMBOL	POSITION		
ODD		EVEN			STOP	NORMAL	START
1T	1	2	2T	1 START			X
				2 START			X
3T	3	4	4T	3 NORM-START		X	X
				4 START		X	X

G.E. TYPE "SBM" SWITCH
SPRING RETURN TO "NORMAL" POSITION
X - DENOTES CONTACT CLOSED

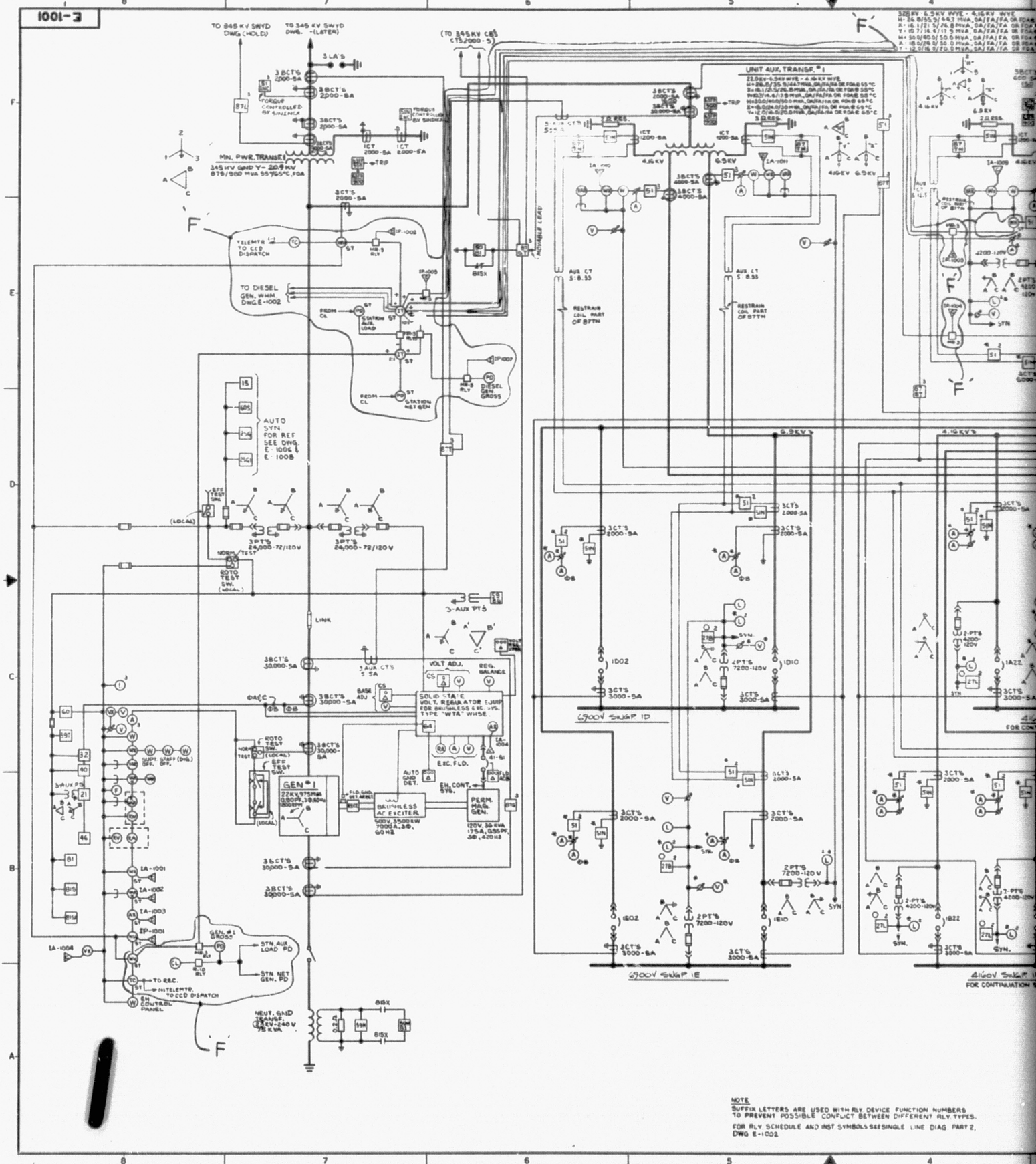
CONTROL SWITCH DEVELOPMENT
PNL 1H13-PB66

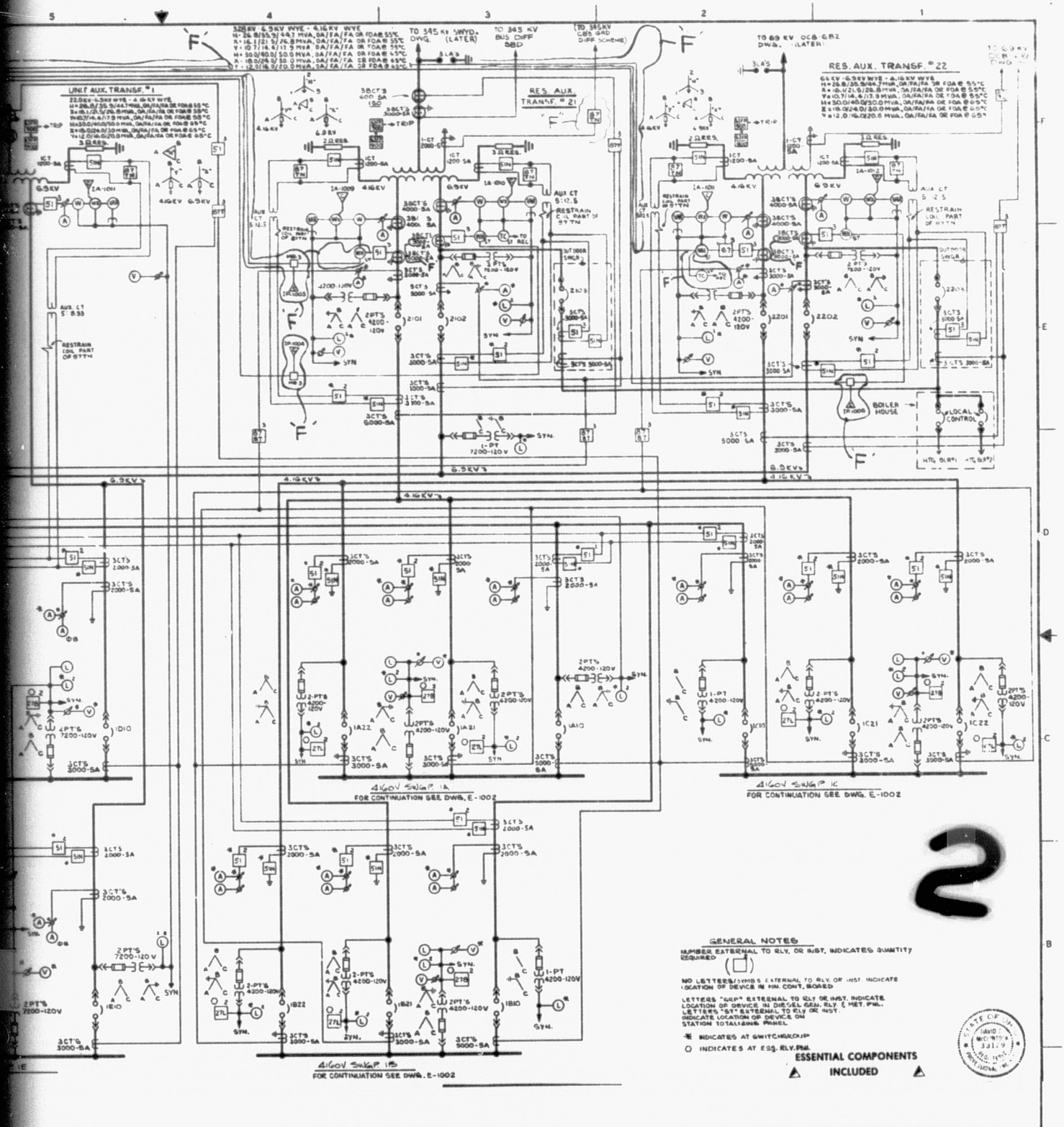
2

ESSENTIAL COMPONENTS
INCLUDED

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-25
COMBUSTIBLE GAS CONTROL
RECOMBINER SYSTEM
(SHEET 14 OF 14)


1001-3
TO 345 KV SWYD DWG. (HOLD)
TO 345 KV SWYD DWG. -(LATER)
3 LA'S
3 BCT'S 2000-5A
MIN. PWR. TRANSF.
345 KV GND Y - 20.9 KV
878/980 MVA 55°65°C, FOA
3 CT'S 2000-5A
TELEMTR TO CCD DISPATCH
TO DIESEL GEN. WHM DWG. E-1002
FROM CL
STATION AUX. LOAD
STATION NET GEN
AUTO SYN FOR REF SEE DWG. E-1006 & E-1008
3 PT'S 24,000-72/120 V
3-AUX PTS
LINK
3 AUX CTS 5 5A
3 BCT'S 30,000-5A
SOLID STATE VOLT. REGULATOR EQUIP FOR BRUSHLESS EXC. SYS. TYPE "VTA" WHSE.
VOLT ADJ.
REG. BALANCE
BASE ADJ
ROTO TEST SW.
EFF TEST SW.
GEN #1
22 KV, 975 MVA, 0.90 PF, 3 PH, 60 CYCLE, 1800 RPM
BRUSHLESS AC EXCITER
400 V, 3500 KW, 1000 A, 3Φ, 60 HZ
AUTO GND DET.
EXC. FLD.
EH CONT. SYS.
PERM. MAG. GEN.
120 V, 30 KVA, 175 A, 0.95 PF, 3Φ, 420 HZ
IA-1001
IA-1002
IA-1003
IA-1004
ZP-1001
GEN. #1 GROSS
STN. AUX LOAD PD
STN. NET GEN. PD
TO REC.
TELEMTR. TO CCD DISPATCH
EH CONTROL PANEL
NEUT. GND TRANSF. 22 KV-240 V 75 KVA
86X
BISX
UNIT AUX. TRANSF. #1
22.0 KV-6.9 KV WYE - 4.16 KV WYE
38 CT'S 2000-5A
38 CT'S 30,000-5A
ICT 1200-5A
ICT 4000-5A
6.9 KV
4.16 KV
AUX CT 5:8.33
RESTRAIN COIL PART OF 87TN
IA-1011
IA-1009
IA-1005
IA-1004
SYN
6900V SWGR 1D
6900V SWGR 1E
4160V SWGR
3 CT'S 3000-5A
3 CT'S 2000-5A
1D02
1D10
1E02
1E10
1A22
2 PT'S 7200-120V
2-PT'S 4200-120V
FOR CONTINUATION
NOTE
SUFFIX LETTERS ARE USED WITH RLY. DEVICE FUNCTION NUMBERS TO PREVENT POSSIBLE CONFLICT BETWEEN DIFFERENT RLY. TYPES.
FOR RLY. SCHEDULE AND INST. SYMBOLS SEE SINGLE LINE DIAG. PART 2, DWG E-1002.



NOTE
SUFFIX LETTERS ARE USED WITH RLY. DEVICE FUNCTION NUMBERS TO PREVENT POSSIBLE CONFLICT BETWEEN DIFFERENT RLY. TYPES.

FOR RLY. SCHEDULE AND INST. SYMBOLS SEE SINGLE LINE DIAG. PART 2, DWG E-1002

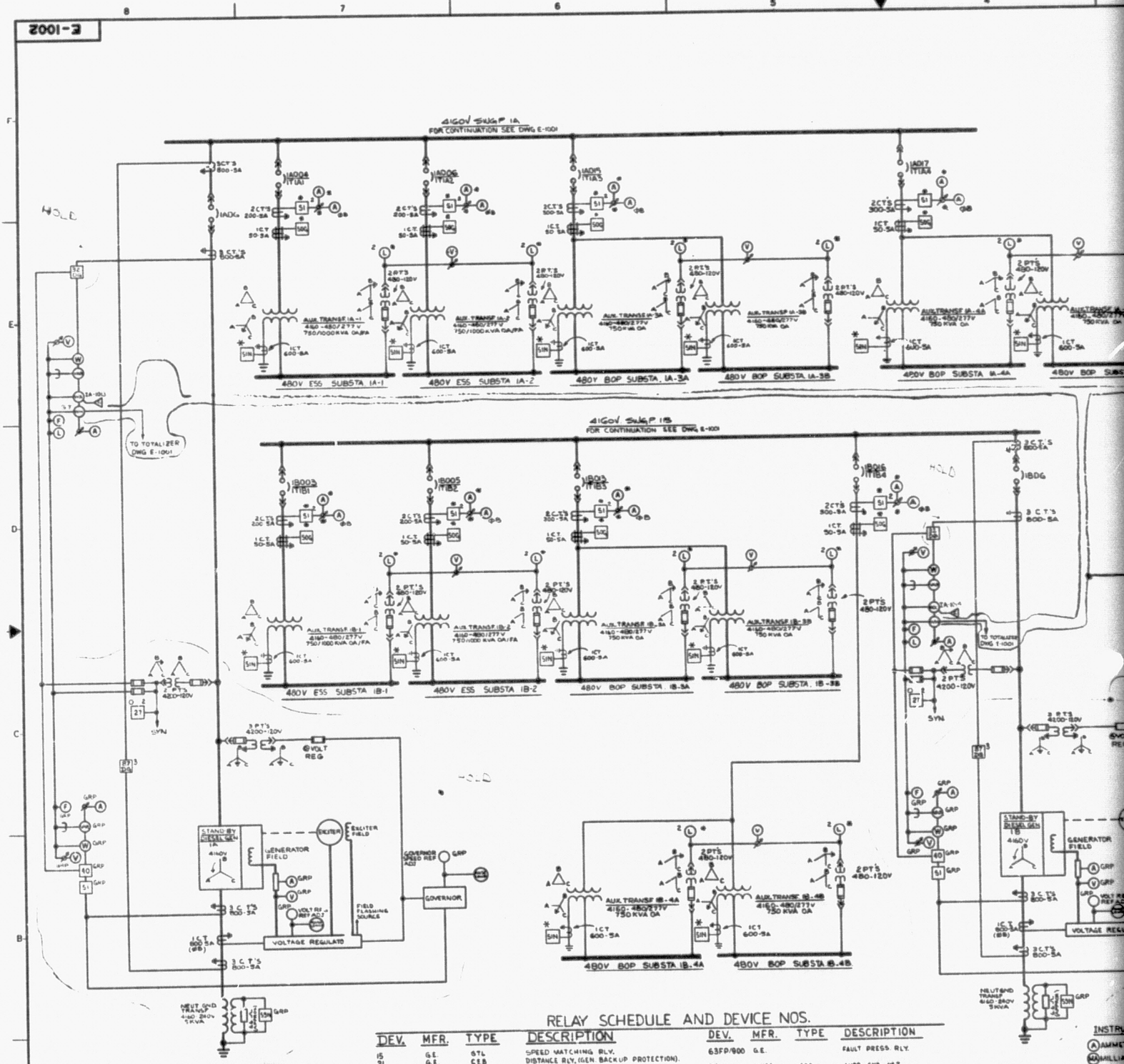
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

(SHEET 1 OF 23)

E-1002

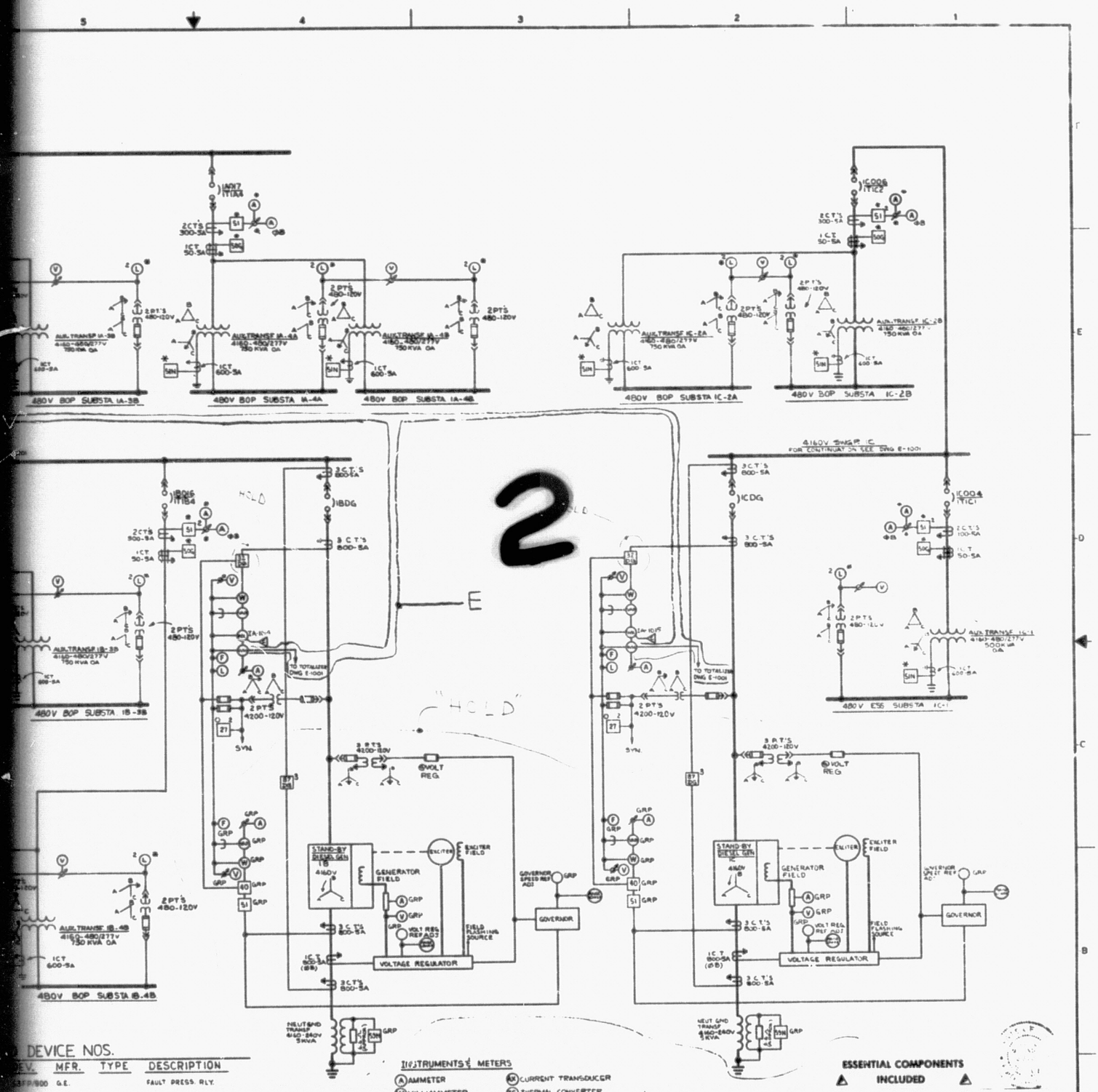


RELAY SCHEDULE AND DEVICE NOS.

DEV.	MFR.	TYPE	DESCRIPTION
15	G.E.	STL	SPEED MATCHING RLY.
21	G.E.	CEB	DISTANCE RLY.(GEN. BACK UP PROTECTION).
25G	G.E.	GES	AUTO. SYN. RLY.
25GI	G.E.	GXS	AUTO. SYN. RLY.
27	WHSE.	CV-7	UNDER VOLT. RLY.
27B	WHSE.	CV-7	BUS UNDER VOLT. RLY.
27L	WHSE.	CV-7	LINE UNDER VOLT. RLY.
32	G.E.	GSP	REVERSE PWR. OVER CURR. RLY.
40	G.E.	CEH	LOSS OF FLD. RLY.
46	G.E.	SBC	NEGATIVE SEQUENCE RLY.
50-BI	G.E.	PJC	INSTANT OVER CURR. RLY.
50G	I.T.E.	GR-9	OVER CURR. GND. RLY. (GND.SENSOR).
51	G.E.	IAC	OVER CURR. RLY.
51N	G.E.	IAC	OVER CURR. GND RLY.
51NC	G.E.	IAC	OFF LINE PHASE OVER CURR. RLY.
51NNC	G.E.	IAC	OFF LINE GND OVER CURR RLY.
59B6	G.E.	IAV	GEN. GND. BACK UP OVER VOLT. RLY.
59N	G.E.	IAV	GEN. NEUT. OVER VOLT. RLY.
59N-BI	WHSE	SV	SEN. NEUT. OVER VOLT RLY. (LOW FREQ)
59T	G.E.	STV	VOLT./HZ RLY.
60	G.E.	CFV	VOLT. BALANCE RLY.
60S	G.E.	SAS	VOLT MATCHING RLY.
87 DG	G.E.	ICW	REVERSE PWR. OVER CURR RLY. (DG)

DEV.	MFR.	TYPE	DESCRIPTION
63FP/800	G.E.		FAULT PRESS. RLY.
64	WHSE.	AGF	AUTO. GND. RLY.
67	G.E.	IBC	DIR. TIME OVER CURR RLY.
81S	G.E.	I2F	START UP UNDER FREQ. RLY.
81	G.E.	SFF	UNDER FREQ. RLY.
87G	G.E.	CFD	GEN. DIFF. RLY (MAIN UNIT).
87GT	G.E.	STD	GEN & TRANSF. DIFF. RLY. (OVERALL).
87BT	WHSE.	KAB	BUS TIE DIFF. PROTECTION.
87L	G.E.	SBD	STATIC BUS DIFF. RLY.,
87T	G.E.	STD	TRANSF. DIFF. RLY.
87TN	G.E.	IFD	TRANSF. NEUT. DIFF. RLY.
87TN(69KV)	G.E.	STD	TRANSF. NEUT. DIFF. RLY.
87TN(345KV)	G.E.	STD	TRANSF. NEUT. DIFF. RLY.
87DG	WHSE	SA-1	DIESEL GEN. DIFF. RLY.

INSTRU
(A) AMME
(MA) MILLI
(V) VOLTM
(F) FREQU
(W) WATT
(WH) WAT
(VAR) VAR
(RA) RECO
(RV) RECO
(RW) RECO
(RF) RECO
△ COMP
(ET) LUM



2

DEVICE NOS.

DEV.	MFR.	TYPE	DESCRIPTION
63FP/800	G.E.		FAULT PRESS. RLY.
	WHSE.	AGF	AUTO. GND. DET.
	G.E.	IBC	DIR. TIME OVER CURR. RLY.
	G.E.	IJF	START UP UNDER FREQ. RLY.
	G.E.	SFF	UNDER FREQ. RLY.
	G.E.	CFD	GEN. DIFF. RLY (MAIN UNIT)
	G.E.	STD	GEN. & TRANSF. DIFF. RLY. (OVERALL).
	WHSE	KAB	BUS TIE DIFF. PROTECTION.
	G.E.	SBD	STATIC BUS DIFF. RLY.
	G.E.	STD	TRANSF. DIFF. RLY.
	G.E.	IFD	TRANSF. NEUT. DIFF. RLY.
	G.E.	STD	TRANSF. NEUT. DIFF. RLY.
	G.E.	STD	TRANSF. NEUT. DIFF. RLY.
	WHSE	SA-1	DIESEL GEN. DIFF. RLY.

INSTRUMENTS & METERS

- (A) AMMETER
- (MA) MILLIAMMETER
- (V) VOLTMETER
- (F) FREQUENCY METER
- (W) WATTMETER
- (WH) WATT HOUR METER
- (VR) VARMETER
- (RA) RECORDING AMMETER
- (RV) RECORDING VOLTMETER
- (RW) RECORDING WATTMETER
- (RVR) RECORDING VARMETER
- (C) COMPUTER INPUT
- (IT) IMPULSE TOTALIZER
- (CT) CURRENT TRANSDUCER
- (TC) THERMAL CONVERTER
- (VX) VOLTAGE TRANSDUCER
- (FX) FREQUENCY TRANSDUCER
- (WX) WATT TRANSDUCER
- (VX) VAR TRANSDUCER
- (TM) RUNNING TIME METER
- (DD) PRINTING DEMAND METER
- (L) POT IND. LIGHT
- INSTRUMENT SWITCH
- SYN SYNCHROSCOPE
- WINDOW TYPE 8 @ CT
- (CL) CONTACT MAKING CLOCK

ESSENTIAL COMPONENTS INCLUDED

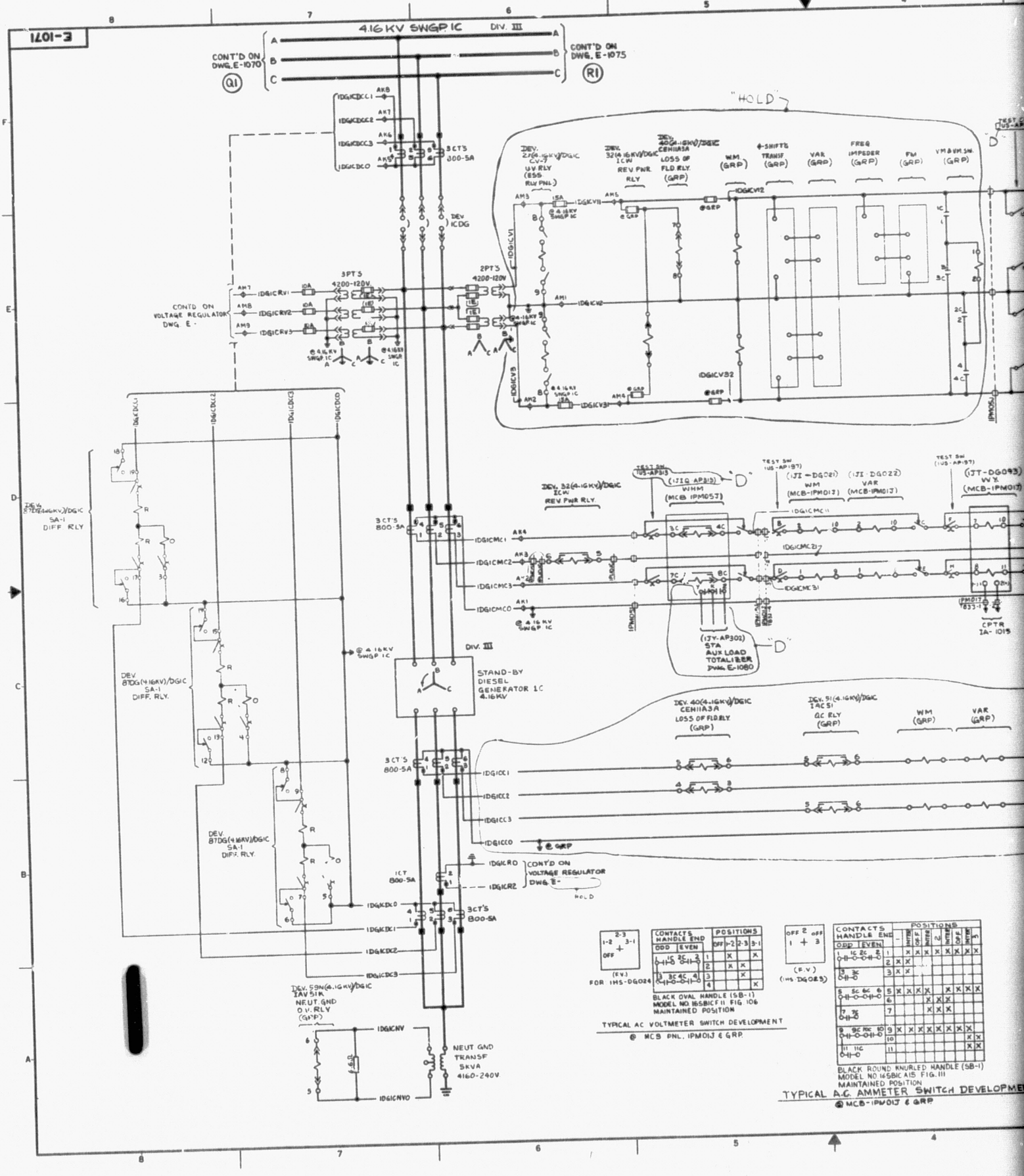
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FINAL SAFETY ANALYSIS REPORT

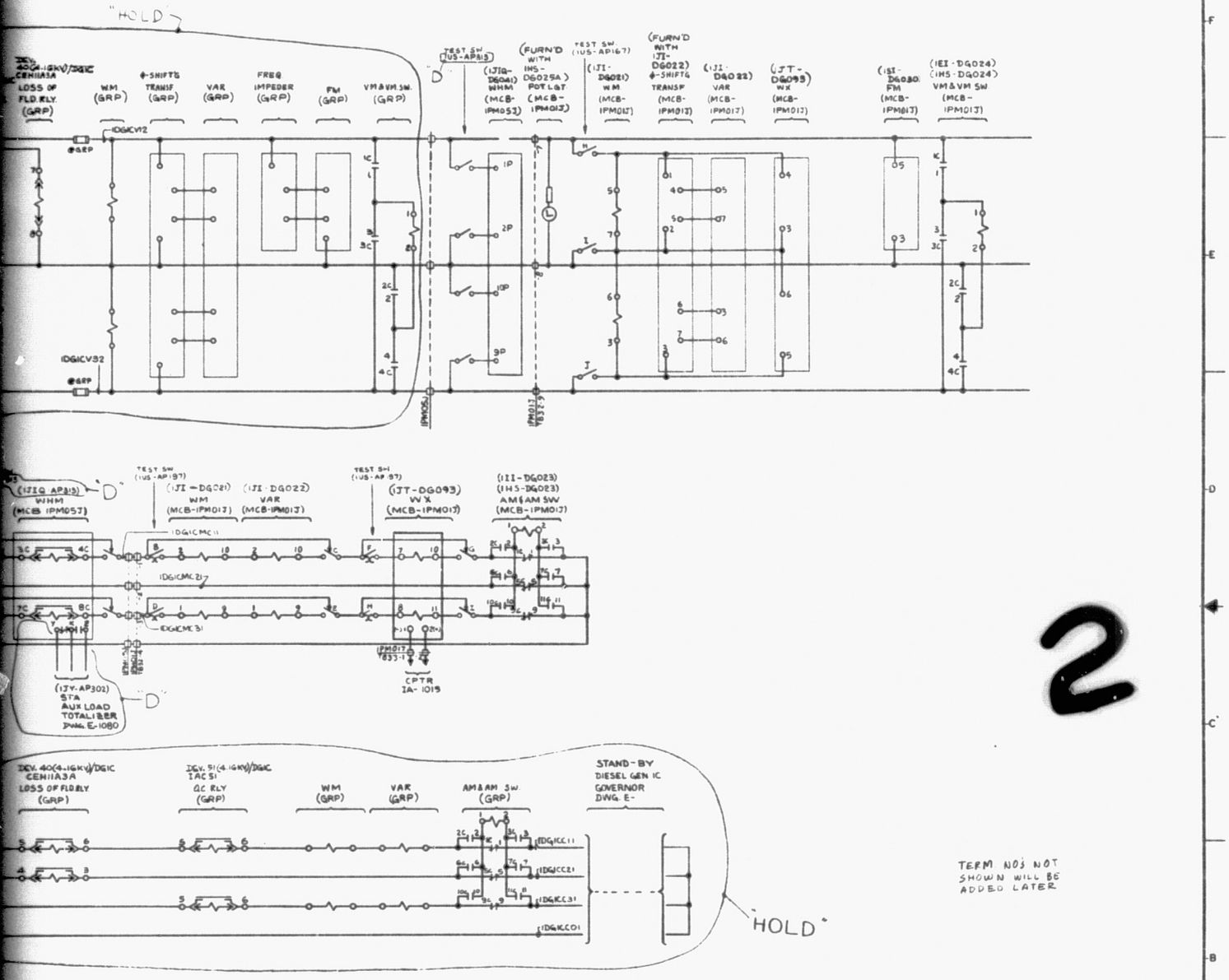
FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

(SHEET 2 OF 23)

E-1071-3


4.16 KV SWGR 1C DIV. III
CONT'D ON DWG. E-1070
CONT'D ON DWG. E-1075
"HOLD"
3 CT'S 800-5A
DEV. 1CDG
3PT'S 4200-120V
2PT'S 4200-120V
CONT'D ON VOLTAGE REGULATOR DWG. E-
DEV. 87DG(4.16KV)/DGIC SA-1 DIFF. RLY.
STAND-BY DIESEL GENERATOR 1C 4.16KV
1CT 800-5A
3 CT'S 800-5A
DEV. 59N(4.16KV)/DGIC IAV 51R NEUT. GND O.V. RLY (GRP)
NEUT GND TRANSF 5KVA 4160-240V
DEV. 32(4.16KV)/DGIC ICW REV PWR RLY
DEV. 40(4.16KV)/DGIC CEH11A3A LOSS OF FLD RLY. (GRP)
DEV. 91(4.16KV)/DGIC IAC51 QC RLY (GRP)
WHM (GRP)
VAR (GRP)
FREQ IMPEDER (GRP)
PM (GRP)
VM & VM SW. (GRP)
Φ-SHIFTS TRANSF (GRP)
(1JT-DG093) WY (MCB-1PM01J)
(1JI-DG021) WHM (MCB-1PM01J)
(1JI-DG022) VAR (MCB-1PM01J)
(1JY-AP302) STA AUX LOAD TOTALIZER PNL E-1080
CPTR 1A-1015
TYPICAL AC VOLTMETER SWITCH DEVELOPMENT
@ MCB PNL. 1PM01J & GRP.
TYPICAL A.C. AMMETER SWITCH DEVELOPMENT
@ MCB-1PM01J & GRP



2

TERM. NOS NOT SHOWN WILL BE ADDED LATER

CONTACTS HANDLE END	POSITIONS
EVEN	DRS 1-2 2-3 3-1
2C 2	1 X X
4C 4	2 X X
	3 X
	4 X

OVAL HANDLE (5B-1)
NO 165BICF11 FIG. 106
MAINED POSITION
TCHER SWITCH DEVELOPMENT
1PM01J & GRP

OFF 2 OFF
1 + 3
(F.V.)
(1HS-DG023)

CONTACTS HANDLE END	POSITIONS
OPP EVEN	- INTER OFF INTER 1-2 INTER OFF INTER
1 1C 2C 2	1 X X X X X X X X
3 3C	2 X X
	3 X X
5 5C 6C 6	5 X X X X X X X X
7 7C	6 X X X
	7 X X X
9 9C 10C 10	9 X X X X X X X X
11 11C	10 X X
	11 X X

BLACK ROUND KNURLED HANDLE (5B-1)
MODEL NO 165BICA15 FIG. 111
MAINTAINED POSITION

TYPICAL A.C. AMMETER SWITCH DEVELOPMENT
@ MCB-1PM01J & GRP

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

FOR NOTES & REF. SEE DWGS E-1001 & E-1002

STATE OF OHIO DAVID C. McCLINTOCK 33129 REGISTERED PROFESSIONAL ENGINEER

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

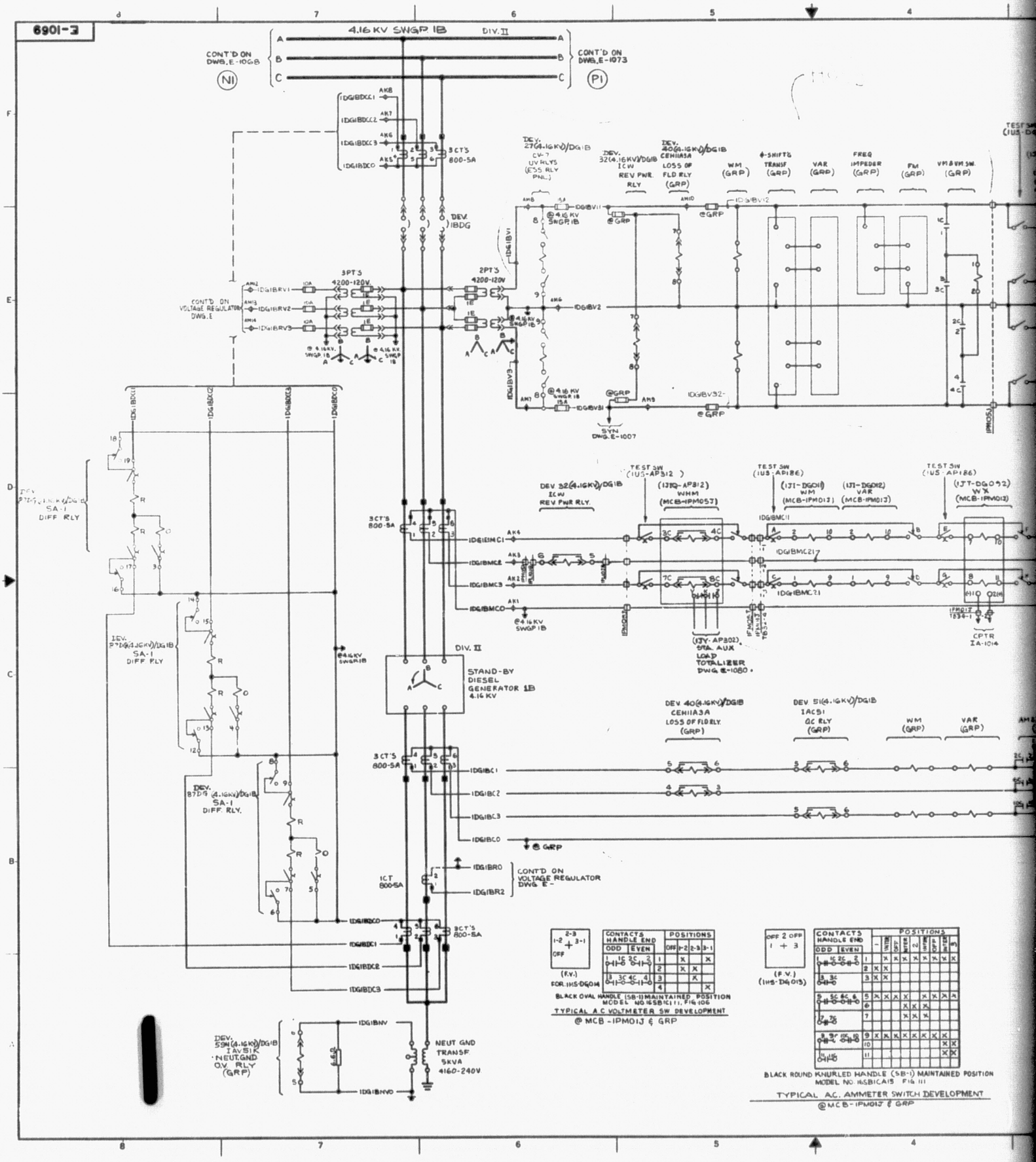
FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

(SHEET 3 OF 23)

ERASE WITH WATER

6901-3



CONTACTS HANDLE END ODD	EVEN	POSITIONS OFF	1-2	2-3	3-1
1	1C 2C 2	1	X		X
		2	X	X	
3	3C 4C 4	3		X	
		4			X

2-3 / 1-2 + 3-1 / OFF (F.V.) FOR 1HS-DG014

BLACK OVAL HANDLE (SB-1) MAINTAINED POSITION MODEL NO 16SB1C111, FIG 106

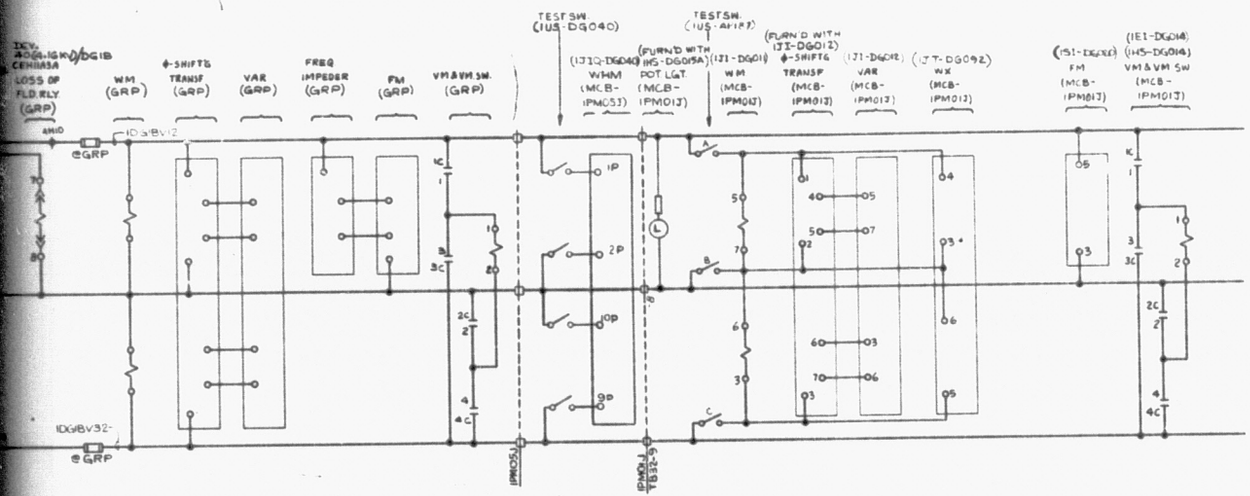
TYPICAL A.C VOLTMETER SW DEVELOPMENT @ MCB-1PM01J & GRP

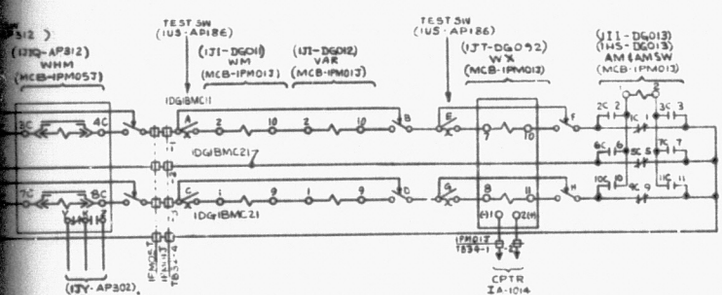
OFF 2 OFF 1 + 3 (F.V.) (1HS-DG013)

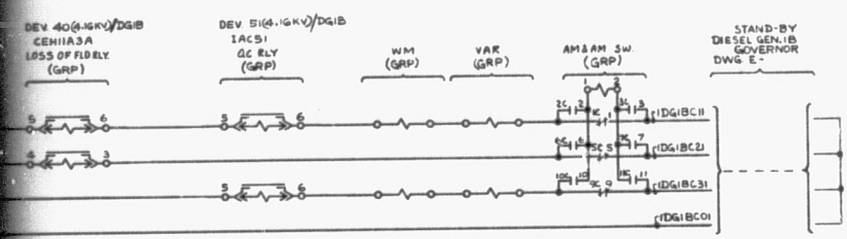
CONTACTS HANDLE END ODD	EVEN	POSITIONS -	INTER	OFF	INTER	1	INTER	OFF	INTER	2	INTER	3
1	1C 2C 2	1	X	X	X	X	X	X	X	X	X	X
3	3C	2	X	X								
		3	X	X								
5	5C 6C 6	4	X	X	X	X		X	X	X	X	X
7	7C	5					X	X	X			
		6					X	X				
9	9C 10C 10	7					X	X	X			
11	11C	8	X	X	X	X	X	X	X	X	X	X
		9	X	X	X	X	X	X	X	X	X	X
		10									X	X
		11									X	X

BLACK ROUND KNURLED HANDLE (SB-1) MAINTAINED POSITION MODEL NO. 16SB1CA15 FIG 111

TYPICAL A.C. AMMETER SWITCH DEVELOPMENT @ MCB-1PM01J & GRP







2

TERM NO'S NOT SHOWN WILL BE ADDED LATER

	POSITIONS		
	OFF	1-2	2-3	3-1
1		X		X
2		X	X	
3			X	
4				X

MAINTAINED POSITION
MODEL 11, FIG 106
SW. DEVELOPMENT
GRP

OFF 2 OFF
1 + 3
(P.V.)
(IHS-DG013)

CONTACTS HANDLE END		POSITIONS								
ODD	EVEN	-	1	2	3	4	5	6	7	8
1	2	1	X	X	X	X	X	X	X	X
3		2	X	X						
	3	3	X	X						
5	6	5	X	X	X	X		X	X	X
		6				X	X	X		
7		7				X	X	X		
9	10	9	X	X	X	X	X	X	X	X
		10							X	X
11		11							X	X

BLACK ROUND KNURLED HANDLE (SB-1) MAINTAINED POSITION
MODEL NO. HSBICA15 FIG 111

TYPICAL A.C. AMMETER SWITCH DEVELOPMENT
@MCB-IPM013 & GRP

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

FOR NOTES & REF. SEE DWG E-1001 & E-1002

STATE OF OHIO
DAVID C. McCLINTOCK
33129
REGISTERED
PROFESSIONAL ENGINEER

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

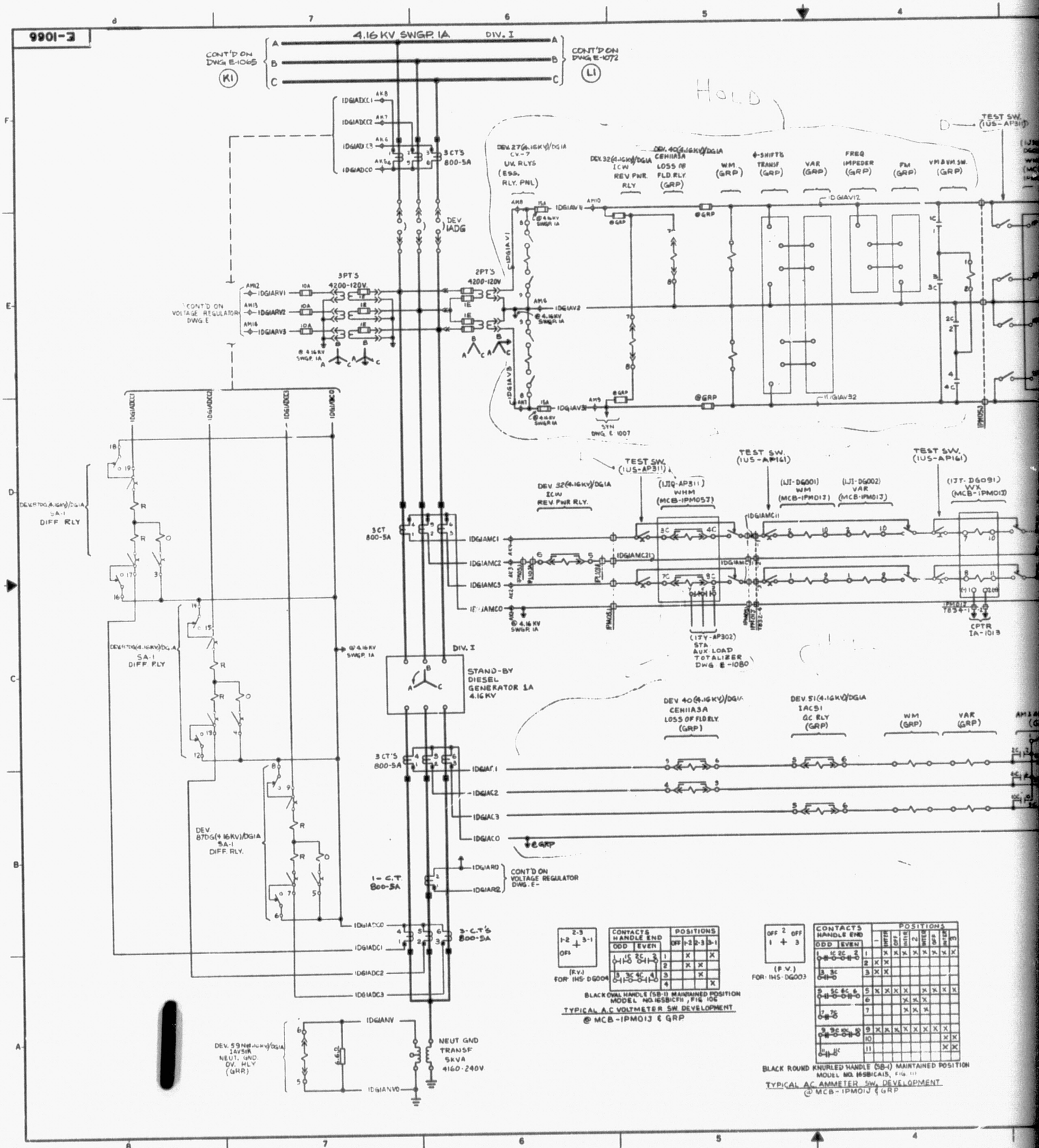
FIGURE 7.3-26

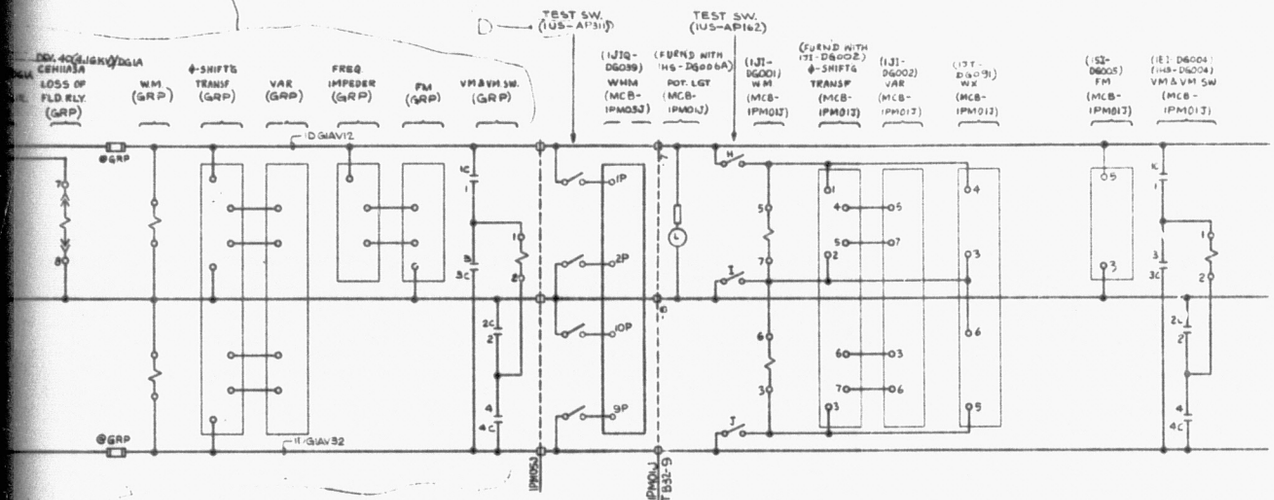
STANDBY POWER SYSTEM ESD

(SHEET 4 OF 23)

ERASE WITH WATER

9901-3


4.16 KV SWGR 1A DIV. I
CONT'D ON DWG E-1065 (K1)
CONT'D ON DWG E-1072 (L1)
HOLD
TEST SW. (1US-AP311)
TEST SW. (1US-AP161)
TEST SW. (1US-AP161)
DEV 27(4.16KV)/DG1A UV RLYS (ESS. RLY. PNL)
DEV 32(4.16KV)/DG1A ICW REV PWR RLY
DEV 40(4.16KV)/DG1A CEH11A3A LOSS OF FLD RLY (GRP)
WM (GRP)
Φ-SHIFTS TRANSF (GRP)
VAR (GRP)
FREQ IMPEDER (GRP)
FM (GRP)
VM & VM SW. (GRP)
3PT'S 4200-120V
2PT'S 4200-120V
3 CT'S 800-5A
DEV 87DG(4.16KV)/DG1A SA-1 DIFF RLY
DIV. I
STAND-BY DIESEL GENERATOR 1A 4.16 KV
1-C.T. 800-5A
3-C.T.'S 800-5A
DEV. 59NG(4.16KV)/DG1A IAVSIR NEUT. GND. OV. RLY (GRR)
NEUT GND TRANSF 5KVA 4160-240V
DEV 32(4.16KV)/DG1A ICW REV. PWR RLY.
(1JQ-AP311) WHM (MCB-1PM057)
(1JJ-DG001) WM (MCB-1PM017)
(1JJ-DG002) VAR (MCB-1PM01J)
(1JT-DG091) WX (MCB-1PM01I)
DEV 40(4.16KV)/DG1A CEH11A3A LOSS OF FLD RLY (GRP)
DEV 51(4.16KV)/DG1A IACS1 QC RLY (GRP)
(13Y-AP302) STA AUX LOAD TOTALIZER DWG E-1080
CONT'D ON VOLTAGE REGULATOR DWG E
CPTR 1A-1013
TYPICAL AC VOLTMETER SW DEVELOPMENT @ MCB-1PM01J & GRP
TYPICAL AC AMMETER SW DEVELOPMENT @ MCB-1PM01J & GRP
BLACK OVAL HANDLE (SB-11) MAINTAINED POSITION MODEL NO. 16SB1CF11, FIG 106
BLACK ROUND KNURLED HANDLE (SB-4) MAINTAINED POSITION MODEL NO. 16SB1CA15, FIG 111



2

	POSITIONS			
	OFF	1-2	2-3	3-1
1		X		X
2		X		
3			X	
4				X

(SB-1) MAINTAINED POSITION
MODEL NO. 16SB1CF1, FIG. 106
TYPICAL AC AMMETER SW. DEVELOPMENT
@ MCB-1PM01J & GRP

OFF 2 OFF
1 + 3
(F.V.)
FOR: 1HS-DG003

CONTACTS HANDLE END			POSITIONS									
ODD	EVEN		-	WATER	OFF	WATER	2	WATER	OFF	WATER	3
1 1C 2C	2	1		X	X	X	X	X	X	X	X
		2	X	X							
3 3C		3	X	X							
5 5C 6C	6	5	X	X	X	X		X	X	X	X
		6				X	X	X			
7 7C		7				X	X	X			
9 9C 10C		9	X	X	X	X	X	X	X	X	
		10								X	X
11 11C		11								X	X

BLACK ROUND KNURLED HANDLE (SB-1) MAINTAINED POSITION
MODEL NO. 16SB1CA15, FIG. 111
TYPICAL AC AMMETER SW. DEVELOPMENT
@ MCB-1PM01J & GRP

ESSENTIAL COMPONENTS
INCLUDED

FOR NOTES & REF. SEE DWGS. E1001 & E1002

STATE OF OHIO
DAVID C. McCLINTOCK
33129
REGISTERED PROFESSIONAL ENGINEER

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

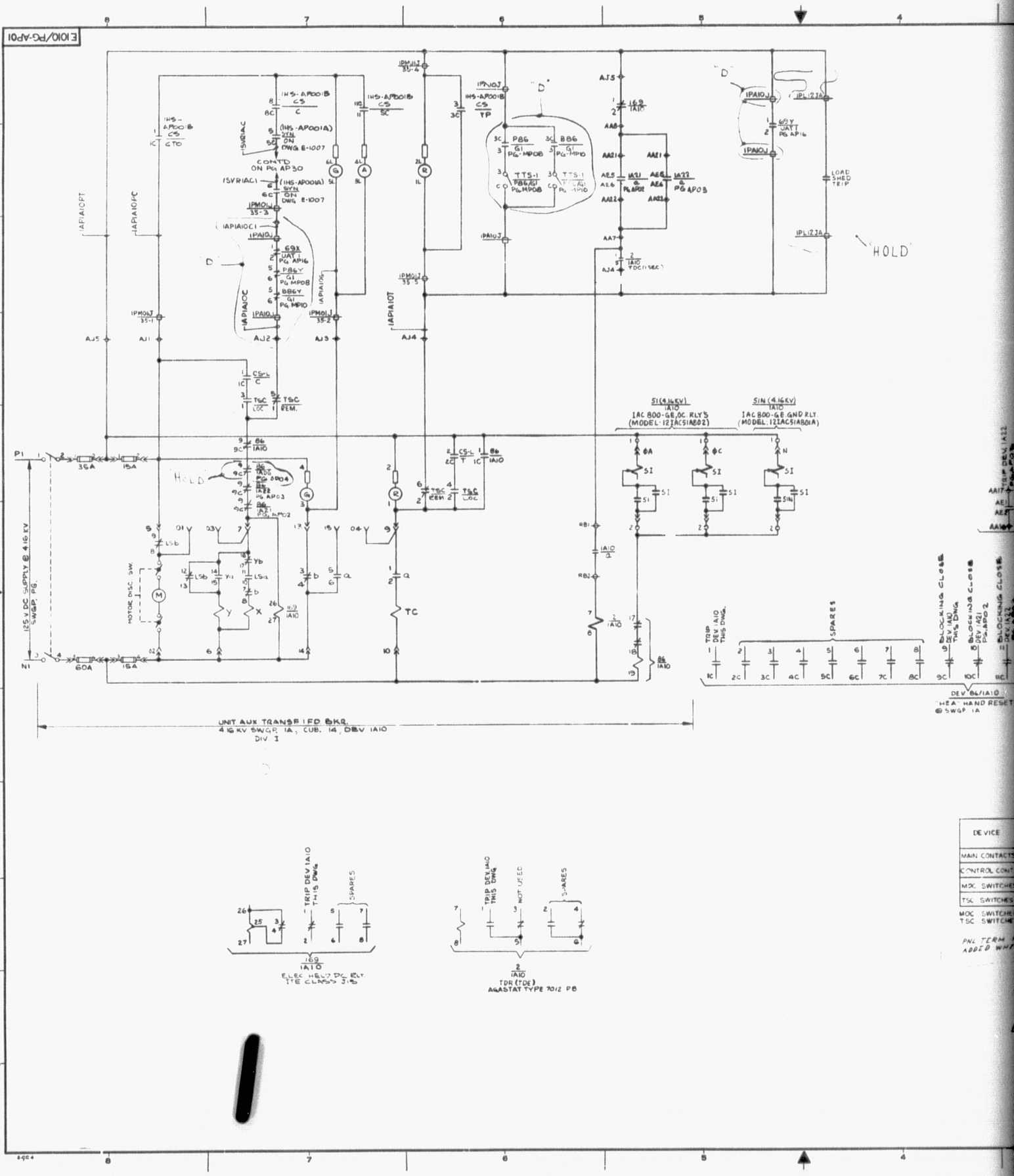
FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

(SHEET 5 OF 23)

ERASE WITH WATER

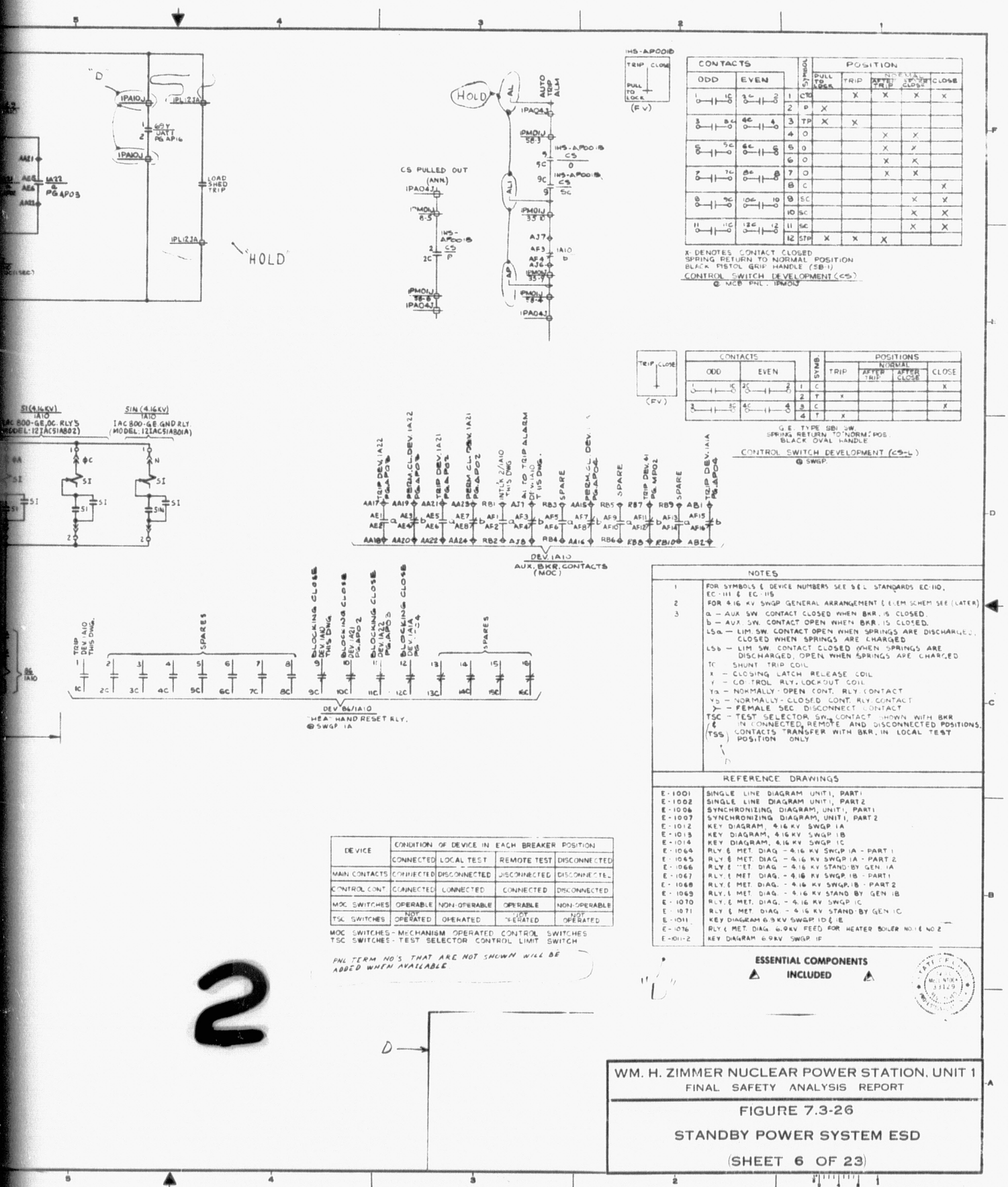
E1010/PG-AP01



DEVICE
MAIN CONTACTS
CONTROL CONT
MOC SWITCHES
TSC SWITCHES

MOC SWITCHES
TSC SWITCHES

PNL TERM ADDED WHA



CONTACTS ODD	CONTACTS EVEN		SYMBOL	POSITION: PULL TO LOCK	TRIP	NORMAL: AFTER TRIP	NORMAL: AFTER CLOSE	CLOSE
1	2	1	C		X	X	X	X
		2	P	X				
3	4	3	TP	X	X			
		4	O			X	X	
5	6	5	O			X	X	
		6	O			X	X	
7	8	7	O			X	X	
		8	C					X
9	10	9	SC				X	X
		10	SC				X	X
11	12	11	SC				X	X
		12	STP	X	X	X		

X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK PISTOL GRIP HANDLE (SB-1)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL. 1PM01J

CONTACTS ODD	CONTACTS EVEN		SYMB	POSITIONS: TRIP	NORMAL: AFTER TRIP	NORMAL: AFTER CLOSE	CLOSE
1	2	1	C				X
		2	T	X			
3	4	3	C				X
		4	T	X			

G.E. TYPE SBI SW.
SPRING RETURN TO NORM. POS.
BLACK OVAL HANDLE

CONTROL SWITCH DEVELOPMENT (CS-L)
@ SWGP.

NOTES	
1	FOR SYMBOLS & DEVICE NUMBERS SEE SARGENT & LUNDY STANDARDS EC-110, EC-111 & EC-115
2	FOR 4.16 KV SWGP. GENERAL ARRANGEMENT & ELEM. SCHEM. SEE (LATER)
3	a – AUX. SW. CONTACT CLOSED WHEN BKR. IS CLOSED. b – AUX. SW. CONTACT OPEN WHEN BKR. IS CLOSED. LSa – LIM. SW. CONTACT OPEN WHEN SPRINGS ARE DISCHARGED, CLOSED WHEN SPRINGS ARE CHARGED LSb – LIM. SW. CONTACT CLOSED WHEN SPRINGS ARE DISCHARGED, OPEN WHEN SPRINGS ARE CHARGED TC – SHUNT TRIP COIL X – CLOSING LATCH RELEASE COIL Y – CONTROL RLY. LOCKOUT COIL Ya – NORMALLY-OPEN CONT. RLY. CONTACT Yb – NORMALLY-CLOSED CONT. RLY. CONTACT ⟩– FEMALE SEC. DISCONNECT CONTACT TSC – TEST SELECTOR SW. CONTACT SHOWN WITH BKR IN CONNECTED, REMOTE AND DISCONNECTED POSITIONS. (TSS) CONTACTS TRANSFER WITH BKR. IN LOCAL TEST POSITION ONLY

REFERENCE DRAWINGS	
E-1001	SINGLE LINE DIAGRAM UNIT 1, PART 1
E-1002	SINGLE LINE DIAGRAM UNIT 1, PART 2
E-1006	SYNCHRONIZING DIAGRAM, UNIT 1, PART 1
E-1007	SYNCHRONIZING DIAGRAM, UNIT 1, PART 2
E-1012	KEY DIAGRAM, 4.16 KV SWGP. 1A
E-1013	KEY DIAGRAM, 4.16 KV SWGP. 1B
E-1014	KEY DIAGRAM, 4.16 KV SWGP. 1C
E-1064	RLY & MET. DIAG. - 4.16 KV SWGP. 1A - PART 1
E-1065	RLY & MET. DIAG. - 4.16 KV SWGP. 1A - PART 2
E-1066	RLY & MET. DIAG. - 4.16 KV STAND-BY GEN. 1A
E-1067	RLY & MET. DIAG. - 4.16 KV SWGP. 1B - PART 1
E-1068	RLY & MET. DIAG. - 4.16 KV SWGP. 1B - PART 2
E-1069	RLY & MET. DIAG. - 4.16 KV STAND BY GEN. 1B
E-1070	RLY & MET. DIAG. - 4.16 KV SWGP. 1C
E-1071	RLY & MET. DIAG. - 4.16 KV STAND-BY GEN. 1C
E-1011	KEY DIAGRAM 6.9 KV SWGP. 1D & 1E
E-1076	RLY & MET. DIAG. 6.9 KV FEED FOR HEATER BOILER NO. 1 & NO. 2
E-1011-2	KEY DIAGRAM 6.9 KV SWGP. 1F

DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION			
	CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTACTS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT.	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SWITCHES - MECHANISM OPERATED CONTROL SWITCHES
TSC SWITCHES - TEST SELECTOR CONTROL LIMIT SWITCH

PNL TERM NO'S THAT ARE NOT SHOWN WILL BE ADDED WHEN AVAILABLE

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

2

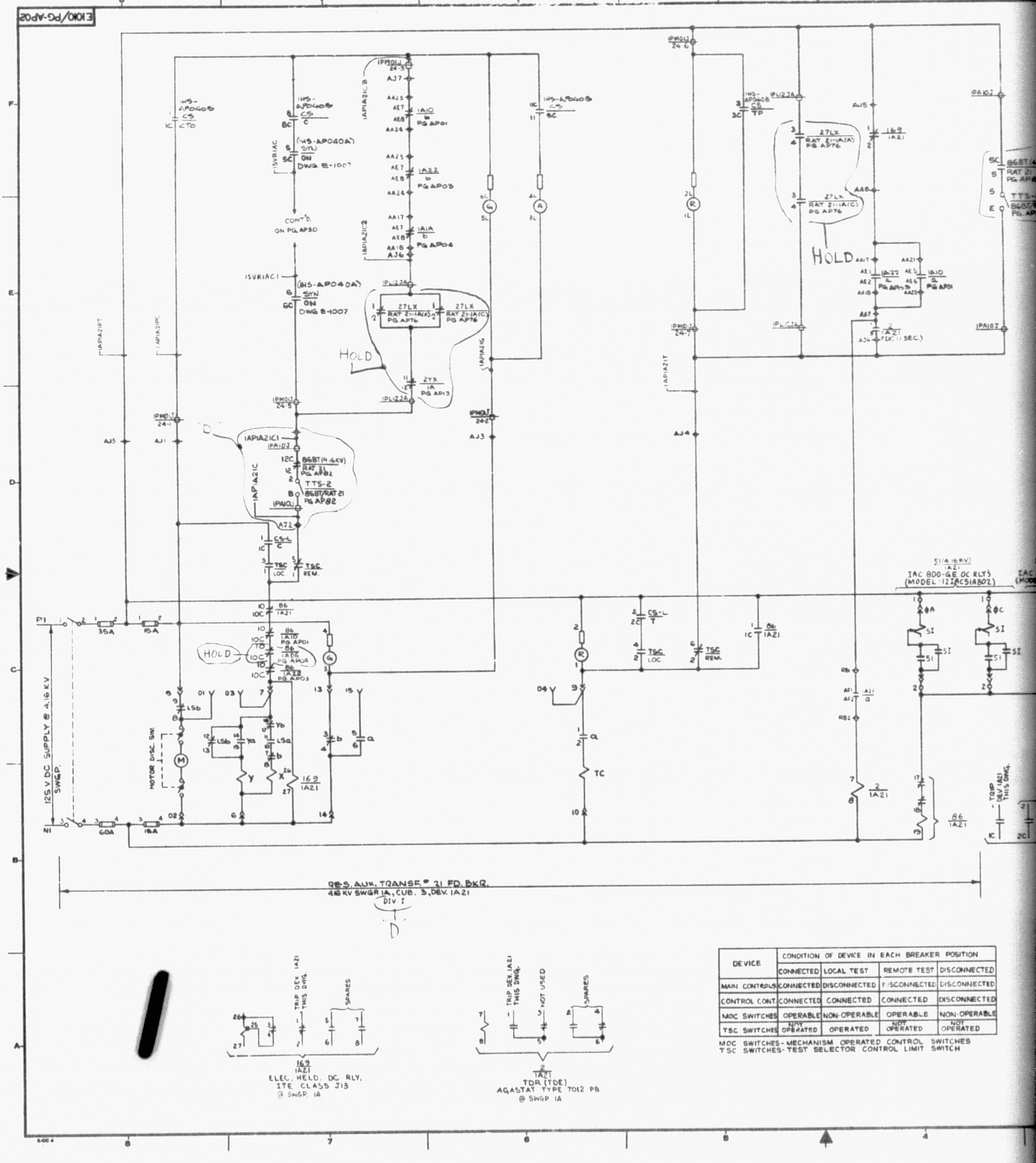
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

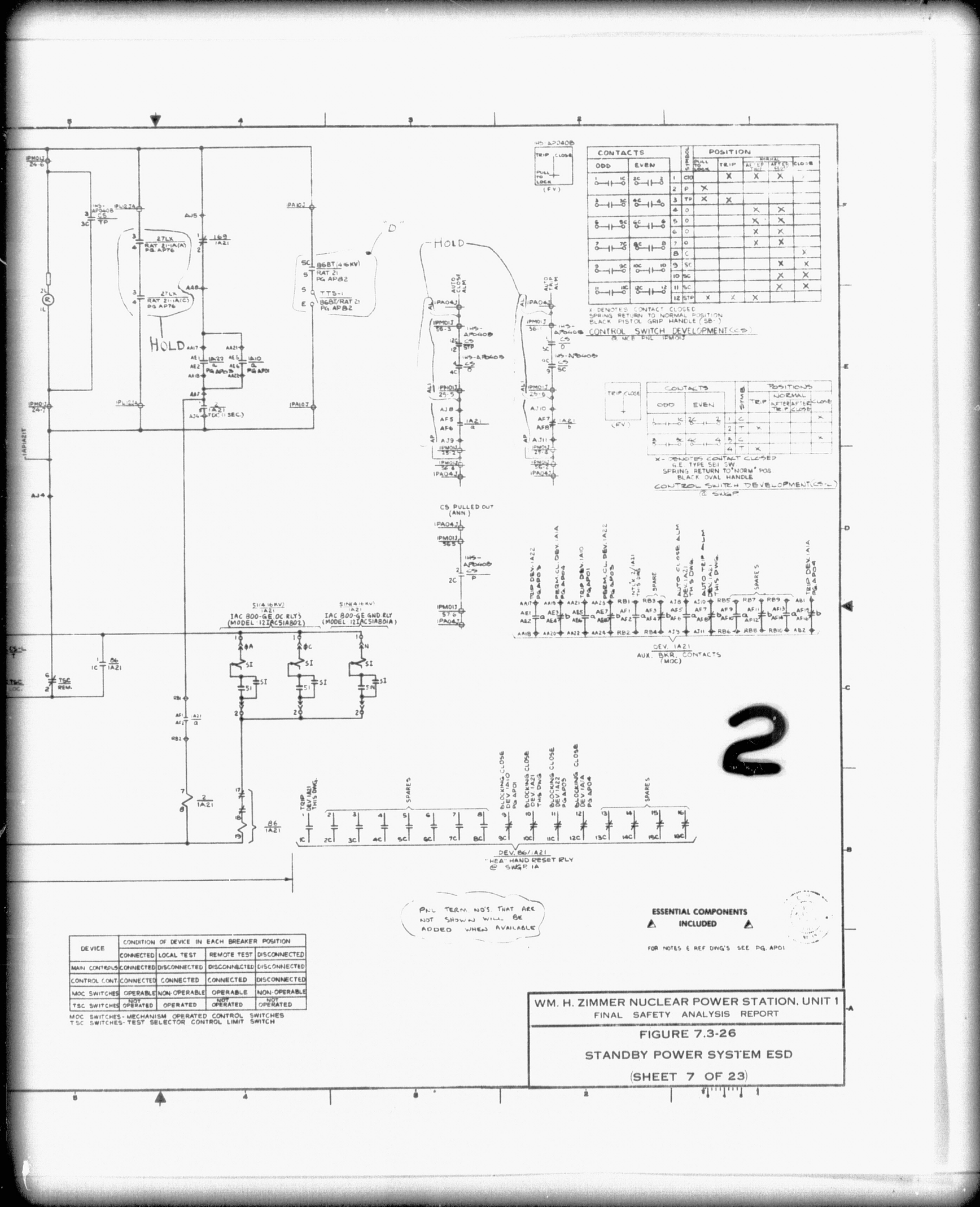
(SHEET 6 OF 23)

E1010/PG-AP02



DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION			
	CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTACTS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT.	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SWITCHES - MECHANISM OPERATED CONTROL SWITCHES
TSC SWITCHES - TEST SELECTOR CONTROL LIMIT SWITCH



DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION			
	CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTACTS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT.	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SWITCHES - MECHANISM OPERATED CONTROL SWITCHES
TSC SWITCHES - TEST SELECTOR CONTROL LIMIT SWITCH

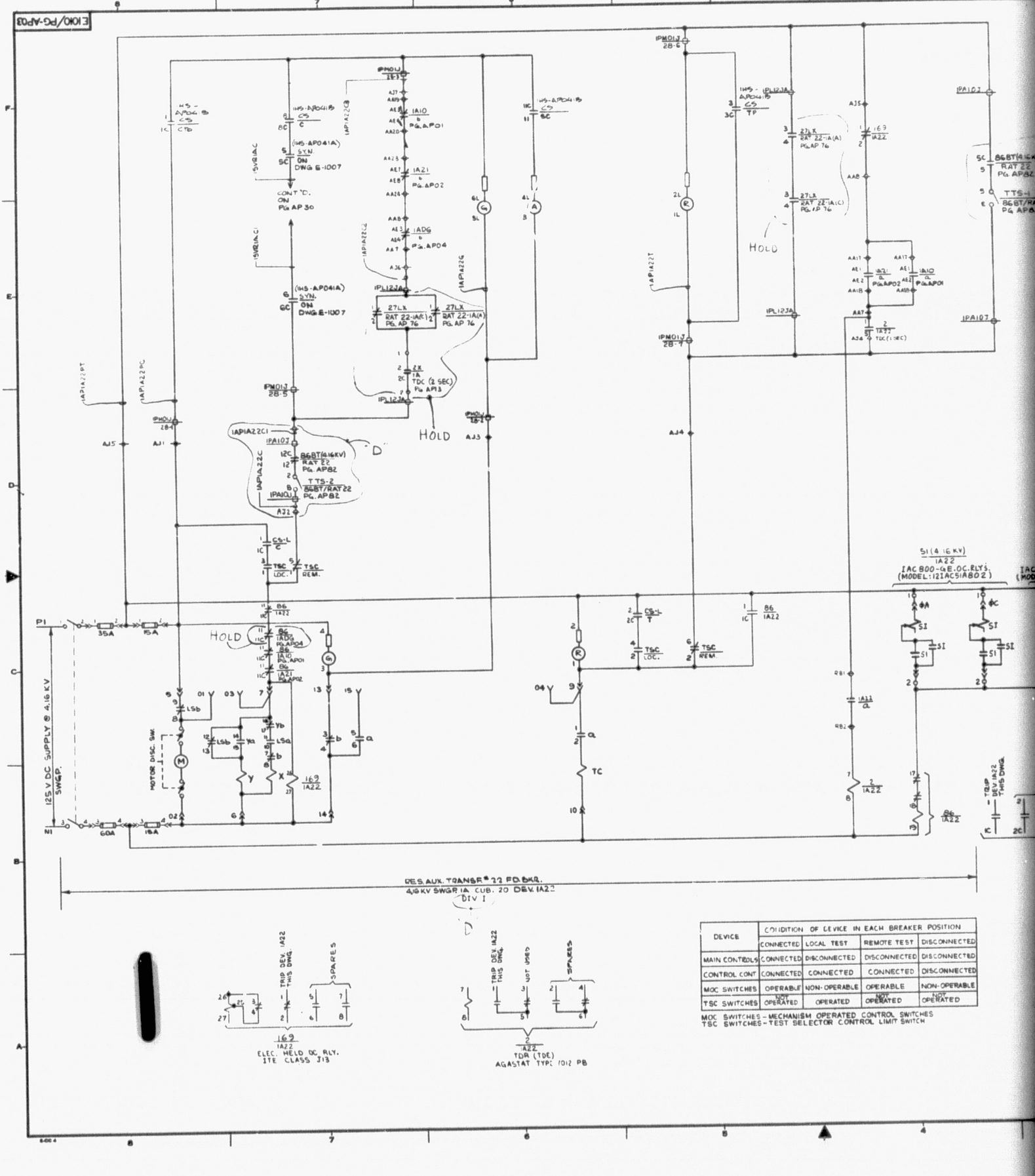
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

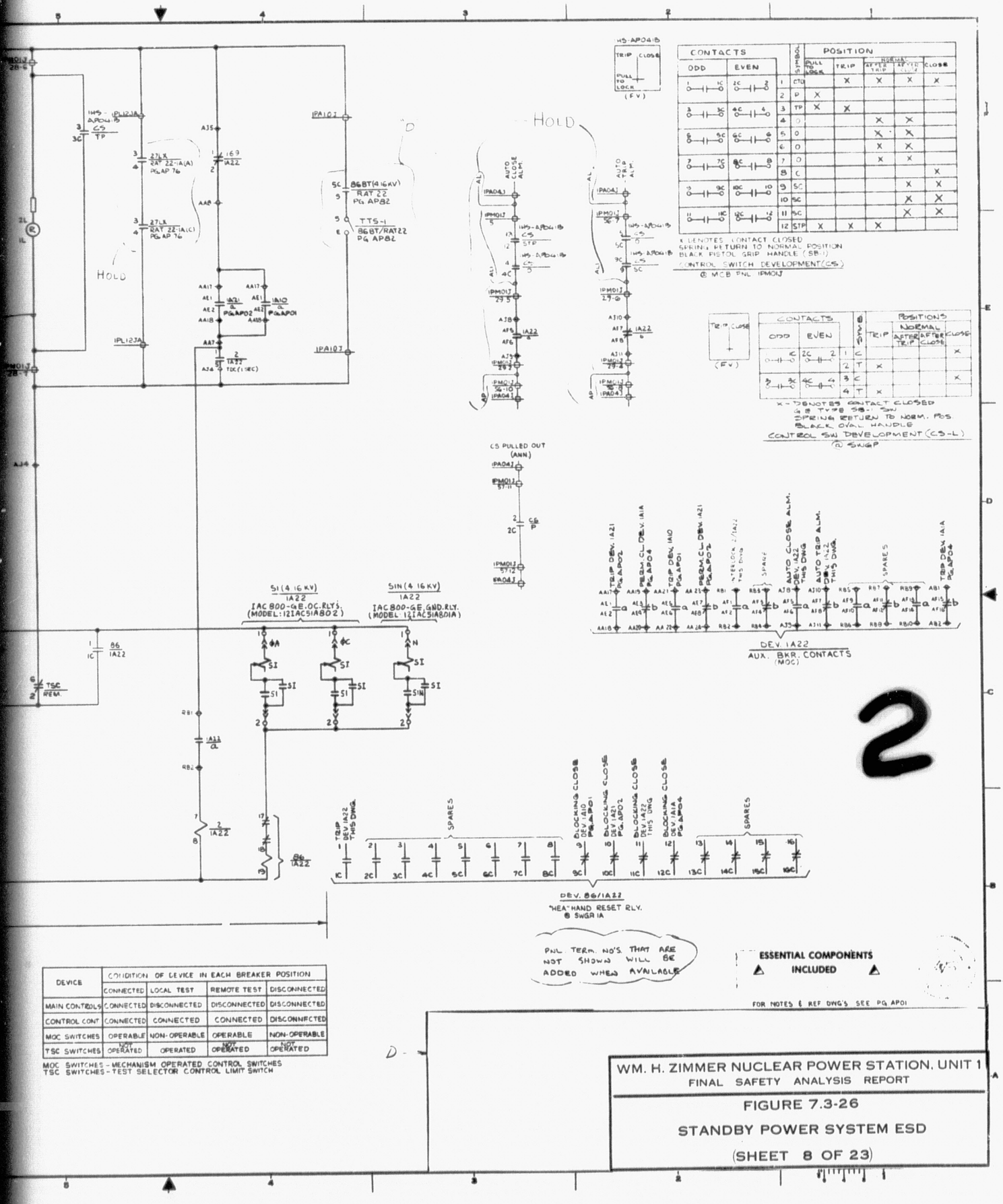
(SHEET 7 OF 23)

E10K0/PG-AP03



DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION			
	CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTROLS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SWITCHES - MECHANISM OPERATED CONTROL SWITCHES
TSC SWITCHES - TEST SELECTOR CONTROL LIMIT SWITCH



DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION			
	CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTROLS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SWITCHES - MECHANISM OPERATED CONTROL SWITCHES
TSC SWITCHES - TEST SELECTOR CONTROL LIMIT SWITCH

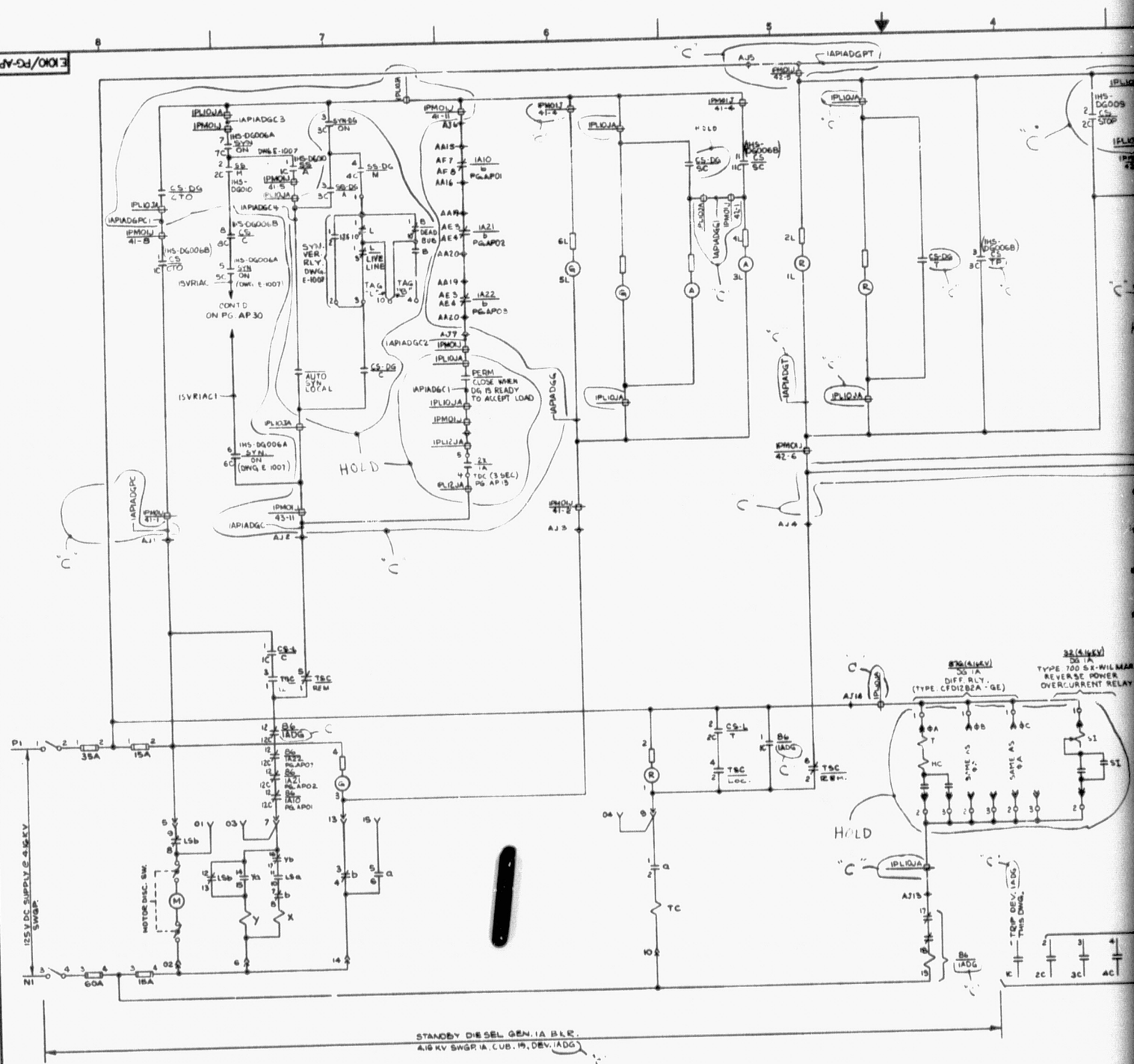
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

(SHEET 8 OF 23)

E1010/PG-AP04



IHS-DG010

MAN, AUTO

(FV)

CONTACTS ODD	CONTACTS EVEN	SYMB	POSITION MANUAL	POSITION AUTO
1 1C	2C 2	1 A		X
		2 M	X	
3 3C	4C 4	3 A		X
		4 M	X	
5 5C	6C 6	5 A		X
		6 M	X	

X-DENOTES CONTACT CLOSED
MAINTAINED POSITION
BLACK LEVER HANDLE (SB-1)

MODE SEL. SWITCH DEVELOPMENT (SS)
@ MCB PNL IPMO1J, SECT. 4

TRIP, CLOSE

(FV)

CONTACTS ODD	CONTACTS EVEN	SYMB	POSITIONS TRIP	NORMAL AFTER TRIP	NORMAL AFTER CLOSE	CLOSE
1C	2C 2	1 C				X
		2 T	X			
3 3C	4C 4	3 C				X
		4 T	X			

X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK OVAL HANDLE SB-1

CONTROL SWITCH DEVELOPMENT (CS-L)
@ SWGR 1A

IHS-DG009

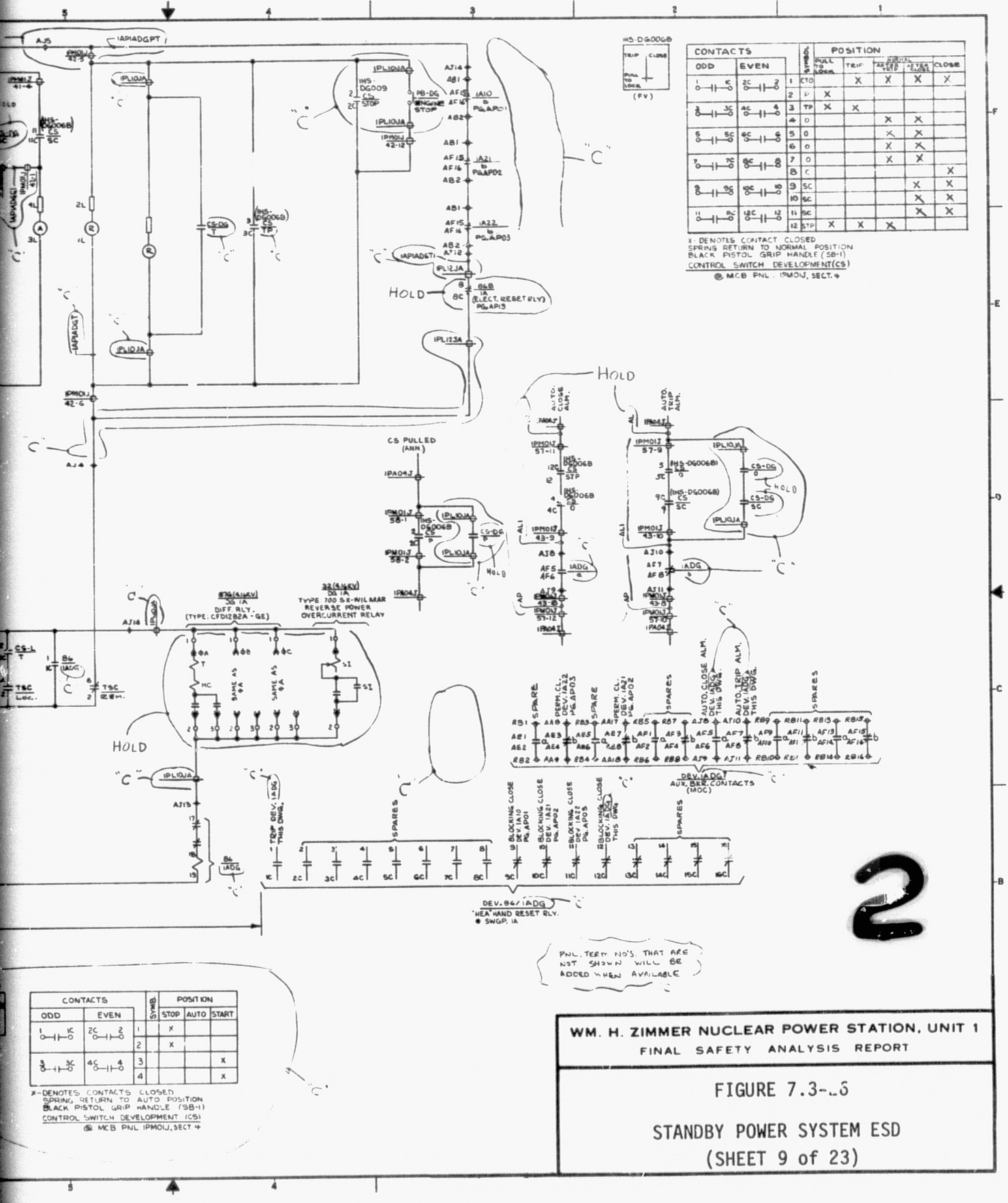
AUTO STOP START

(FV)

CONTACTS ODD	CONTACTS EVEN	SYMB	POSITION STOP	POSITION AUTO	POSITION START
1 1C	2C 2	1	X		
		2	X		
3 3C	4C 4	3			X
		4			X

X-DENOTES CONTACTS CLOSED
SPRING RETURN TO AUTO POSITION
BLACK PISTOL GRIP HANDLE (SB-1)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL IPMO1J, SECT. 4



CONTACTS ODD	CONTACTS EVEN	SYMBOL	POSITION: PULL TO LOCK	TRIP	NORMAL AFTER TRIP	NORMAL AFTER CLOSE	CLOSE
1C	2C	CTO		X	X	X	X
2	2	P	X				
3C	4C	TP	X	X			
4	4	O			X	X	
5C	6C	5	O			X	X	
6	6	6	O			X	X	
7C	8C	7	O			X	X	
8	8	8	C					X
9C	10C	9	SC				X	X
10	10	10	SC				X	X
11C	12C	11	SC				X	X
12	12	12	STP	X	X	X		

X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK PISTOL GRIP HANDLE (SB-1)
CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL. 1PM01J, SECT. 4

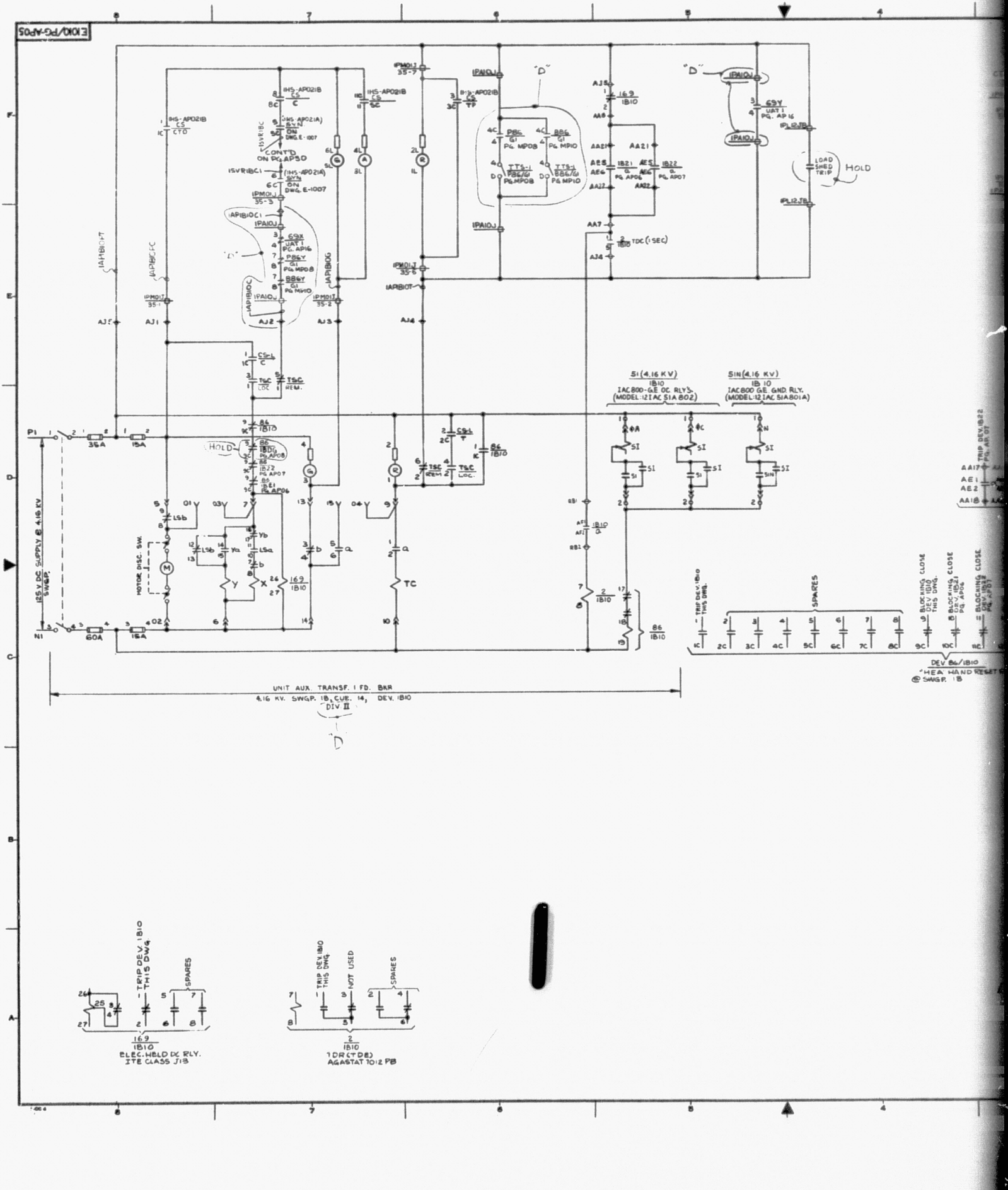
CONTACTS ODD	CONTACTS EVEN	SYMB.	POSITION: STOP	AUTO	START
1C	2C	1	X		
2	2	2	X		
3C	4C	3			X
4	4	4			X

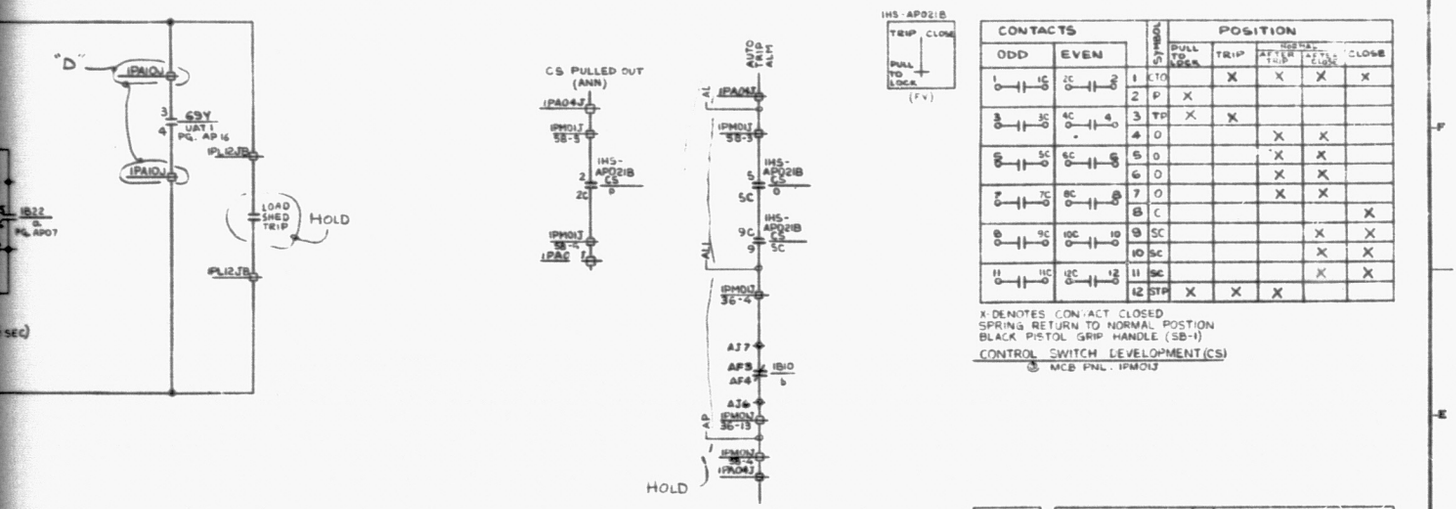
X-DENOTES CONTACTS CLOSED
SPRING RETURN TO AUTO POSITION
BLACK PISTOL GRIP HANDLE (SB-1)
CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL 1PM01J, SECT. 4

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-..6

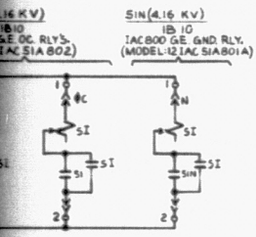
STANDBY POWER SYSTEM ESD
(SHEET 9 of 23)


E10KD/PG-AP05
UNIT AUX. TRANSF. 1 FD. BKR
4.16 KV. SWGR. 1B, CUE. 14, DEV. 1B10
"DIV II"
"D"
HOLD
TRIP DEV. 1B10 THIS DWG.
SPARES
NOT USED
169 1B10 ELEC. HELD DC RLY. ITE CLASS J1B
2 1B10 1 DR (1 DB) AGASTAT 7012 PB



CONTACTS ODD	CONTACTS EVEN		SYMBOL	POSITION: PULL TO LOCK	TRIP	NORMAL: AFTER TRIP	NORMAL: AFTER CLOSE	CLOSE
1 1C	2C 2	1	CTO		X	X	X	X
		2	P	X				
3 3C	4C 4	3	TP	X	X			
		4	O			X	X	
5 5C	6C 6	5	O			X	X	
		6	O			X	X	
7 7C	8C 8	7	O			X	X	
		8	C					X
9 9C	10C 10	9	SC				X	X
		10	SC				X	X
11 11C	12C 12	11	SC				X	X
		12	STP	X	X	X		

X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSTION
BLACK PISTOL GRIP HANDLE (SB-1)
CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL. 1PM01J

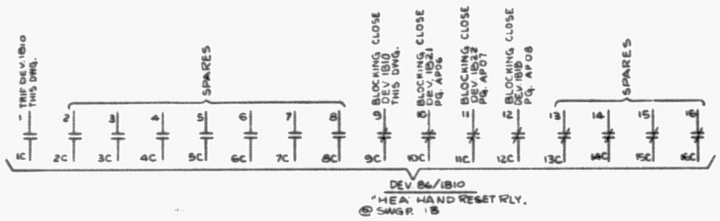






CONTACTS ODD	CONTACTS EVEN		SYMB.	POSITIONS: TRIP	NORMAL: AFTER TRIP	NORMAL: AFTER CLOSE	CLOSE
1 1C	2C 2	1	C				X
		2	T	X			
3 3C	4C 4	3	C				X
		4	T	X			

X-DENOTES CONTACT CLOSED
G E TYPE SBI SW
SPRING RETURN TO NORM POS
BLACK OVAL HANDLE
CONTROL SWITCH DEVELOPMENT (CS-L)
@ SWGR



DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION: CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTROLS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CKT.	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SWITCHES-MECHANISM OPERATED CONTROL SWITCHES
TSC SWITCHES-TEST SELECTOR CONTROL LIMIT SWITCHES

2

PNL TERM NOS THAT ARE NOT SHOWN WILL BE ADDED WHEN AVAILABLE

ESSENTIAL COMPONENTS INCLUDED

FOR NOTES & REF DWG'S SEE PG. AP01

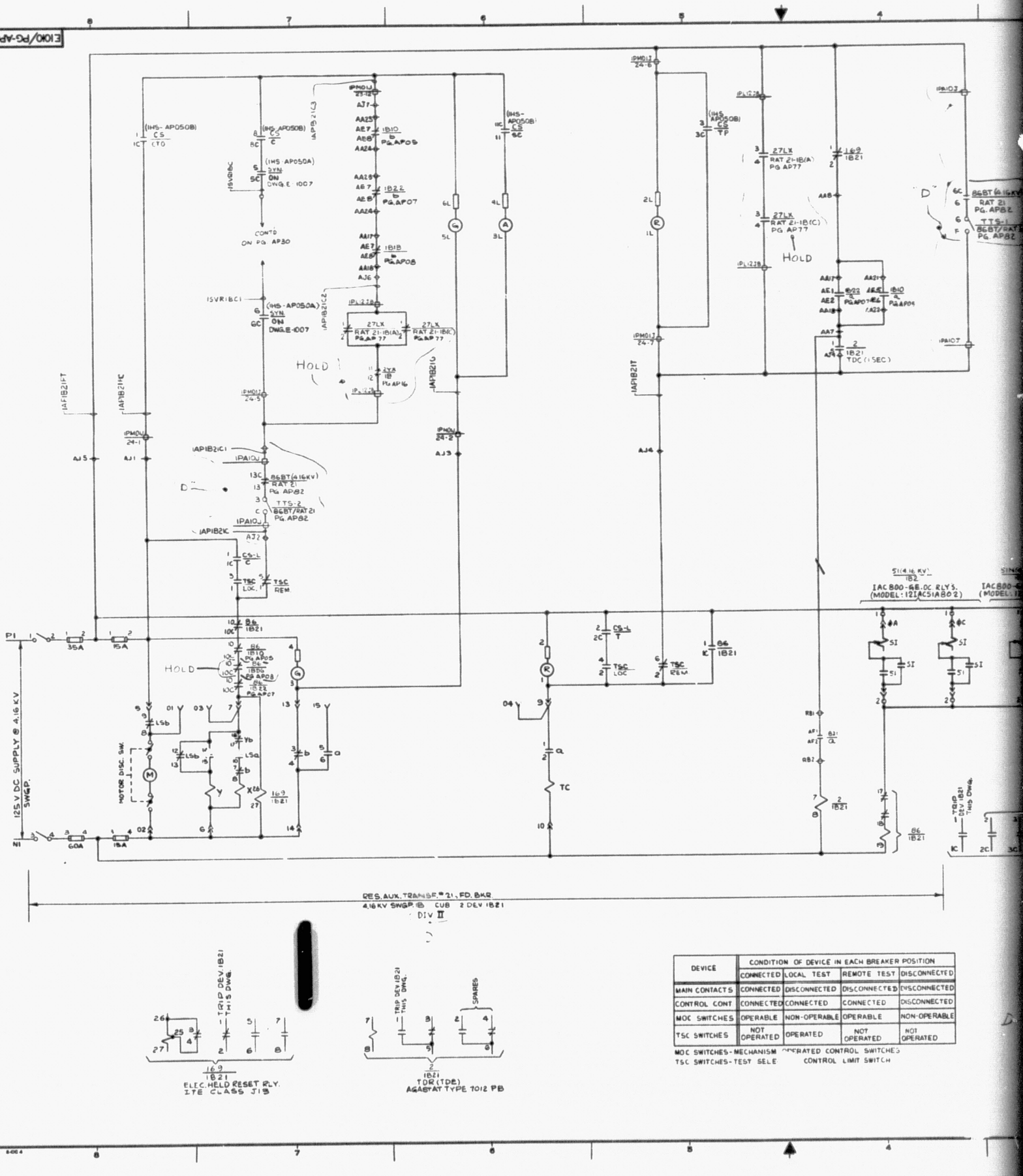
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

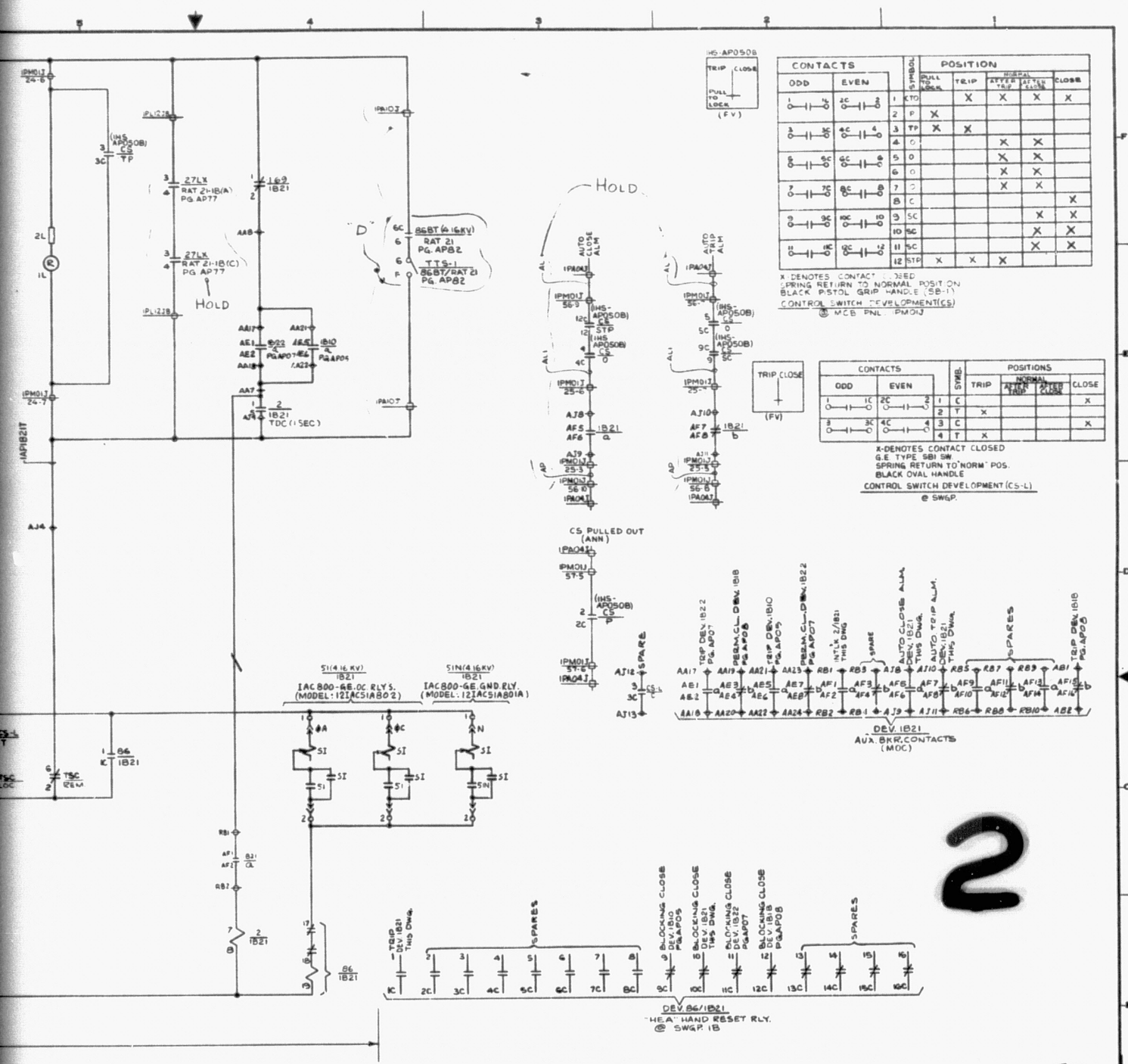
(SHEET 10 OF 23)

E1010/PG-AP06



DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION			
	CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTACTS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SWITCHES-MECHANISM OPERATED CONTROL SWITCHES
TSC SWITCHES-TEST SELE CONTROL LIMIT SWITCH



DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION			
	CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTACTS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SWITCHES - MECHANISM OPERATED CONTROL SWITCHES
TSC SWITCHES - TEST SELECTOR CONTROL LIMIT SWITCH

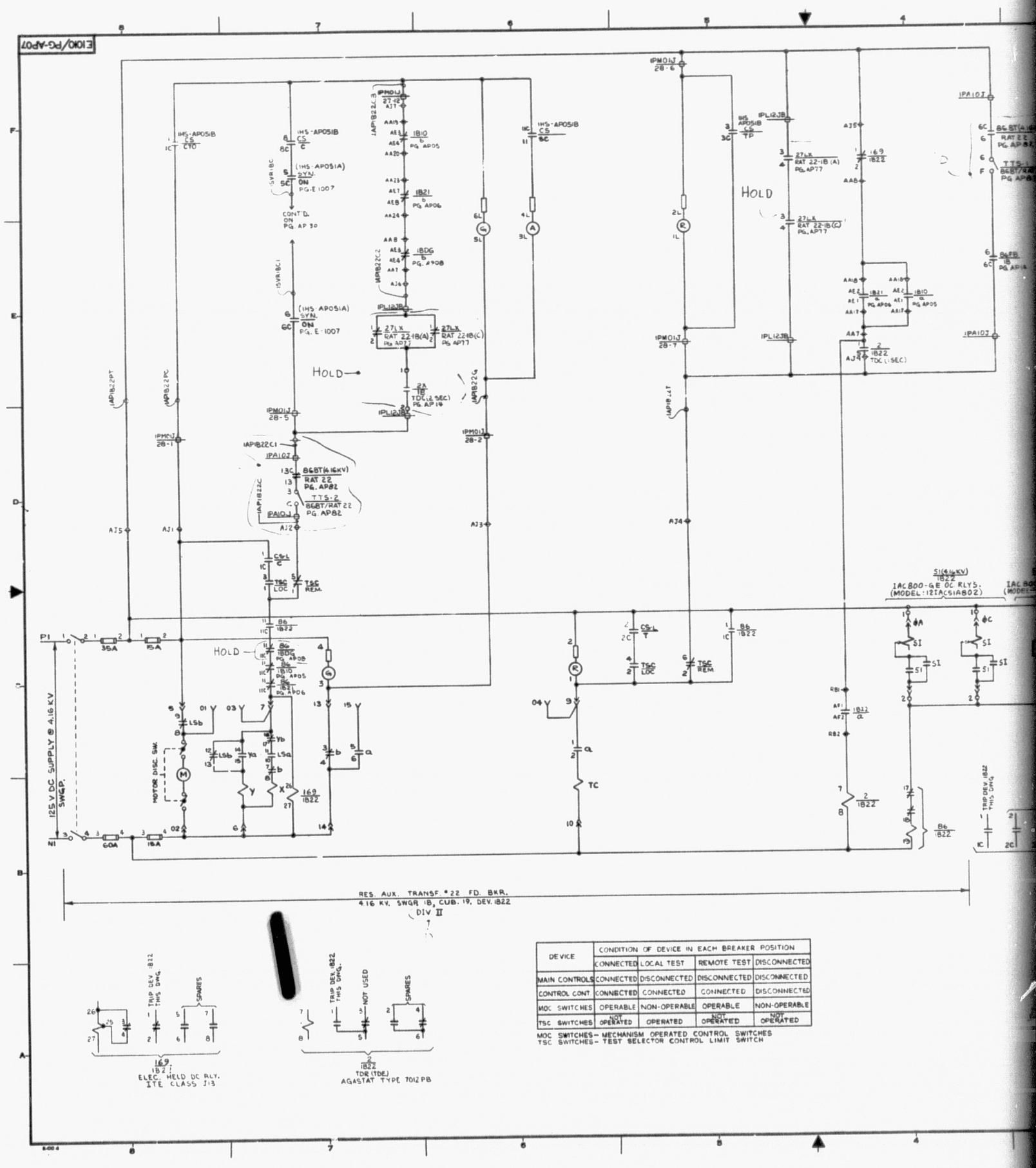
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

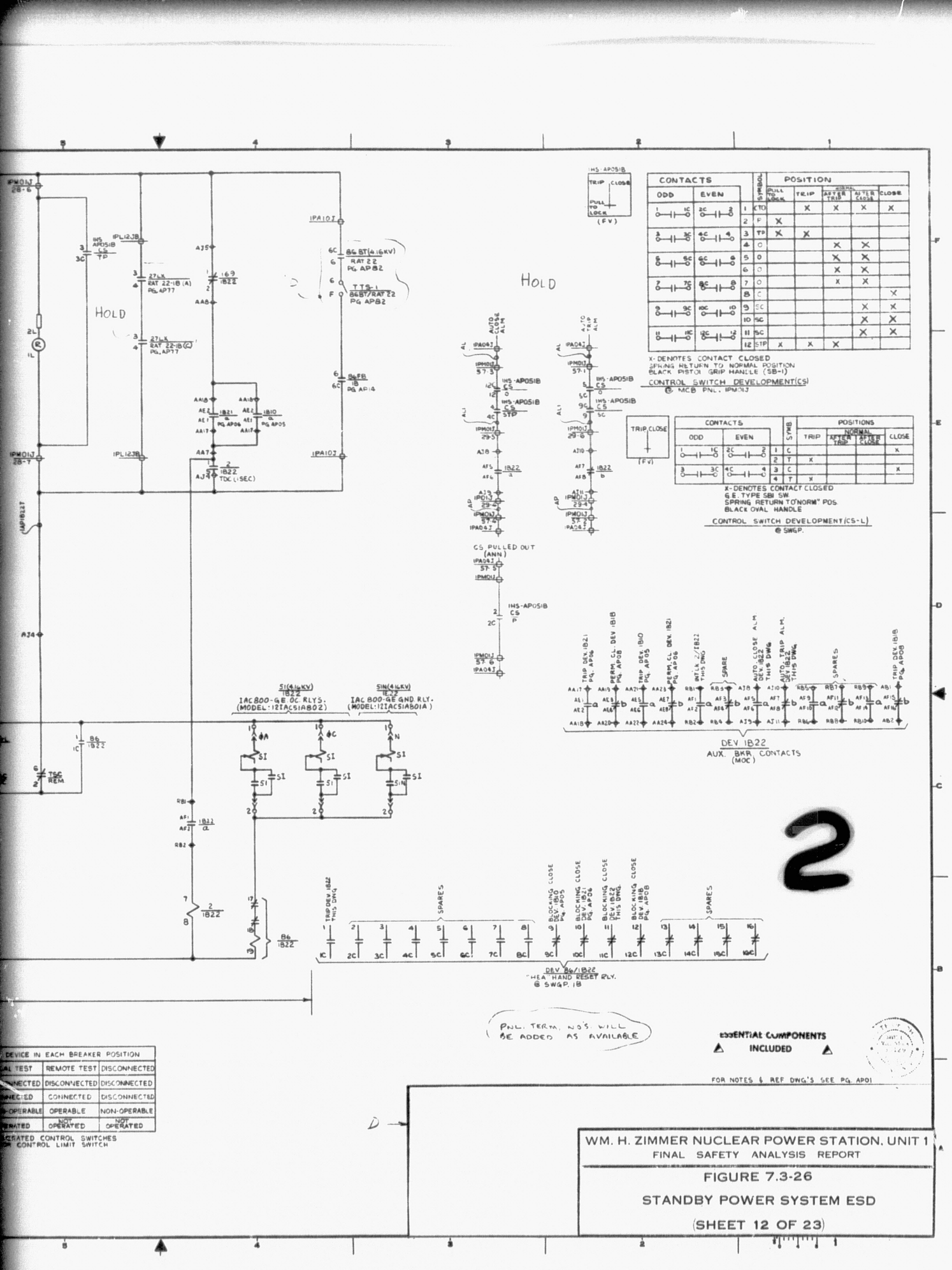
(SHEET 11 OF 23)

E1010/PG-AP07

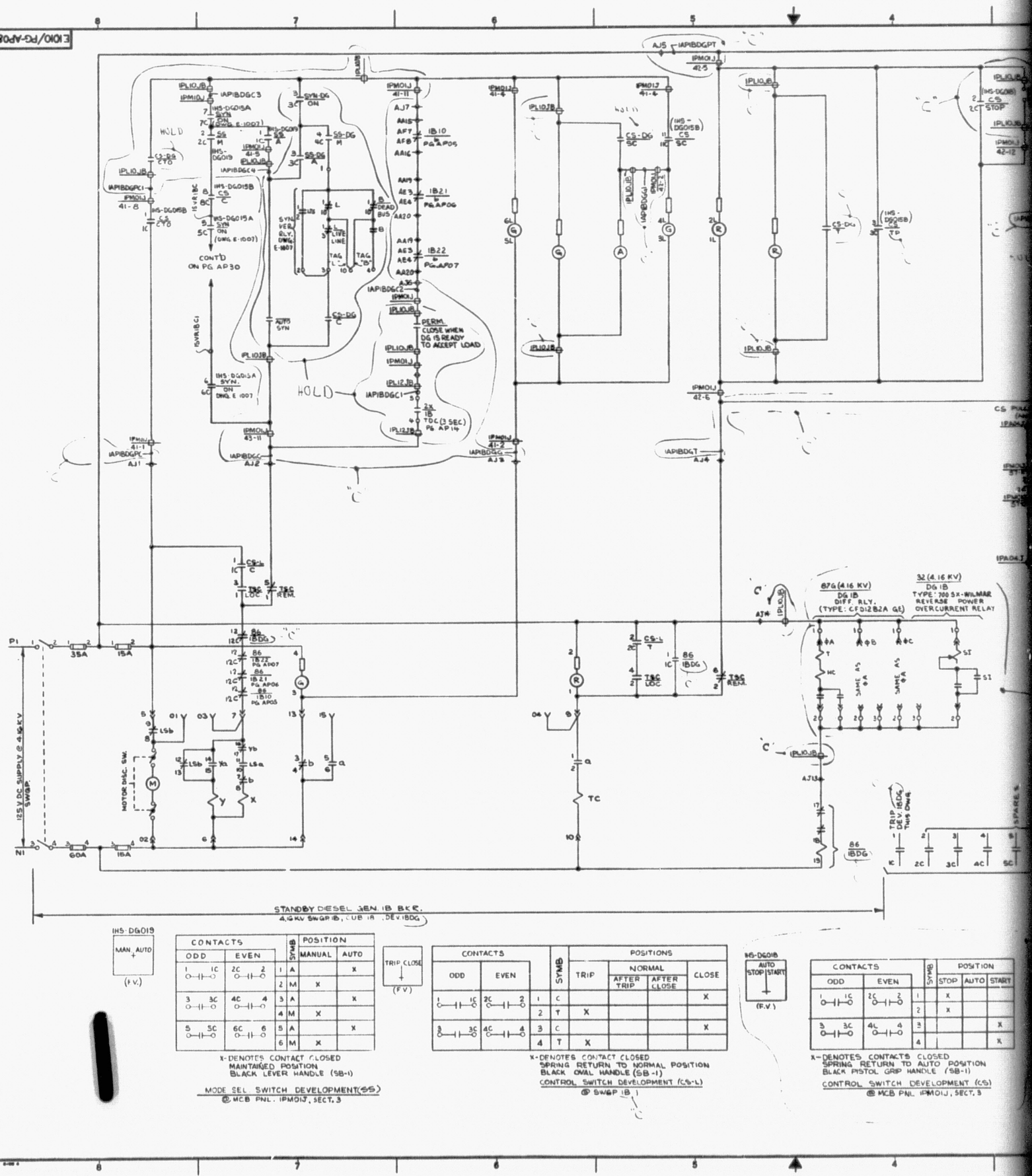


DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION			
	CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTROLS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SWITCHES- MECHANISM OPERATED CONTROL SWITCHES
TSC SWITCHES- TEST SELECTOR CONTROL LIMIT SWITCH


HOLD
HOLD
CONTACTS
ODD
EVEN
SYMBOL
POSITION
PULL TO LOCK
TRIP
NORMAL AFTER TRIP
NORMAL AFTER CLOSE
CLOSE
X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK PISTOL GRIP HANDLE (SB-1)
CONTROL SWITCH DEVELOPMENT(CS)
@ MCB PNL. 1PM01J
X-DENOTES CONTACT CLOSED
G.E. TYPE SBI SW.
SPRING RETURN TO "NORM" POS.
BLACK OVAL HANDLE
CONTROL SWITCH DEVELOPMENT(CS-L)
@ SWGP.
CS PULLED OUT (ANN)
51(4.16KV) 1B22
IAC 800-GE OC. RLYS. (MODEL: 12IACS1A802)
51N(4.16KV) 1B22
IAC 800-GE GND. RLY. (MODEL: 12IACS1A801A)
DEV. 1B22
AUX. BKR. CONTACTS (MOC)
TRIP DEV. 1B22 THIS DWG
SPARES
BLOCKING CLOSE DEV. 1B10 PG. AP05
BLOCKING CLOSE DEV. 1B21 PG. AP06
BLOCKING CLOSE DEV. 1B22 THIS DWG.
BLOCKING CLOSE DEV. 1B18 PG. AP08
DEV. 86/1B22 "HEA" HAND RESET RLY. @ SWGP. 1B
PNL. TERM. NO'S. WILL BE ADDED AS AVAILABLE
ESSENTIAL COMPONENTS
INCLUDED
FOR NOTES & REF. DWG'S. SEE PG. AP01
DEVICE IN EACH BREAKER POSITION
TEST
REMOTE TEST
DISCONNECTED
OPERABLE
NON-OPERABLE
NOT OPERATED
ERATED CONTROL SWITCHES
CONTROL LIMIT SWITCH
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-26
STANDBY POWER SYSTEM ESD
(SHEET 12 OF 23)

E1010/PG-AP08



IHS-DG019

MAN. AUTO

(F.V.)

CONTACTS ODD	CONTACTS EVEN	SYMB	POSITION MANUAL	POSITION AUTO
1 1C	2C 2	1 A		X
		2 M	X	
3 3C	4C 4	3 A		X
		4 M	X	
5 5C	6C 6	5 A		X
		6 M	X	

X-DENOTES CONTACT CLOSED
MAINTAINED POSITION
BLACK LEVER HANDLE (SB-1)

MODE SEL SWITCH DEVELOPMENT(SS)
@ MCB PNL. 1PM01J, SECT. 3

TRIP CLOSE

(F.V.)

CONTACTS ODD	CONTACTS EVEN	SYMB	POSITIONS TRIP	NORMAL AFTER TRIP	NORMAL AFTER CLOSE	CLOSE
1 1C	2C 2	1 C				X
		2 T	X			
3 3C	4C 4	3 C				X
		4 T	X			

X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK OVAL HANDLE (SB-1)

CONTROL SWITCH DEVELOPMENT (CS-L)
@ SWGR 1B

IHS-DG018

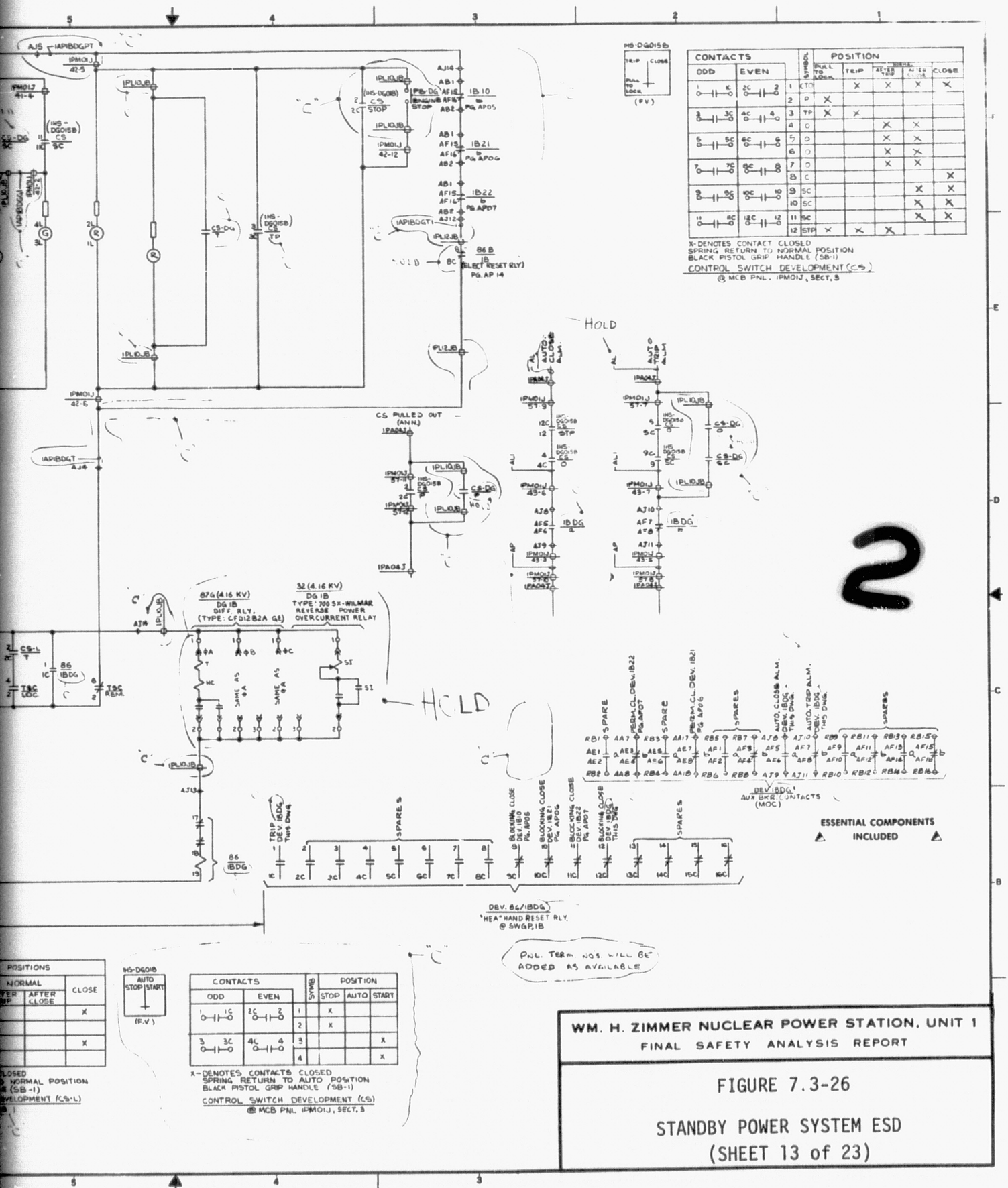
AUTO STOP START

(F.V.)

CONTACTS ODD	CONTACTS EVEN	SYMB	POSITION STOP	POSITION AUTO	POSITION START
1 1C	2C 2	1	X		
		2	X		
3 3C	4C 4	3			X
		4			X

X-DENOTES CONTACTS CLOSED
SPRING RETURN TO AUTO POSITION
BLACK PISTOL GRIP HANDLE (SB-1)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL. 1PM01J, SECT. 3

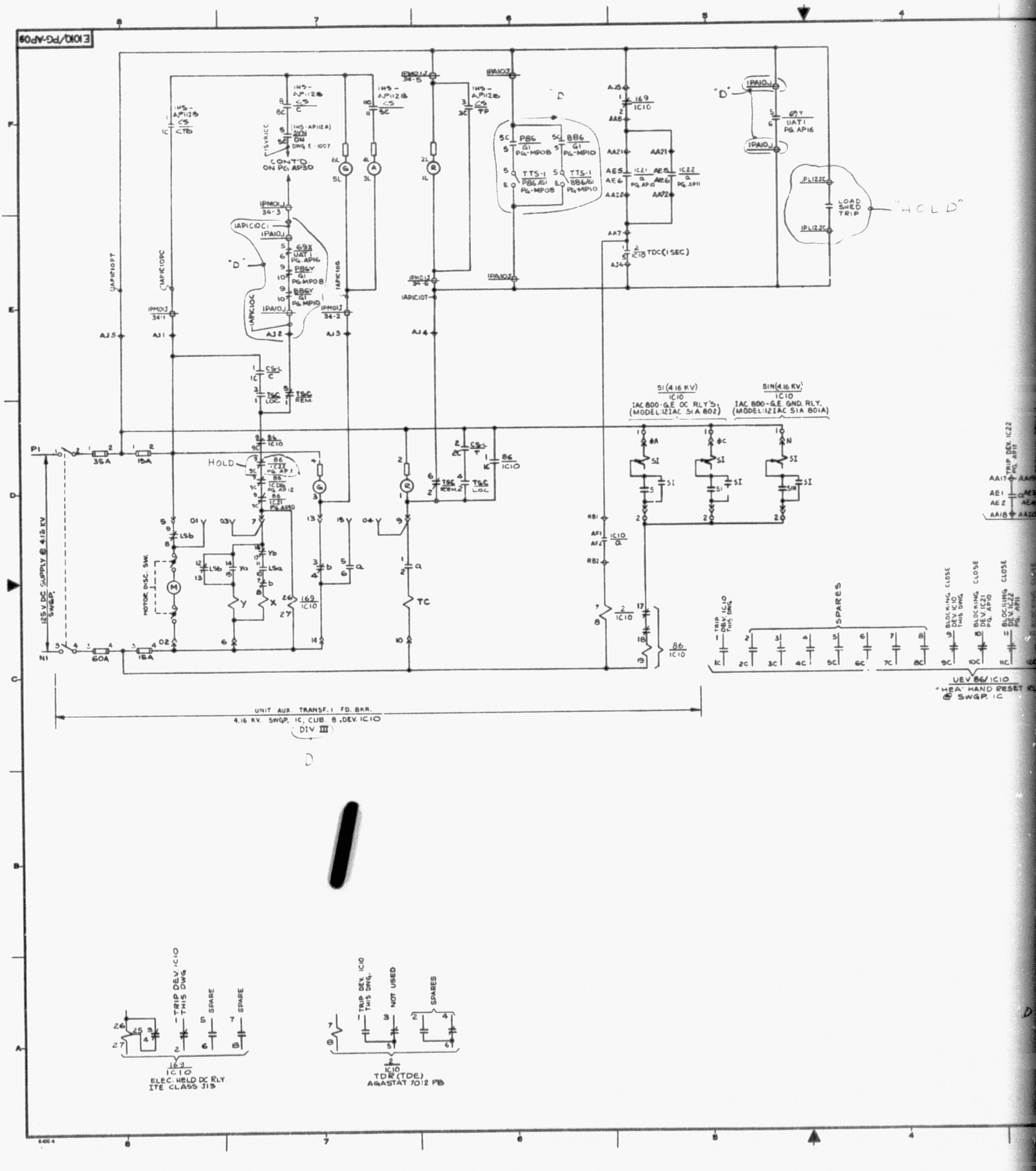


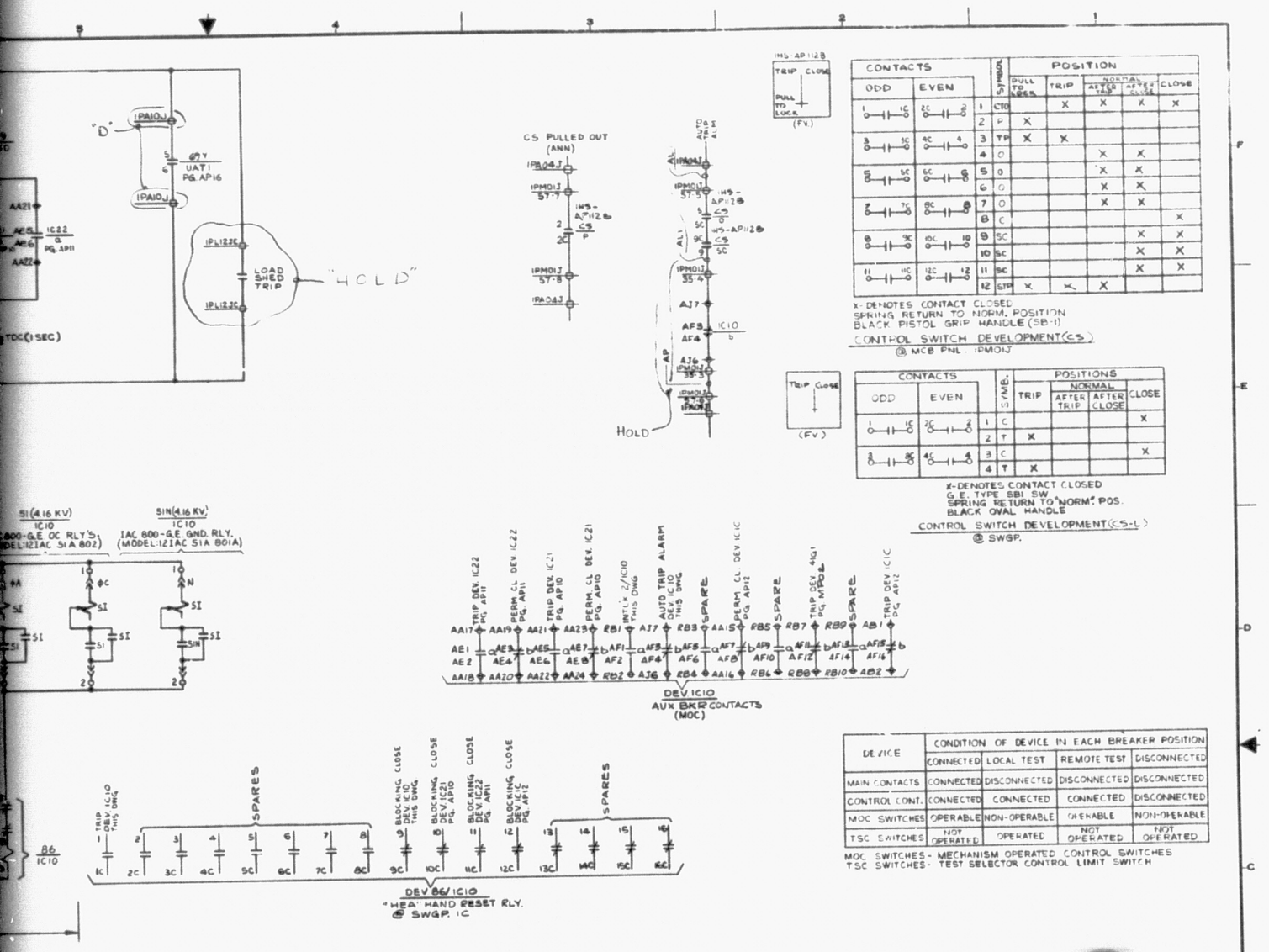
2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-26

STANDBY POWER SYSTEM ESD
(SHEET 13 of 23)


E1012/PG-AP09
"HOLD"
HOLD
"D"
CONT'D ON PG. AP30
CONT'D ON DWG. E-1007
125 V DC SUPPLY @ 4.16 KV SWGR.
MOTOR DISC. SW.
UNIT AUX. TRANSF. 1 FD. BKR.
4.16 KV. SWGP. 1C, CUB. 8, DEV. 1C10
DIV III
SPARES
ELEC. HELD DC RLY. ITE CLASS J1B
TDR (TDE) AGASTAT 7012 PB
NOT USED
TRIP DEV. 1C10 THIS DWG.
SPARE
TDC (1 SEC)
LOAD SHED TRIP
TC



CONTACTS			SYMBOL	POSITION				
ODD	EVEN			PULL TO LOCK	TRIP	NORMAL AFTER TRIP	NORMAL AFTER CLOSE	CLOSE
1 1C	2C 2	1	CTD		X	X	X	X
		2	P	X				
3 3C	4C 4	3	TP	X	X			
		4	D			X	X	
5 5C	6C 6	5	D			X	X	
		6	D			X	X	
7 7C	8C 8	7	D			X	X	
		8	C					X
9 9C	10C 10	9	SC				X	X
		10	SC				X	X
11 11C	12C 12	11	SC				X	X
		12	STP	X	X	X		

X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORM. POSITION
BLACK PISTOL GRIP HANDLE (SB-1)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL. 1PM01J

CONTACTS			SYMB.	POSITIONS			
ODD	EVEN			TRIP	NORMAL AFTER TRIP	NORMAL AFTER CLOSE	CLOSE
1 1C	2C 2	1	C				X
		2	T	X			
3 3C	4C 4	3	C				X
		4	T	X			

X-DENOTES CONTACT CLOSED
G.E. TYPE SBI SW
SPRING RETURN TO "NORM." POS.
BLACK OVAL HANDLE

CONTROL SWITCH DEVELOPMENT (CS-L)
@ SWGP.

DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION			
	CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTACTS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT.	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SWITCHES - MECHANISM OPERATED CONTROL SWITCHES
TSC SWITCHES - TEST SELECTOR CONTROL LIMIT SWITCH

2

PNL TERM. NOS THAT ARE NOT SHOWN WILL BE ADDED WHEN AVAILABLE

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

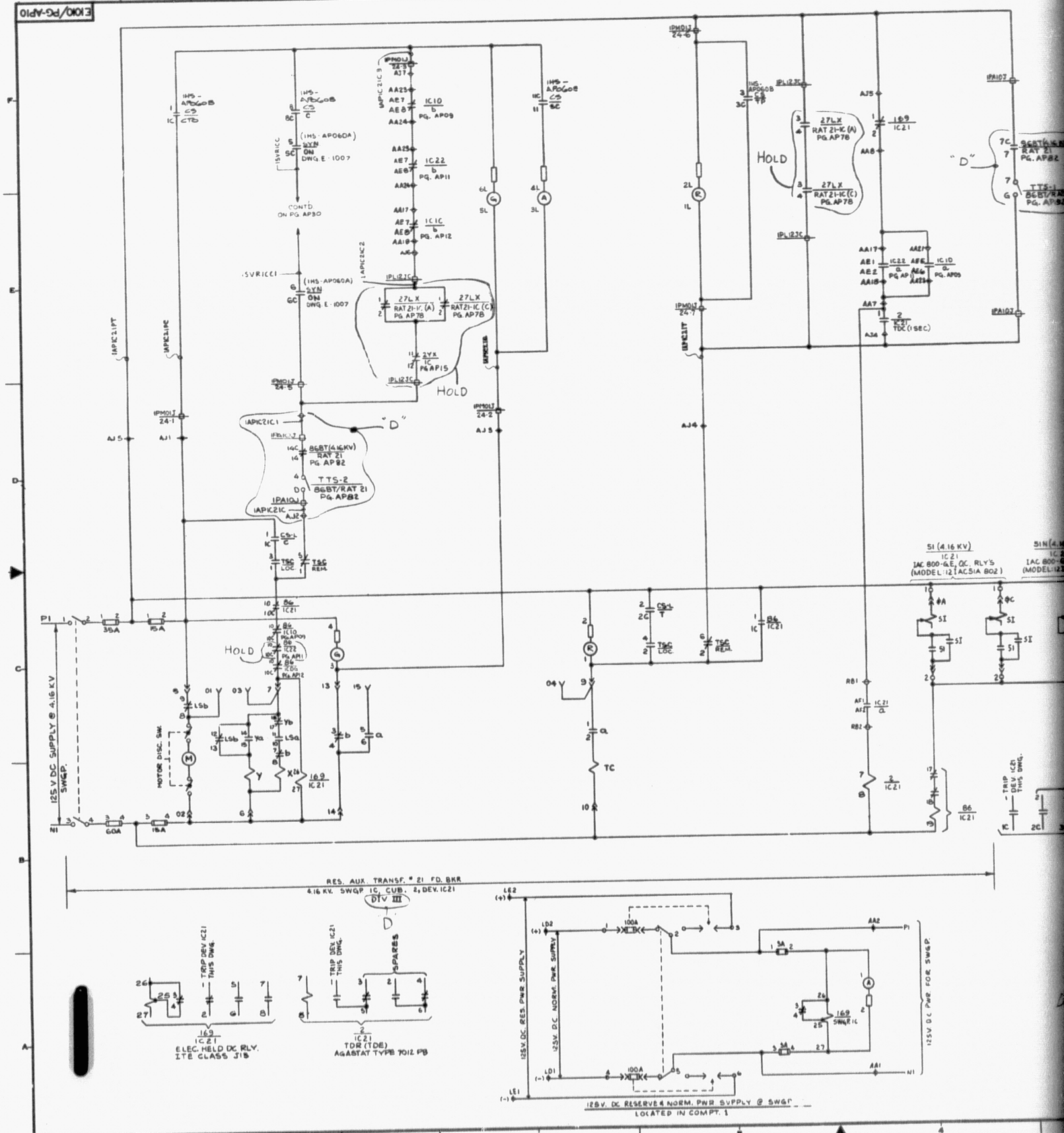
FOR NOTES & REF. DWG'S SEE PG. AP01

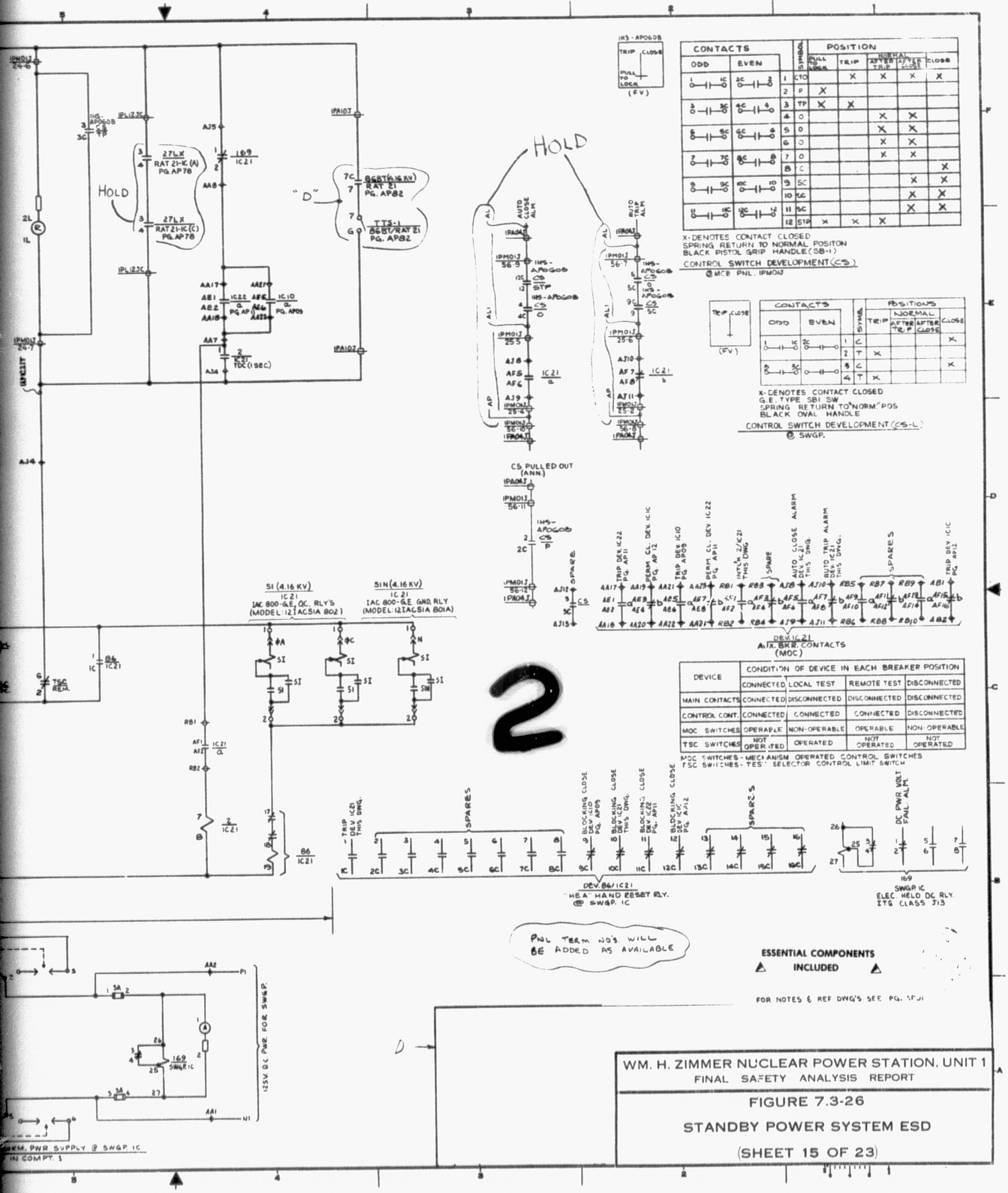
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

(SHEET 14 OF 23)


E10K0/PG-AP10
HOLD
"D"
CONTD ON PG AP80
(IHS-AP060A)
SYN ON DWG E-1007
27LX RAT 21-IC(A) PG. AP78
27LX RAT21-IC(C) PG. AP78
2VX IC P6 AP15
86BT(4.16KV) RAT 21 PG. AP82
TTS-2 86BT/RAT 21 PG. AP82
TTS-1 86BT/RAT 21 PG. AP82
IC10 b PG. AP09
IC22 b PG. AP11
IC1C b PG. AP12
IC22 a PG. AP11
IC10 a PG. AP09
169 IC21
K21 TDC (1SEC)
86 IC21
TSC LOC.
TSC REM.
CS-1 C
CS-1 T
125 V DC SUPPLY @ 4.16 KV SWGR.
MOTOR DISC. SW.
35A
15A
60A
15A
TC
RES. AUX. TRANSF. # 21 FD. BKR 4.16 KV. SWGR. IC. CUB. 2, DEV. IC21
DTV III
169 IC21 ELEC. HELD DC RLY. ITE CLASS J15
2 IC21 TDR (TDE) AGASTAT TYPE 7012 PB
TRIP DEV. IC21 THIS DWG.
SPARES
125V. DC RES. PWR SUPPLY
125V. DC NORM. PWR. SUPPLY
125V. DC PWR FOR SWGR.
169 SWGR IC
100A
5A
125V. DC RESERVE & NORM. PWR. SUPPLY @ SWGR LOCATED IN COMPT. 1
SI (4.16 KV) IC21 IAC 800-GE, QC. RLY'S (MODEL: 12 IAC51A 802)
SIN (4.16 KV) IC21 IAC 800-GE, QC. RLY'S (MODEL: 12 IAC51A 802)
TRIP IC21 THIS DWG.



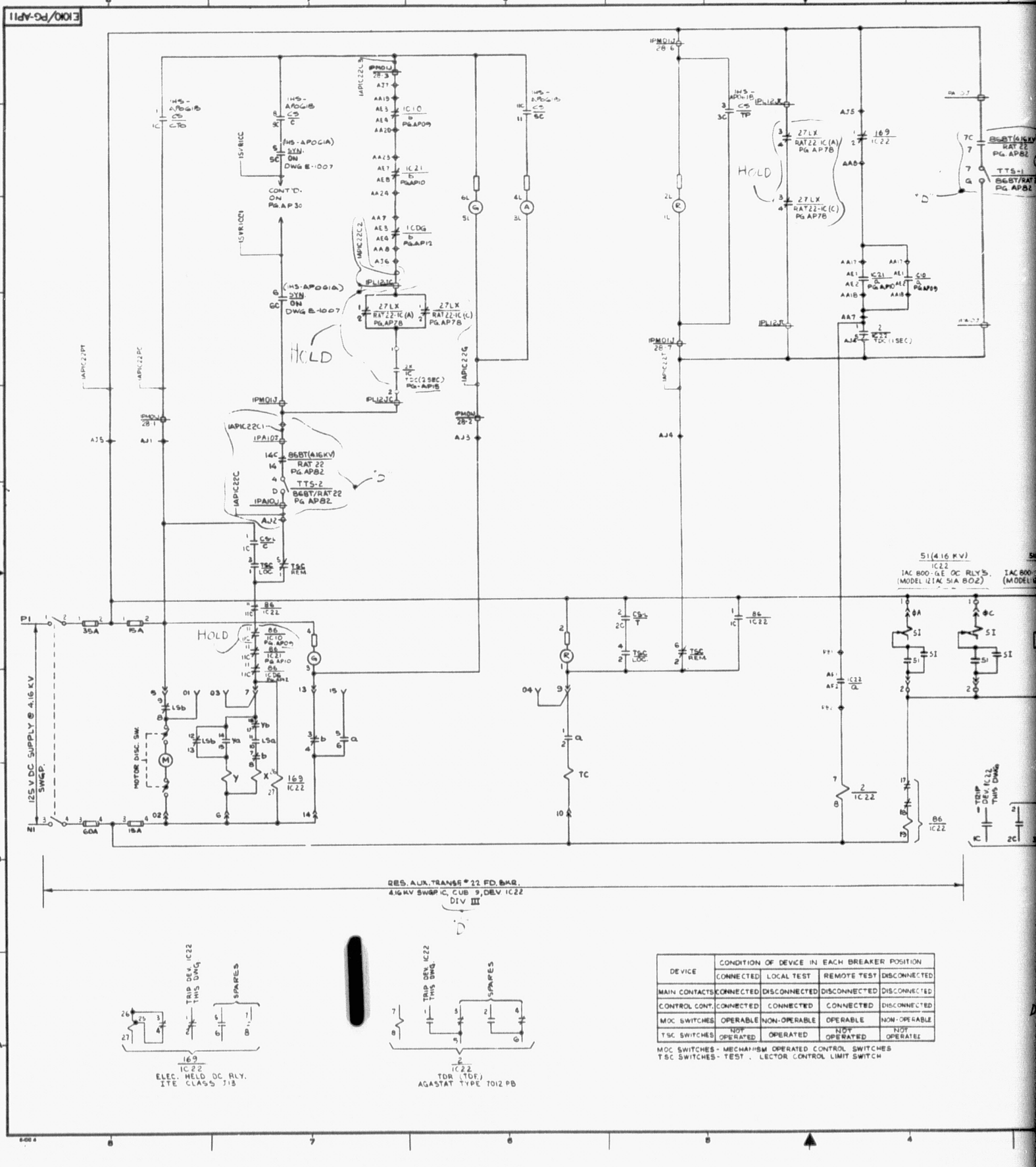
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

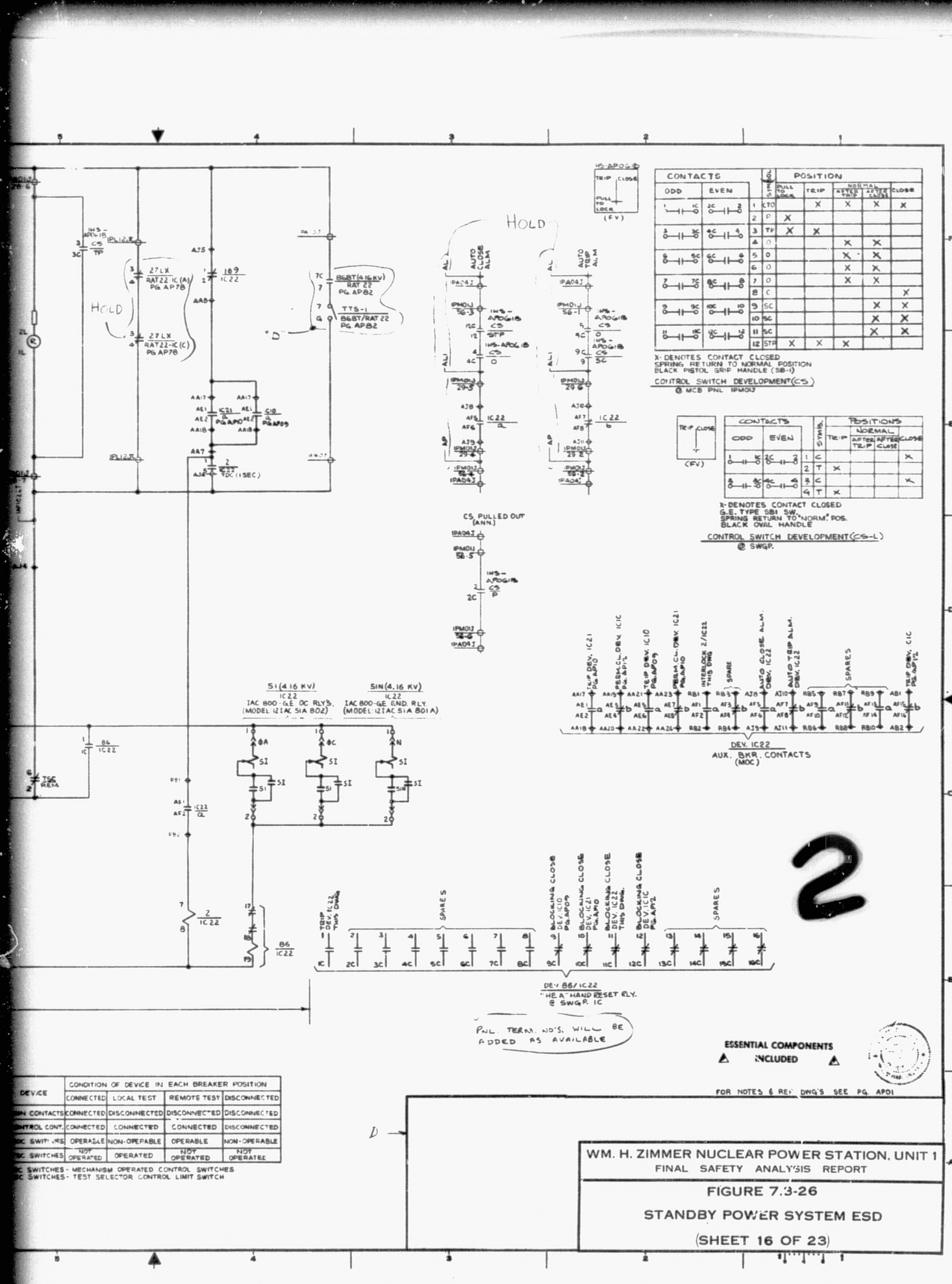
(SHEET 15 OF 23)

E1010/PG-AP11

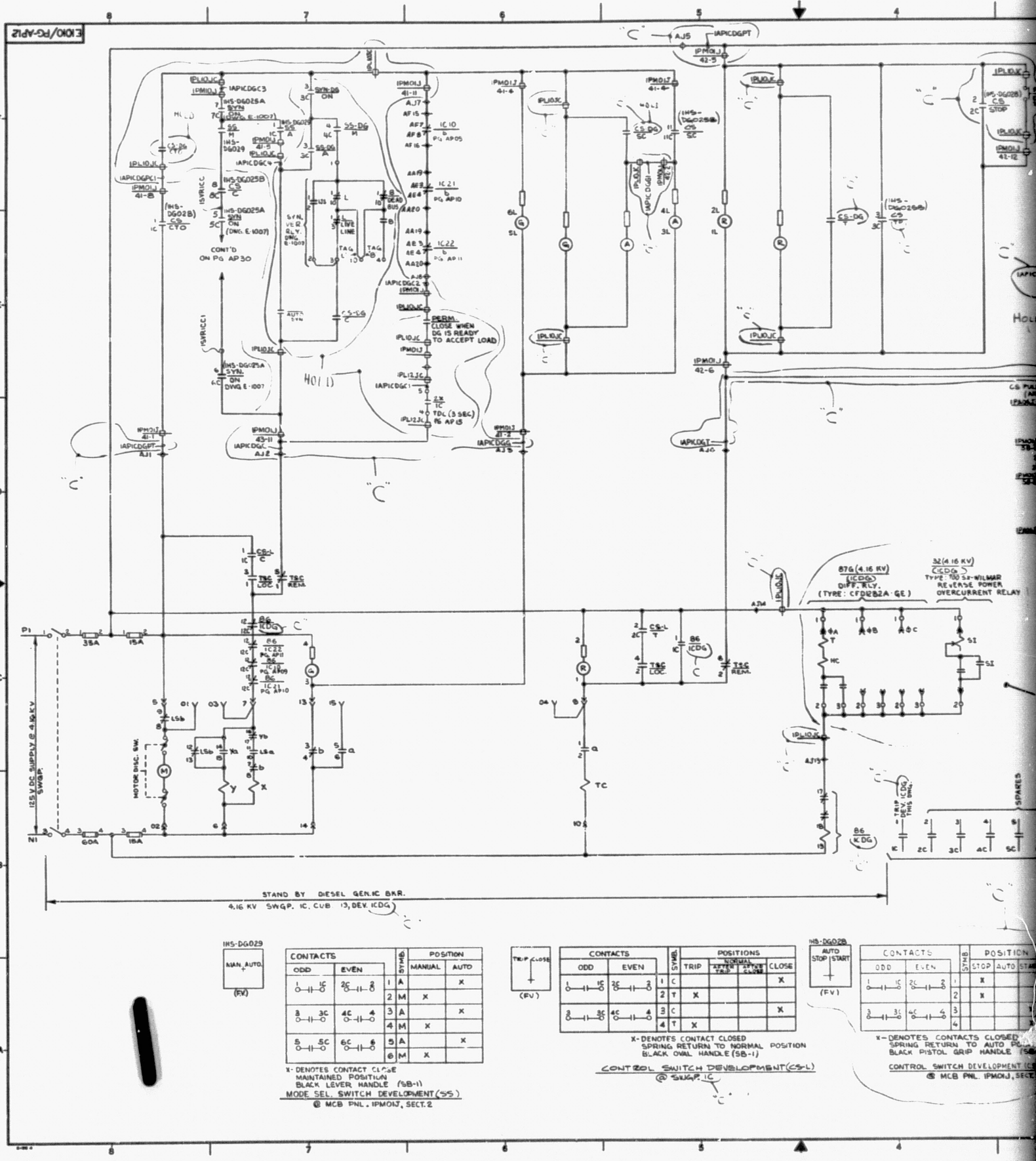


DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION			
	CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTACTS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT.	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SWITCHES - MECHANISM OPERATED CONTROL SWITCHES
TSC SWITCHES - TEST . LECTOR CONTROL LIMIT SWITCH


HOLD
HOLD
"D"
27LX RAT22-IC(A) PG.AP78
27LX RAT22-IC(C) PG.AP78
86BT(4.16KV) RAT 22 PG. AP82
TTS-1 86BT/RAT 22 PG. AP82
169 IC22
IC21 PG.AP10
IC10 PG.AP09
IC22 TDC (1 SEC)
IC22
IC22
IC22

E1010/PG-AP12



IHS-DG029

MAN. AUTO.

(FV)

CONTACTS ODD	CONTACTS EVEN	SYMB	POSITION MANUAL	POSITION AUTO
1 1C	2C 2	1 A		X
		2 M	X	
3 3C	4C 4	3 A		X
		4 M	X	
5 5C	6C 6	5 A		X
		6 M	X	

X-DENOTES CONTACT CLOSE MAINTAINED POSITION BLACK LEVER HANDLE (SB-1)

MODE SEL. SWITCH DEVELOPMENT (SS)
@ MCB PNL. IPM01J, SECT. 2

TRIP CLOSE

(FV)

CONTACTS ODD	CONTACTS EVEN	SYMB	POSITIONS TRIP	POSITIONS NORMAL AFTER TRIP	POSITIONS NORMAL AFTER CLOSE	POSITIONS CLOSE
1 1C	2C 2	1 C				X
		2 T	X			
3 3C	4C 4	3 C				X
		4 T	X			

X-DENOTES CONTACT CLOSED SPRING RETURN TO NORMAL POSITION BLACK OVAL HANDLE (SB-1)

CONTROL SWITCH DEVELOPMENT (CS-L)
@ SWGR. IC

IHS-DG028

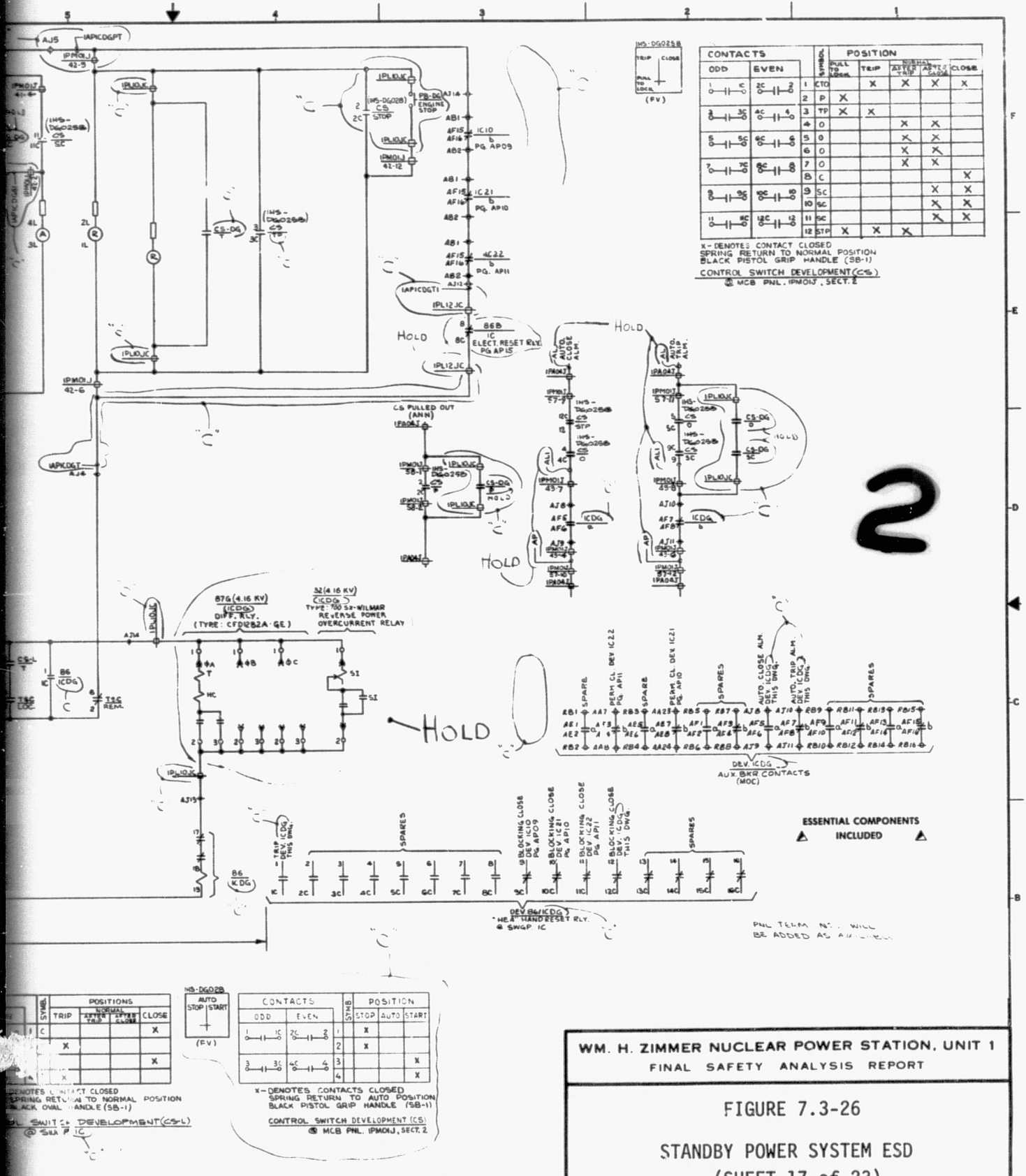
AUTO STOP START

(FV)

CONTACTS ODD	CONTACTS EVEN	SYMB	POSITION STOP	POSITION AUTO	POSITION START
1 1C	2C 2	1	X		
		2	X		
3 3C	4C 4	3			X
		4			X

X-DENOTES CONTACTS CLOSED SPRING RETURN TO AUTO POS. BLACK PISTOL GRIP HANDLE (SB-

CONTROL SWITCH DEVELOPMENT (CS
@ MCB PNL. IPM01J, SECT.



CONTACTS			SYMBOL	POSITION				
ODD	EVEN			PULL TO LOCK	TRIP	NORMAL AFTER TRIP	NORMAL AFTER CLOSE	CLOSE
1C	2C	1	CTO		X	X	X	X
		2	P	X				
3C	4C	3	TP	X	X			
		4	O			X	X	
5C	6C	5	O			X	X	
		6	O			X	X	
7C	8C	7	O			X	X	
		8	C					X
9C	10C	9	SC				X	X
		10	SC				X	X
11C	12C	11	SC				X	X
		12	STP	X	X	X		

X - DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK PISTOL GRIP HANDLE (SB-1)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL. IPM01J, SECT. 2

IHS-DG025B
TRIP | CLOSE
PULL TO LOCK
(FV)

SYMB.	POSITIONS			
	TRIP	NORMAL AFTER TRIP	NORMAL AFTER CLOSE	CLOSE
C				X
	X			
				X
	X			

X - DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK OVAL HANDLE (SB-1)

CONTROL SWITCH DEVELOPMENT (CS-L)
@ SWGR IC

IHS-DG02B
AUTO | STOP | START
(FV)

CONTACTS			SYMB.	POSITION		
ODD	EVEN			STOP	AUTO	START
1C	2C	1		X		
		2		X		
3C	4C	3				X
		4				X

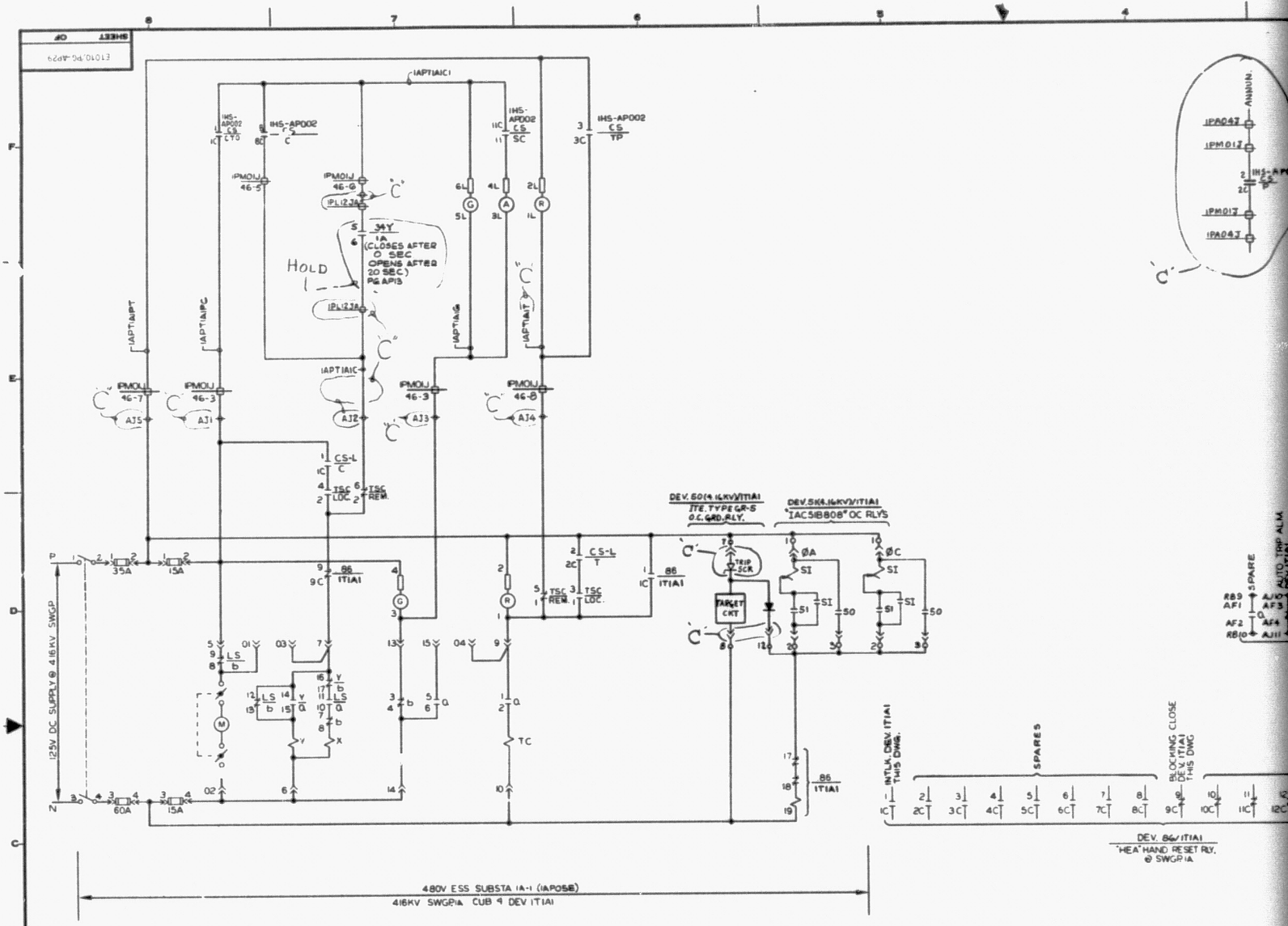
X - DENOTES CONTACTS CLOSED
SPRING RETURN TO AUTO POSITION
BLACK PISTOL GRIP HANDLE (SB-1)

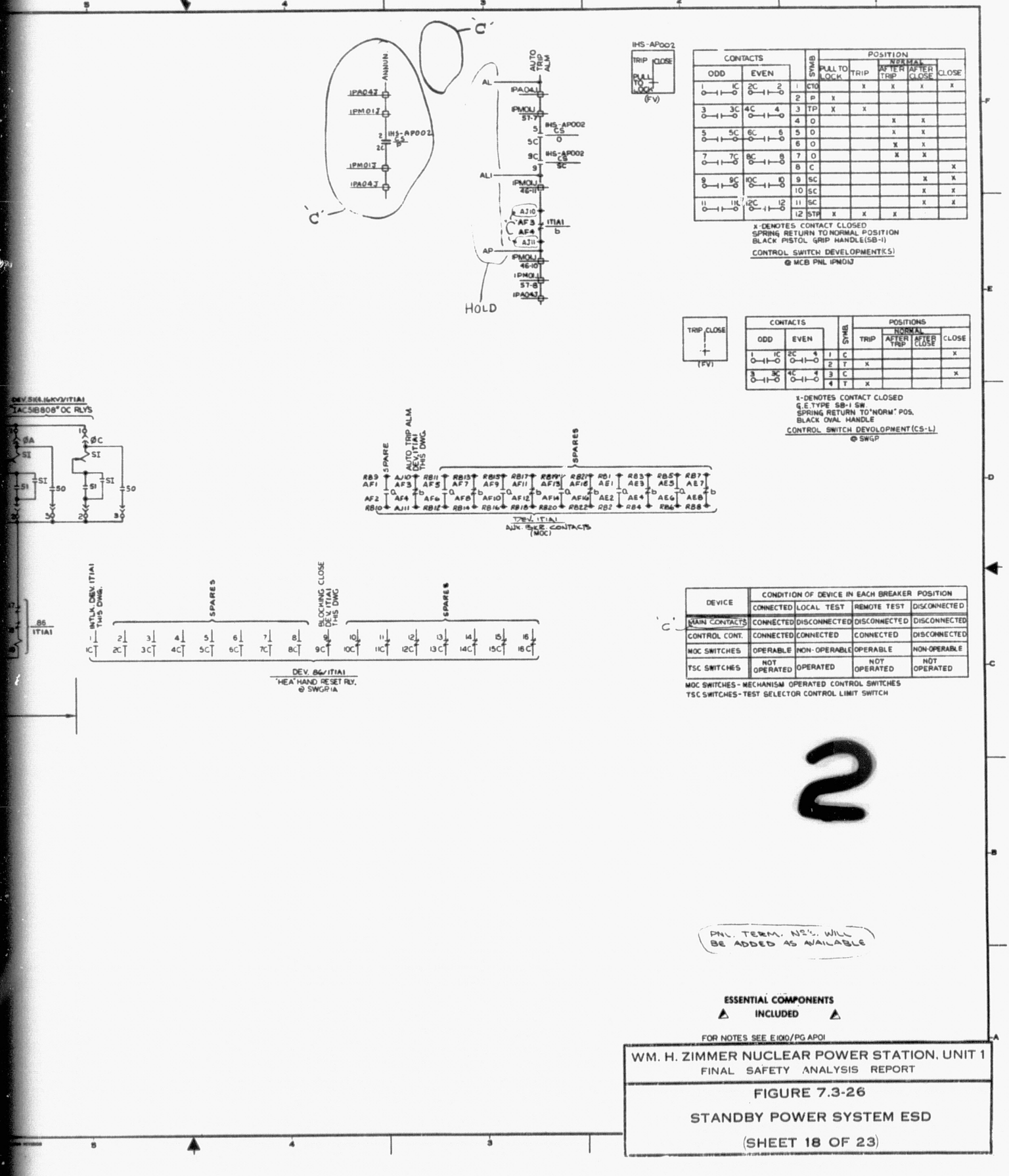
CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL. IPM01J, SECT. 2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-26

STANDBY POWER SYSTEM ESD
(SHEET 17 of 23)


HOLD
125V DC SUPPLY @ 4.16 KV SWGP
480V ESS SUBSTA 1A-1 (1AP05E)
4.16KV SWGR 1A CUB 4 DEV 1T1A1
DEV. 50/51 4.16 KV 1T1A1
ITE TYPE GR-5
O.C. GRD. RLY.
DEV. 51/4.16 KV 1T1A1
"IAC51B808" OC RLYS
TARGET CKT
TRIP SCR
ØA
ØC
SPARES
DEV. 86/1T1A1
"HEA" HAND RESET RLY.
@ SWGR 1A
AUTO TRIP ALM.
SPARE



CONTACTS ODD	CONTACTS EVEN		SYMB	POSITION: PULL TO LOCK	TRIP	NORMAL: AFTER TRIP	NORMAL: AFTER CLOSE	CLOSE
1 1C	2C 2	1	CTO		X	X	X	X
		2	P	X				
3 3C	4C 4	3	TP	X	X			
		4	O			X	X	
5 5C	6C 6	5	O			X	X	
		6	O			X	X	
7 7C	8C 8	7	O			X	X	
		8	C					X
9 9C	10C 10	9	SC				X	X
		10	SC				X	X
11 11C	12C 12	11	SC				X	X
		12	STP	X	X	X		

X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK PISTOL GRIP HANDLE (SB-1)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL 1PM01J

CONTACTS ODD	CONTACTS EVEN		SYMB	POSITIONS: TRIP	NORMAL: AFTER TRIP	NORMAL: AFTER CLOSE	CLOSE
1 1C	2C 4	1	C				X
		2	T	X			
3 3C	4C 4	3	C				X
		4	T	X			

X-DENOTES CONTACT CLOSED
G.E. TYPE SB-1 SW.
SPRING RETURN TO "NORM." POS.
BLACK OVAL HANDLE

CONTROL SWITCH DEVELOPMENT (CS-L)
@ SWGP

DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION: CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTACTS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT.	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SWITCHES - MECHANISM OPERATED CONTROL SWITCHES
TSC SWITCHES - TEST SELECTOR CONTROL LIMIT SWITCH

PNL. TERM. NO'S. WILL BE ADDED AS AVAILABLE

ESSENTIAL COMPONENTS
INCLUDED

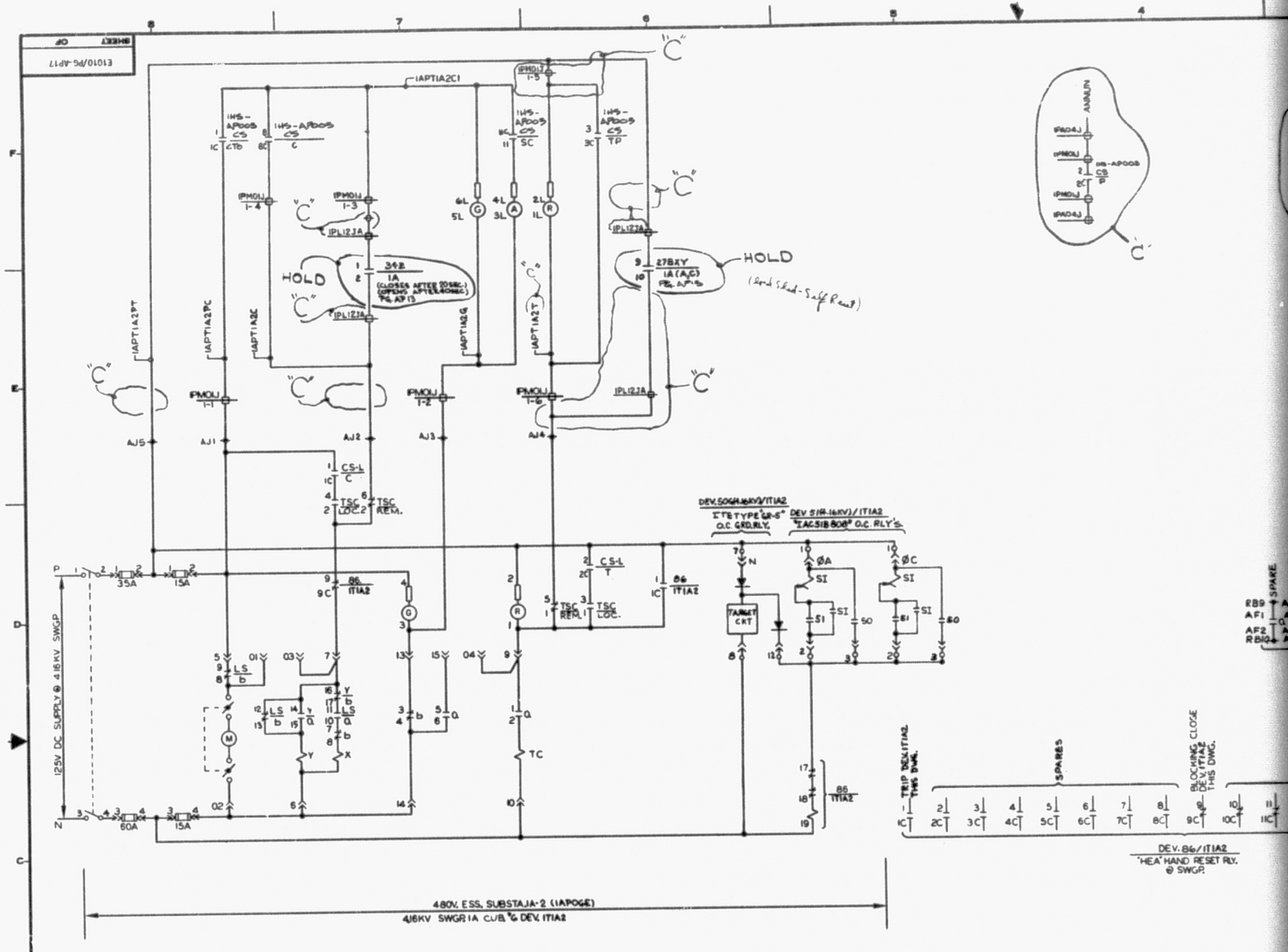
FOR NOTES SEE E1010/PG A001

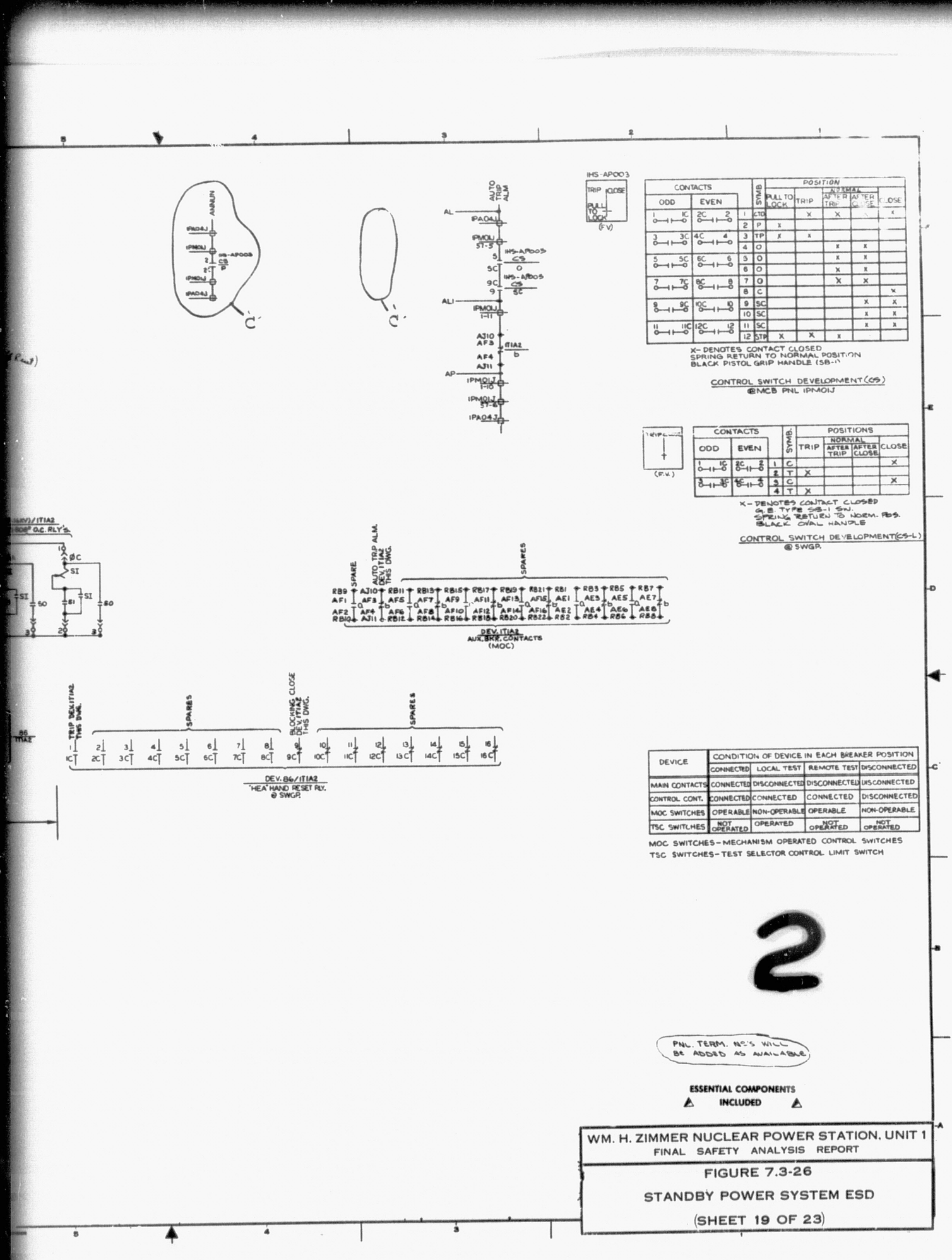
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

(SHEET 18 OF 23)


SHEET OF
E1010/PG-AP17
1APTIA2C1
1APTIA2PT
1APTIA2PC
1APTIA2C
1APTIA2G
1APTIA2T
HOLD
(Load Shed - Self Reset)
1A (CLOSES AFTER 20SEC.) (OPENS AFTER 40SEC.) PG. AP 13
27BXY 1A(A,C) PER. AP-16
ANNUN
IMS-APOOS
CS
TP
SC
C
CS-L
TSC REM.
TSC LOC.
86 1TIA2
LS
TARGET CRT
SI
50
TC
125V DC SUPPLY @ 416KV SWGR
35A
15A
60A
480V. ESS. SUBSTA 1A-2 (1APOGE)
416KV SWGR 1A CUB 5 & DEV. 1TIA2
DEV. 50GR/46KV/1TIA2
1"ETB TYPE GR-6" O.C. GRD.RLY.
DEV. 51(R-16KV)/1TIA2
2 IAC51B 806" O.C. RLY'S
TRIP DEV. 1TIA2 THIS DWG.
SPARES
BLOCKING CLOSE DEVICE THIS DWG.
SPARE
DEV. 86/1TIA2
'HEA' HAND RESET RLY. @ SWGR.

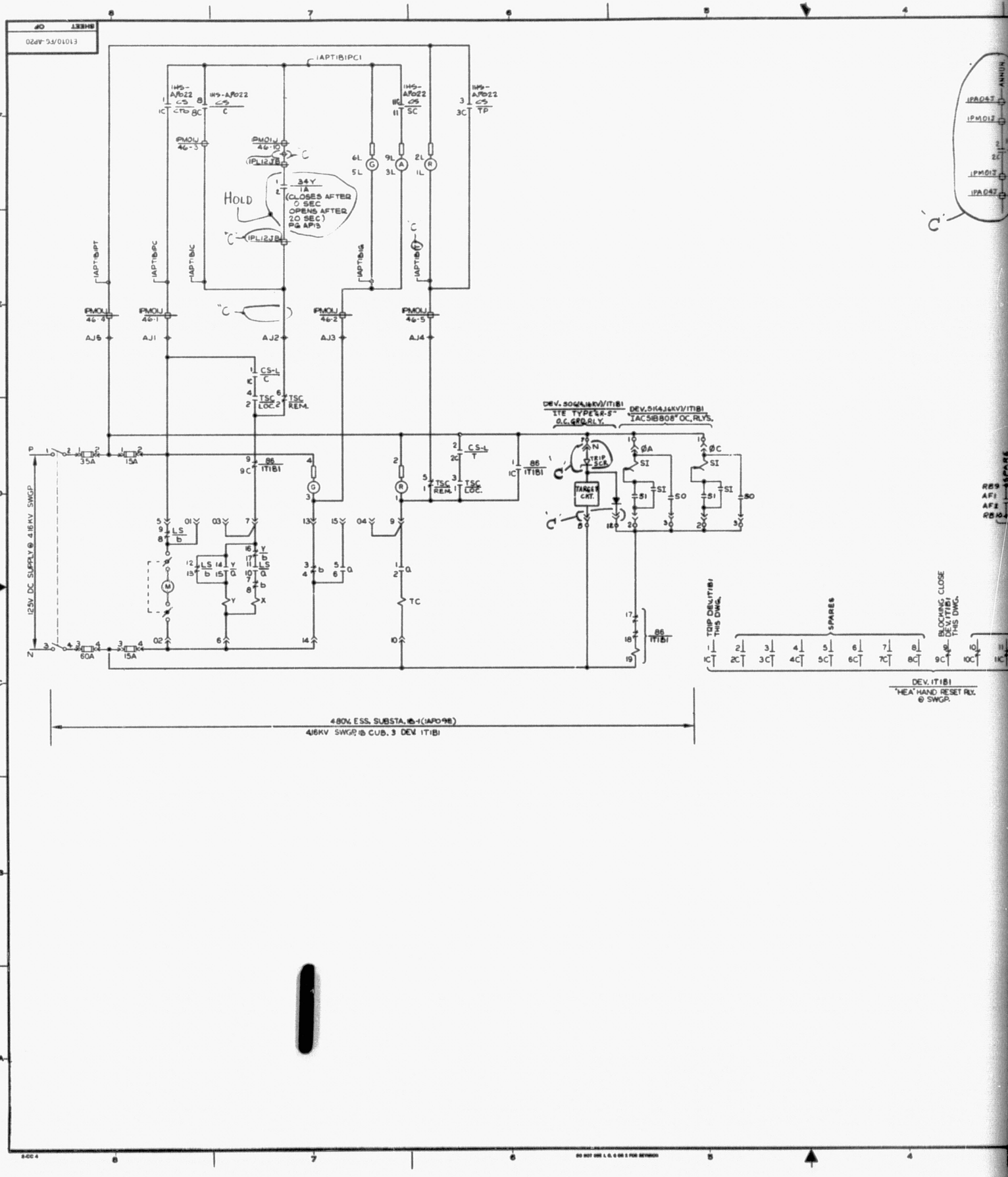


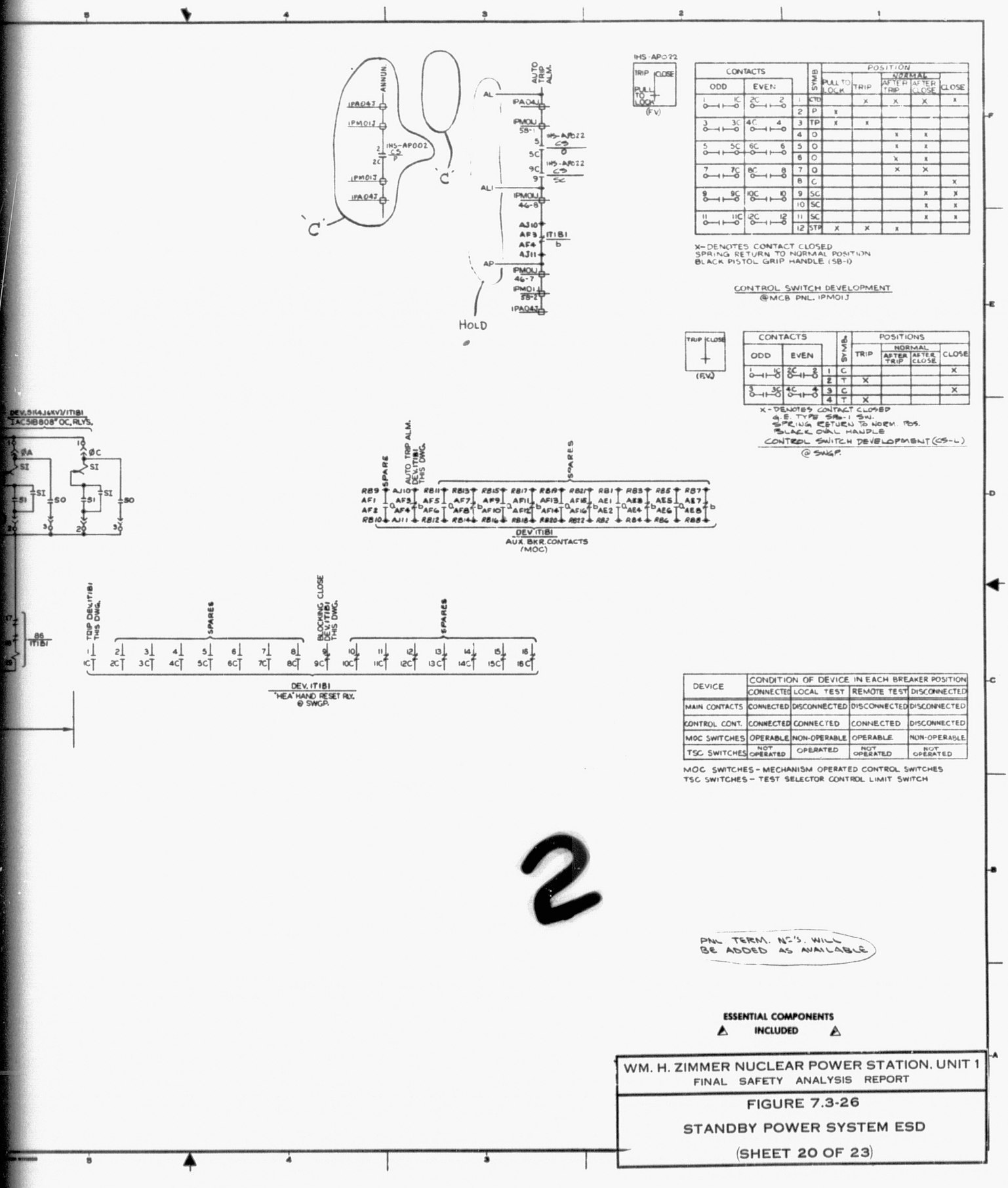
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

(SHEET 19 OF 23)


1APTIBIPC1
HOLD
(CLOSES AFTER 0 SEC OPENS AFTER 20 SEC) PG AP13
125V DC SUPPLY @ 416KV SWGP
480V. ESS. SUBSTA. 1B-1 (1AP098)
416KV SWGP 1B CUB. 3 DEV. 1T1B1
DEV. 50G/51G-1B(KV)/1T1B1
ITE TYPE ER-5 G.C.GRD.RLY.
DEV. 51-1,2,3-1B(KV)/1T1B1
IAC51B808 O.C. RLYS.
TRIP DEV. 1T1B1 THIS DWG.
SPARES
BLOCKING CLOSE DEV. 1T1B1 THIS DWG.
DEV. 1T1B1 "HEA" HAND RESET RLY. @ SWGP.
TARGET CKT.
TRIP SCR.
35A
15A
60A
86 1T1B1



DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION			
	CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTACTS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT.	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SWITCHES - MECHANISM OPERATED CONTROL SWITCHES
TSC SWITCHES - TEST SELECTOR CONTROL LIMIT SWITCH

2

PNL TERM. NO.'S WILL BE ADDED AS AVAILABLE

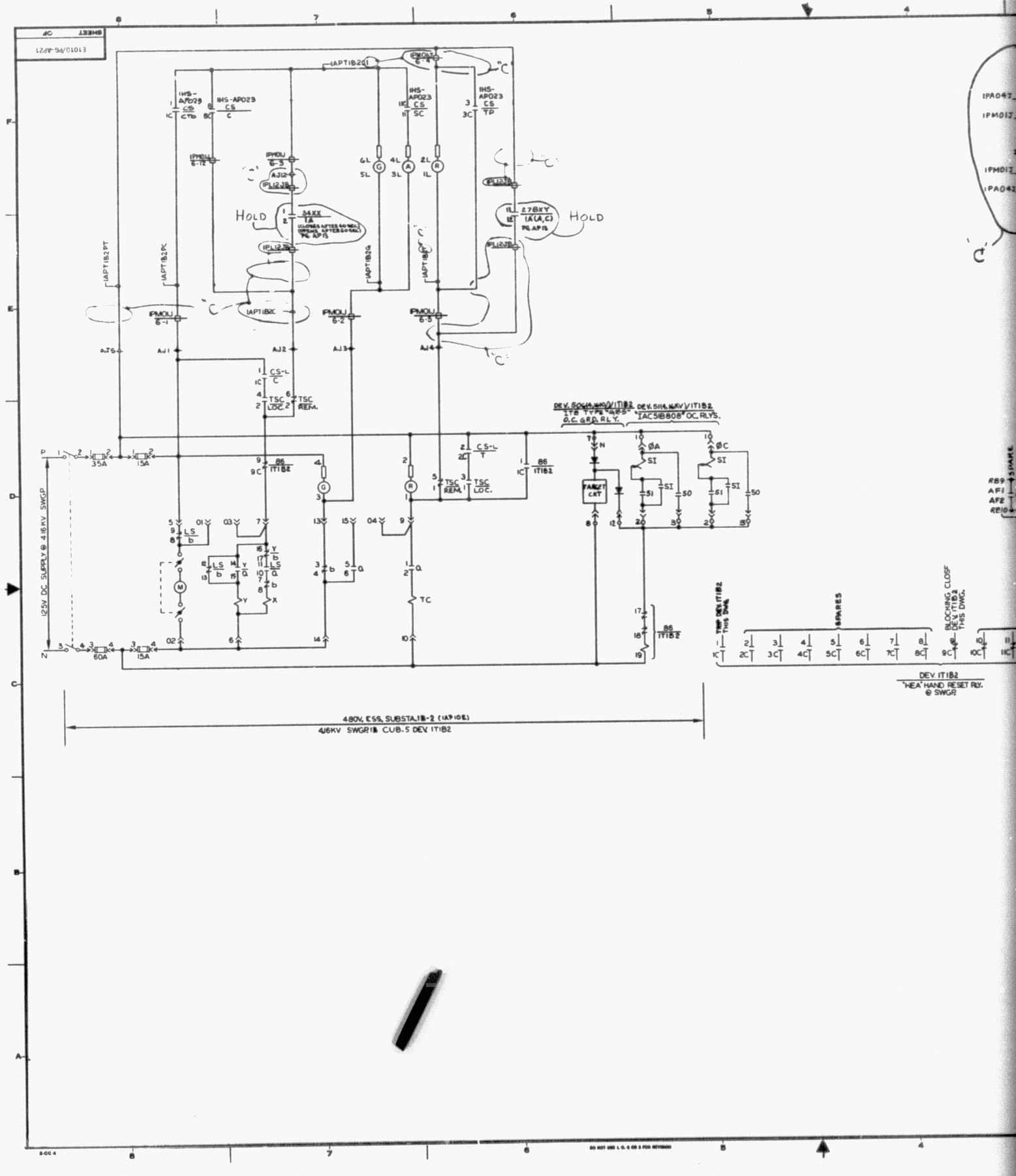
ESSENTIAL COMPONENTS
INCLUDED

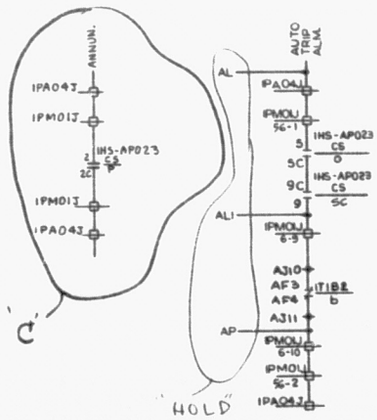
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

(SHEET 20 OF 23)


HOLD
HOLD
125V DC SUPPLY @ 416 KV SWGR
480V, ESS, SUBSTA 1B-2 (1AP10E)
416KV SWGR1B CUB-5 DEV 1T1B2
DEV. 1T1B2
"HEA" HAND RESET RLY.
@ SWGR
SPARES
BLOCKING CLOSE
DEV 1T1B2
THIS DWG.
DEV. 5044 MKV/1T1B2
TYE TYPE "AKS"
O.C. GRD. RLY.
DEV. 5114 MKV/1T1B2
IAC51B808 OC. RLYS.
FAULT CKT
TC
35A
15A
60A
15A



IHS AP023



CONTACTS ODD	CONTACTS EVEN	SYMB	POSITION: PULL TO LOCK	TRIP	NORMAL AFTER TRIP	NORMAL AFTER CLOSE	CLOSE
1 1C	2C 2	1	CTC		X	X	X	X
		2	P	X				
3 3C	4C 4	3	TP	X	X			
		4	O			X	X	
5 5C	6C 6	5	O			X	X	
		6	O			X	X	
7 7C	8C 8	7	O			X	X	
		8	C					X
9 9C	10C 10	9	SC				X	X
		10	SC				X	X
11 11C	12C 12	11	SC				X	X
		12	STP	X	X	X		

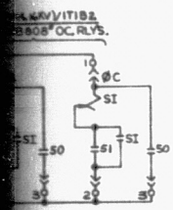
X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK PISTOL GRIP HANDLE (SB-1)

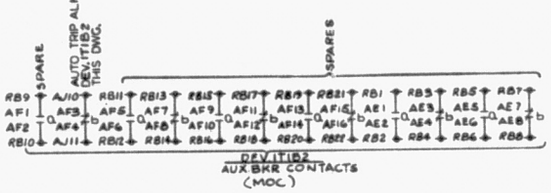
CONTROL SWITCH DEVELOPMENT (CS)
@MCB PNL 1PM01J

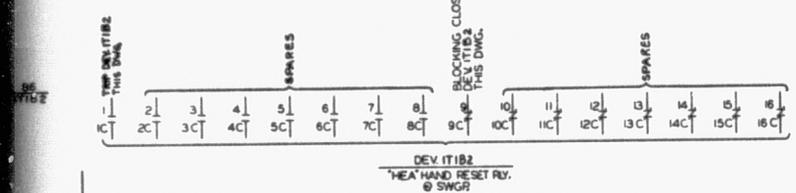


CONTACTS ODD	CONTACTS EVEN	SYMB.	POSITIONS: TRIP	NORMAL AFTER TRIP	NORMAL AFTER CLOSE	CLOSE
1 1C	2C 2	1	C			X
		2	T	X		
3 3C	4C 4	3	C			X
		4	T	X		

X-DENOTES CONTACT CLOSED
G.E. TYPE SB-1 SW.
SPRING RETURN TO NORM. POS.
BLACK OVAL HANDLE
CONTROL SWITCH DEVELOPMENT (CS-L)
@SWGR







DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION: CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTACTS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SW'S. - MECHANISM OPERATED CONTROL SWITCHES
TSC SW'S. - TEST SELECTOR CONTROL LIMIT SWITCH

2

PNL. TERM. NO.'S. WILL BE ADDED AS AVAILABLE

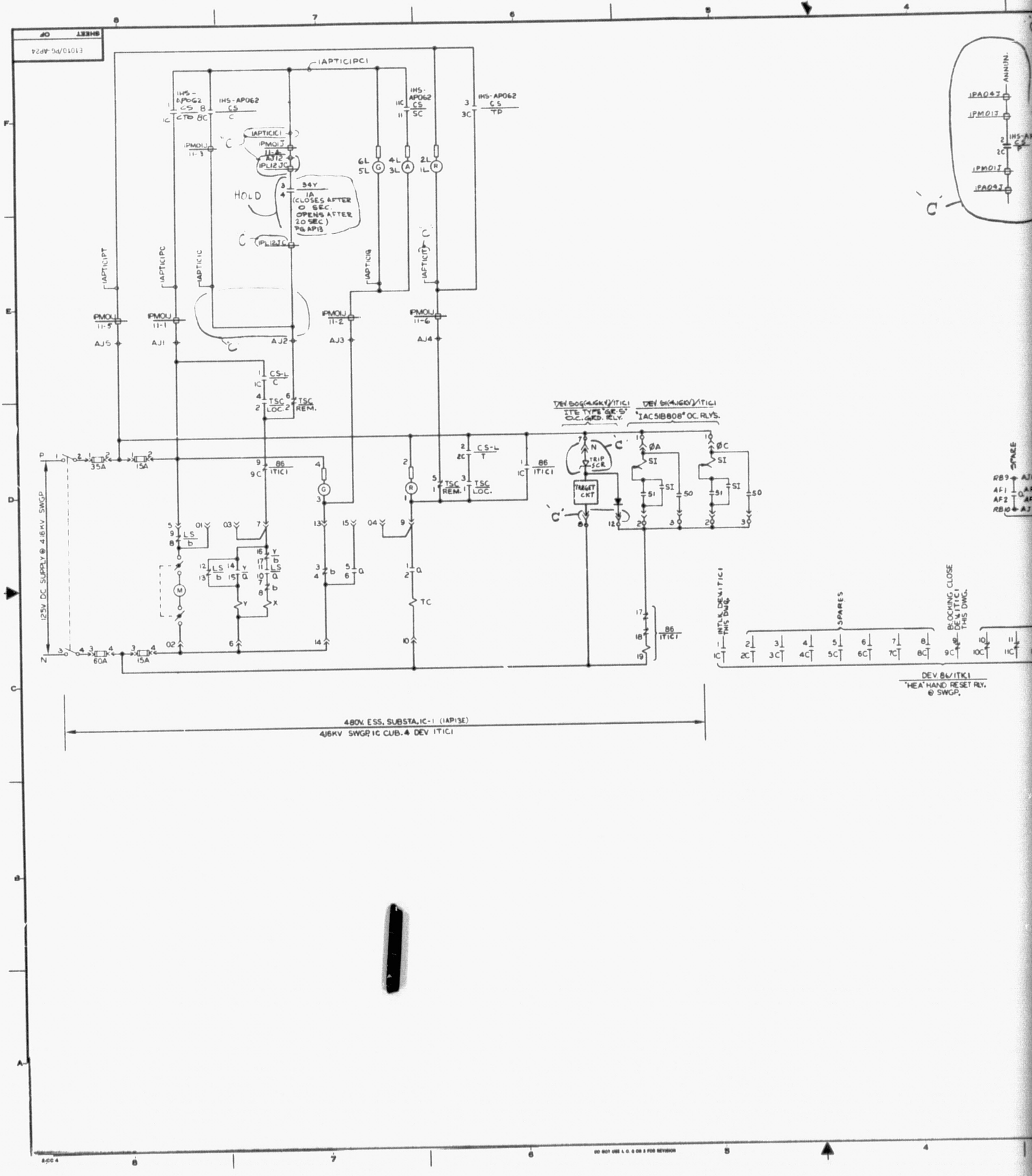
ESSENTIAL COMPONENTS
▲ **INCLUDED** ▲

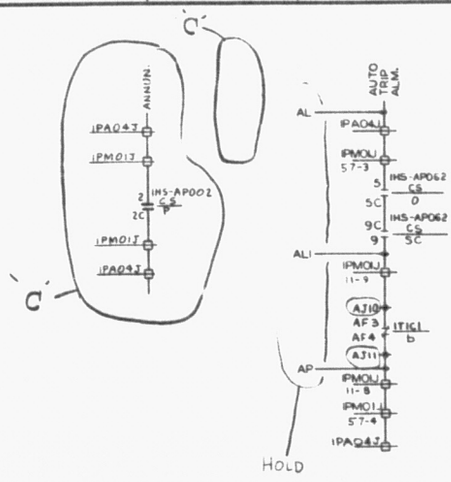
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

(SHEET 21 OF 23)


SHEET OF
E1010/P6-AP24
1APTIC1PC1
1HS-AP062 CS 8 C TO 8C
1HS-AP062 CS C
1HS-AP062 CS SC
1HS-AP062 CS TD
1PMOU 11-3
1APTIC1C1
1PMOU 11-4
1PL12JC
HOLD
54Y 1A (CLOSES AFTER 0 SEC. OPENS AFTER 20 SEC) TO AP13
1PL12TC
6L 5L G
4L 3L A
2L 1L R
1APTIC1PT
1APTIC1PC
1APTIC1C
1APTIC1B
1APTIC1T
1PMOU 11-5
1PMOU 11-1
1PMOU 11-2
1PMOU 11-6
AJ5
AJ1
AJ2
AJ3
AJ4
CS-L C
TSC LOC. 2
TSC REM.
DEV 80G(4.16KV)/1TIC1 ITE TYPE 'SGE 51' O.C. GRD. RELY.
DEV 51(4.16KV)/1TIC1 1AC51B808* OC. RLYS.
CS-L T
86 1TIC1
TSC REM. 1
TSC LOC.
TRIP SCR
TARGET CKT
ØA
ØC
SI
51
50
125V DC SUPPLY @ 4.16 KV SWGR
35A
15A
60A
LS
TC
INT'LK DEV. 1TIC1 THIS DWG.
SPARES
BLOCKING CLOSE DEV. 1TIC1 THIS DWG.
DEV 86/1TIK1 'HEA' HAND RESET RLY. @ SWGR.
480V. ESS. SUBSTA. 1C-1 (1AP13E)
4.16KV SWGR 1C CUB. 4 DEV 1TIC1
ANN/IN.
1PA047
1PM013
1PM01I
1PA049
SPARE
RB9
AF1
AF2
RB10
DO NOT USE L.O. 0 OR 1 FOR REVISION
8-60 4





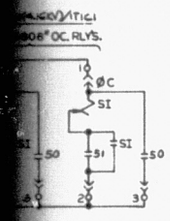
CONTACTS ODD	CONTACTS EVEN		SYMB	POSITION: PULL TO LOCK	TRIP	NORMAL: AFTER TRIP	NORMAL: AFTER CLOSE	CLOSE
1 K	2C 2	CTO			X	X	X	X
		2 P	X					
3 3C	4C 4	3 TP	X	X				
		4 O				X	X	
5 5C	6C 6	5 O				X	X	
		6 O				X	X	
7 7C	8C 8	7 O				X	X	
		8 C						X
9 9C	10C 10	9 SC					X	X
		10 SC					X	X
11 11C	12C 12	11 SC					X	X
		12 STR	X	X	X			

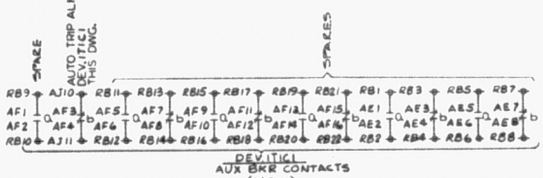
X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK PISTOL GRIP HANDLE (SB-1)
CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL 1PM0U



CONTACTS ODD	CONTACTS EVEN	SYMB.		POSITIONS: TRIP	NORMAL: AFTER TRIP	NORMAL: AFTER CLOSE	CLOSE
1 1C	2C 2	1	C				X
		2	T	X			
3 3C	4C 4	3	C				X
		4	T	X			

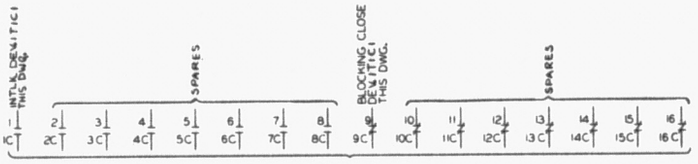
X-DENOTES CONTACT CLOSED
GE TYPE SB-1 SW.
SPRING RETURN TO NORM POS.
BLACK OVAL HANDLE
CONTROL SWITCH DEVELOPMENT (CS-L)
@ SWGP





DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION: CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTACTS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT	CONNECTED	CONNECTED	CONNECTED	DISCONECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SWITCHES - MECHANISM OPERATED CONTROL SWITCHES
TSC SWITCHES - TEST SELECTOR CONTROL LIMIT SWITCH



2

PNL. TERM. Nº'S. WILL BE ADDED AS AVAILABLE

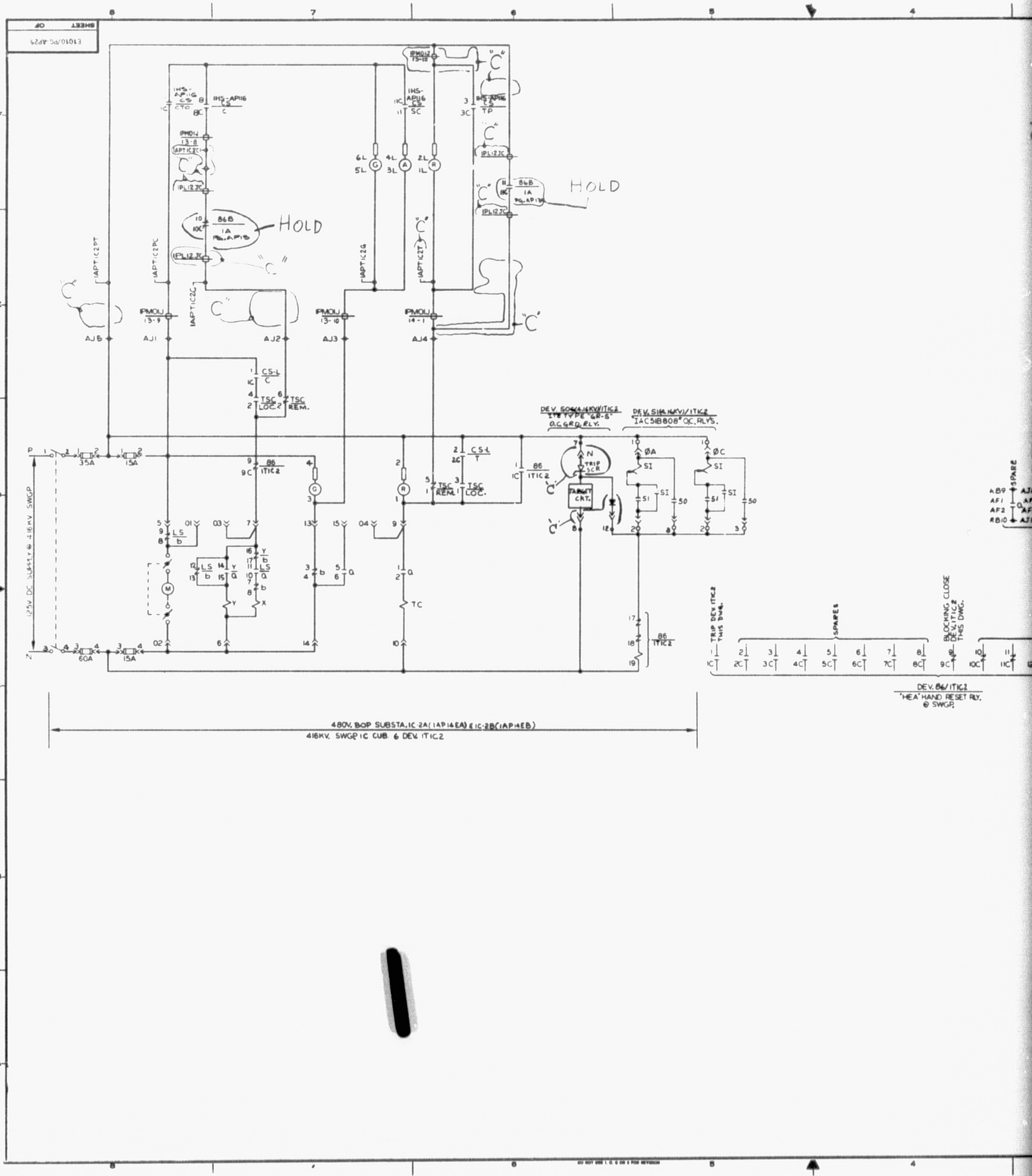
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

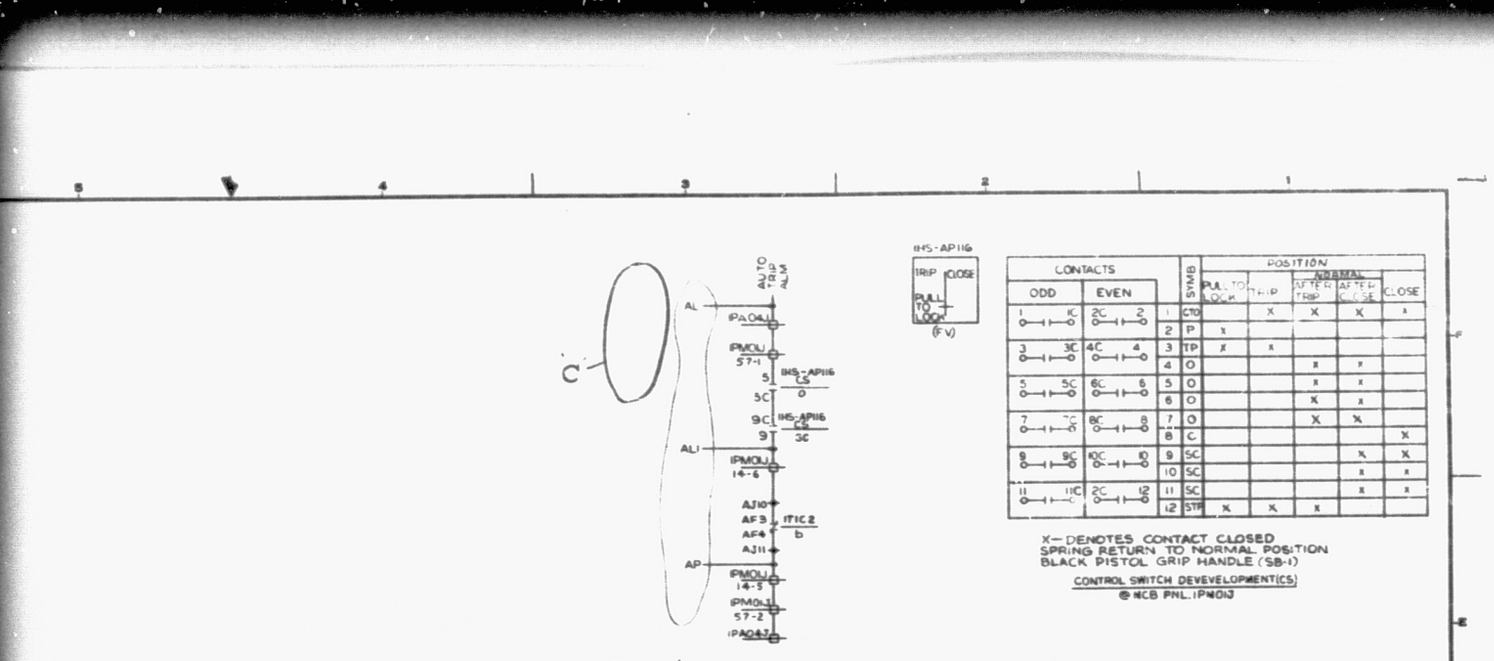
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

(SHEET 22 OF 23)


HOLD
HOLD
125V DC SUPPLY @ 416KV SWGR
480V. BOP SUBSTA. 1C-2A (1AP14EA) & 1C-2B (1AP14EB)
416KV. SWGR. 1C CUB. 6 DEV. 1TIC2
DEV. 86/1TIC2
'HEA' HAND RESET RLY.
@ SWGR.
TRIP DEV. 1TIC2 THIS DWG.
SPARES
BLOCKING CLOSE DEV. 1TIC2 THIS DWG.
TRIP CKT.
TARGET CRT.
TSC REM.
TSC LOC.
SPARE



CONTACTS ODD	CONTACTS EVEN		SYMB.	POSITION: PULL TO LOCK	TRIP	NORMAL AFTER TRIP	NORMAL AFTER CLOSE	CLOSE
1 1C	2C 2	1	CTO		X	X	X	X
		2	P	X				
3 3C	4C 4	3	TP	X	X			
		4	O			X	X	
5 5C	6C 6	5	O			X	X	
		6	O			X	X	
7 7C	8C 8	7	O			X	X	
		8	C					X
9 9C	10C 10	9	SC				X	X
		10	SC				X	X
11 11C	2C 12	11	SC				X	X
		12	STP	X	X	X		

X—DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK PISTOL GRIP HANDLE (SB-1)

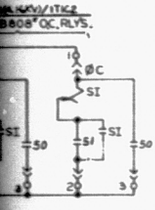
CONTROL SWITCH DEVEVELOPMENT(CS)
@ MCB PNL. 1PM01J

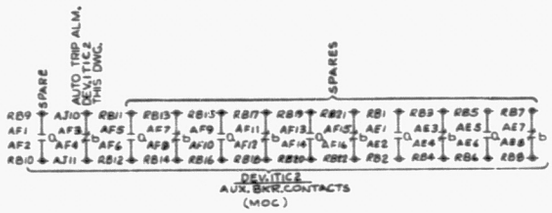


CONTACTS ODD	CONTACTS EVEN		SYMB.	POSITIONS: TRIP	NORMAL AFTER TRIP	NORMAL AFTER CLOSE	CLOSE
1 1C	2C 2	1	C				X
		2	T	X			
3 3C	4C 4	3	C				X
		4	T	X			

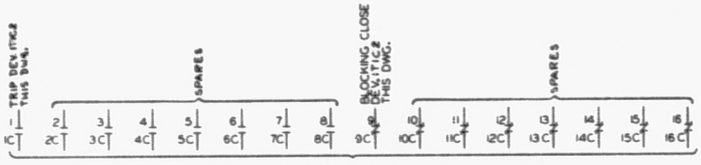
G.E. TYPE SB-1 SW.
SPRING RETURN TO "NORM." POS.
BLACK OVAL HANDLE

CONTROL SWITCH DEVELOPMENT(CS-L)
@ SWGR





DEV. ITIC2
AUX. BKR. CONTACTS
(MOC)



DEV. 86/ITIC2
"HEA" HAND RESET RLY.
@ SWGR

DEVICE	CONDITION OF DEVICE IN EACH BREAKER POSITION: CONNECTED	LOCAL TEST	REMOTE TEST	DISCONNECTED
MAIN CONTACTS	CONNECTED	DISCONNECTED	DISCONNECTED	DISCONNECTED
CONTROL CONT.	CONNECTED	CONNECTED	CONNECTED	DISCONNECTED
MOC SWITCHES	OPERABLE	NON-OPERABLE	OPERABLE	NON-OPERABLE
TSC SWITCHES	NOT OPERATED	OPERATED	NOT OPERATED	NOT OPERATED

MOC SWITCHES - MECHANISM OPERATED CONTROL SWITCHES
TSC SWITCHES - TEST SELECTOR CONTROL LIMIT SWITCH

2

PNL. TERM. Nº'S. WILL BE ADDED AS AVAILABLE

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-26

STANDBY POWER SYSTEM ESD

(SHEET 23 OF 23)

INDEX

HVAC C & I LOGIC DIAG

JOB NAME WM. H. ZIMMER NPS-1

JOB NO. 4130

DIAG NO.	REFERENCE P&ID DRWG. NO.	REFERENCE DETAIL DRWG. NO.	DESCRIPTION	DIAG NO.
VR301	M92-1	M792-1-1	EXH. FAN START-STOP & INTERLOCK	VR3
VR302	M92-1	M792-1-1	" " " " " "	VR3
VR303	M92-1	M792-1-1	" " " " " "	VR3
VR304	M92-1	M792-1-2	SUPPLY FAN START-STOP AND DAMPER MOTOR INTERLOCKS	VR3
VR305	M92-1	M792-1-2	" " " " " " "	VR3
VR306	M92-1	M792-1-2	" " " " " " "	VR3
VR307	M92-1	M792-1-2 & M792-1-3	BLDG. DIFF. PRESS. INTERLOCK & HIGH DIFF. PRESS. ALARM	
VR308	M92-1	M792-1-1 & M792-1-3	BLDG. DIFF. PRESS. LOW INTERLOCKS & ALARM	
VR309	M92-1	M792-1-2	SUPPLY FAN DISCH. AIR LOW LIMIT AUX. INTERLOCK RELAY	
VR310	M92-1	M792-1-4	SUPPLY AIR FLOW SW. AUX INTERLOCK RELAYS & INTERLOCKS	
VR311	M92-1	M792-1-4	EVAP. COOLER PUMP START-STOP & INTERLOCKS	

INDEX

GIC DIAGRAM DRAWINGS

(VR)

BLDG. REACTOR BLDG. VENTILATI

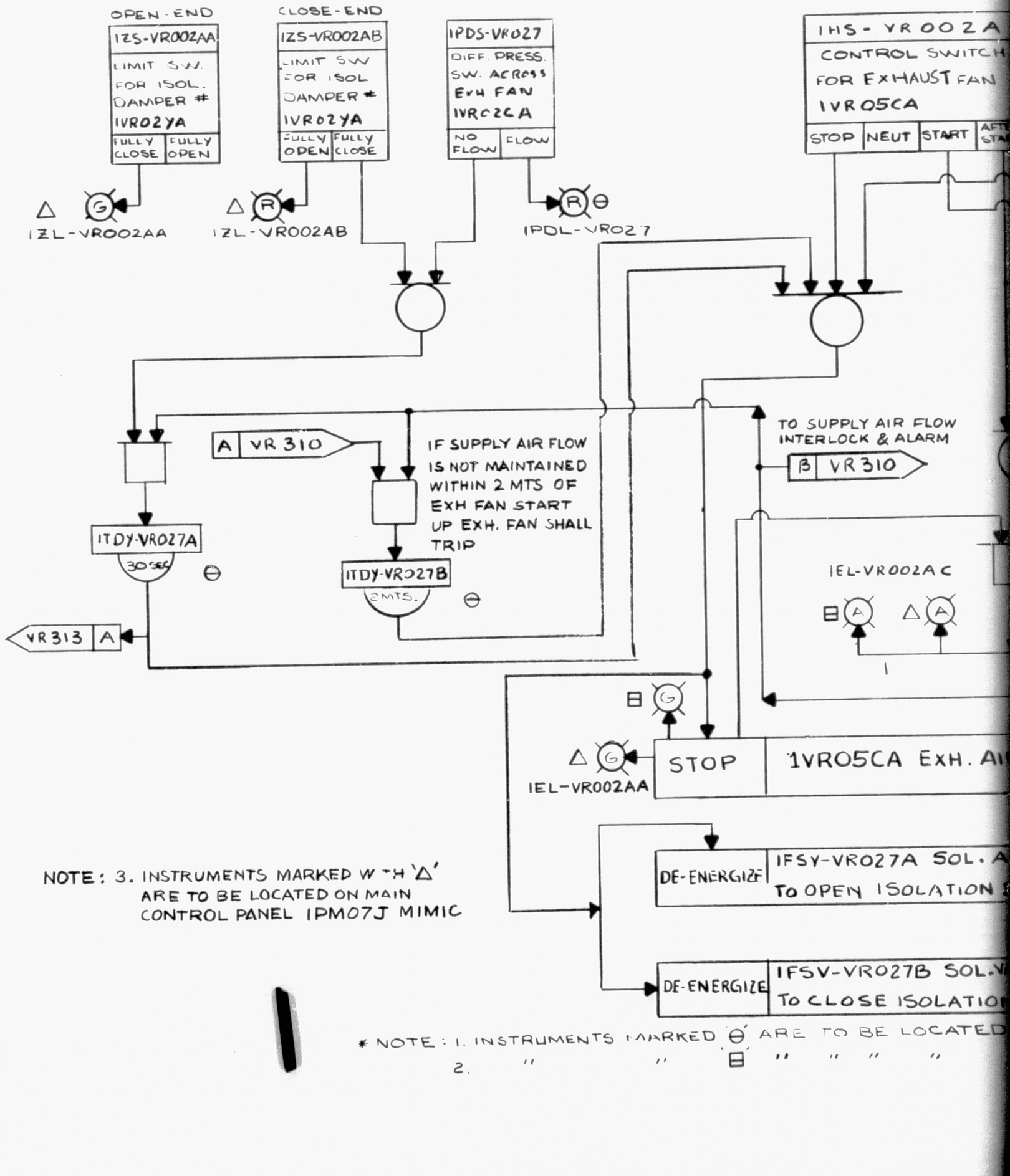
	DIAG NO.	REFERENCE P&ID DRWG. NO.	REFERENCE DETAIL DRWG. NO.	DESCRIPTION
CK	VR312	M92-1	M792-1-4 & M792-1-5	EVAP. COOLER PUMP START-STOP + INTERLOCKS
	VR313	M92-1	M792-1-2, -3, -4, -6 & -7	REACTOR BLDG. VENTILATION ALARM POINTS
	VR314	M92-1	M792-1-4	TRAIN 'A' EVAP. COOLER DISCH. AIR LOW LIMIT AUX. INTERLOCK RELAY
	VR315	M92-1	M792-1-12	TEMPERATURE INDICATION
	VR316	M92-1	M792-1-6	TRAIN 'A' FILTER DIFF. PRESS. ALARMS
	VR317	M92-1	M792-1-3	BLDG. DIFF. PRESS. INDICATION
				2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-27

REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM

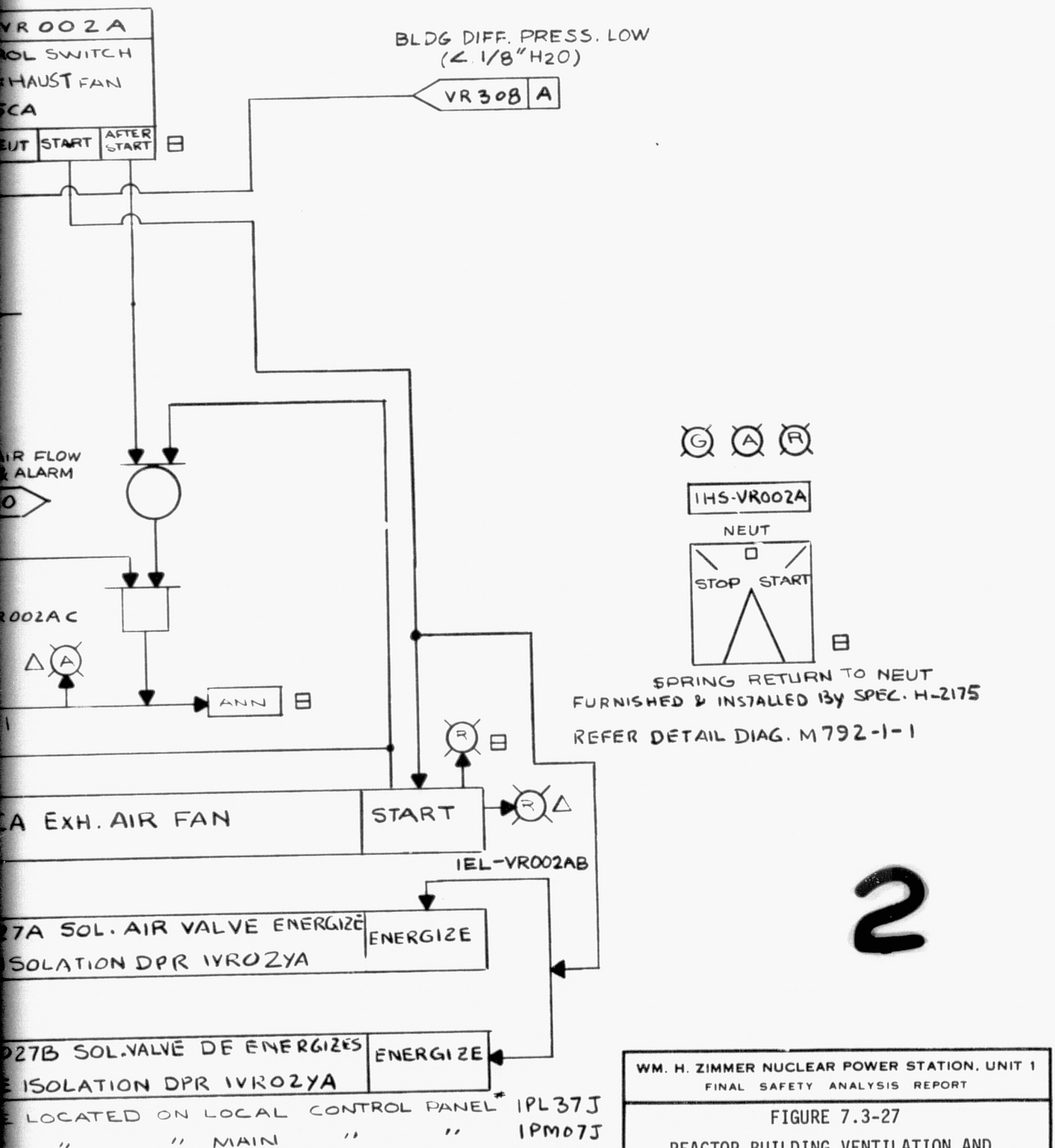
(SHEET 1 of 31)



NOTE: 3. INSTRUMENTS MARKED WITH 'Δ' ARE TO BE LOCATED ON MAIN CONTROL PANEL 1PM07J MIMIC

* NOTE: 1. INSTRUMENTS MARKED 'Θ' ARE TO BE LOCATED

2. " " ⊟ " " " "

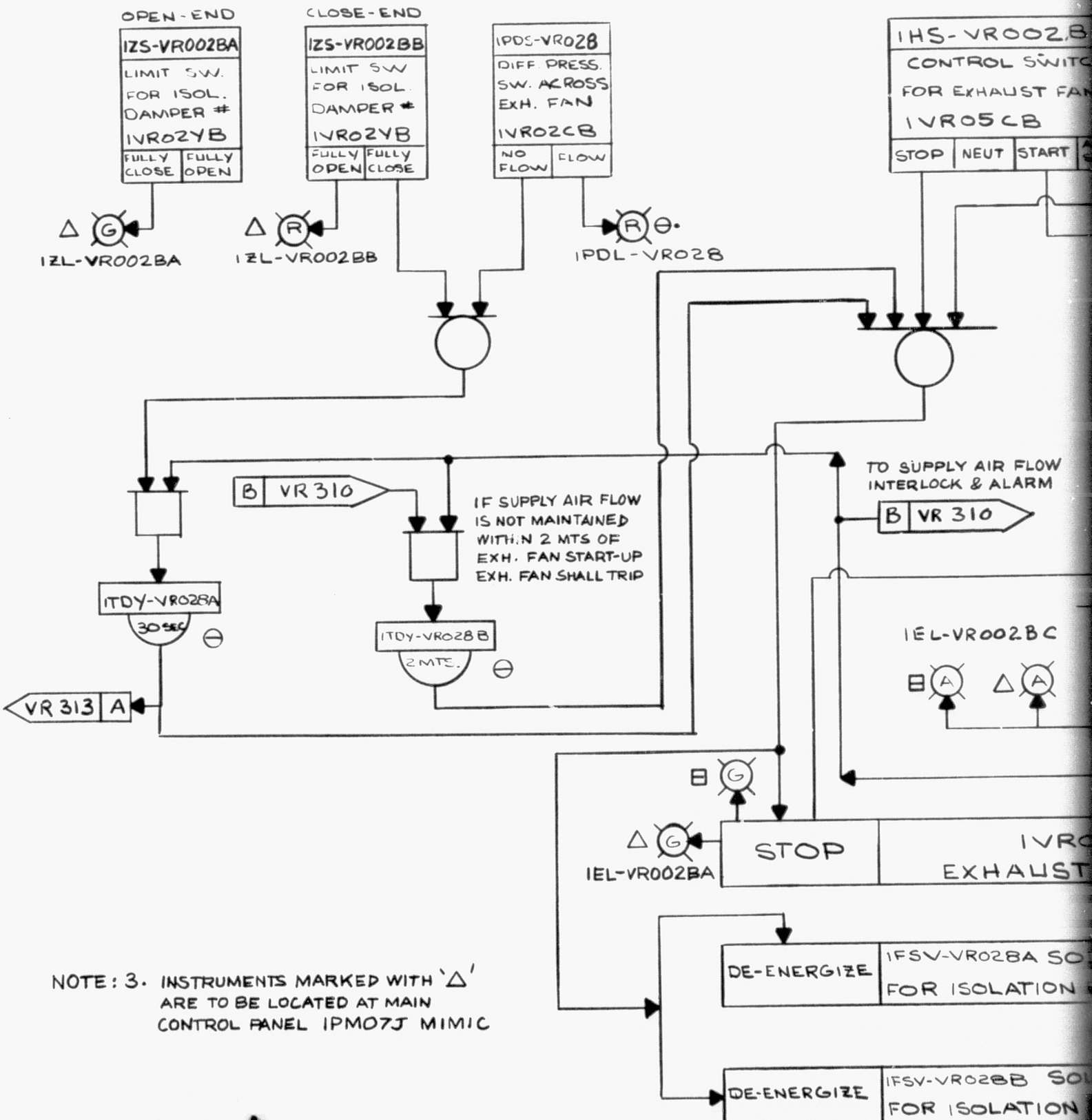


2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-27

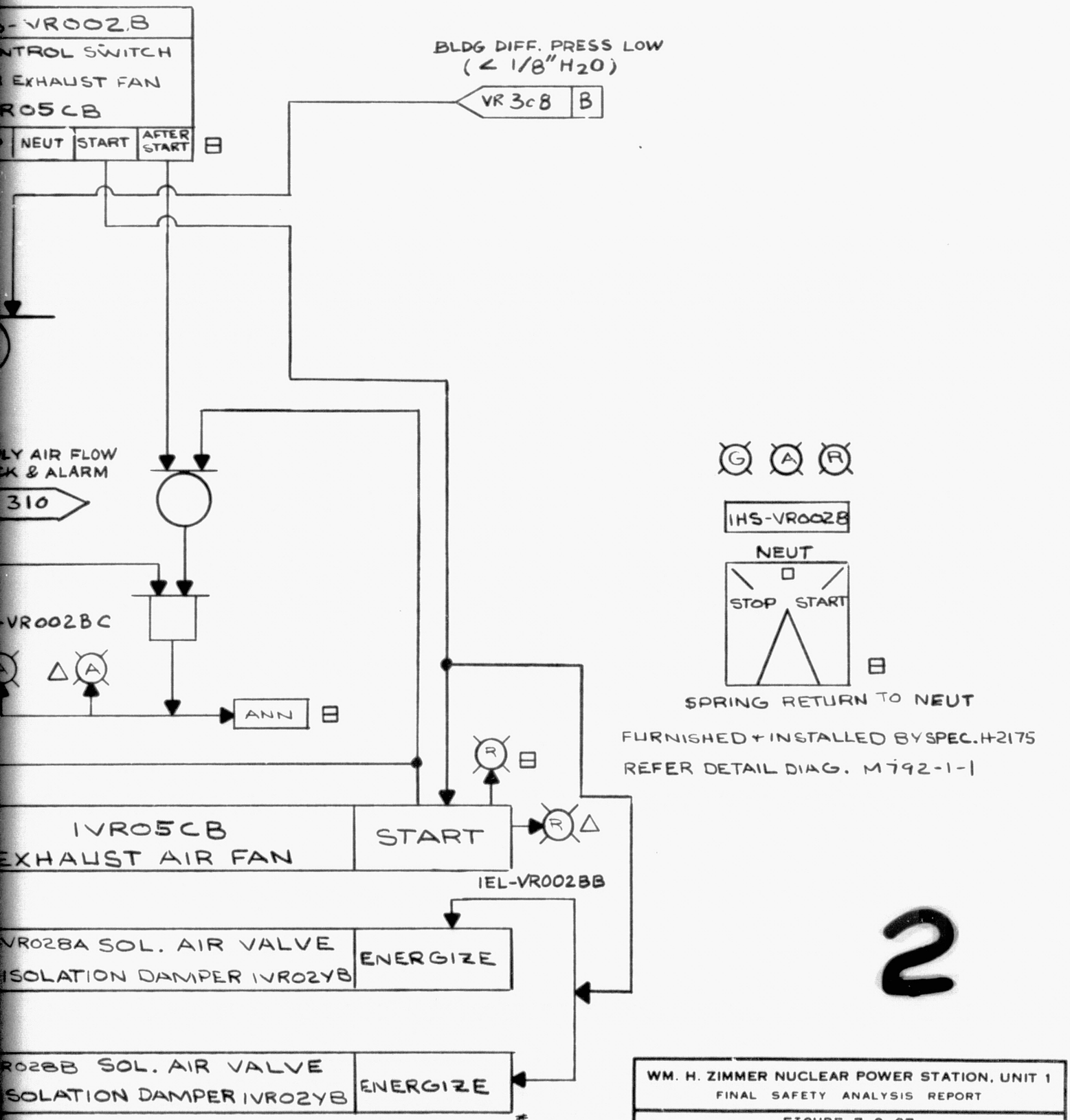
REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM
(SHEET 2 of 31)



NOTE: 3. INSTRUMENTS MARKED WITH '△' ARE TO BE LOCATED AT MAIN CONTROL PANEL 1PM07J MIMIC

* NOTE: 1. INSTRUMENTS MARKED 'Θ' ARE TO BE LOCATE

2 " " '⊟' " " " "



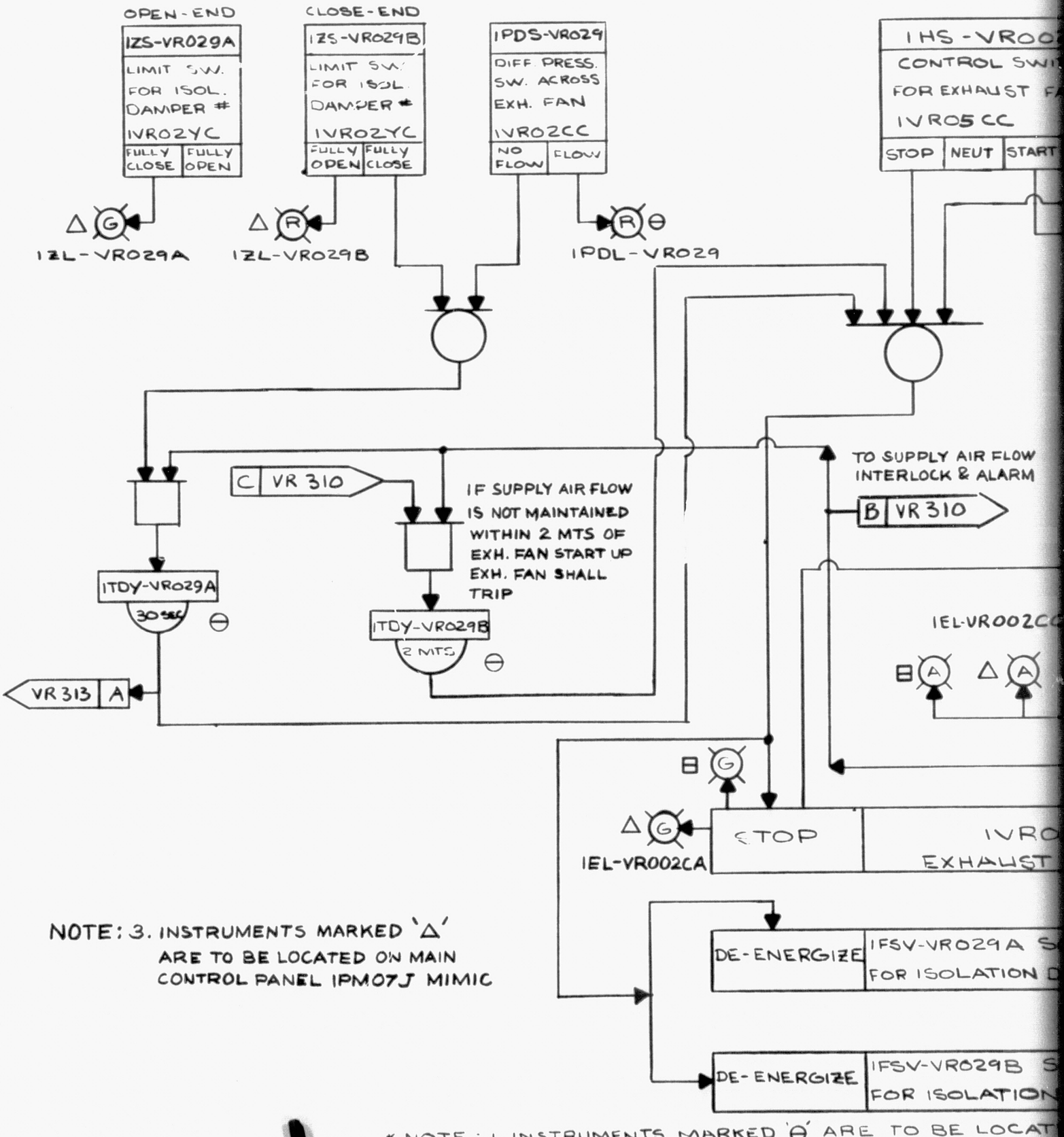
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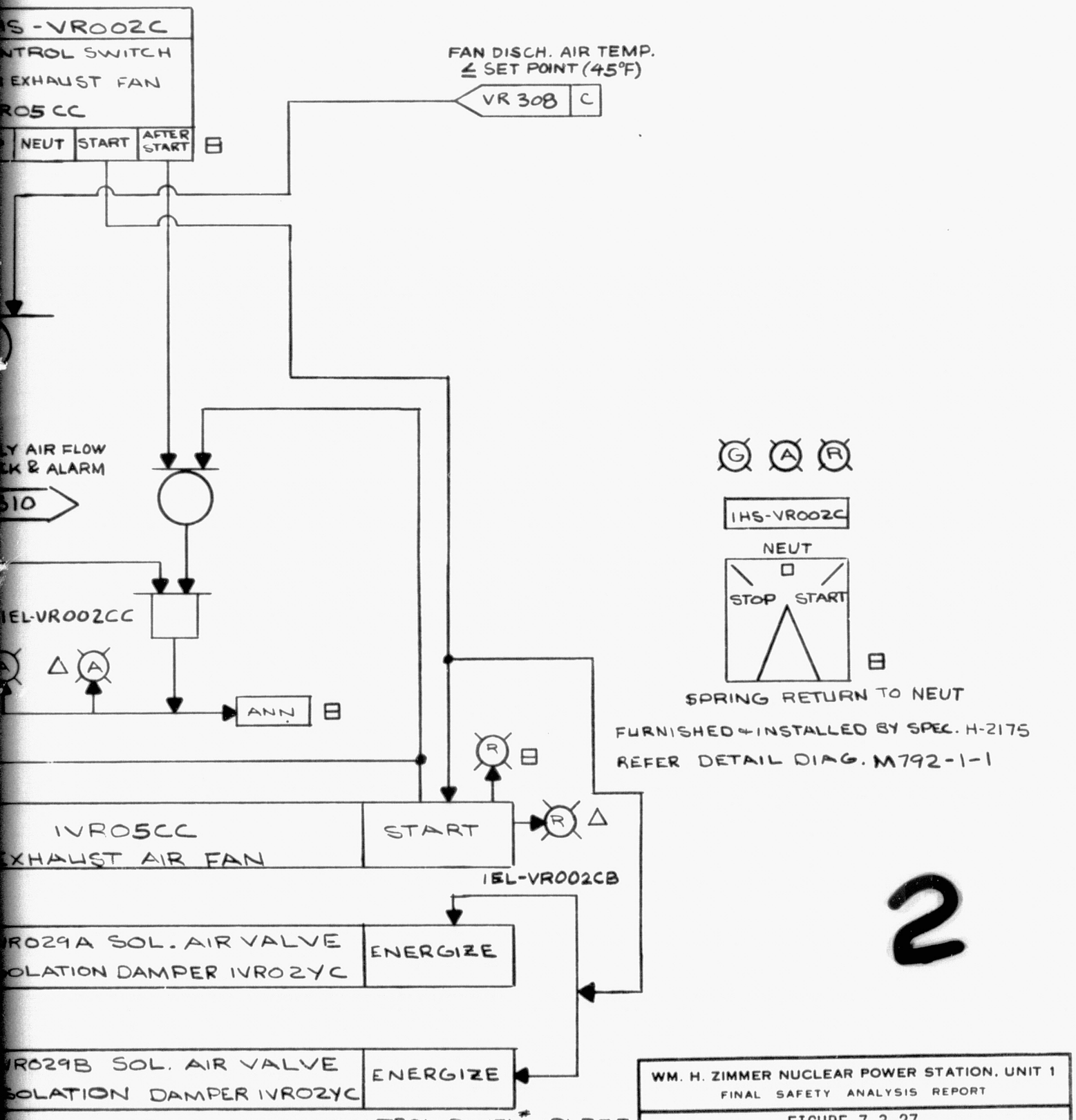
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-27

REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM

(SHEET 3 of 31)


OPEN-END
1ZS-VR029A
LIMIT SW. FOR ISOL. DAMPER # 1VR02YC
FULLY CLOSE
FULLY OPEN
CLOSE-END
1ZS-VR029B
LIMIT SW. FOR ISOL. DAMPER # 1VR02YC
FULLY OPEN
FULLY CLOSE
1PDS-VR029
DIFF. PRESS. SW. ACROSS EXH. FAN 1VR02CC
NO FLOW
FLOW
1HS-VR00
CONTROL SWI
FOR EXHAUST FA
1VR05CC
STOP
NEUT
START
1ZL-VR029A
1ZL-VR029B
1PDL-VR029
C VR 310
IF SUPPLY AIR FLOW IS NOT MAINTAINED WITHIN 2 MTS OF EXH. FAN START UP EXH. FAN SHALL TRIP
TO SUPPLY AIR FLOW INTERLOCK & ALARM
B VR 310
1TDY-VR029A
30 SEC
1TDY-VR029B
2 MTS
VR 313 A
1EL-VR002CC
1EL-VR002CA
STOP
1VRO
EXHAUST
DE-ENERGIZE
1FSV-VR029A S
FOR ISOLATION D
DE-ENERGIZE
1FSV-VR029B S
FOR ISOLATION
NOTE: 3. INSTRUMENTS MARKED 'Δ' ARE TO BE LOCATED ON MAIN CONTROL PANEL 1PM07J MIMIC
* NOTE: 1. INSTRUMENTS MARKED 'Θ' ARE TO BE LOCAT
2. " " "H" " " " "



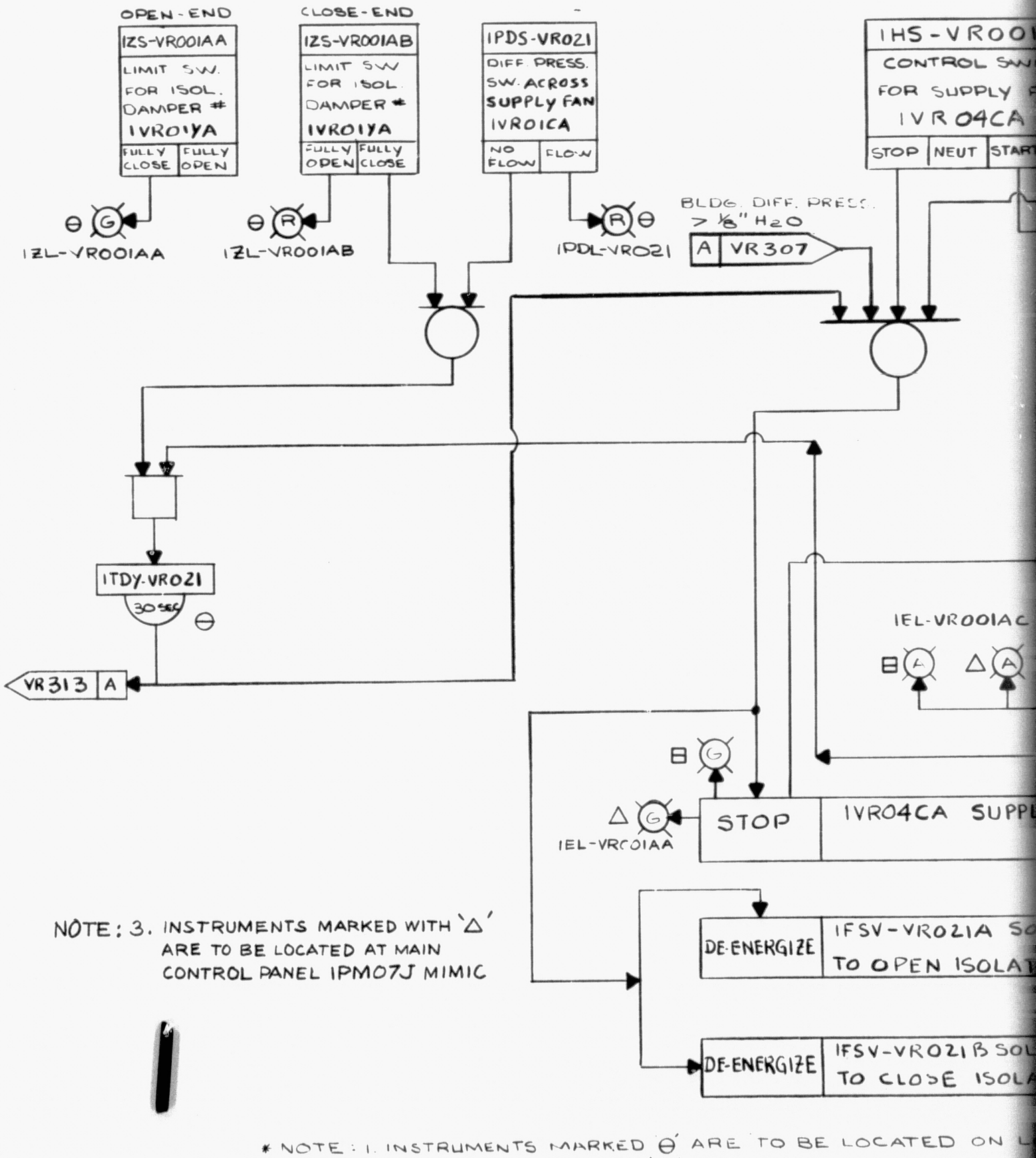
2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-27

REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM

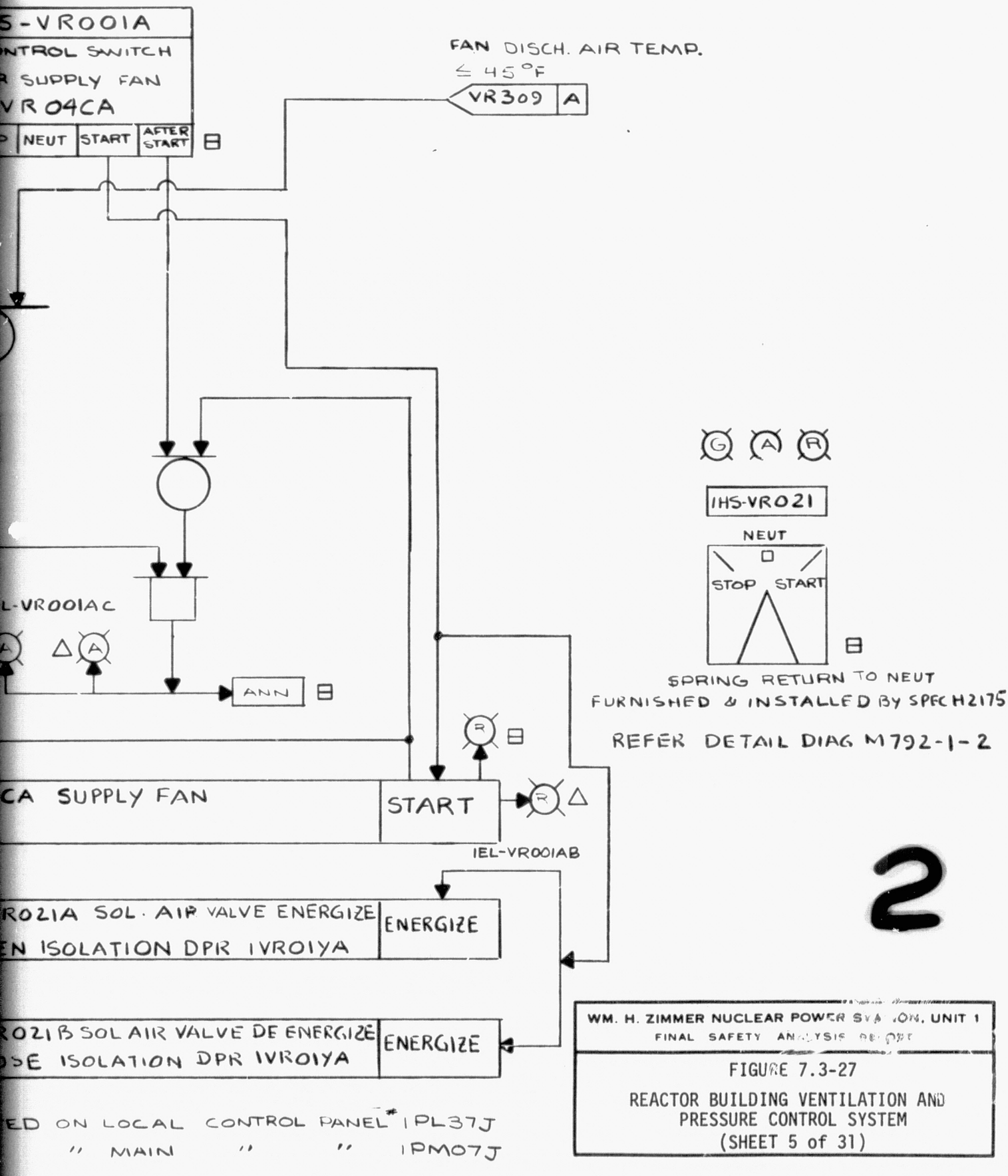
(SHEET 4 of 31)



NOTE: 3. INSTRUMENTS MARKED WITH '△' ARE TO BE LOCATED AT MAIN CONTROL PANEL 1PM07J MIMIC

* NOTE: 1. INSTRUMENTS MARKED 'θ' ARE TO BE LOCATED ON L

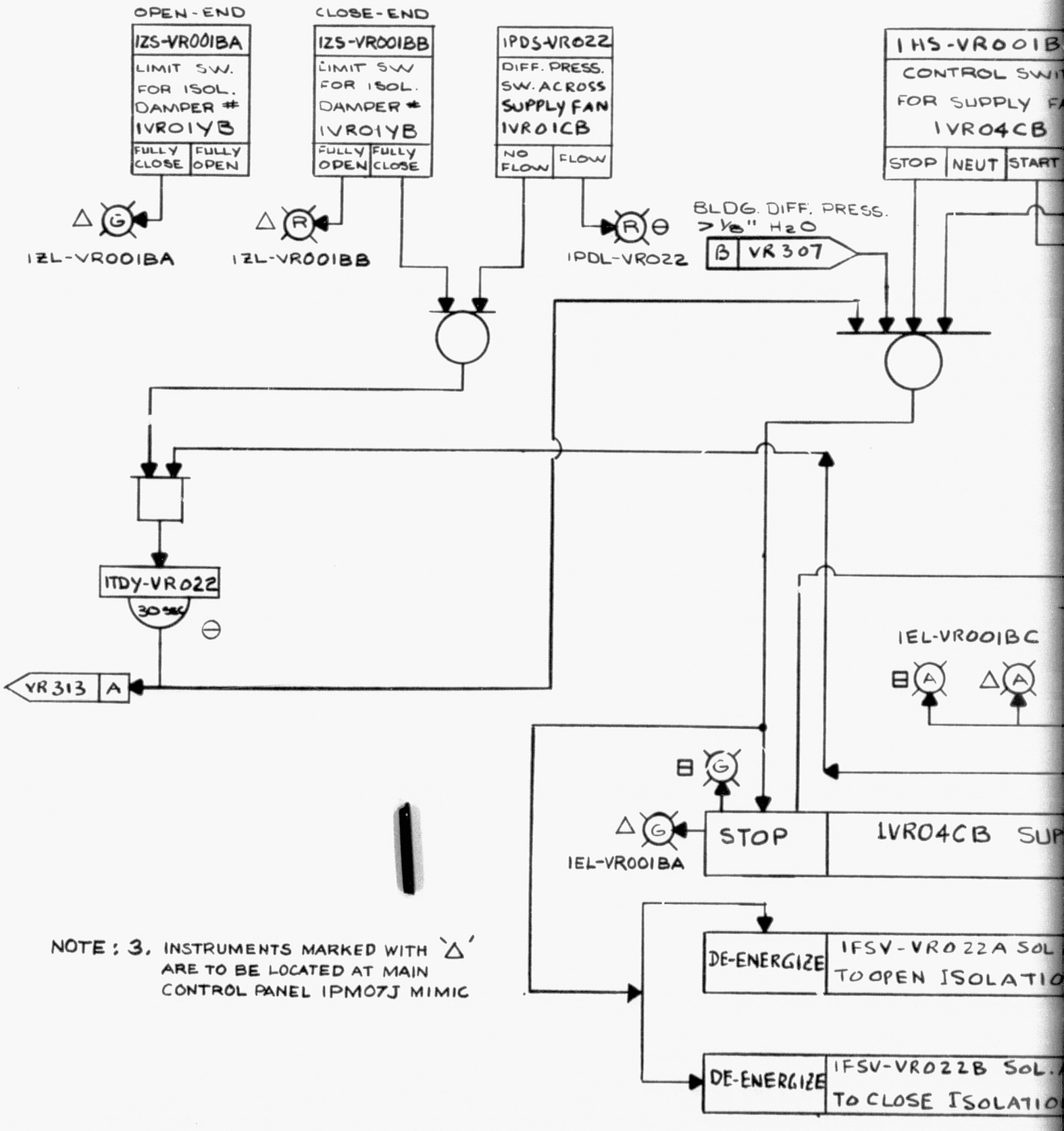
2. " " "⊟" " " " " " M



WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-27

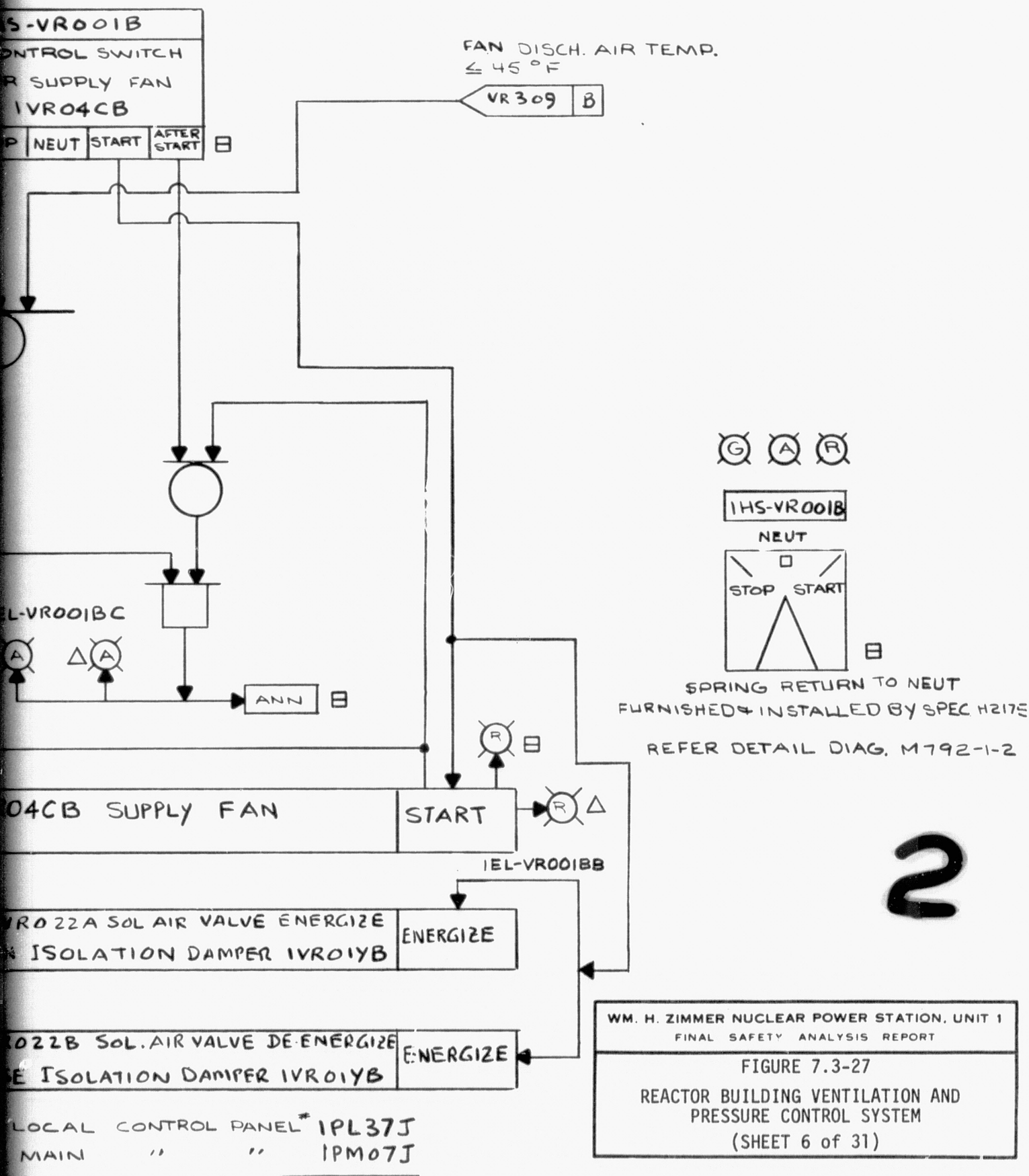
REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM
(SHEET 5 of 31)



NOTE: 3. INSTRUMENTS MARKED WITH '△' ARE TO BE LOCATED AT MAIN CONTROL PANEL 1PM07J MIMIC

* NOTE: 1. INSTRUMENTS MARKED 'θ' ARE TO BE LOCATED ON LOCAL CO

2. " " '⊟' " " " " " MAIN

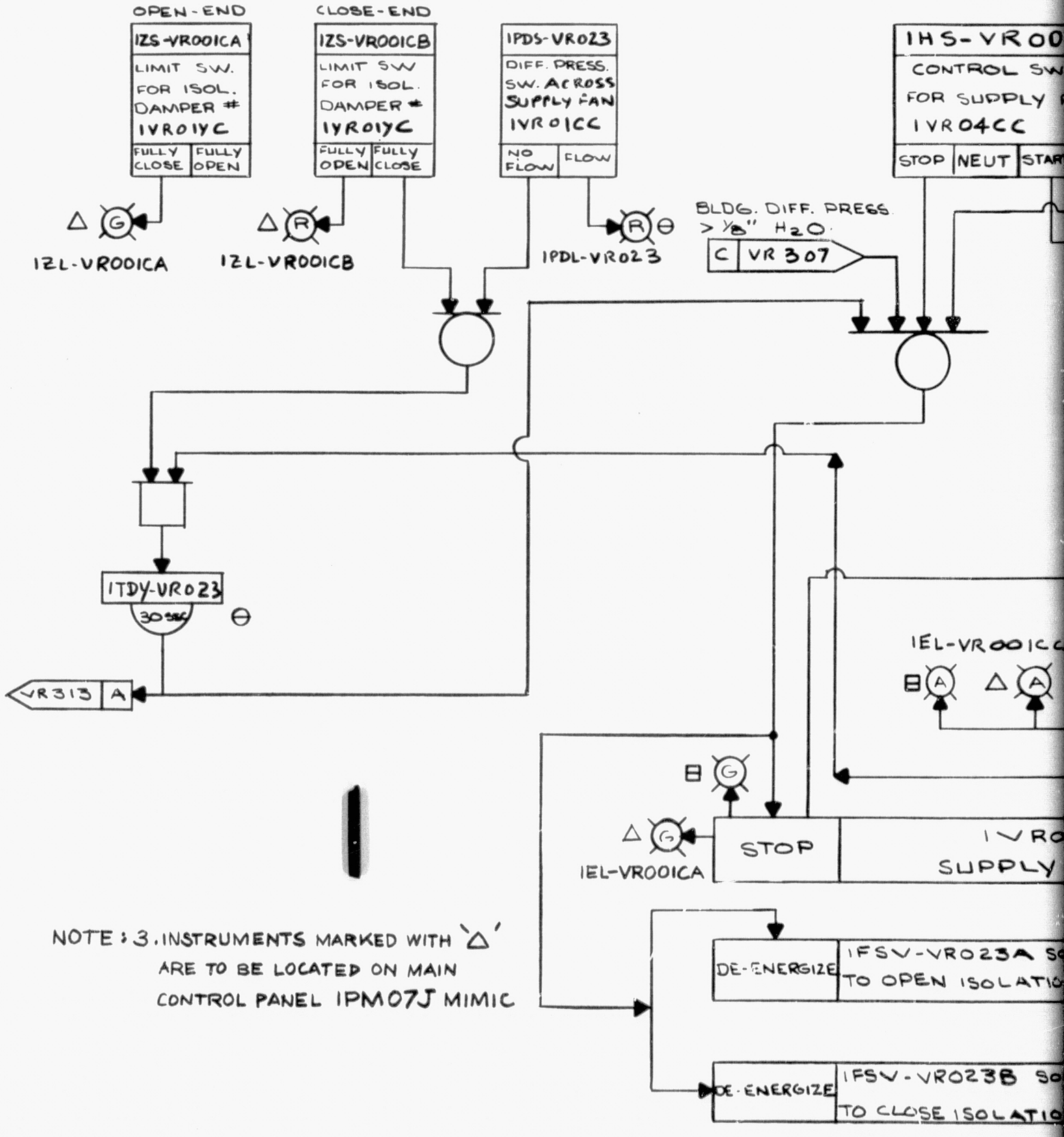


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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

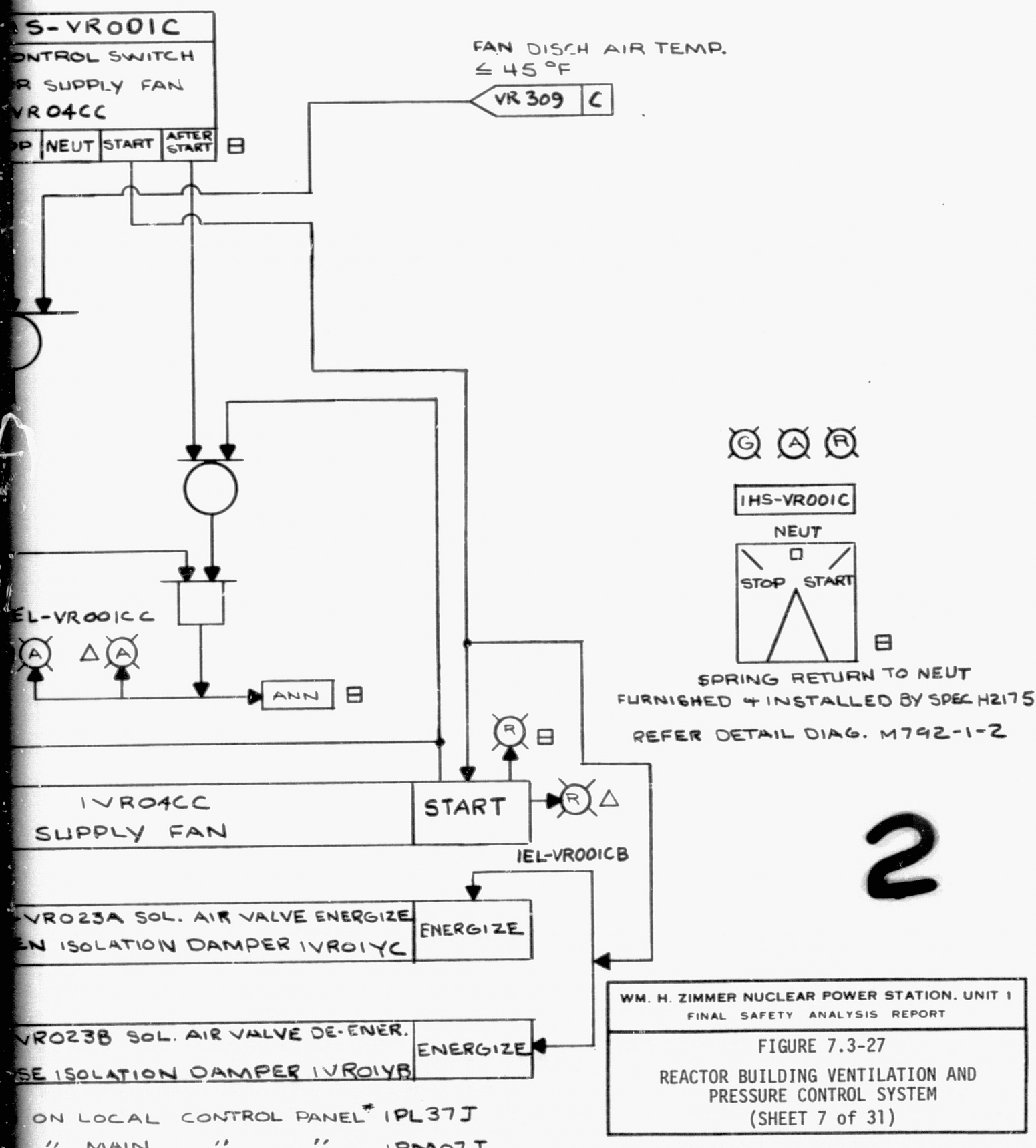
FIGURE 7.3-27

REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM
(SHEET 6 of 31)



NOTE : 3. INSTRUMENTS MARKED WITH '△' ARE TO BE LOCATED ON MAIN CONTROL PANEL 1PM07J MIMIC

* NOTE : 1. INSTRUMENTS MARKED 'θ' ARE TO BE LOCATED ON LOCAL
2. " " "⊟" " " " " " MAIN

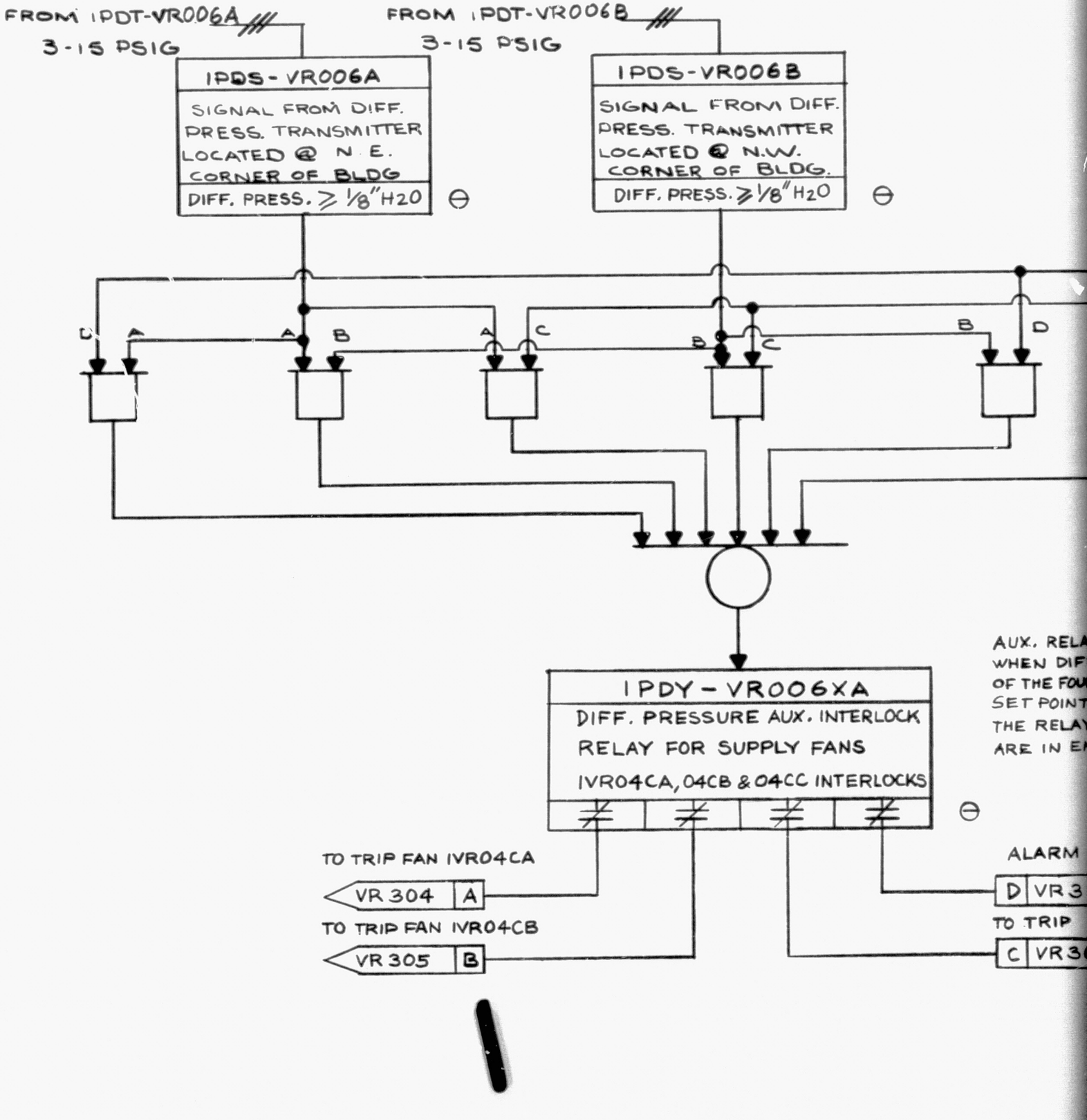


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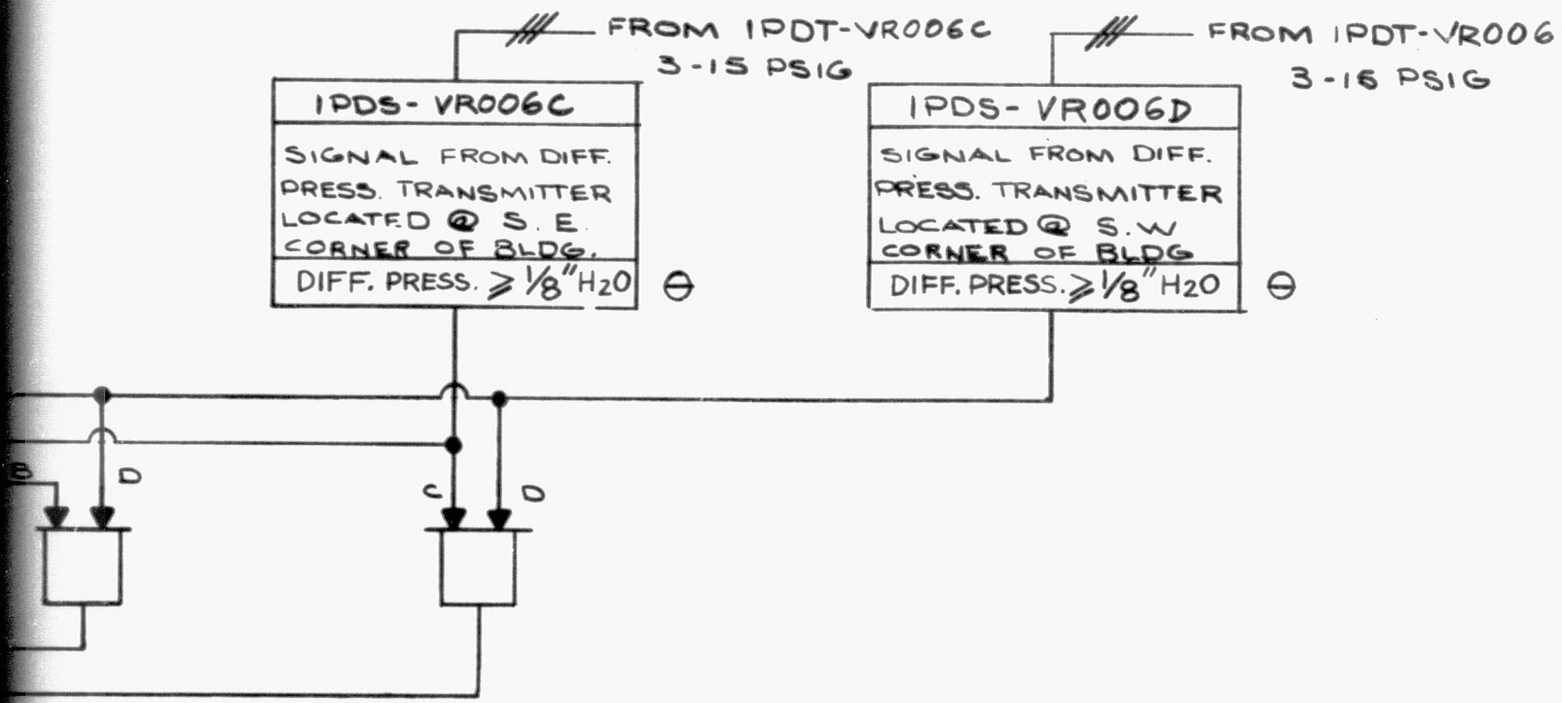
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-27

REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM
(SHEET 7 of 31)



NOTE: INSTRUMENTS MARKED '⊖' ARE LOCATED ON LOCAL CONTROL PANEL #



AUX. RELAY 1PDY-VR006XA ENERGIZE WHEN DIFF. PRESS SENSED BY ANY TWO OF THE FOUR DIFF. PRESS. SWITCHES ≥ THE SET POINT.
THE RELAY CONTACTS SHOWN IN THIS DIAGRAM ARE IN ENERGIZED POSITION.

REFER DETAIL DIAG M792-1-2 & 3

ALARM

D | VR313

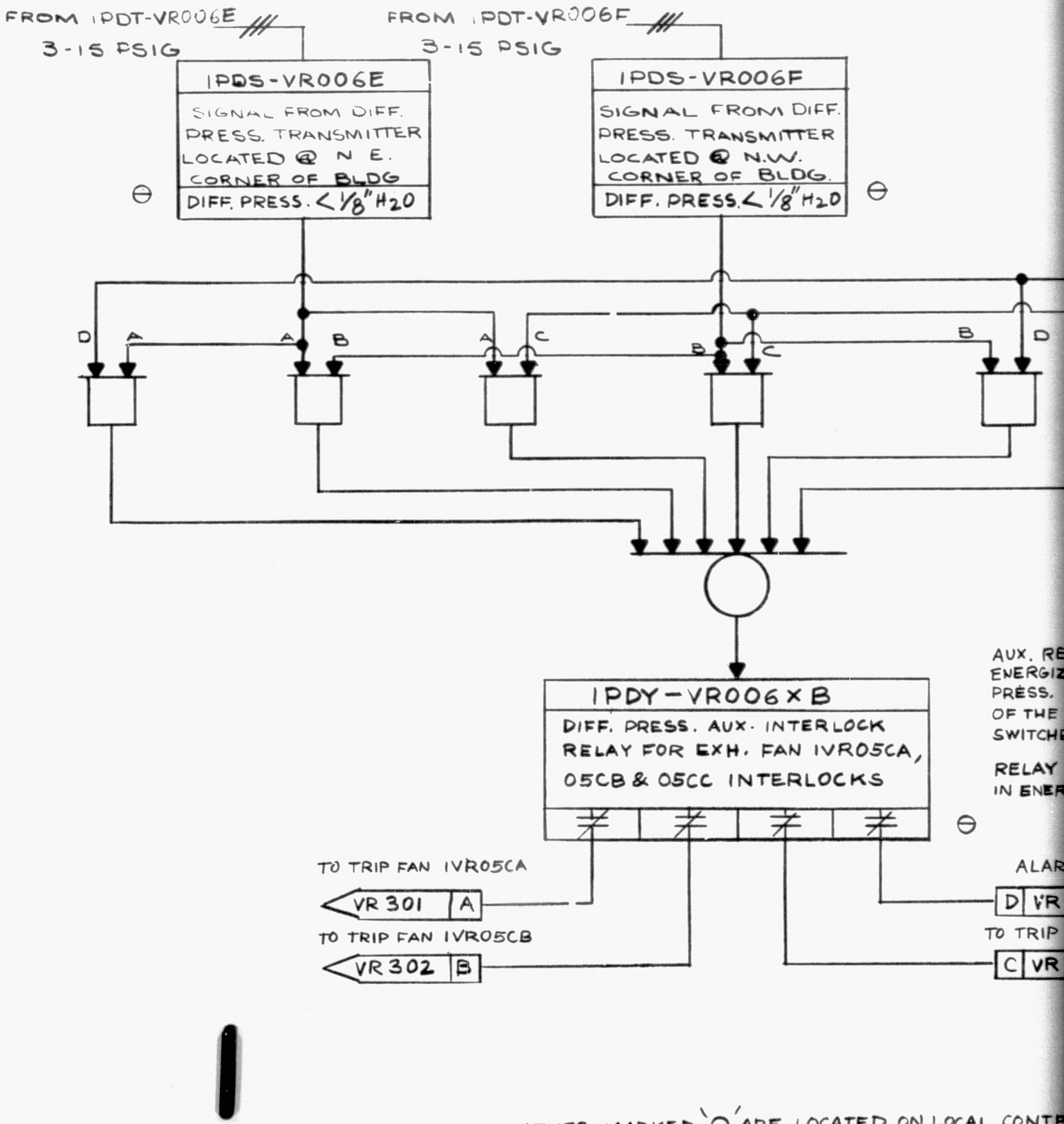
TO TRIP FAN 1VR04CC

C | VR305

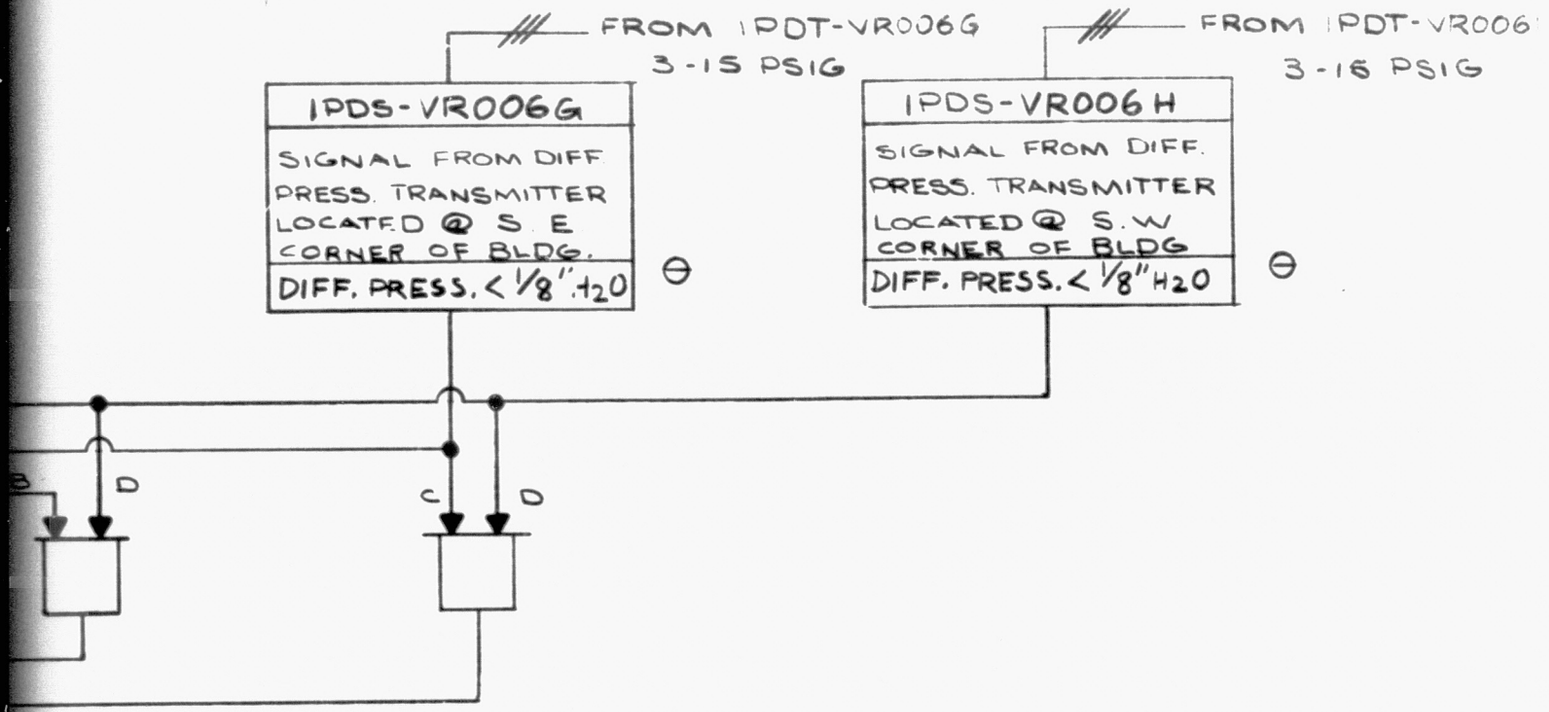
2

PANEL # 1PL37J

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-27 REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM (SHEET 8 of 31)



NOTE: INSTRUMENTS MARKED '⊖' ARE LOCATED ON LOCAL CONTR



AUX. RELAY 1PDY-VR006XB ENERGIZES WHEN BLDG. DIFF. PRESS. SENSED BY ANY TWO OF THE FOUR PRESS. DIFF. SWITCHES < THE SET POINT.

RELAY CONTACTS ARE SHOWN IN ENERGIZED POSITION

REFER DETAIL DIAG M792-1-1 & 3

ALARM

D | VR 313

TO TRIP FAN 1VR05CC

C | VR 302

CAL CONTROL PANEL # 1PL23J

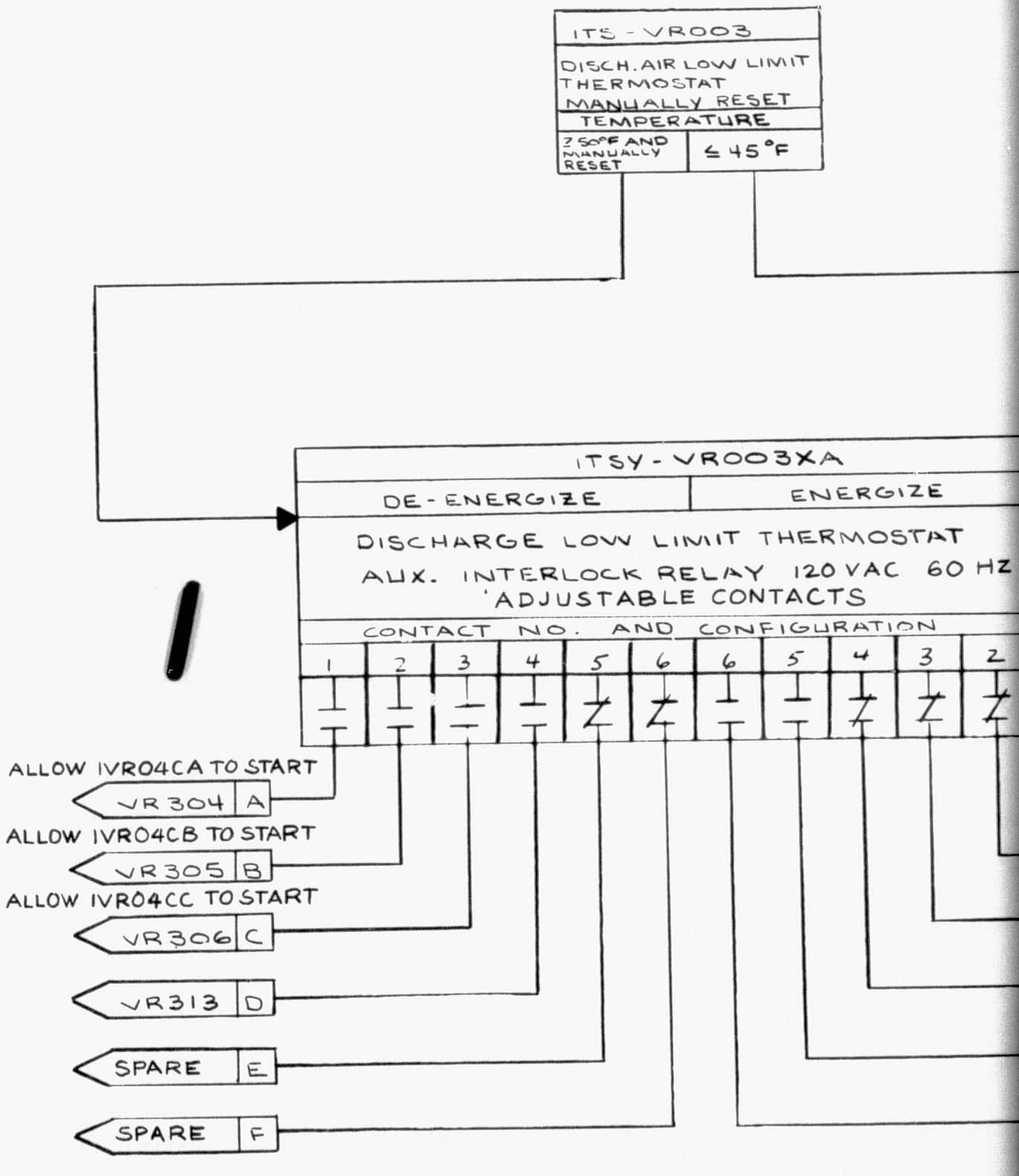
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

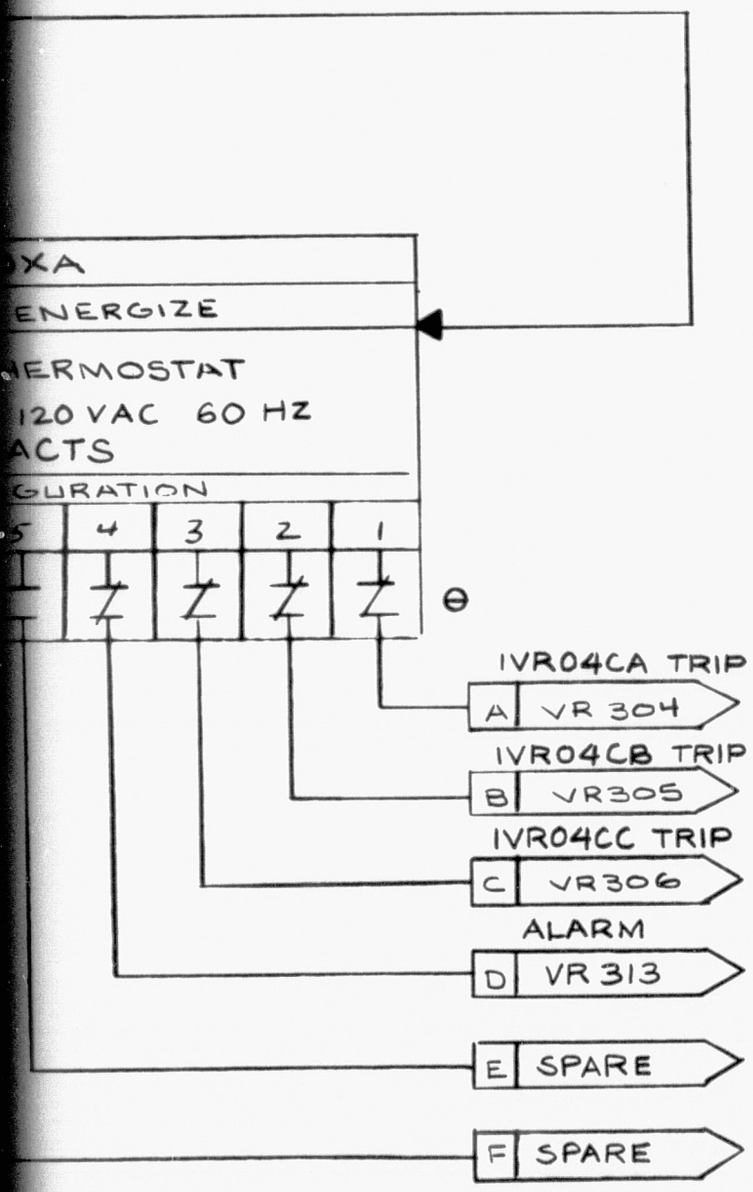
FIGURE 7.3-27

REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM

(SHEET 9 of 31)



* NOTE:- INSTRUMENTS MARKED 'θ' ARE TO BE LOCATED ON LOCAL CONT



REFER DETAIL DIAG. M792-1-2

2

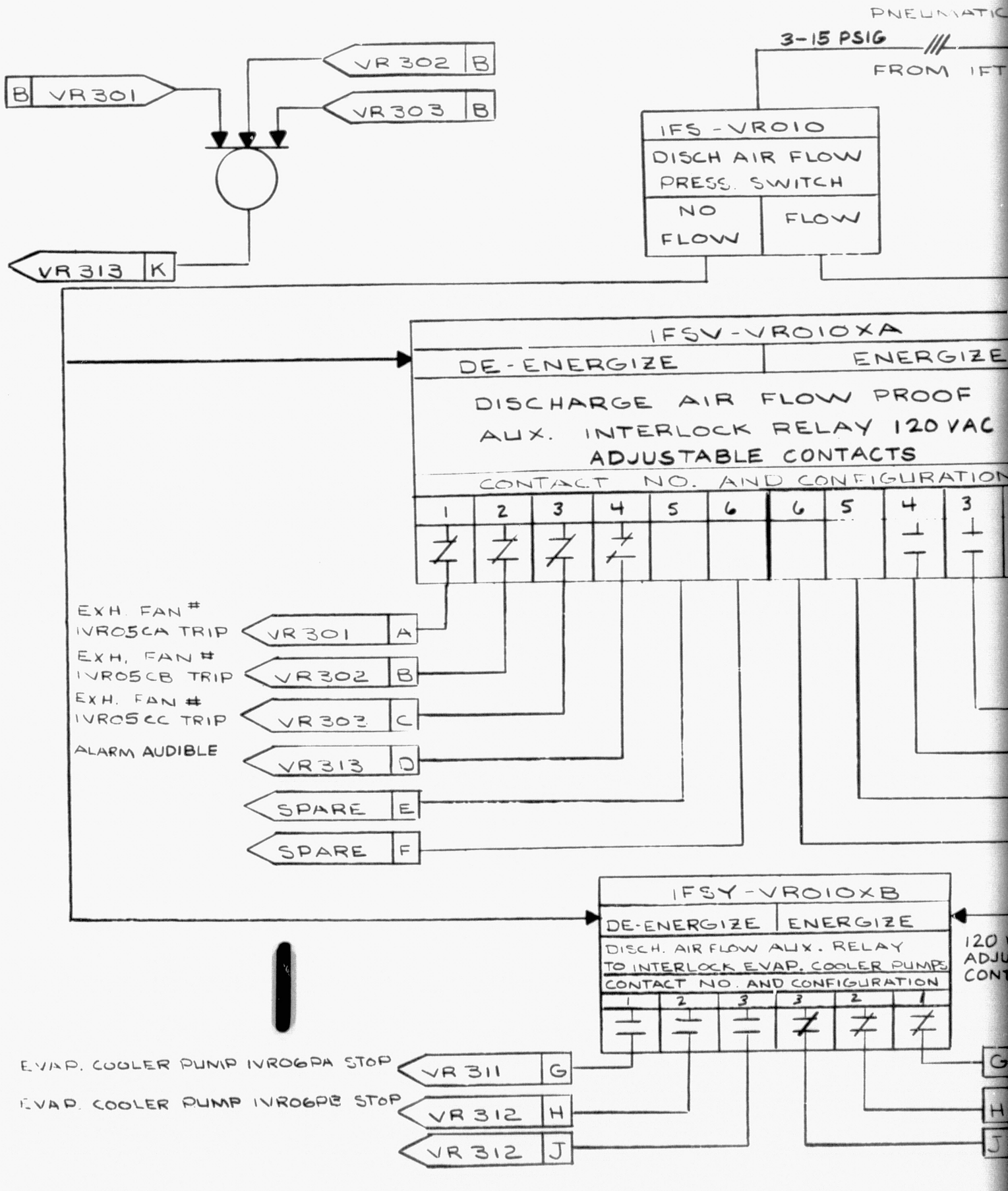
N LOCAL CONTROL PANEL # 1PL37J

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-27

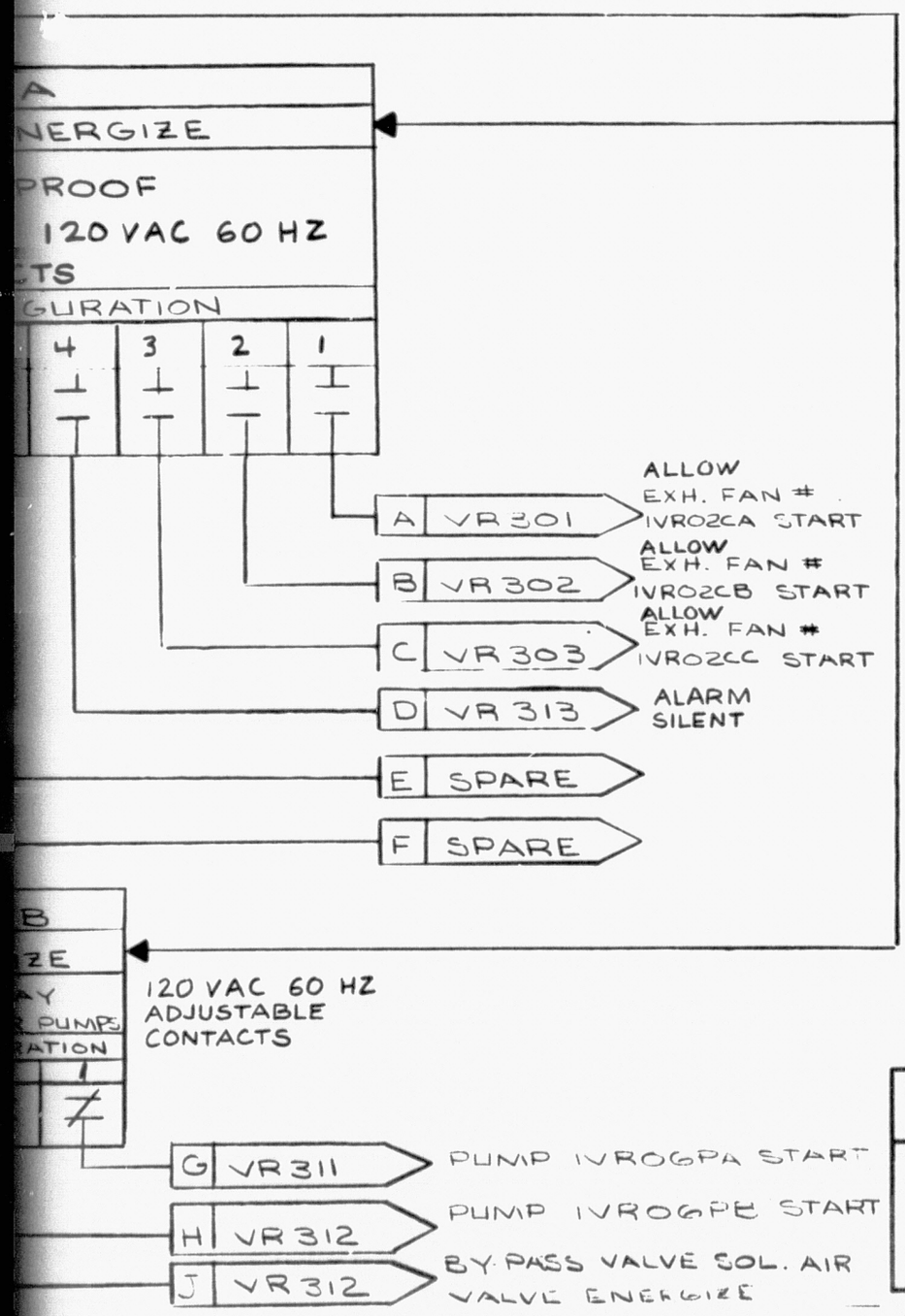
REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM

(SHEET 10 of 31)


PNEUMATIC
3-15 PSIG
FROM IFT
IFS-VR010
DISCH AIR FLOW PRESS. SWITCH
NO FLOW
FLOW
B VR301
VR302 B
VR303 B
VR313 K
IFSV-VR010XA
DE-ENERGIZE
ENERGIZE
DISCHARGE AIR FLOW PROOF AUX. INTERLOCK RELAY 120 VAC
ADJUSTABLE CONTACTS
CONTACT NO. AND CONFIGURATION
1 2 3 4 5 6 6 5 4 3
EXH. FAN # 1VR05CA TRIP
VR301 A
EXH. FAN # 1VR05CB TRIP
VR302 B
EXH. FAN # 1VR05CC TRIP
VR303 C
ALARM AUDIBLE
VR313 D
SPARE E
SPARE F
IFSY-VR010XB
DE-ENERGIZE
ENERGIZE
DISCH. AIR FLOW AUX. RELAY TO INTERLOCK EVAP. COOLER PUMPS
CONTACT NO. AND CONFIGURATION
1 2 3 3 2 1
EVAP. COOLER PUMP 1VR06PA STOP
VR311 G
EVAP. COOLER PUMP 1VR06PB STOP
VR312 H
VR312 J

PNEUMATIC CONTROL AIR SIGNAL

FROM 1FT-VR010 (M792-1-4)



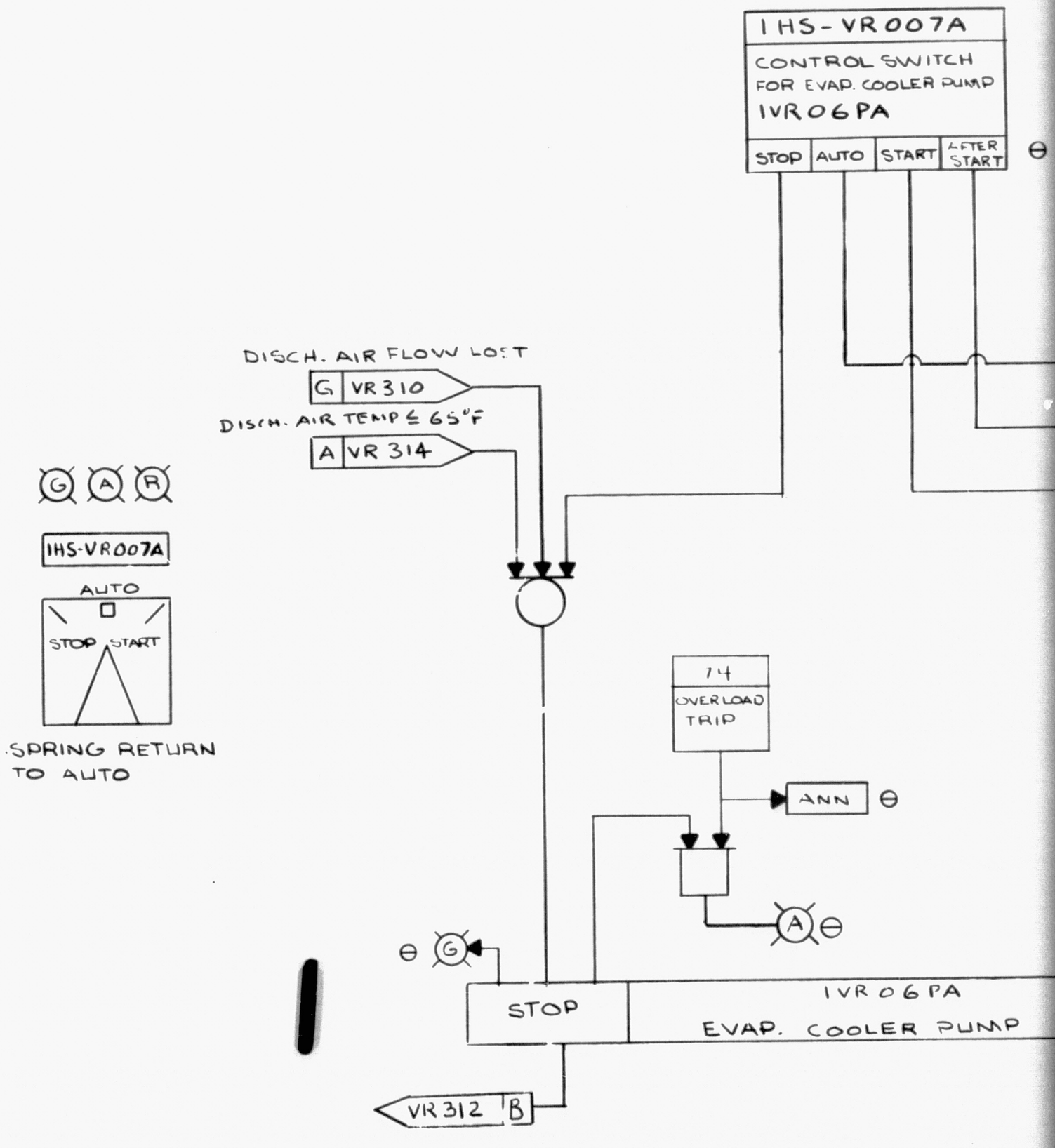
REFER DETAIL DIAG. M792-1-4

2

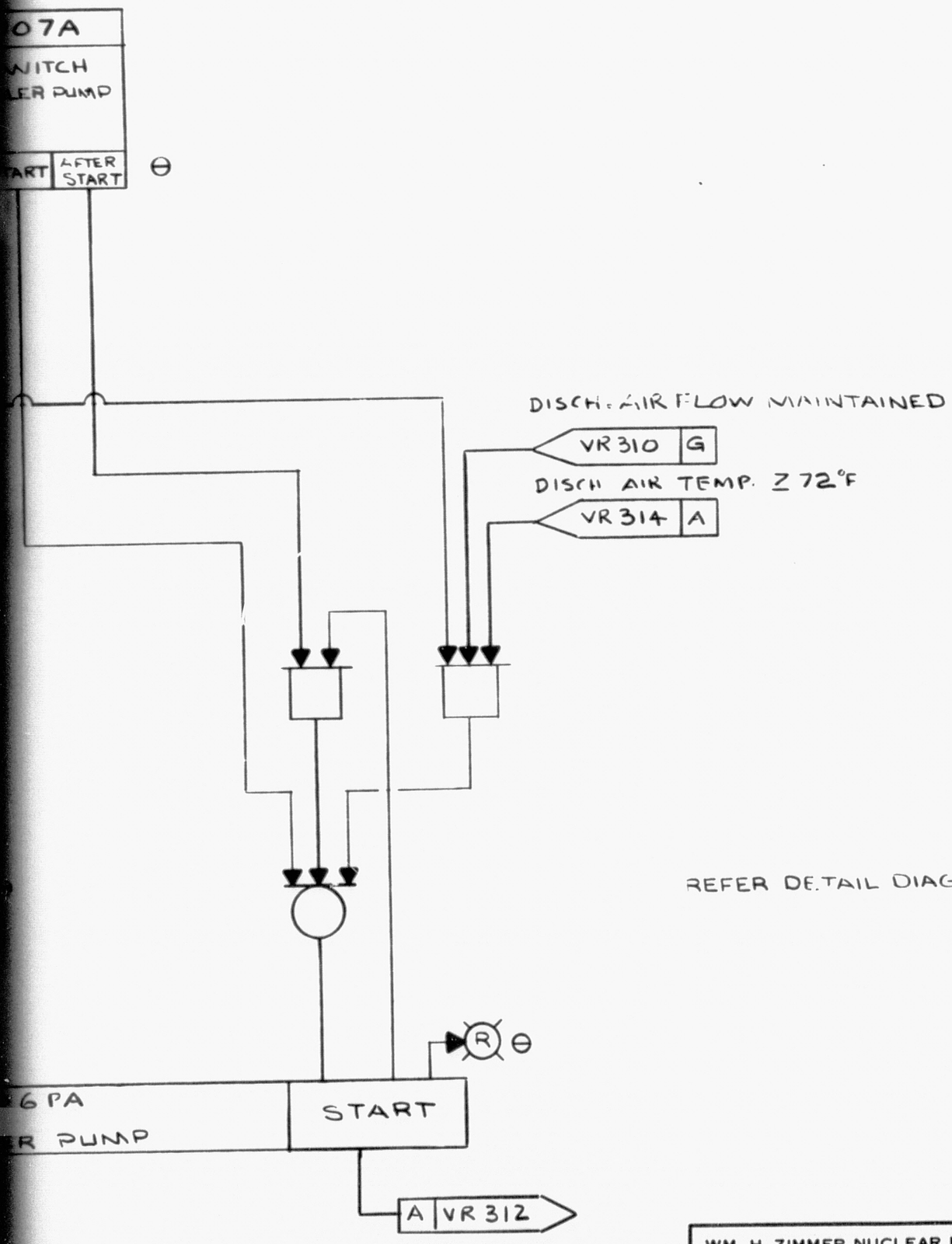
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-27

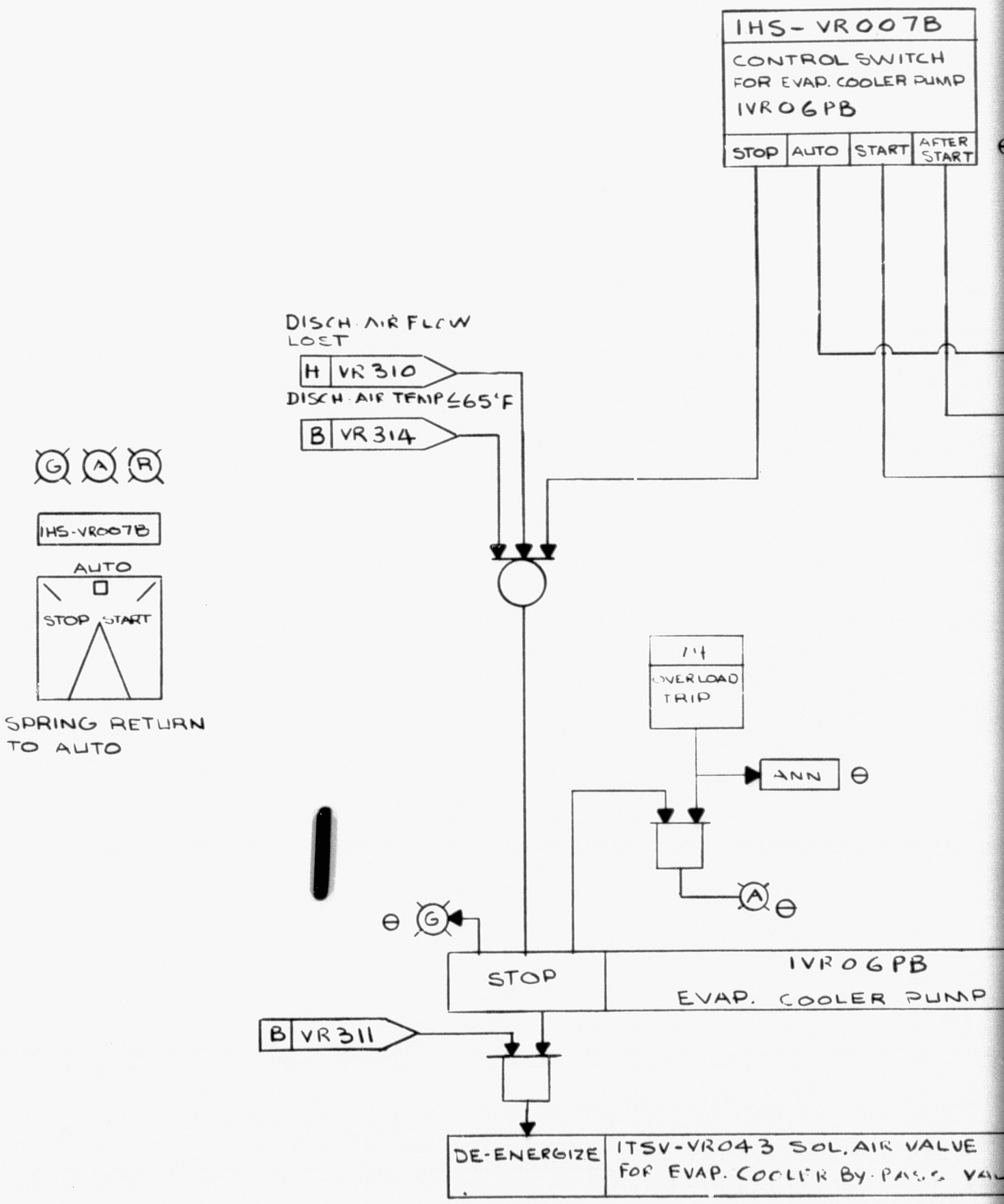
REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM
(SHEET 11 of 31)



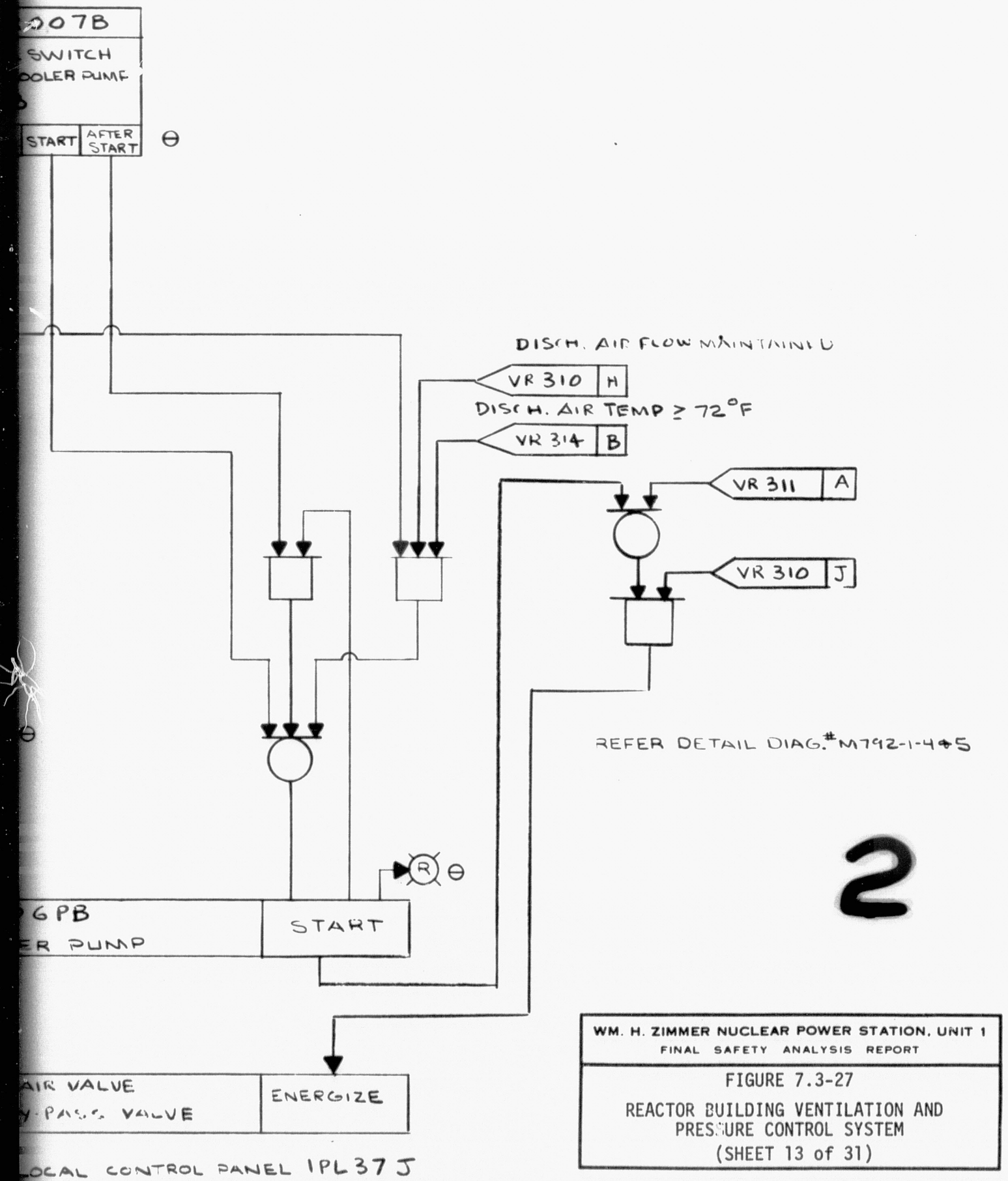
NOTE: INSTRUMENTS MARKED ARE [illegible] LOCATED ON LOCAL C



WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-27 REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM (SHEET 12 of 31)



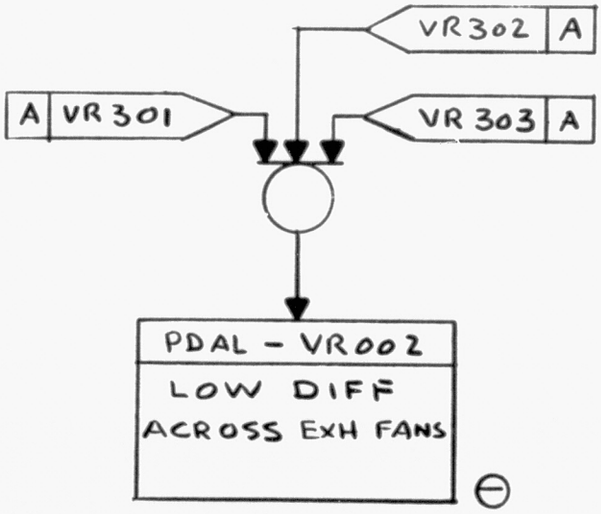
NOTE: INSTRUMENTS MARKED ARE TO BE LOCATED ON LOCAL CONT

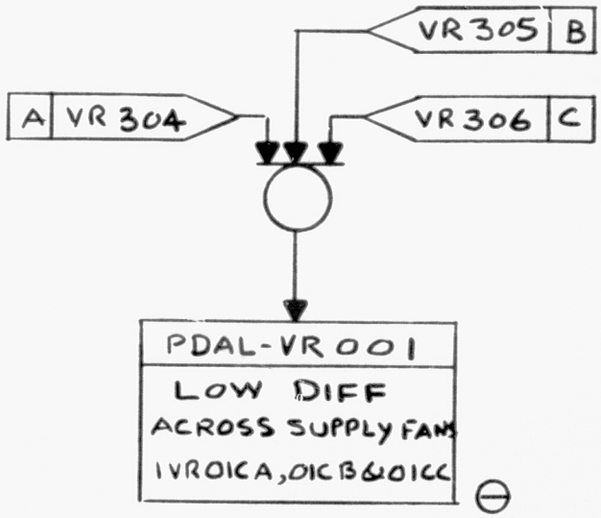


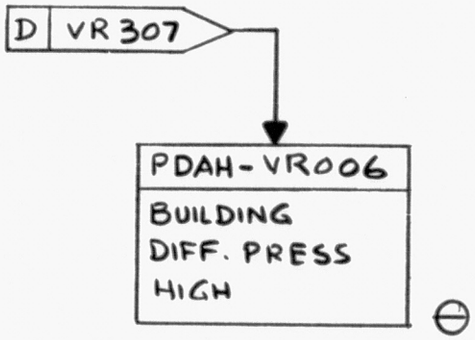
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

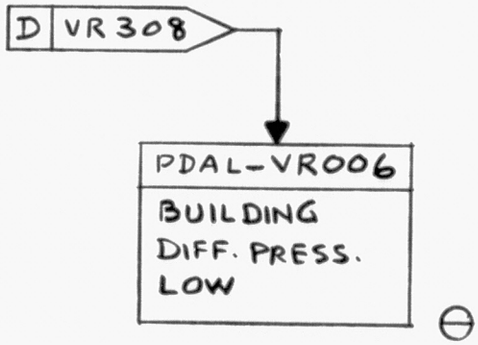
FIGURE 7.3-27

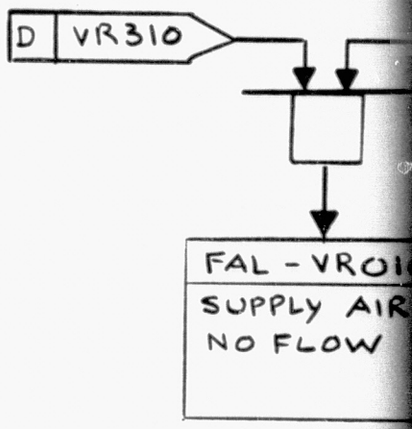
REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM
(SHEET 13 of 31)

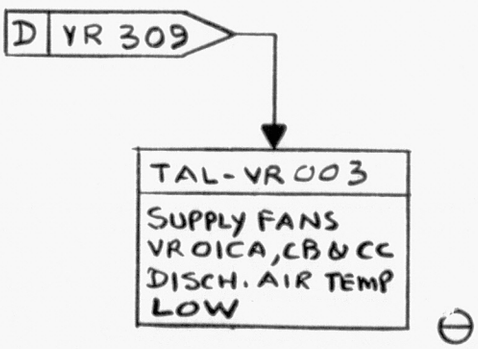


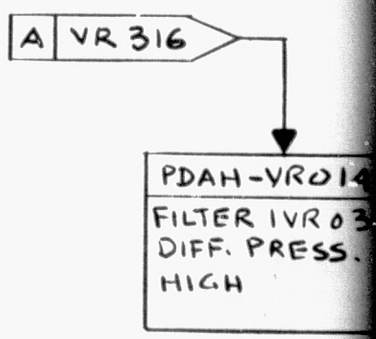




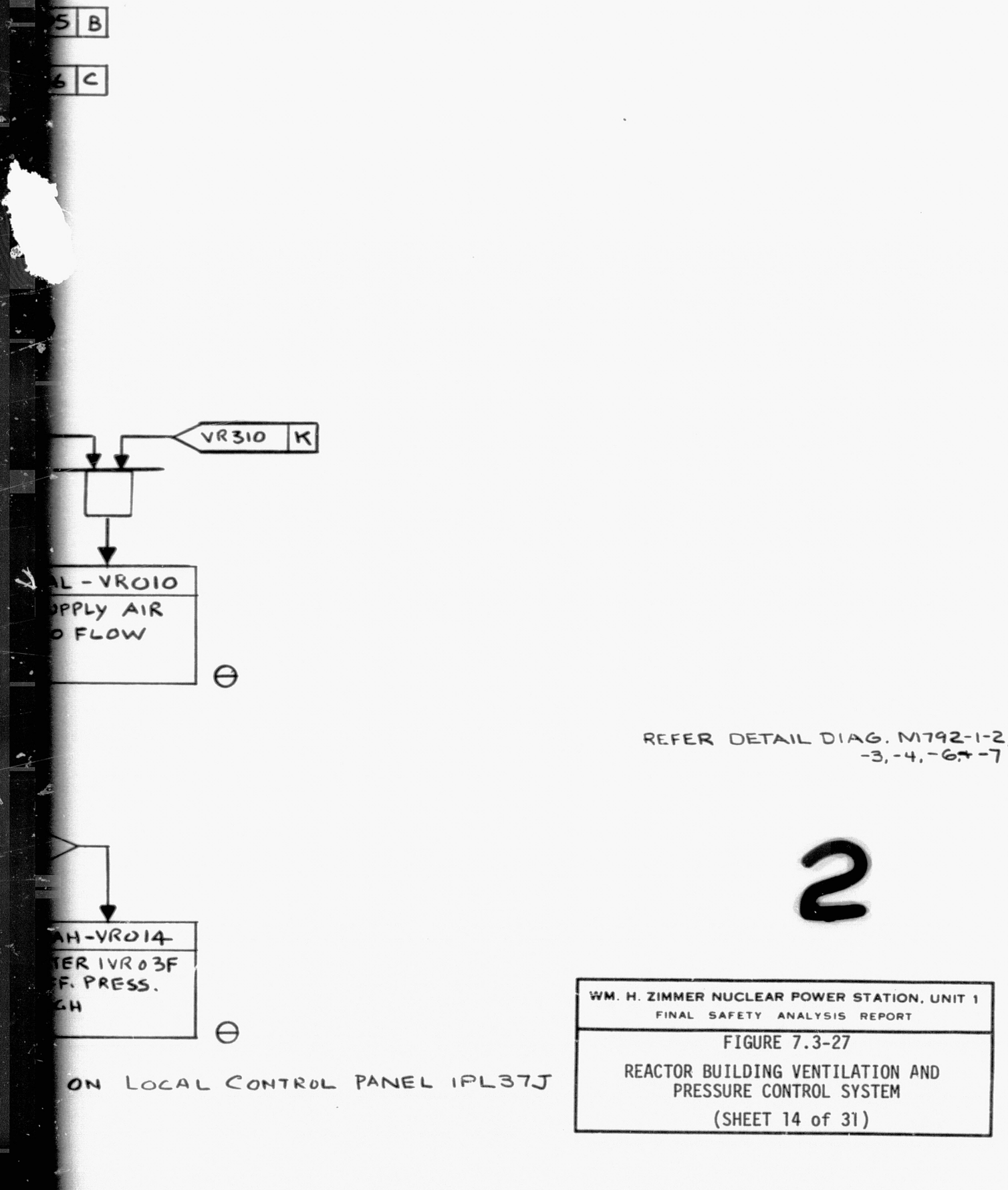








NOTE :— INSTRUMENTS MARKED WITH ARE TO BE LOCATED ON LO

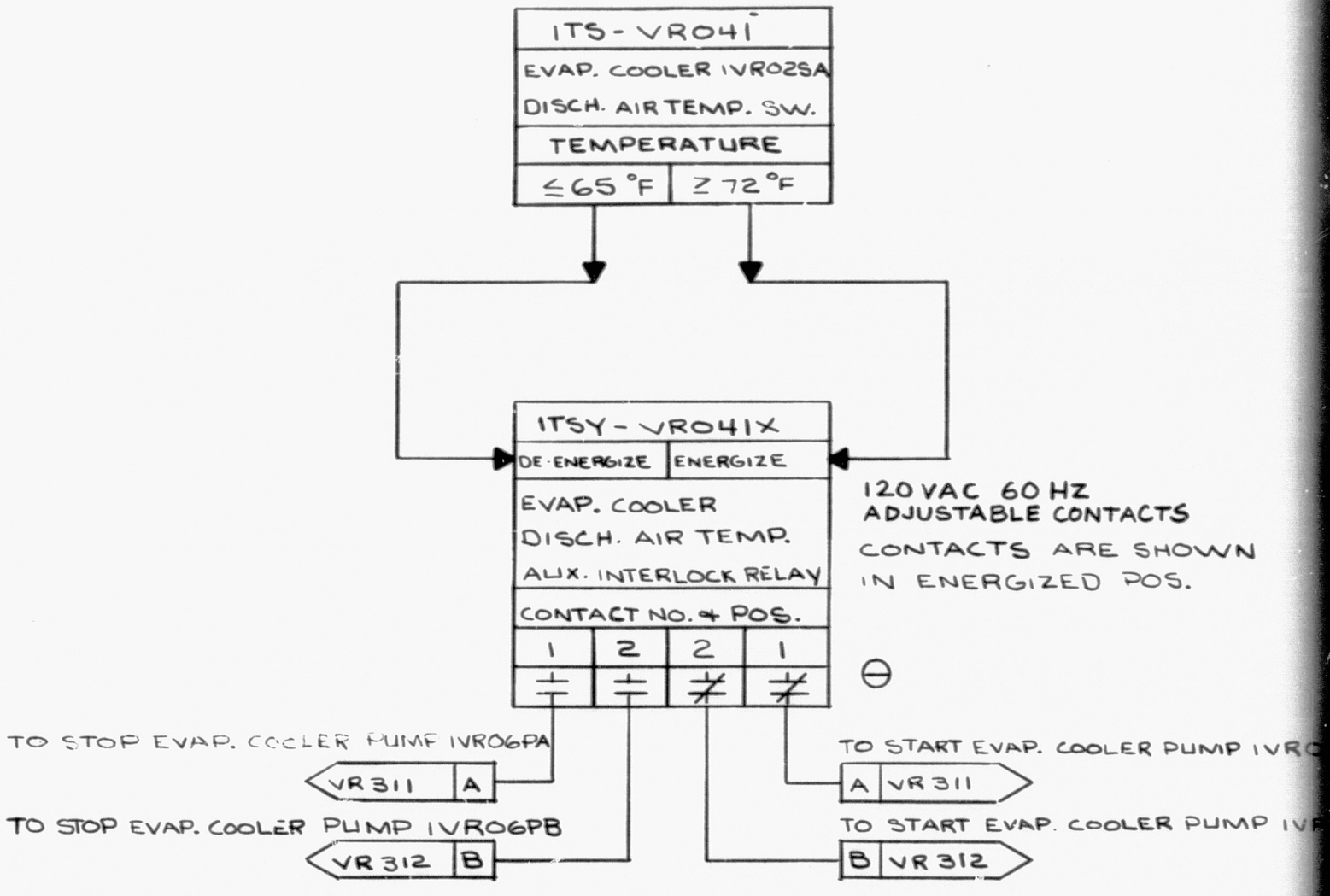


WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

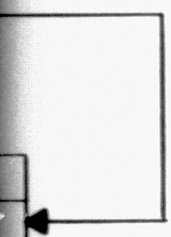
FIGURE 7.3-27

REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM

(SHEET 14 of 31)


1TS-VR041
EVAP. COOLER 1VR02SA
DISCH. AIR TEMP. SW.
TEMPERATURE
≤65 °F
≥72 °F
1TSY-VR041X
DE-ENERGIZE
ENERGIZE
EVAP. COOLER
DISCH. AIR TEMP.
AUX. INTERLOCK RELAY
CONTACT NO. & POS.
1
2
2
1
120 VAC 60 HZ
ADJUSTABLE CONTACTS
CONTACTS ARE SHOWN
IN ENERGIZED POS.
TO STOP EVAP. COOLER PUMP 1VR06PA
VR 311
A
TO STOP EVAP. COOLER PUMP 1VR06PB
VR 312
B
TO START EVAP. COOLER PUMP 1VR
A
VR 311
TO START EVAP. COOLER PUMP 1VR
B
VR 312

⊖ - 1PL37J



120 VAC 60 HZ
ADJUSTABLE CONTACTS
CONTACTS ARE SHOWN
IN ENERGIZED POS.

⊖

TO START EVAP. COOLER PUMP 1VR06PA

A | VR 311

TO START EVAP. COOLER PUMP 1VR06PB

B | VR 312

REFER DETAIL DIAG. *M792-1-4

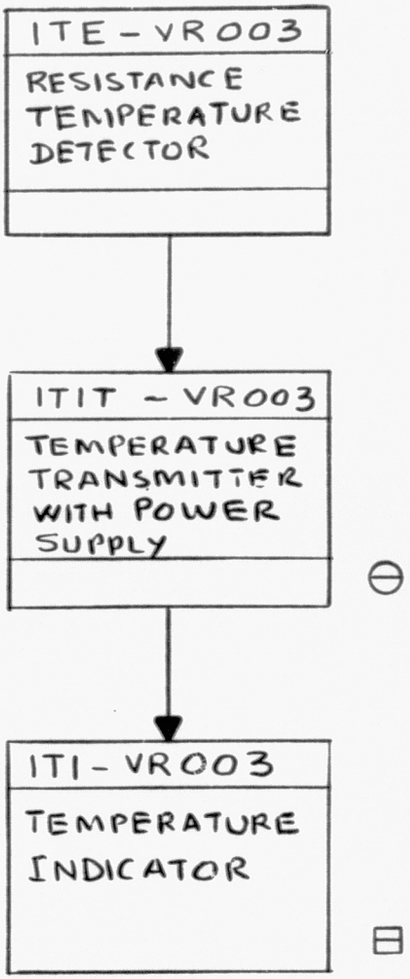
2

⊖ - 1PL37J

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-27

REACTOR BUILDING VENTILATION AND
PRESSURE CONTROL SYSTEM
(SHEET 15 of 31)



FAN EQUIP NO.	TEMPERATURE SENSOR	LOCATION	TEMPERATURE TRANSMITTER WITH POWER SUPPLY & IND.	LOCATION	FURNISHED + INSTALLED BY SPEC	TEMP. INDICATOR
1VR01CA 1VR01CB 1VR01CC	ITE-VR003	COMMON DISCH OF THREE SUP FANS	ITIT-VR003	1PL37J	H-2299	ITI-VR00
1VR02CA 1VR02CB 1VR02CC	ITE-VR004	COMMON DISCH OF THREE RET. EXH FANS	ITIT-VR004	1PL37J	H-2299	ITI-VR00

	TEMP. INDICATOR	LOCATION	FURNISHED BY SPEC
	1TI-VR003	1PM07J	H-2175
	1TI-VR004	1PM07J	H-2175

⊖ - 1PL37J
⊟ - 1PM07J

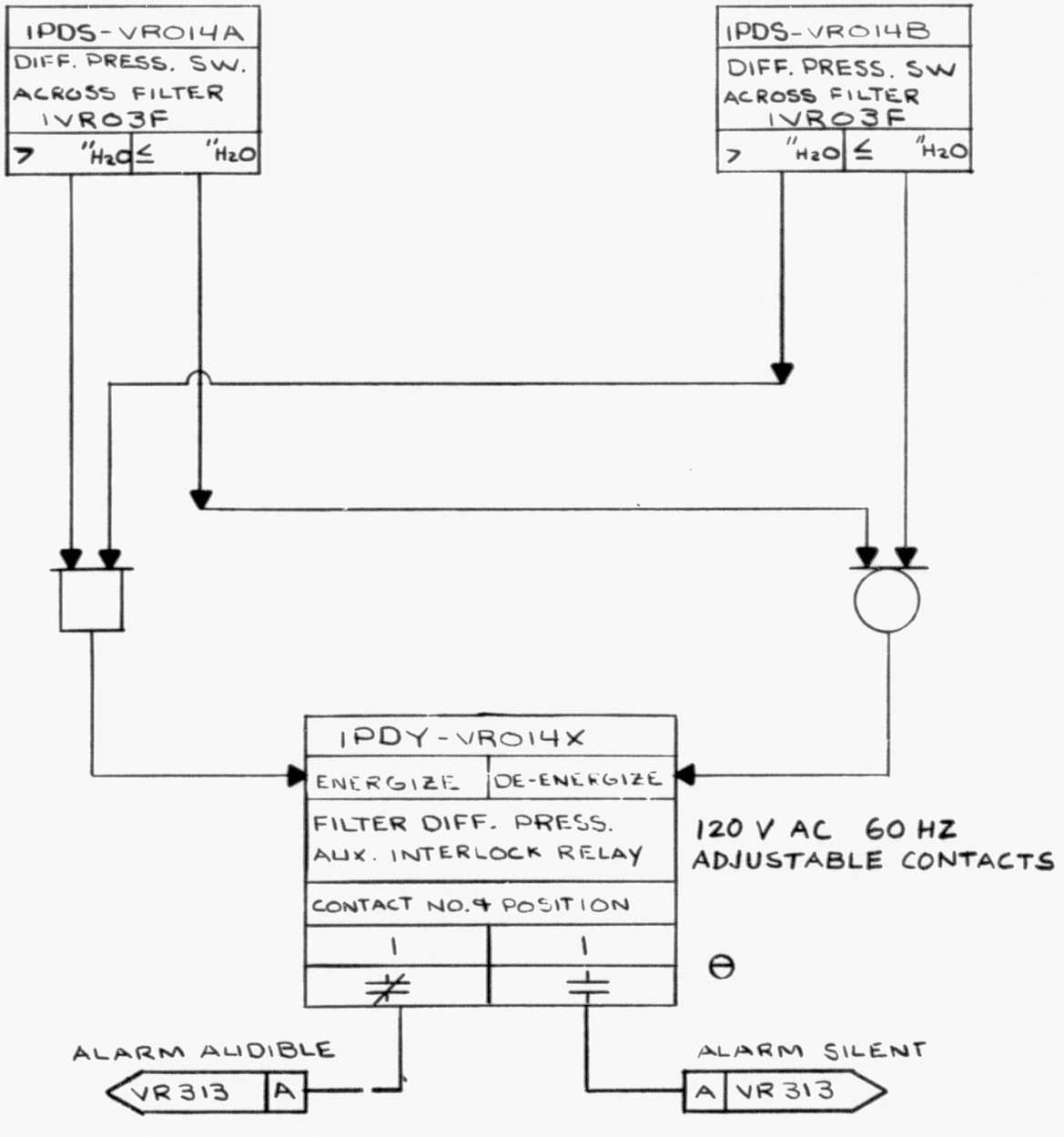
REFER DETAIL DIAG. M792-1-12

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-27

REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM
(SHEET 16 of 31)


1PDS-VR014A
DIFF. PRESS. SW.
ACROSS FILTER
1VR03F
> "H2O ≤ "H2O
1PDS-VR014B
DIFF. PRESS. SW
ACROSS FILTER
1VR03F
> "H2O ≤ "H2O
1PDY-VR014X
ENERGIZE
DE-ENERGIZE
FILTER DIFF. PRESS.
AUX. INTERLOCK RELAY
CONTACT NO. 4 POSITION
1
1
120 V AC 60 HZ
ADJUSTABLE CONTACTS
θ
ALARM AUDIBLE
VR 313
A
ALARM SILENT
A
VR 313

θ – 1PL37J

14B
S. SW
TER
F
"H2O

O HZ
CONTACTS

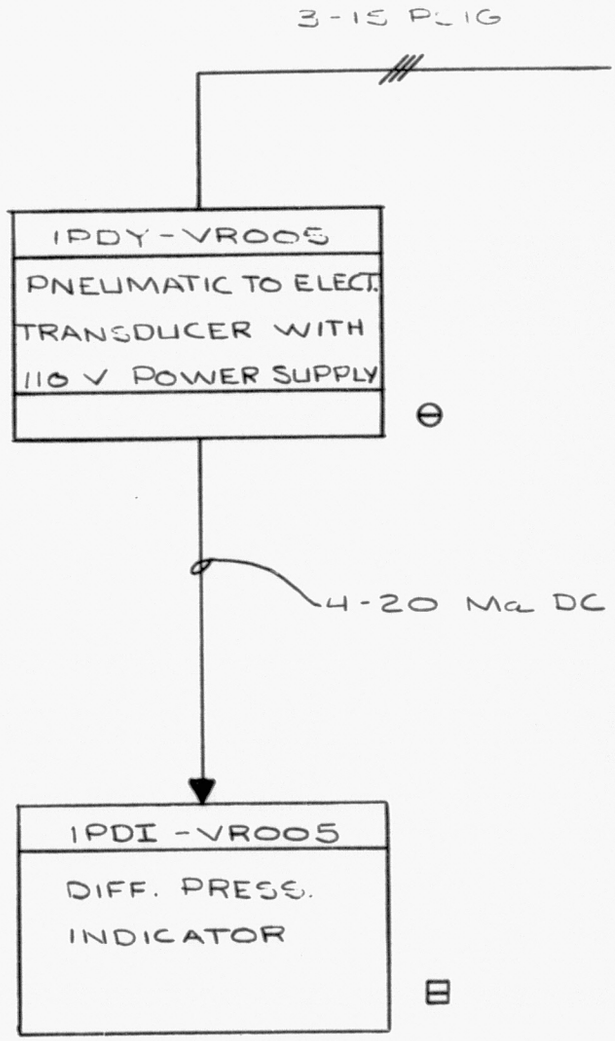
REFER DETAIL DIAG. M792-1-6

NT

2

IPL37J

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-27 REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM (SHEET 17 of 31)



* NOTE :- 1. INSTRUMENTS MARKED 'Θ' ARE TO BE LOCATED AT LOCAL CONTROL
2. INSTRUMENTS MARKED '⊟' ARE TO BE LOCATED AT MAIN CONTRO

3-15 PSIG

PNEUMATIC CONTROL SIGNAL FROM 1PDY-VR006C (M792-1-3)

05
ELECT.
WITH
SUPPLY

Θ

4-20 Ma DC

005
S.
R

⊟

2

AT LOCAL CONTROL PANEL 1PL37J
AT MAIN CONTROL PANEL 1PM07J

REFER DETAIL DIAG. M792-1-3

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-27

REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM

(SHEET 18 of 31)

INDEX.

HVAC C & I DETAIL DI

JOB NAME. WM. H. ZIMMER NPS-1

JOB NO. 4130

DIAG NO	SHEET NO.	DETAIL NO.	FUNCTIONAL SYMBOL CODE ABBREVIATION	DESCRIPTION	DIAG NO
M792-1	1	A	HSIZL.	EXH. FANS START-STOP & DAMPER INTERLOCKS	M792-2
M792-1	2	A	HSIZL	SUPPLY FANS START-STOP & DAMPER INTERLOCKS	M792-2
M792-1	3	A	PDIAL & PDIAH	BLDG. DIFF. PRESS. CONTROL INTERLOCKS & ALARMS	M792-1
M792-1	4	A, B	FTISAL & TTIC	EVAPORATOR COOLER CONTROL AND INTERLOCKS	
M792-1	5	A	TTIC	HEATING COIL TEMP. CONTROL & INTERLOCKS	
M792-1	6	A	PDIAH	SUPPLY AIR ILTER DIFF. PRESS. INDICATION & ALARM	
M792-1	7	A	PDIAL	FAN DIFF. PRESS. INDICATION & ALARM	
M792-2	8	A	PDTIC	CUBICLES DIFF. PRESS. CONTROL & INDICATION	
M792-2	9	A	PDTIC	" " " " " "	

SYMBOL KEY

PNEUMATIC INSTRUMENT AIR LINES

ELECTRICAL WIRING

AIR CHECK VALVE IN FAIL CLOSED POS. GRAVITY OPER. OPENS WITH GRAVITY FORCE. CLOSES WITH SPRING RET. FORCE.

INSTRUMENTS MOUNTED ON LOCAL CONTROL PANEL*

LOCALLY MOUNTED INSTRUMENTS OR DEVICES.

INSTRUMENTS MOUNTED ON MAIN CONTROL PANEL*

SYMBOL KEY

F.O PISTON OPER. UN-LOADED PNEUMATIC

F.C.

F.O DIAPHRAM OPERATED UN-LOADED

F.C

▶ PORT CLOSED (SHADED)

DEX.

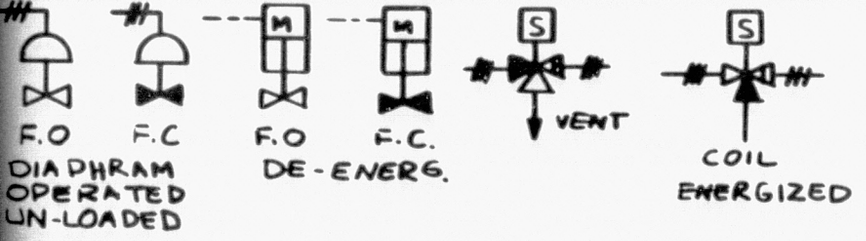
TAIL DRAWING

P&ID DRWG. NO. M92-1 (VR)

BLDG. REACTOR BLDG. VENT.

DIAG NO	SHEET NO	DETAIL NO.	FUNCTIONAL SYMBOL CODE ABBREVIATION	DESCRIPTION
M792-2	10	A	PDTIC	CUBICLES DIFF. PRESS. CONTROL & INDICATION
M792-2	11	A	PDTIC	" " " " " "
M792-1	12	A	TET 1	VENT. SUPPLY & EXH. AIR TEMP. INDICATION

OL KEY (CONTINUED)



F.O F.C F.O F.C.
DIAPHRAM OPERATED UN-LOADED
DE-ENERG.
COIL ENERGIZED

SED (SHADED) ◁ COMMON PORT △ PORT OPEN

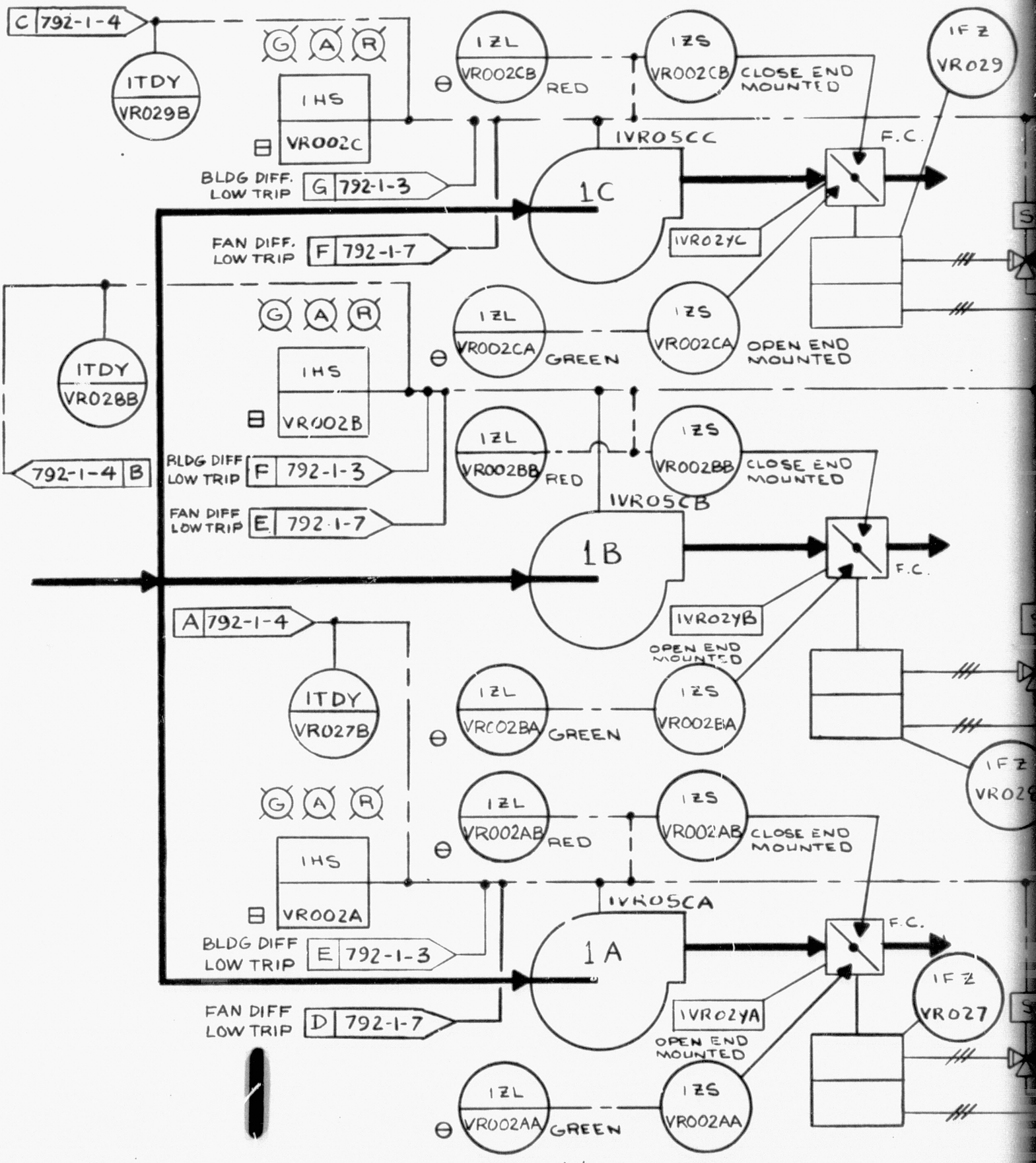
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

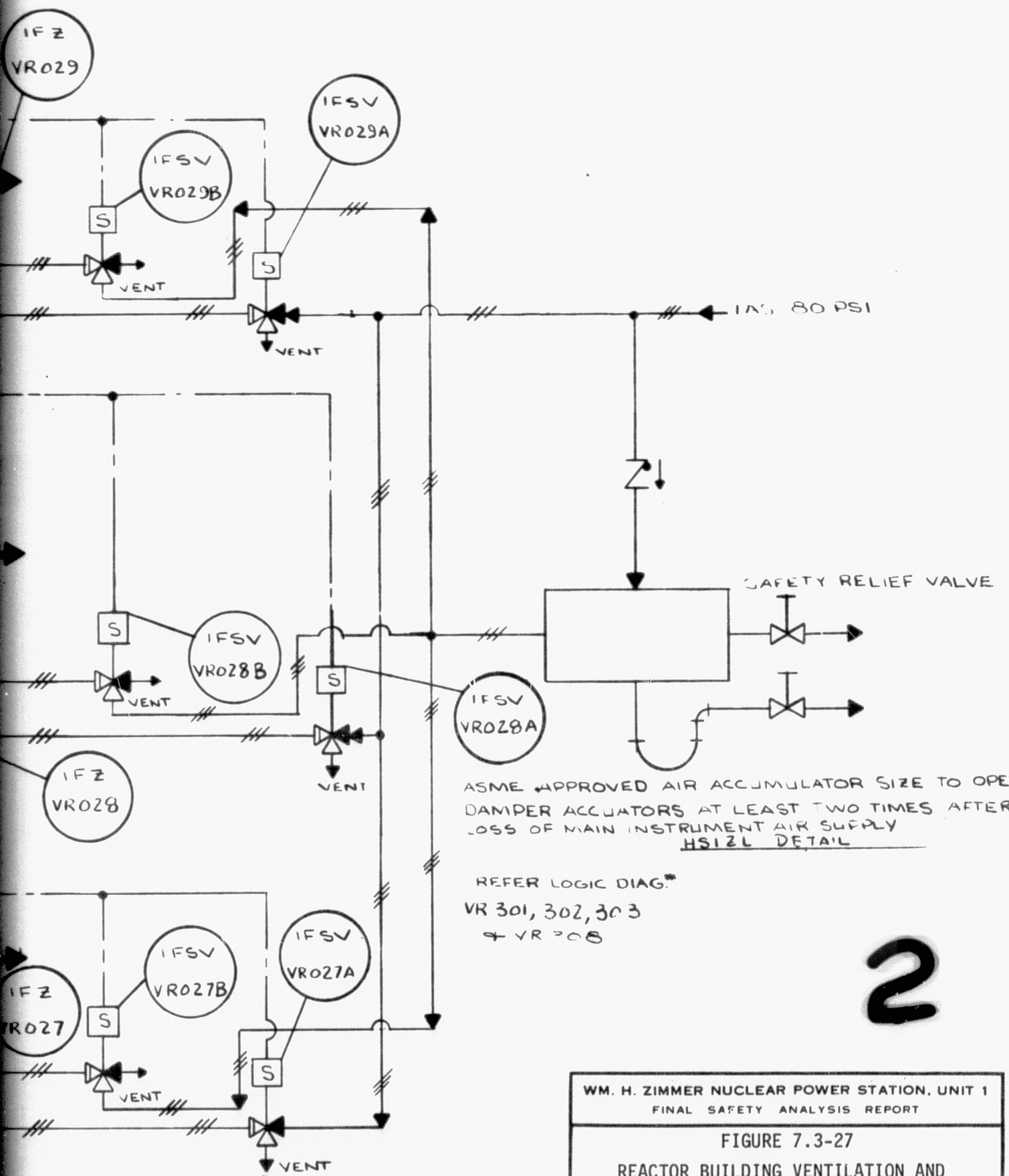
FIGURE 7.3-27

REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM

(SHEET 19 of 31)



* NOTE: 1. INSTRUMENTS MARKED ⊖ ARE TO BE LOCATED ON LOCAL CONTR
2. " " ⊟ " " " " " " MAIN "

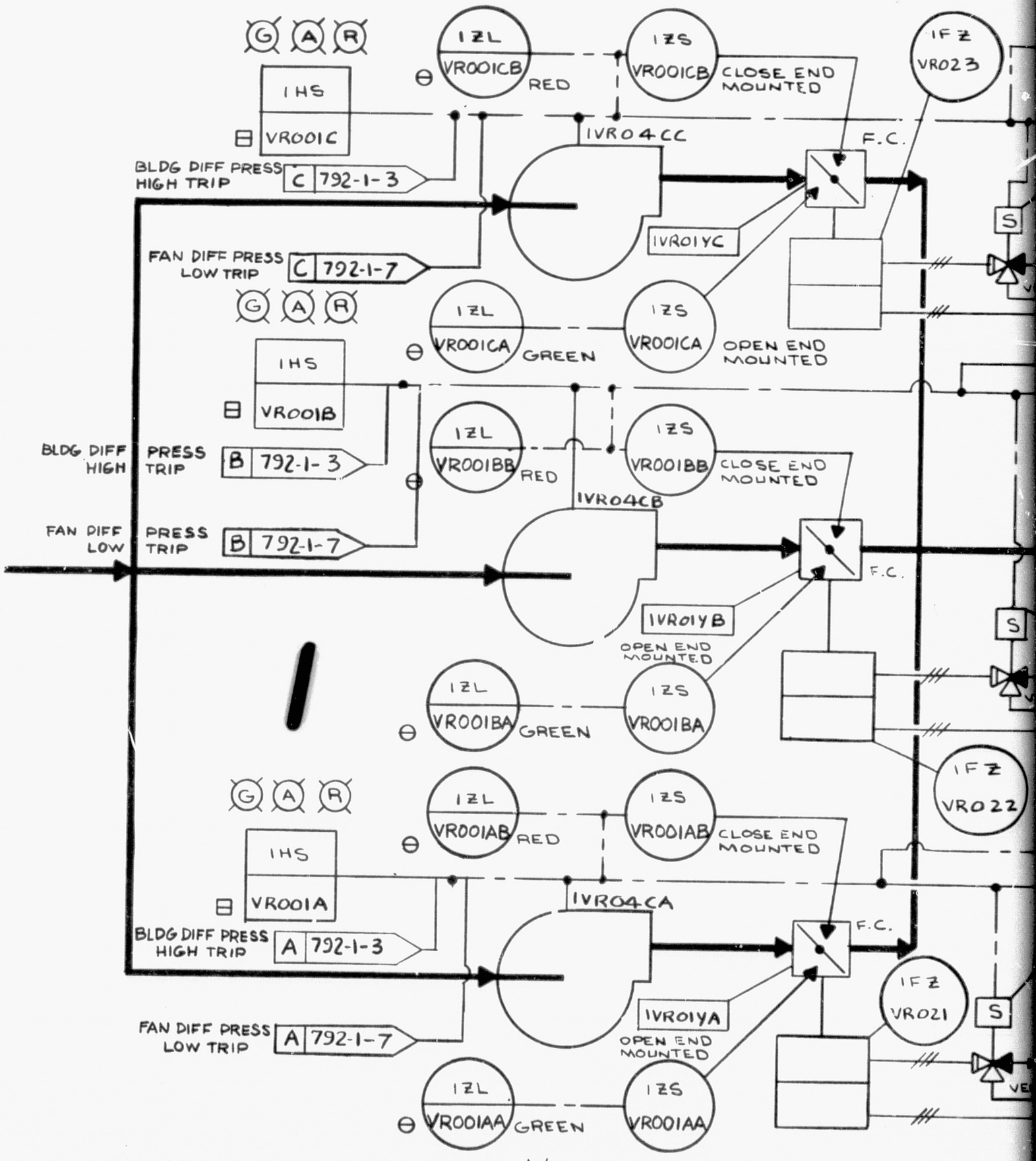


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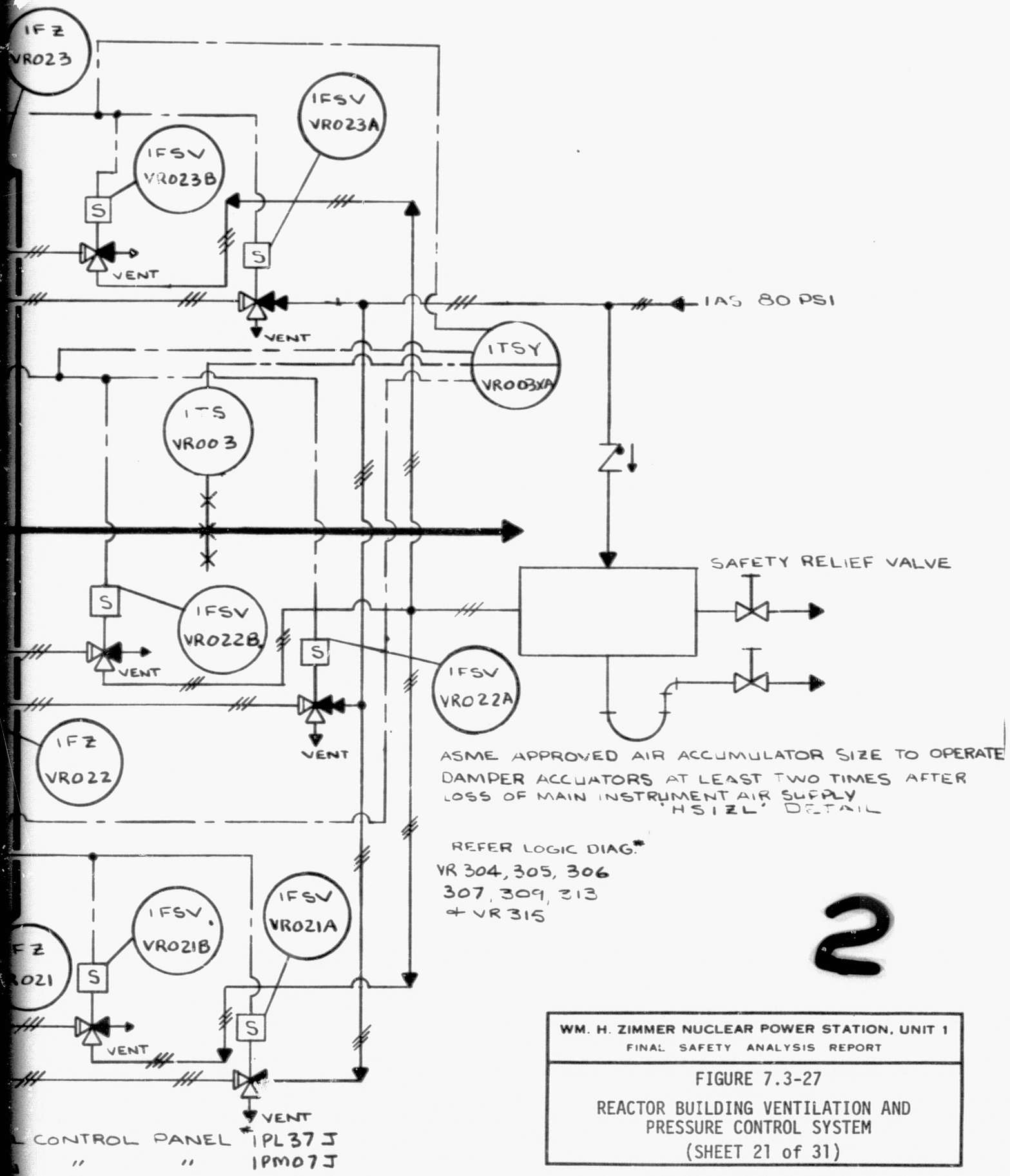
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-27

REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM
(SHEET 20 of 31)



* NOTE: 1. INSTRUMENTS MARKED ⊖ ARE TO BE LOCATED ON LOCAL CONTROL
2. " " " ⊟ " " " " " " MAIN "



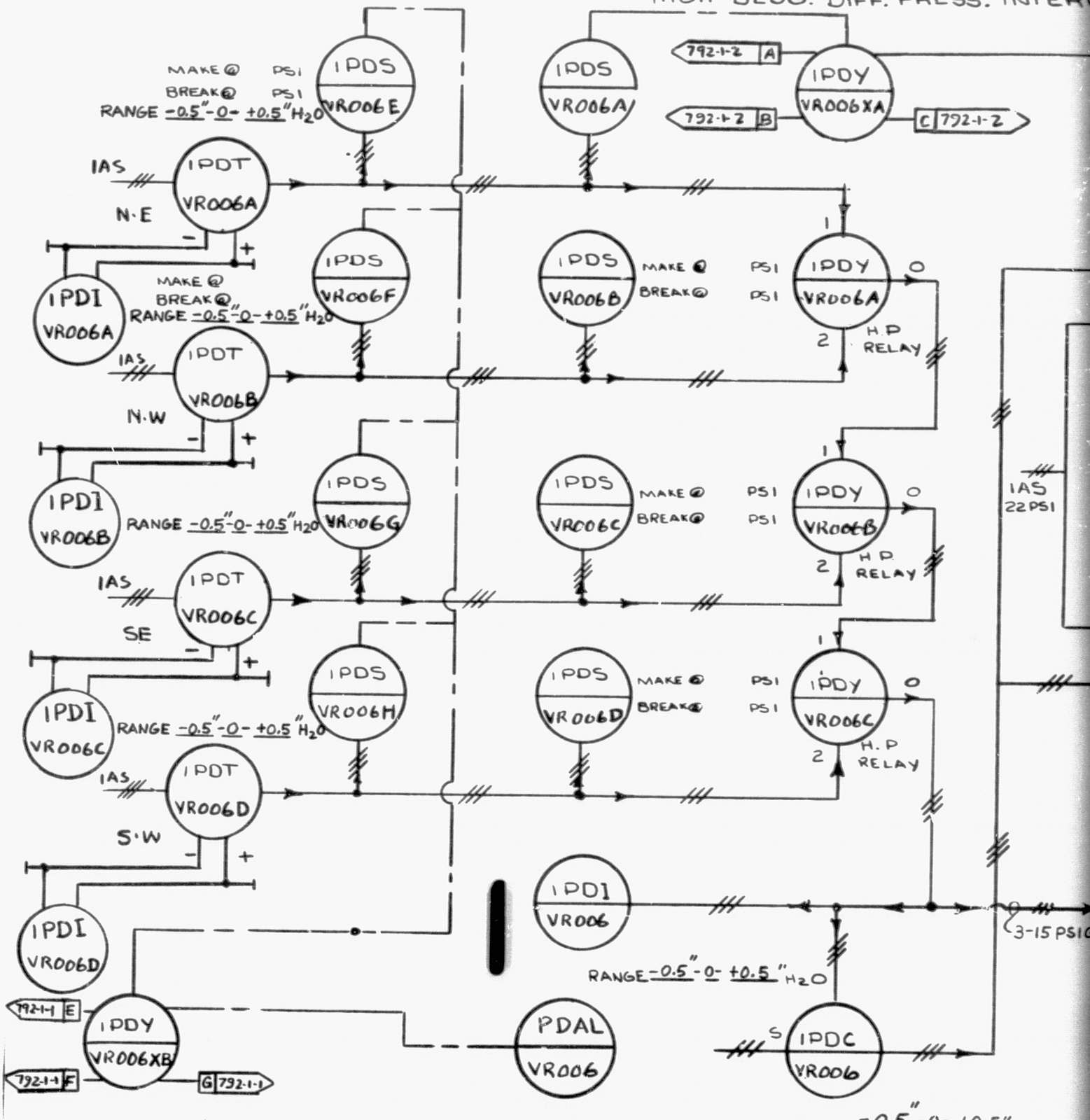
2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-27

REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM

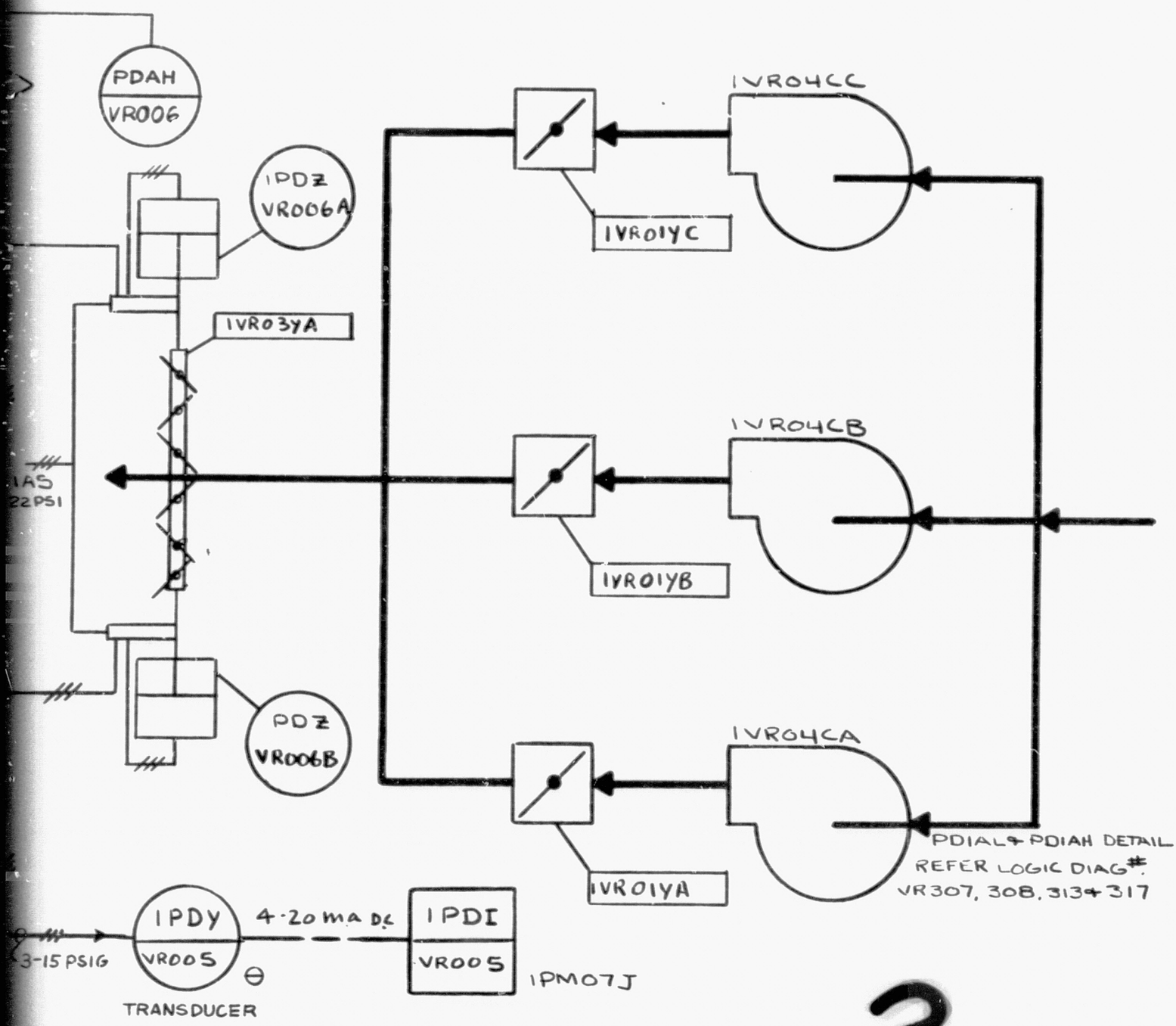
(SHEET 21 of 31)



LOW DIFF. PRESS. INTERLOCK AND ALARMS

NOTE:-1 INSTRUMENTS MARKED ⊖ ARE TO BE LOCATED ON U
2 " " ⊟ " " " " "

NTERLOCK + ALARM



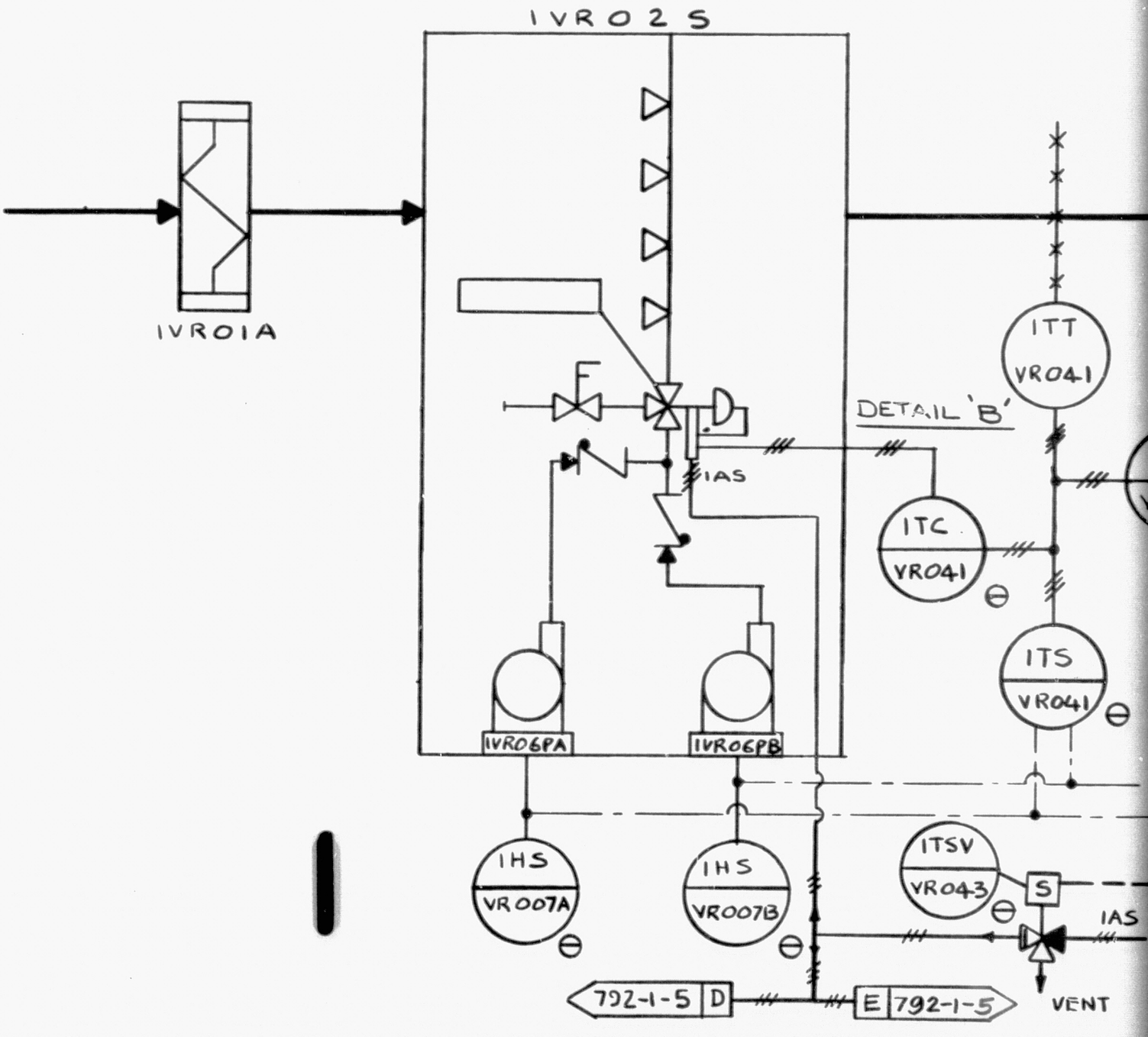
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-27 REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM (SHEET 22 of 31)

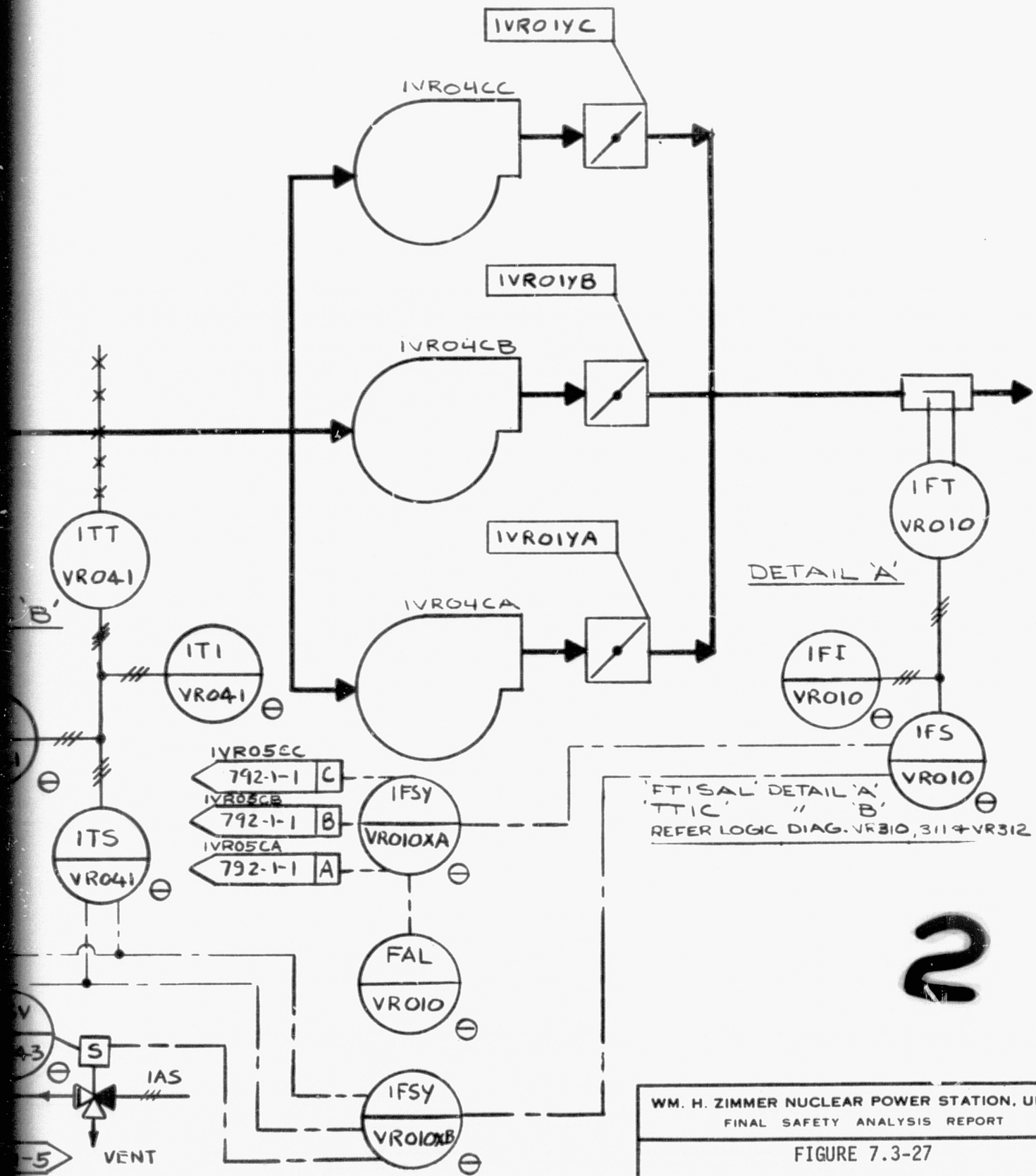
H2O

H2O

D ON LOCAL CONTROL PANEL # 1PL37J
" MAIN " " * 1PM07J



* NOTE: INSTRUMENTS MARKED 'Θ' ARE TO BE LOCATED ON LOCAL CONTROL PAN
INSTRUMENTS MARKED '⊟' ARE TO BE LOCATED ON MAIN CONTROL PAN



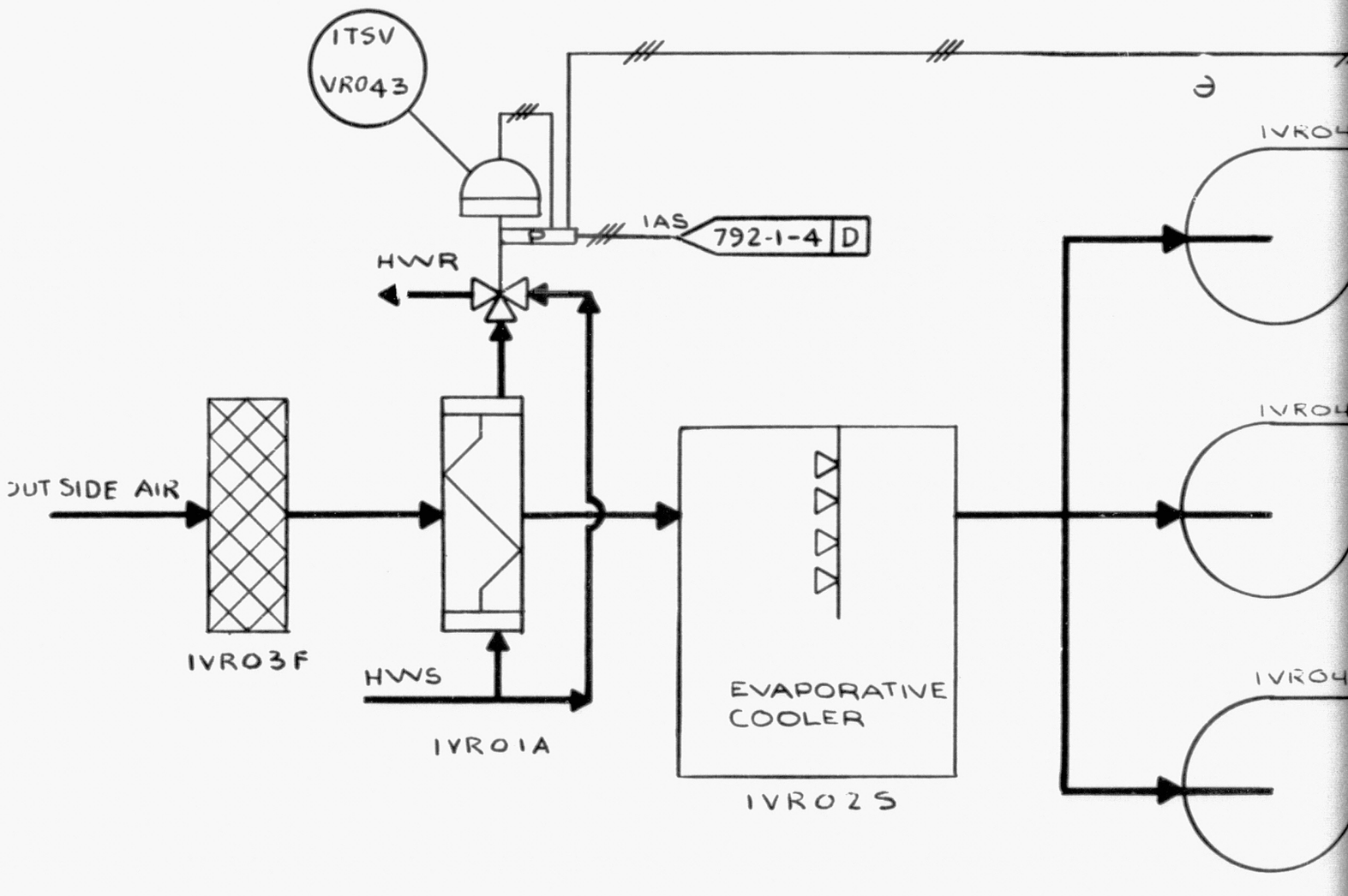
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

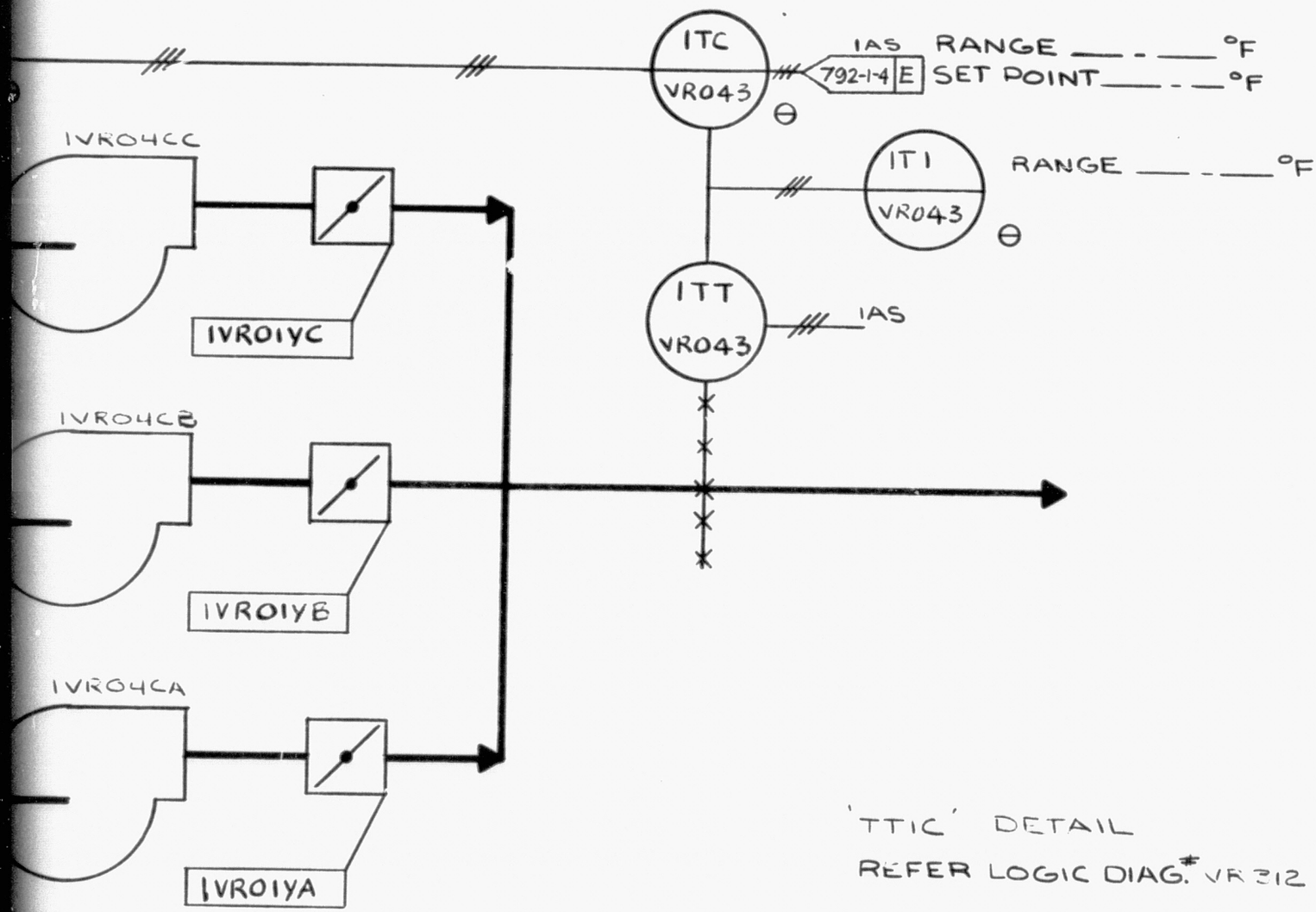
FIGURE 7.3-27

REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM

(SHEET 23 of 31)



NOTE: 1. INSTRUMENTS MARKED 'θ' ARE LOCATED AT LOC



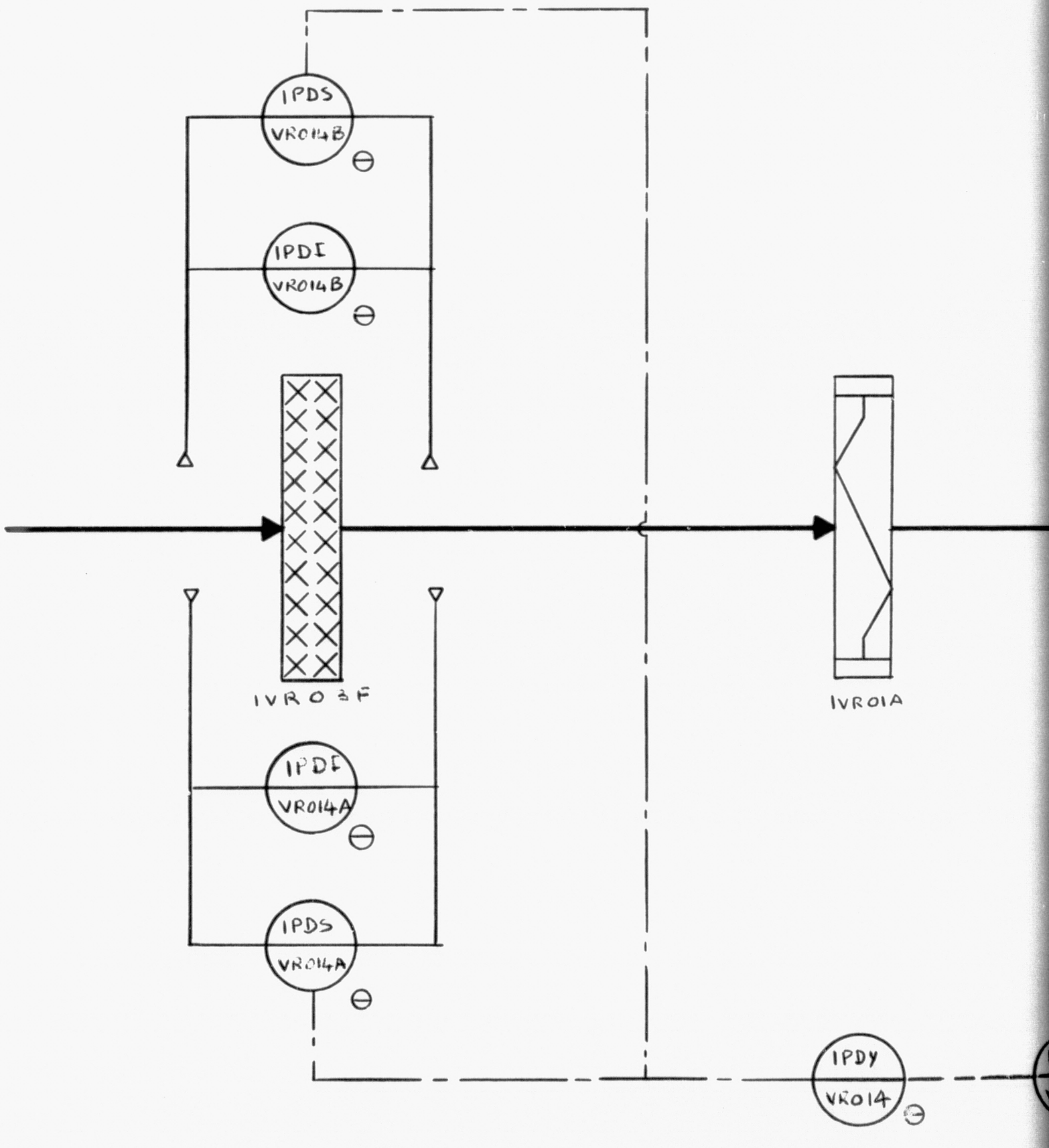
'TTIC' DETAIL

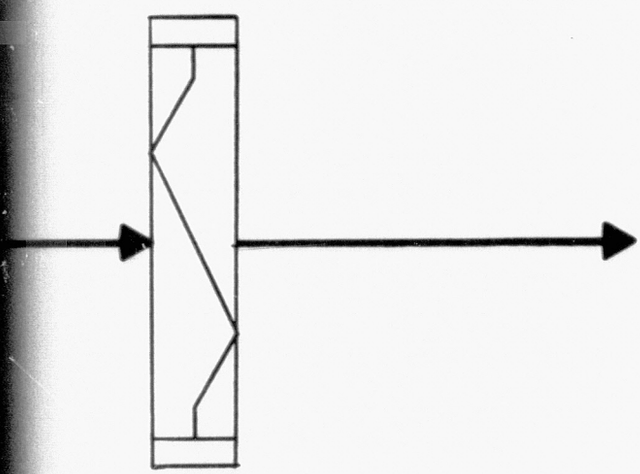
REFER LOGIC DIAG.* VR 312

AT LOCAL CONTROL PANEL 1PL37J

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-27 REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM (SHEET 24 of 31)

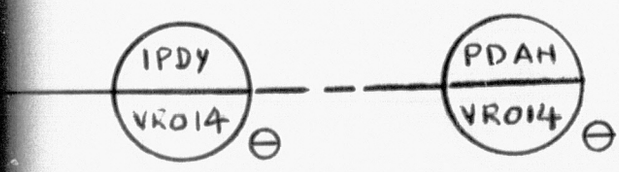

1PDS
VR014B
1PDI
VR014B
1VR03F
1VR01A
1PDI
VR014A
1PDS
VR014A
1PDY
VR014



'PDIAH' DETAIL

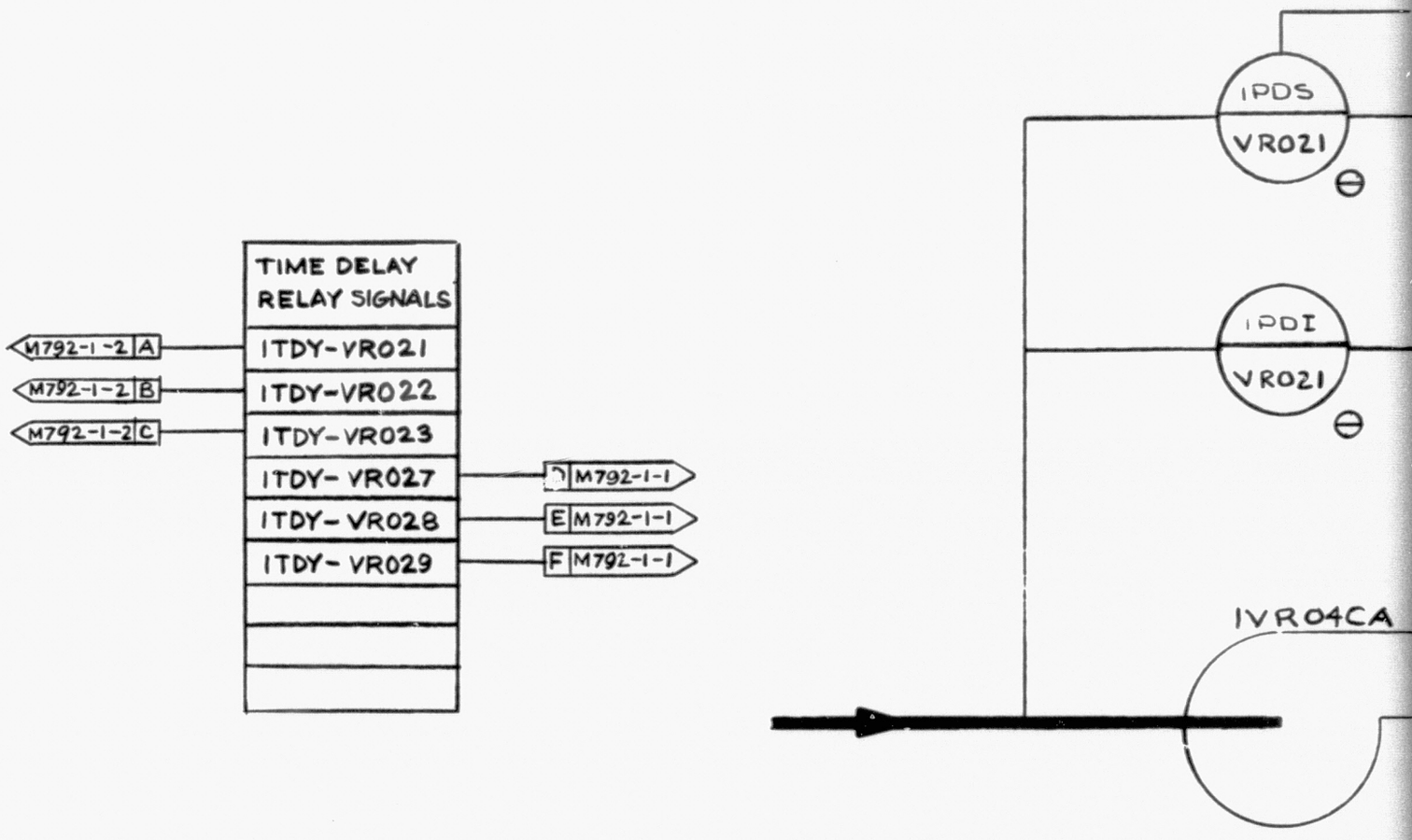
REFER LOGIC DIAG. #VR313+316

2



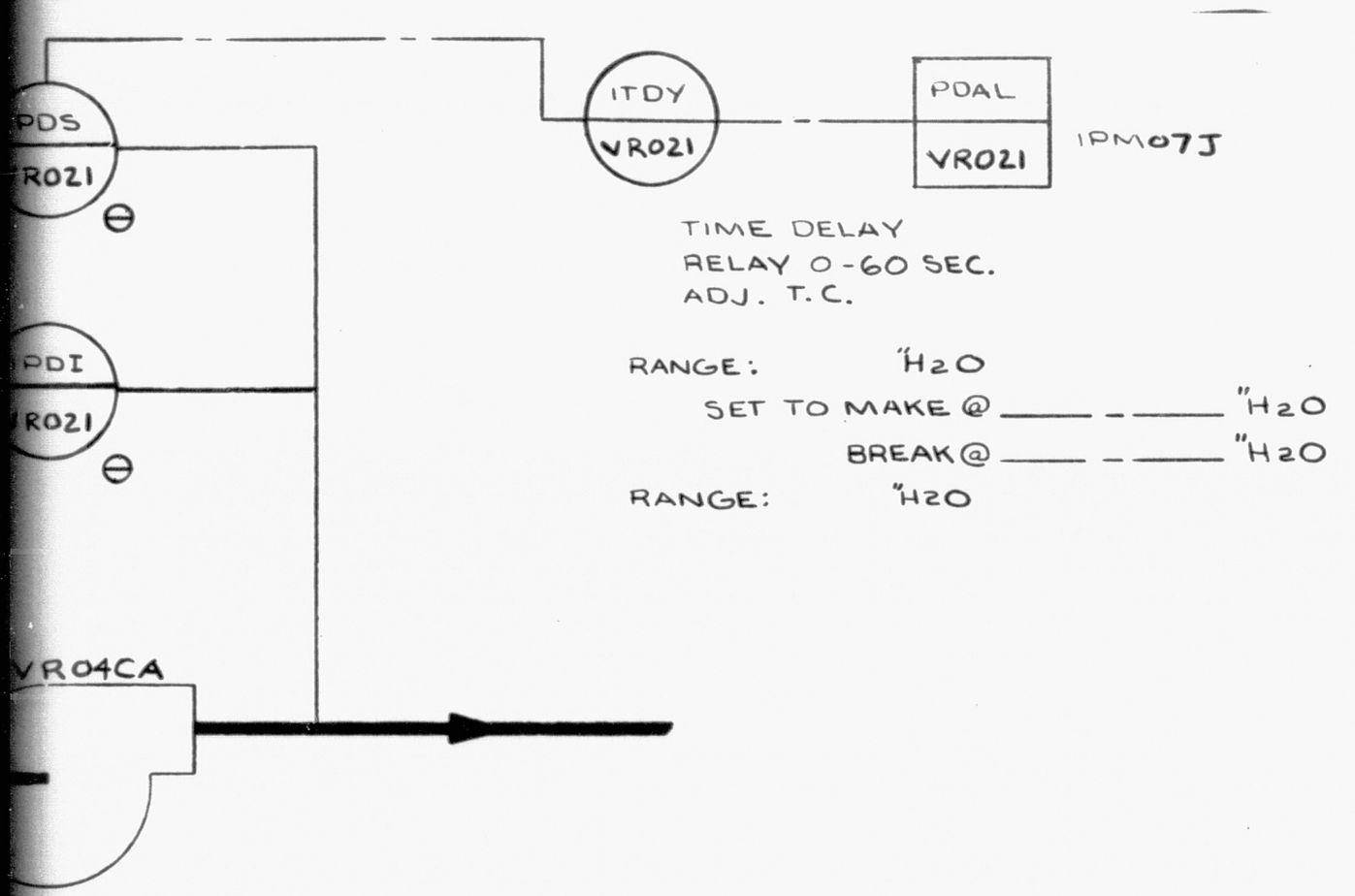
1PL57J

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-27 REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM (SHEET 25 of 31)



DETAIL NO.	FAN EQUIP. NO.	DIFF. PRESS. INTICATOR NO.	DIFF. PRESS. SWITCH NO.	TIME DEL RELAY NO
A	1VR04CA	1PDI-VR021	1PDS-VR021	1TDY-VR0
B	1VR04CB	1PDI-VR022	1PDS-VR022	1TDY-VR0
C	1VR04CC	1PDI-VR023	1PDS-VR023	1TDY-VR0
D	1VR05CA	1PDI-VR027	1PDS-VR027	1TDY-VR0
E	1VR05CB	1PDI-VR028	1PDS-VR028	1TDY-VR0
F	1VR05CC	1PDI-VR029	1PDS-VR029	1TDY-VR0
G	1V	1PDI-	1PDS-	1TDY-
H	1V	1PDI-	1PDS-	1TDY-
J	1V	1PDI-	1PDS-	1TDY-
K	1V	1PDI-	1PDS-	1TDY-
L	1V	1PDI-	1PDS-	1TDY-
M	1V	1PDI-	1PDS-	1TDY-

NOTE: 1. ALL INSTRUMENTS LISTED ABOVE ARE TO



TIME DELAY
RELAY 0-60 SEC.
ADJ. T.C.

RANGE: "H2O
SET TO MAKE @ _____ - _____ "H2O
BREAK @ _____ - _____ "H2O
RANGE: "H2O

2

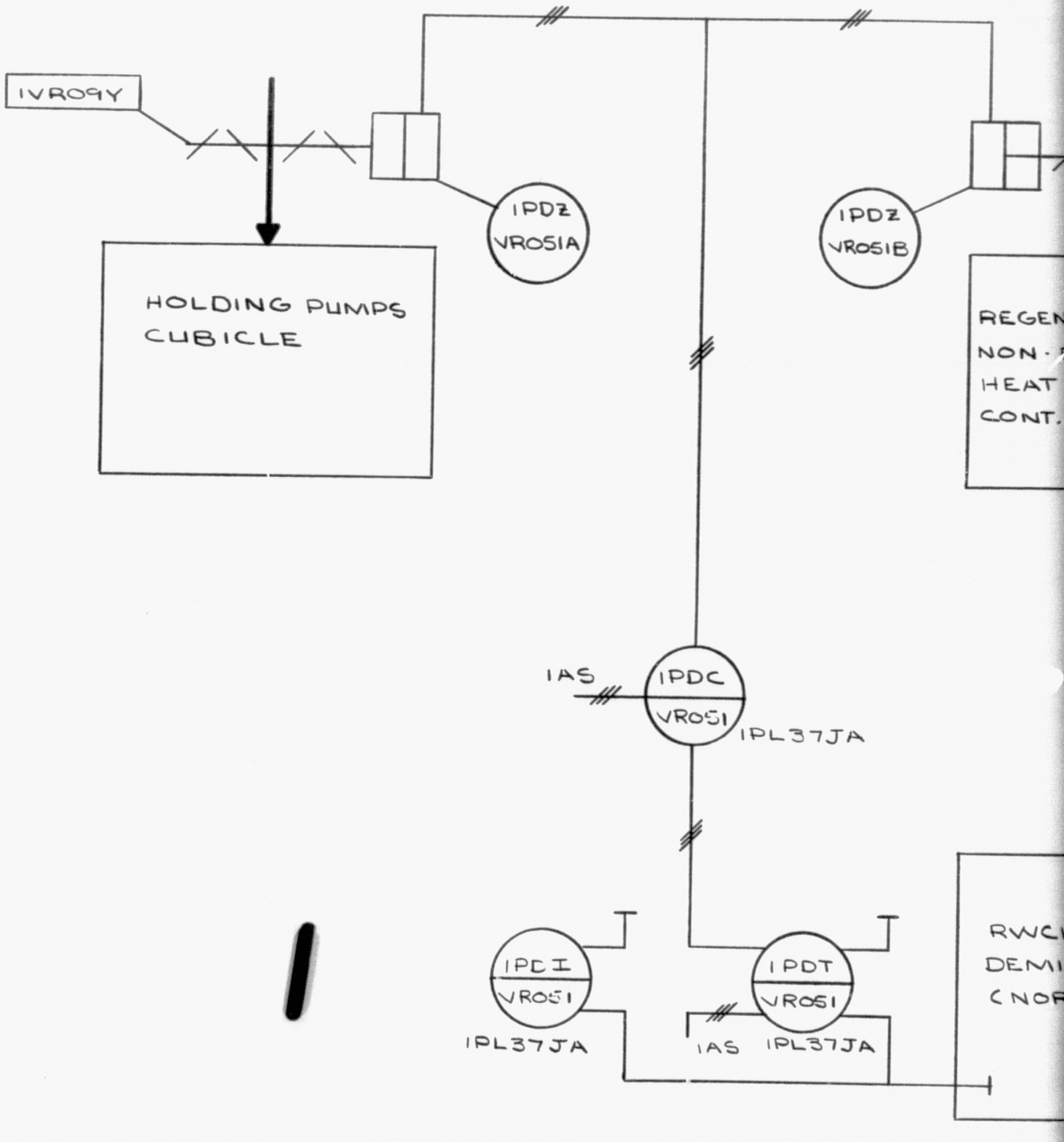
TIME DELAY RELAY NO.	ALARM POINT NO.	SET @ "H2O	
		TO MAKE	TO BREAK
ITDY-VR021	PDAL-VR021		
ITDY-VR022	PDAL-VR022		
ITDY-VR023	PDAL-VR023		
ITDY-VR027	PDAL-VR027		
ITDY-VR028	PDAL-VR028		
ITDY-VR029	PDAL-VR029		
ITDY-	PDAL-		
ITDY-	PDAL-		
ITDY-	PDAL-		
ITDY-	PDAL-		
ITDY-	PDAL-		
ITDY-	PDAL-		

ARE TO BE LOCATED AT PANEL 1PL37J

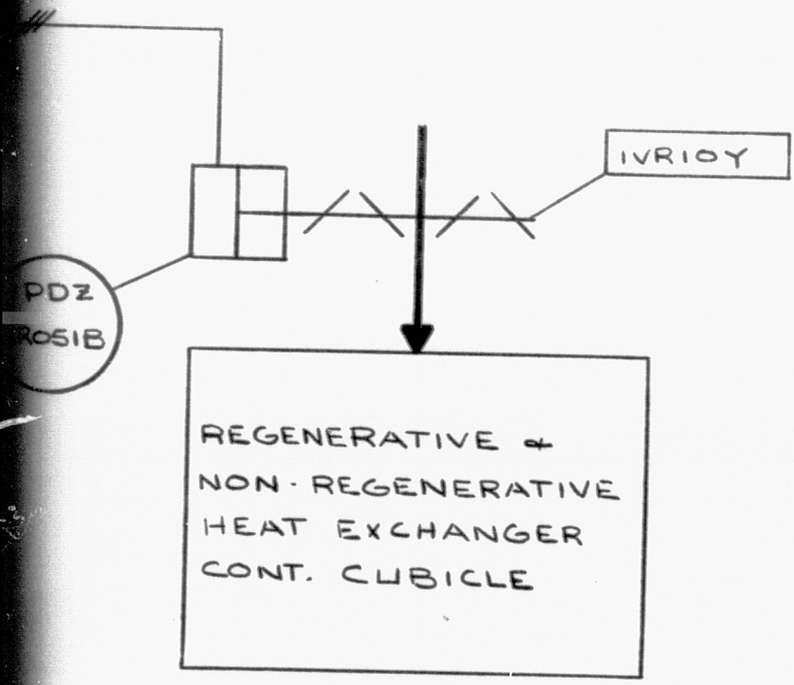
'PDIAL' DETAIL
REFER LOGIC DIAG.# VR301, 302, 303, 304, 305, 306 & 313

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-27
REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM
(SHEET 26 of 31)

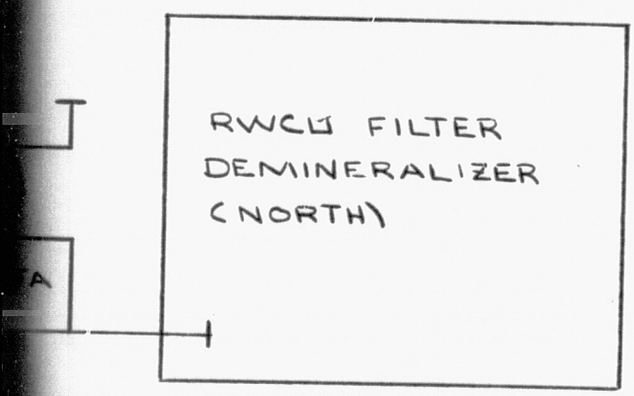


*NOTE:- 1PL37JA IS A WALL MOUNT NEMA I C
AT RWCU DEMINERALIZER CUBICLE



2

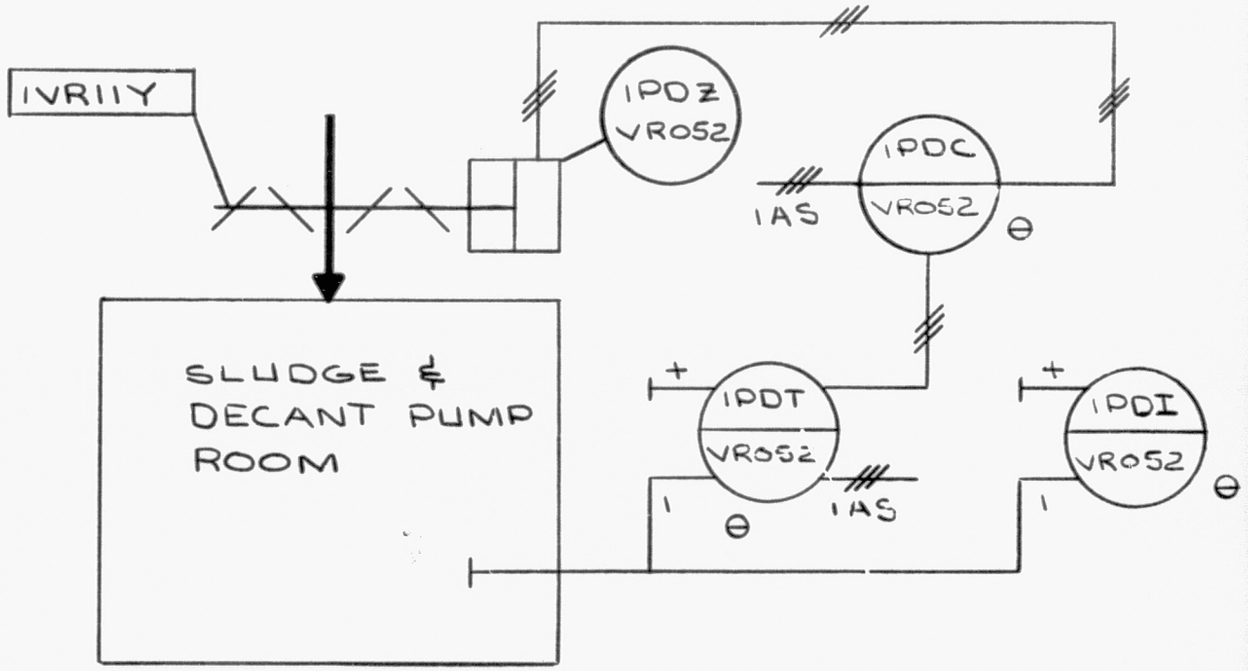
'PDTIC' DETAIL



NT NEMA I CONTROL PANEL LOCATED
ER CUBICLE OUTSIDE WALL

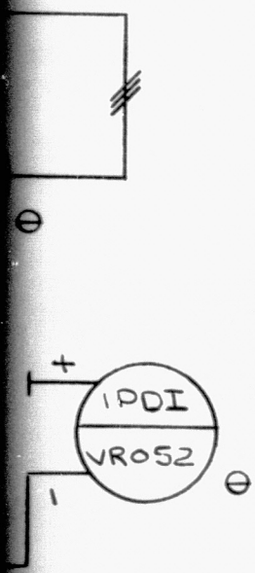
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

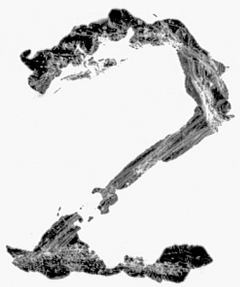
FIGURE 7.3-27
REACTOR BUILDING VENTILATION AND
PRESSURE CONTROL SYSTEM
(SHEET 27 of 31)



SERVICE	DIFF. PRESS. TRANSMITTER	DIFF. PRESS. INDICATOR	DIFF. PRESS. CONTROLLER	DAMPER NO.
SLUDGE & DECANT PUMP	1PDT-VR052	1PDI-VR052	1PDC-VR052	1VR11Y
RCIC PUMP CUBICLE	1PDT-VR054	1PDI-VR054	1PDC-VR054	1VR21Y
RHR PUMP CUBICLE	1PDT-VR056	1PDI-VR056	1PDC-VR056	1VR23Y
RHR LPCS CUBICLE	1PDT-VR057	1PDI-VR057	1PDC-VR057	1VR31Y

*NOTE: 1. 1PL37JB, C, D & E ARE WALL MOUNTED NEMA I CONTROL
AT OUTSIDE WALL OF THE ASSOCIATED CUBICLES.
2. INSTRUMENTS MARKED 'θ' ARE TO BE LOCATED AT LOCAL





'PDTIC' DETAIL

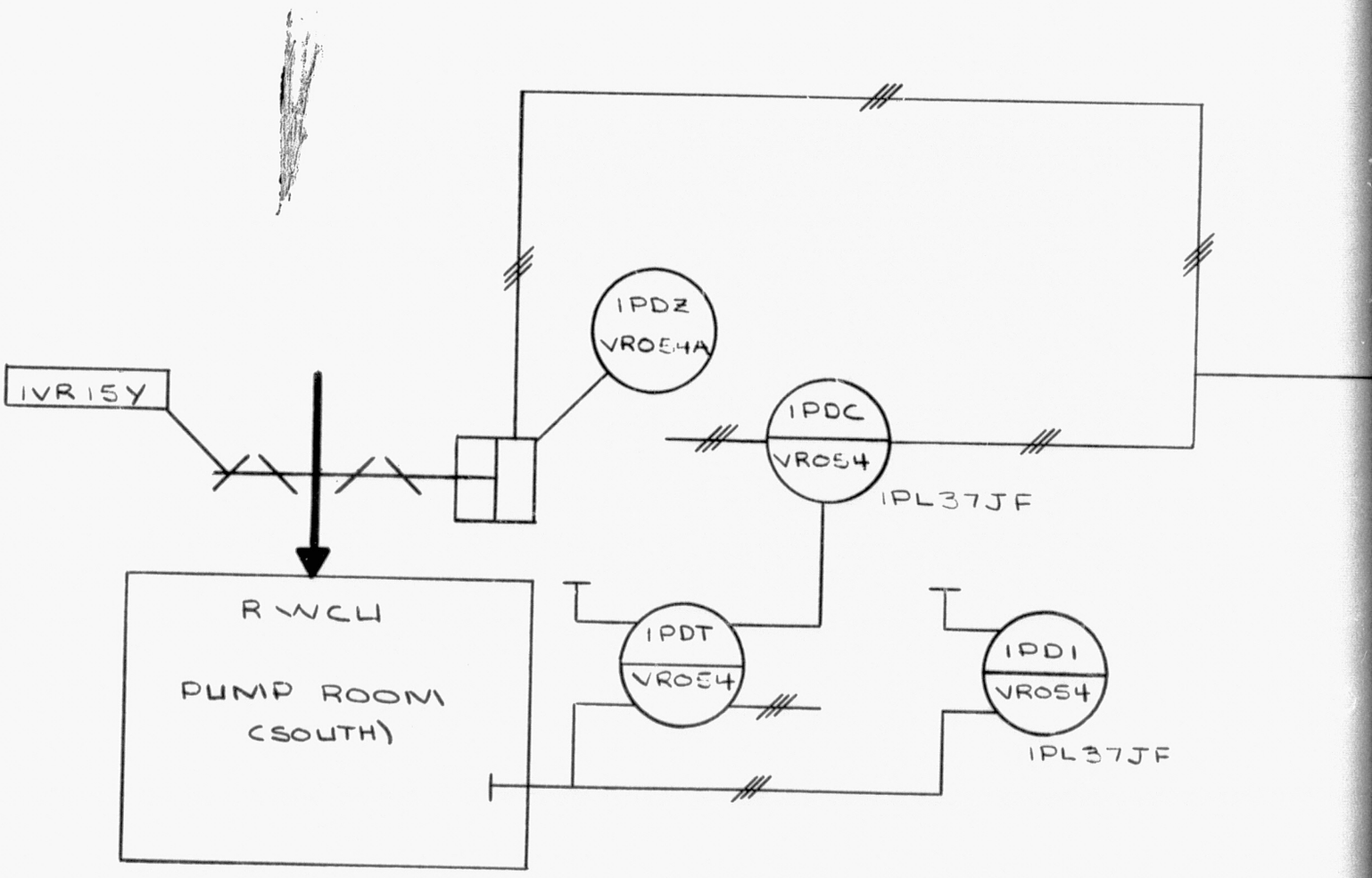
DAMPER NO.	DAMPER OPERATOR NO.	WALL MOUNT PANEL NO.
1VR11Y	1PDZ-VR052	1PL37JB
1VR21Y	1PDZ-VR054	1PL37JC
1VR23Y	1PDZ-VR056	1PL37JD
1VR31Y	1PDZ-VR057	1PL37JE

I CONTROL PANELS LOCATED
CLES
AT LOCAL CONTROL PANEL# 1PL37J

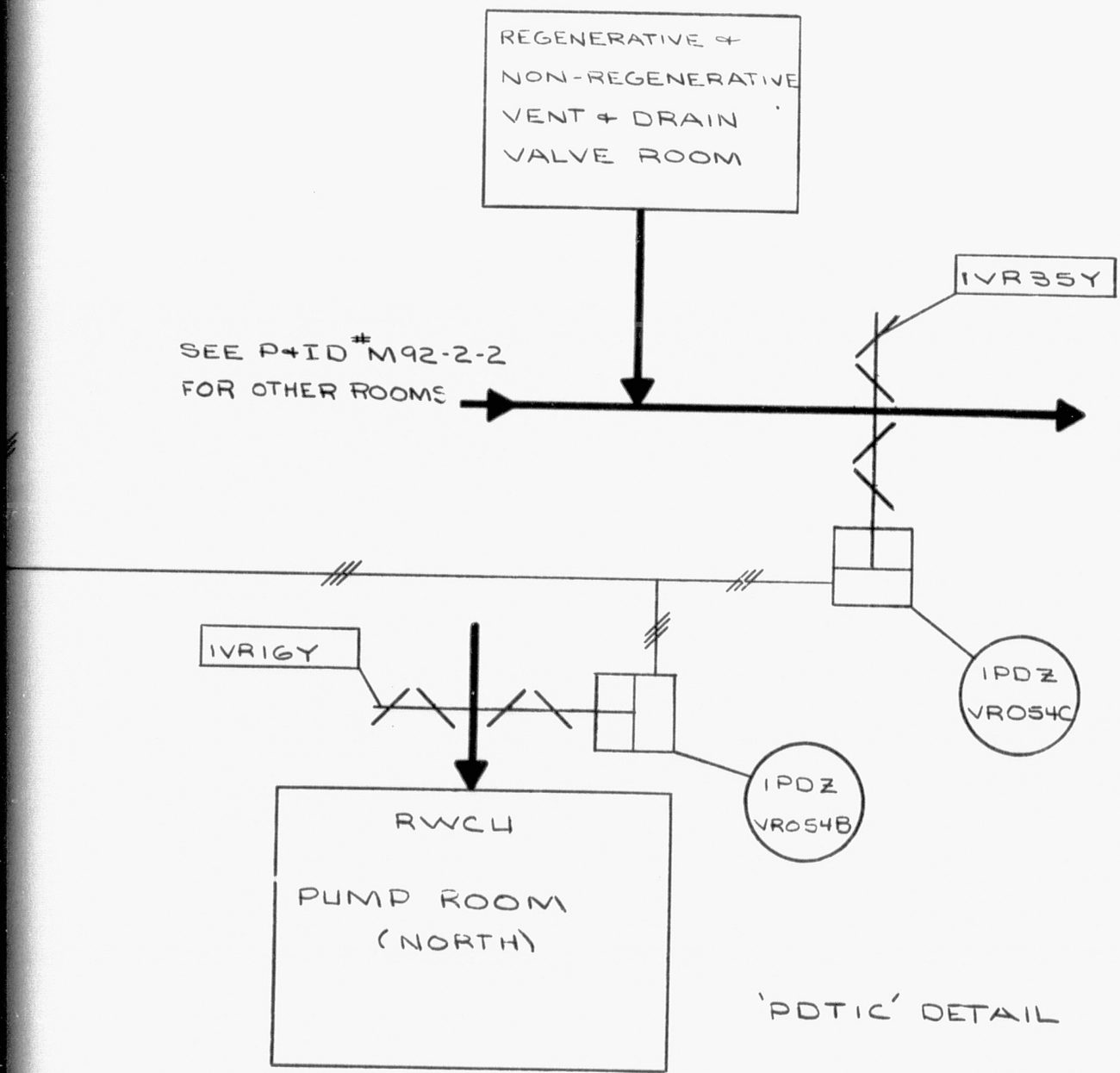
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-27
REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM
(SHEET 28 of 31)

5



*NOTE:- 1PL37JF IS A WALL MOUNTED NEMA I CON
AT OUTSIDE WALL OF RWCU SOUTH PUMP



2

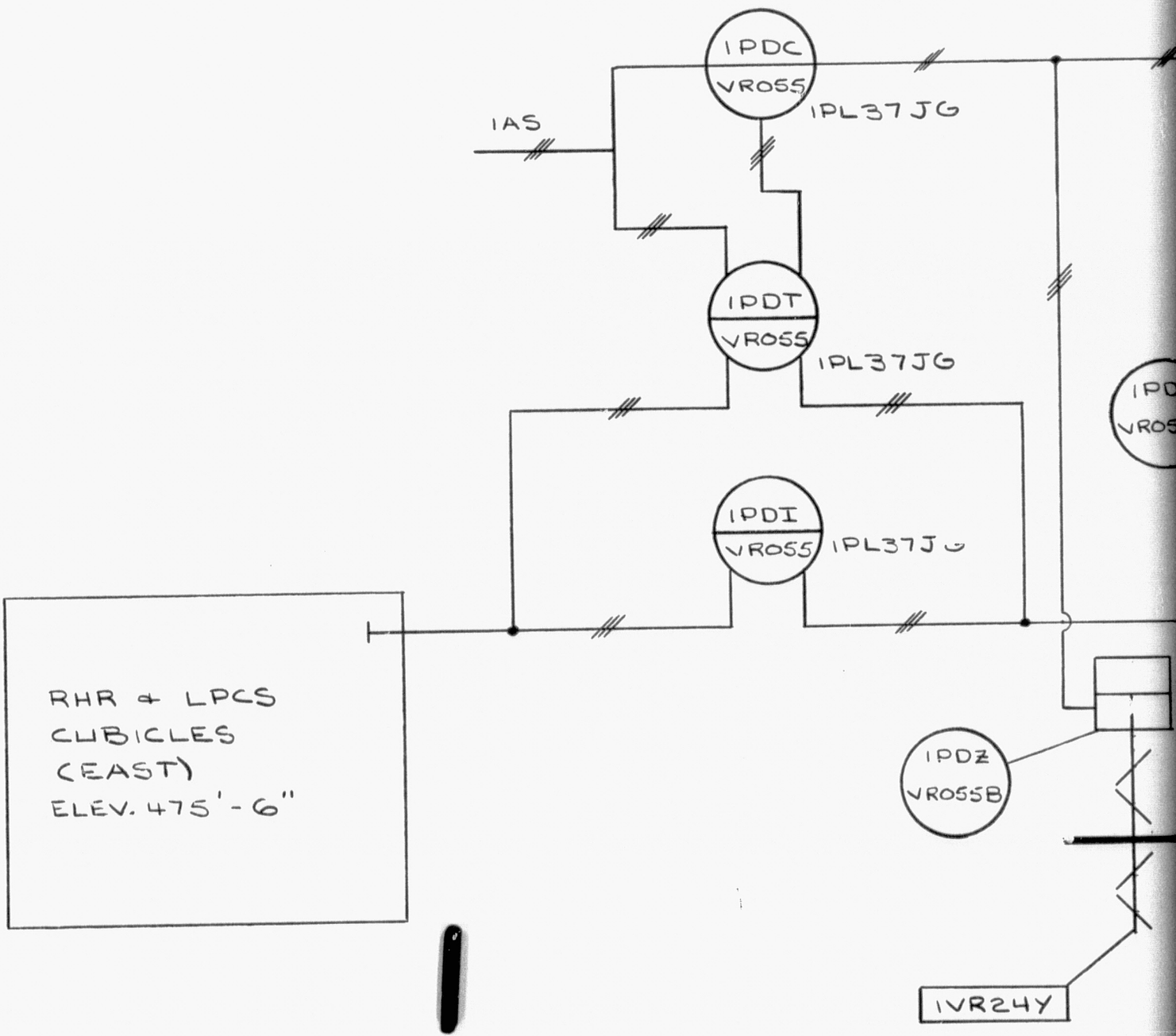
GA I CONTROL PANEL LOCATED
TH PUMP ROOM.

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

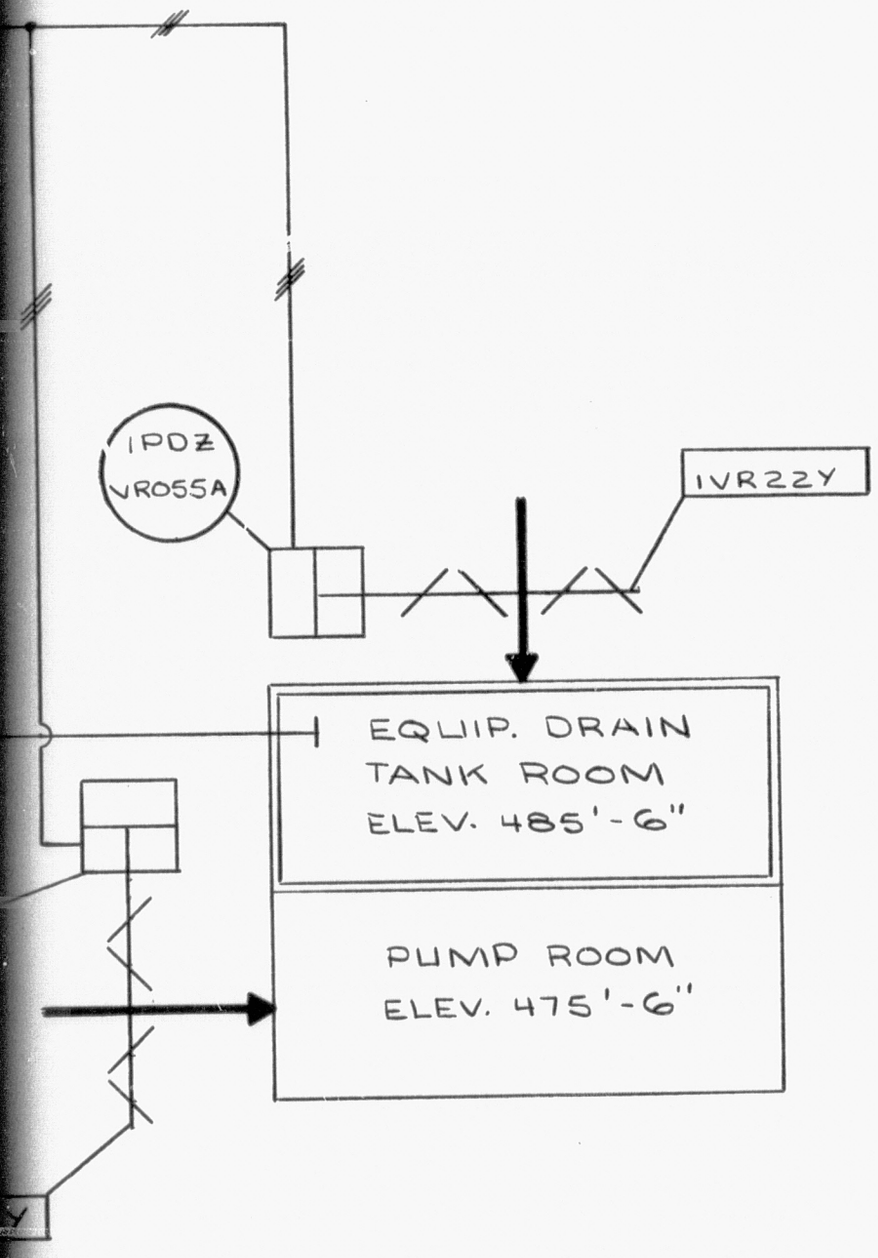
FIGURE 7.3-27

REACTOR BUILDING VENTILATION AND
PRESSURE CONTROL SYSTEM

(SHEET 29 of 31)



* NOTE:- 1PL37JG IS A WALL MOUNT NEMA I
AT OUTSIDE WALL OF EQUIP. DRAIN TA



'PDTIC' DETAIL

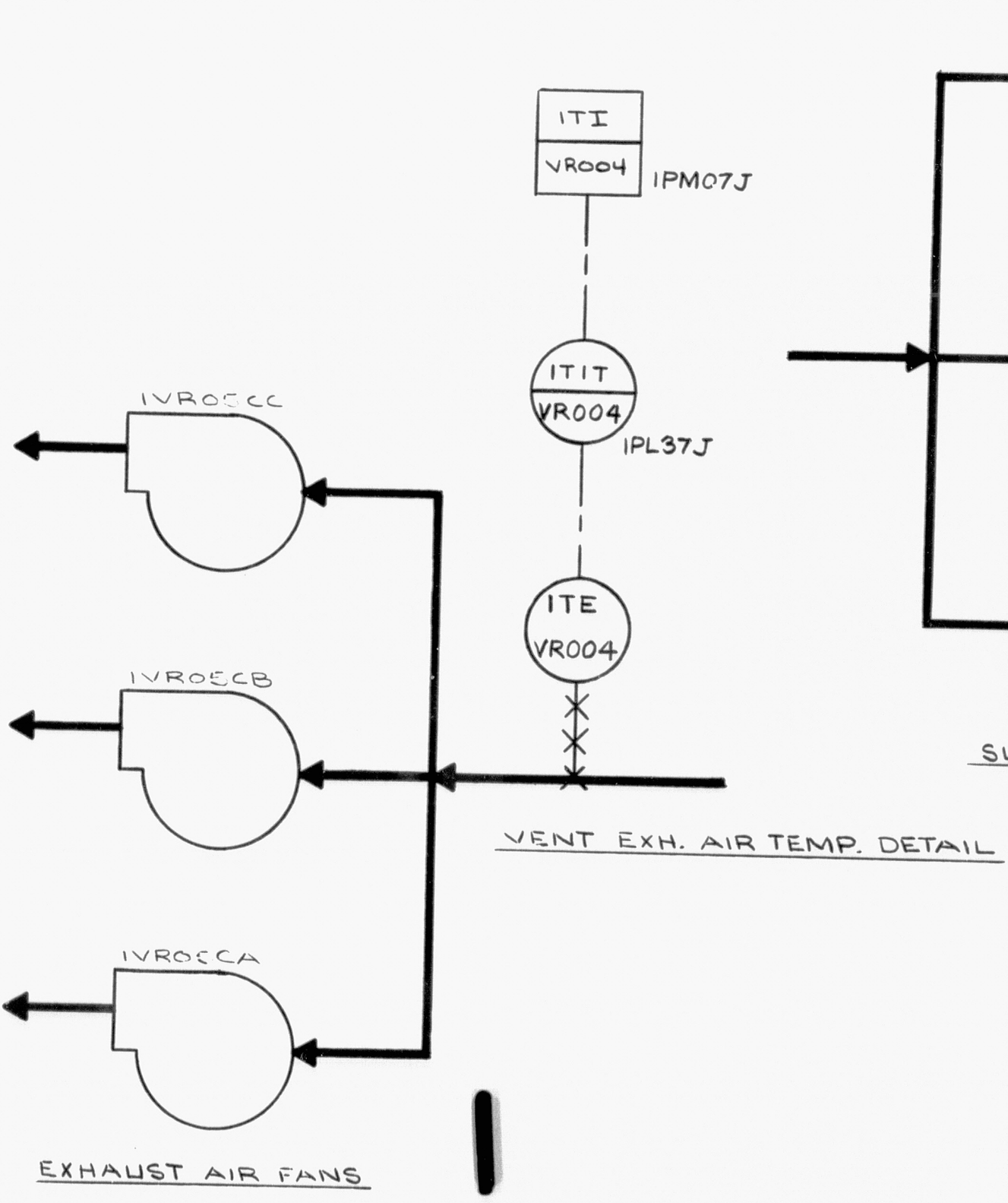
2

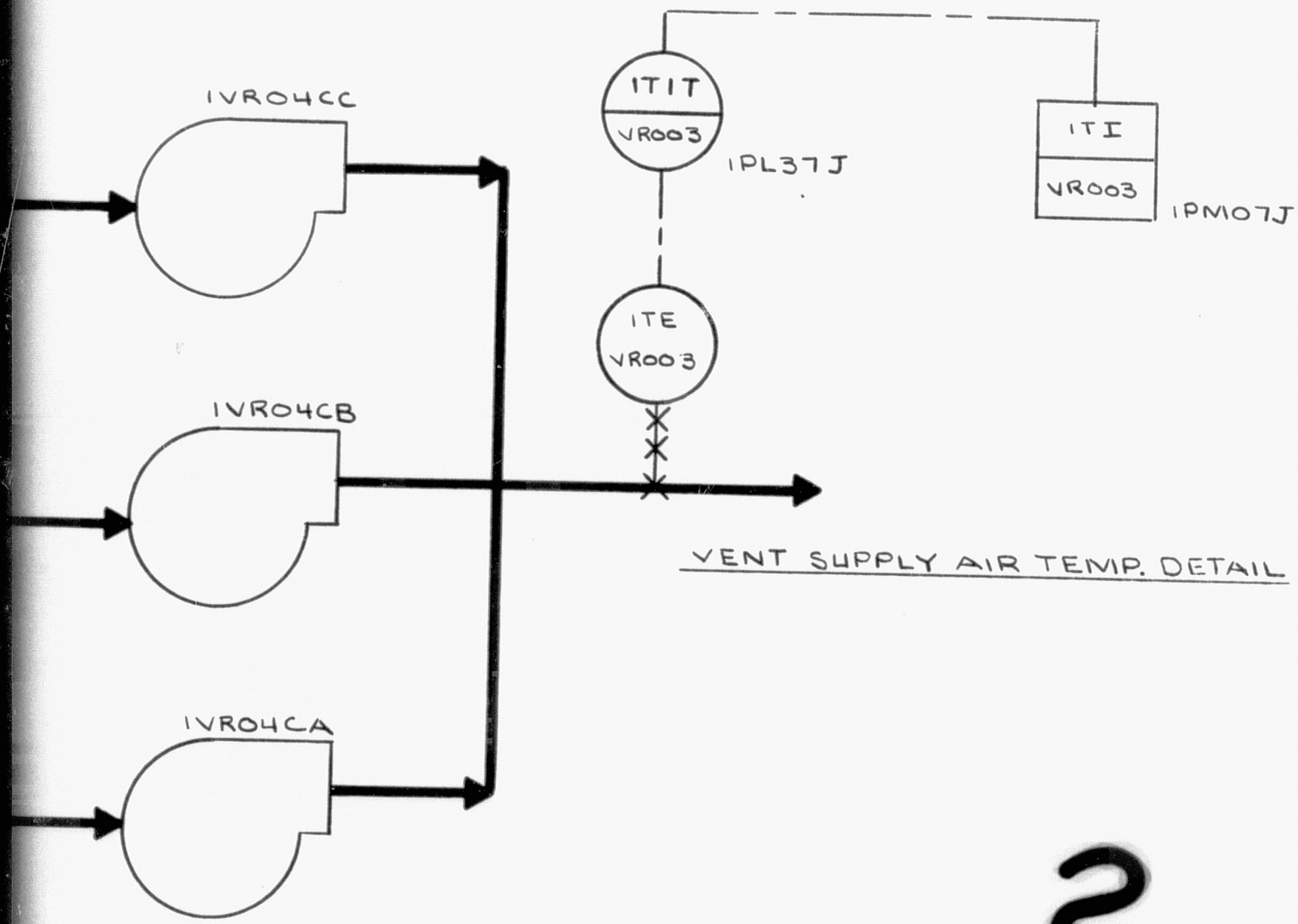
EMA I CONTROL PANEL LOCATED
RAIN TANK ROOM ELEV. 485.6"

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-27

REACTOR BUILDING VENTILATION AND
PRESSURE CONTROL SYSTEM
(SHEET 30 of 31)

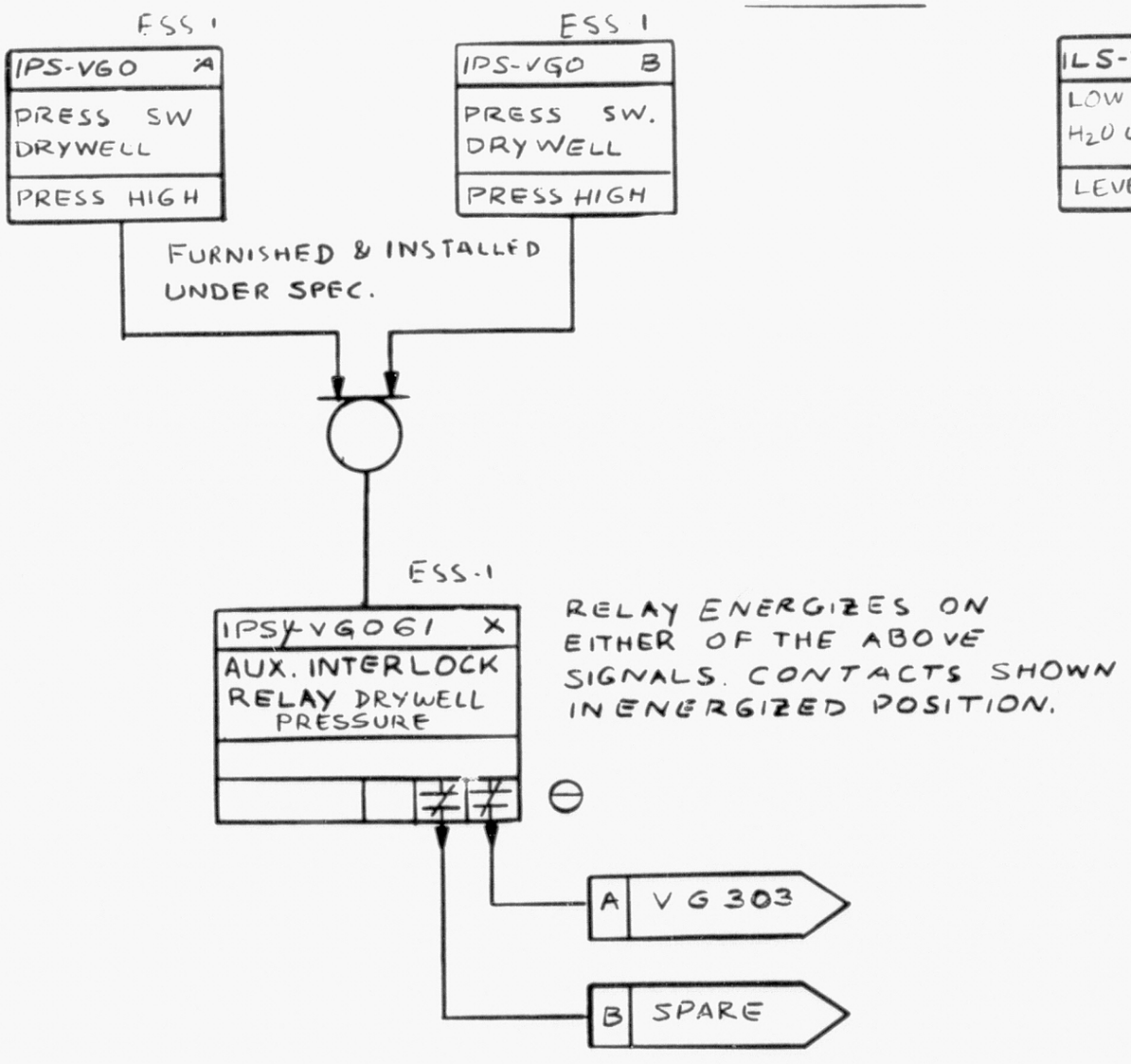

ITI
VR004
1PM07J
ITIT
VR004
1PL37J
ITE
VR004
1VR05CC
1VR05CB
1VR05CA
VENT EXH. AIR TEMP. DETAIL
SUPPLY
EXHAUST AIR FANS



2

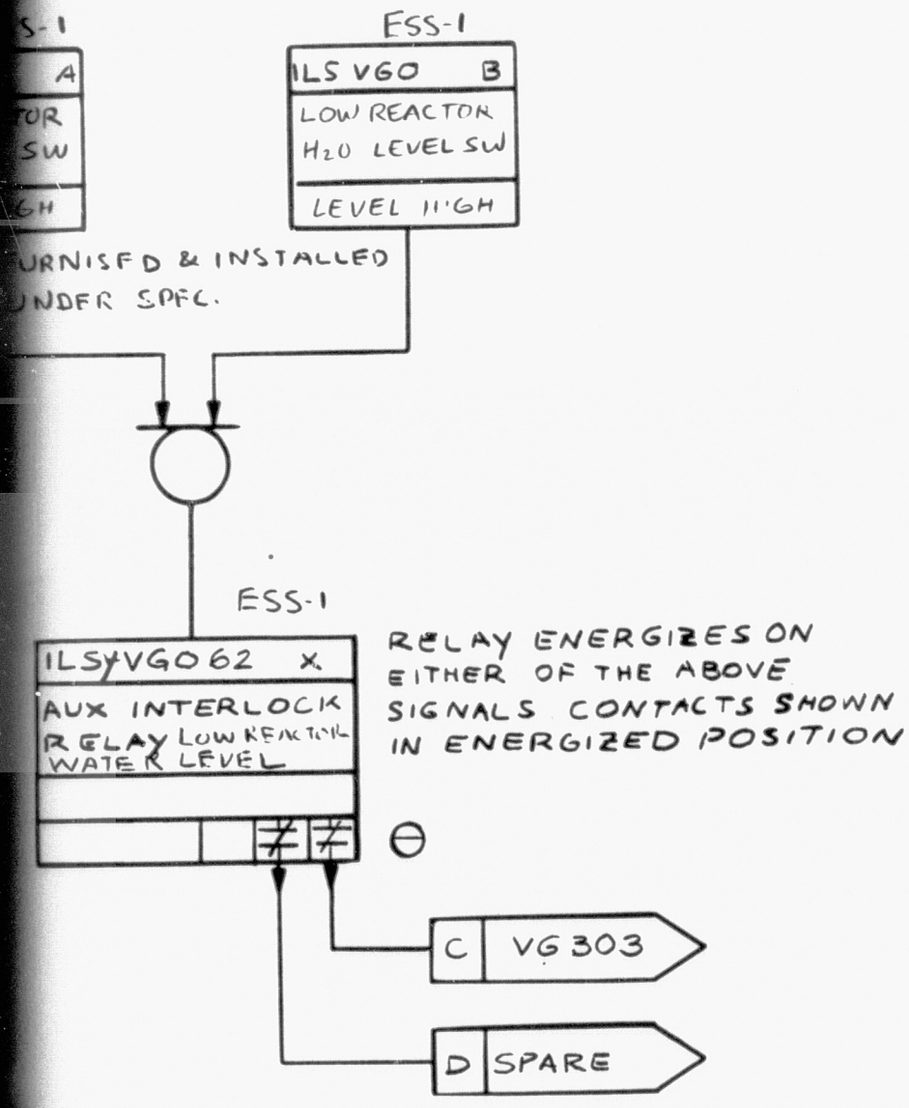
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-27 REACTOR BUILDING VENTILATION AND PRESSURE CONTROL SYSTEM (SHEET 31 of 31)

DIV. 1



TRAIN 'A'

NOTE :- INSTRUMENTS MARKED '⊖' SHALL BE LOCATED ON LOCAL CONT



2

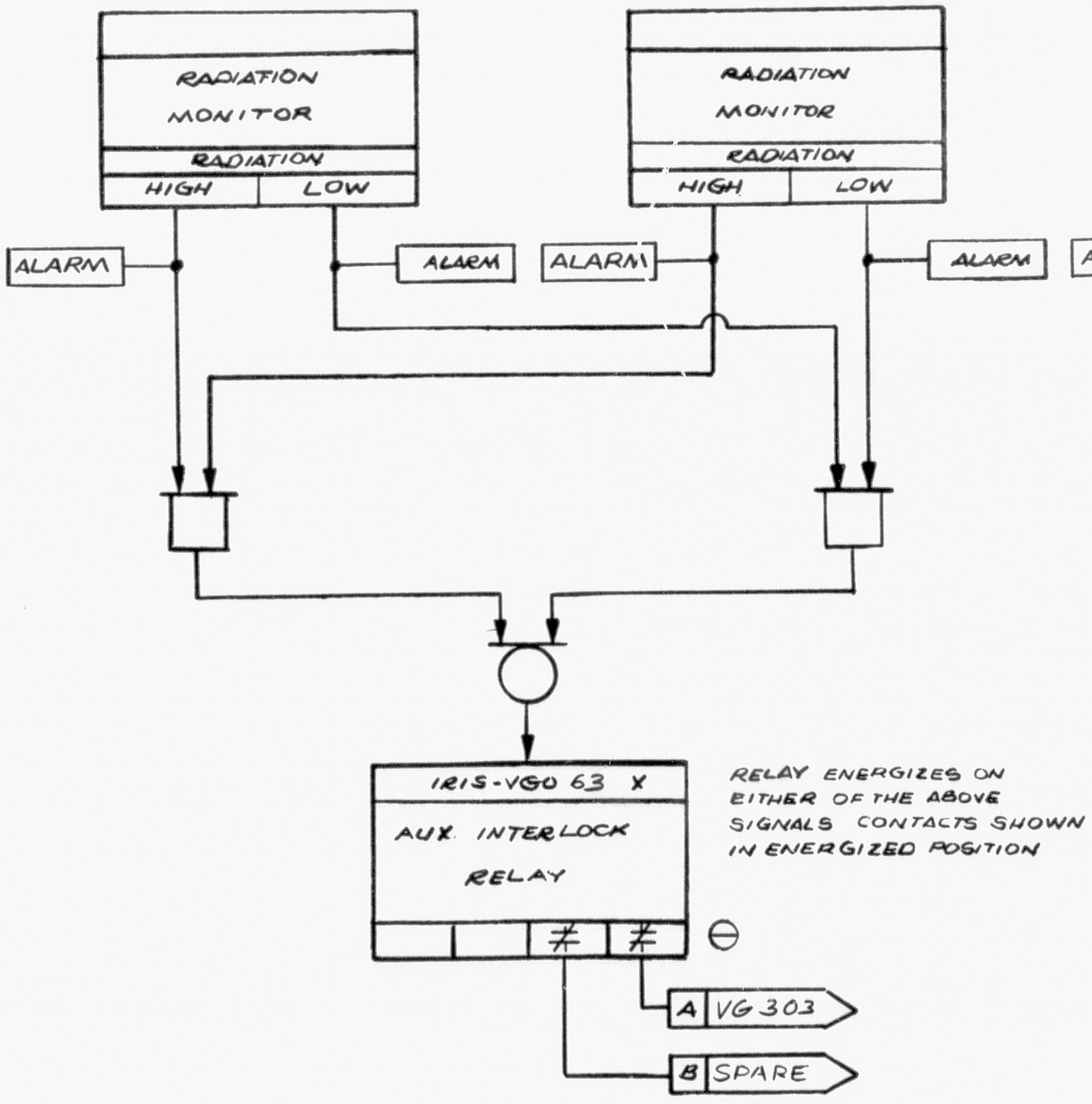
L CONTROL PANEL 1PL69JA

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28
STANDBY GAS TREATMENT SYSTEM
(SHEET 1 of 41)

DIVISION I

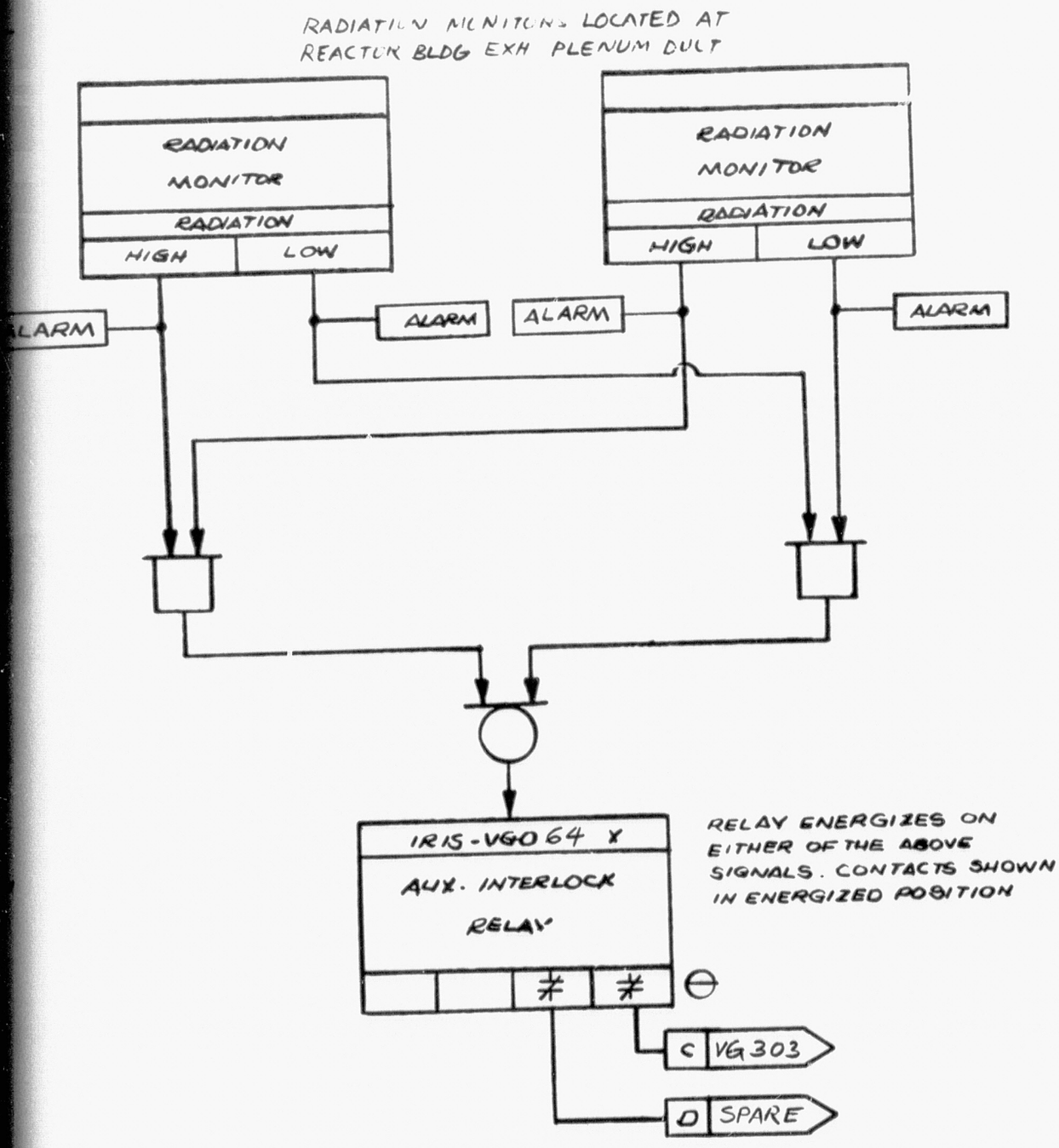
RADIATION MONITORS LOCATED AT
FUEL BLDG FUEL POOL EXH HEADER DUCT



TRAIN 'A'

NOTE: 1. RADIATION MONITORS ARE FURNISHED & INSTALLED UNDER S

2. INSTRUMENTS MARKED ⊖ SHALL BE LOCATED ON LOCAL CONTR



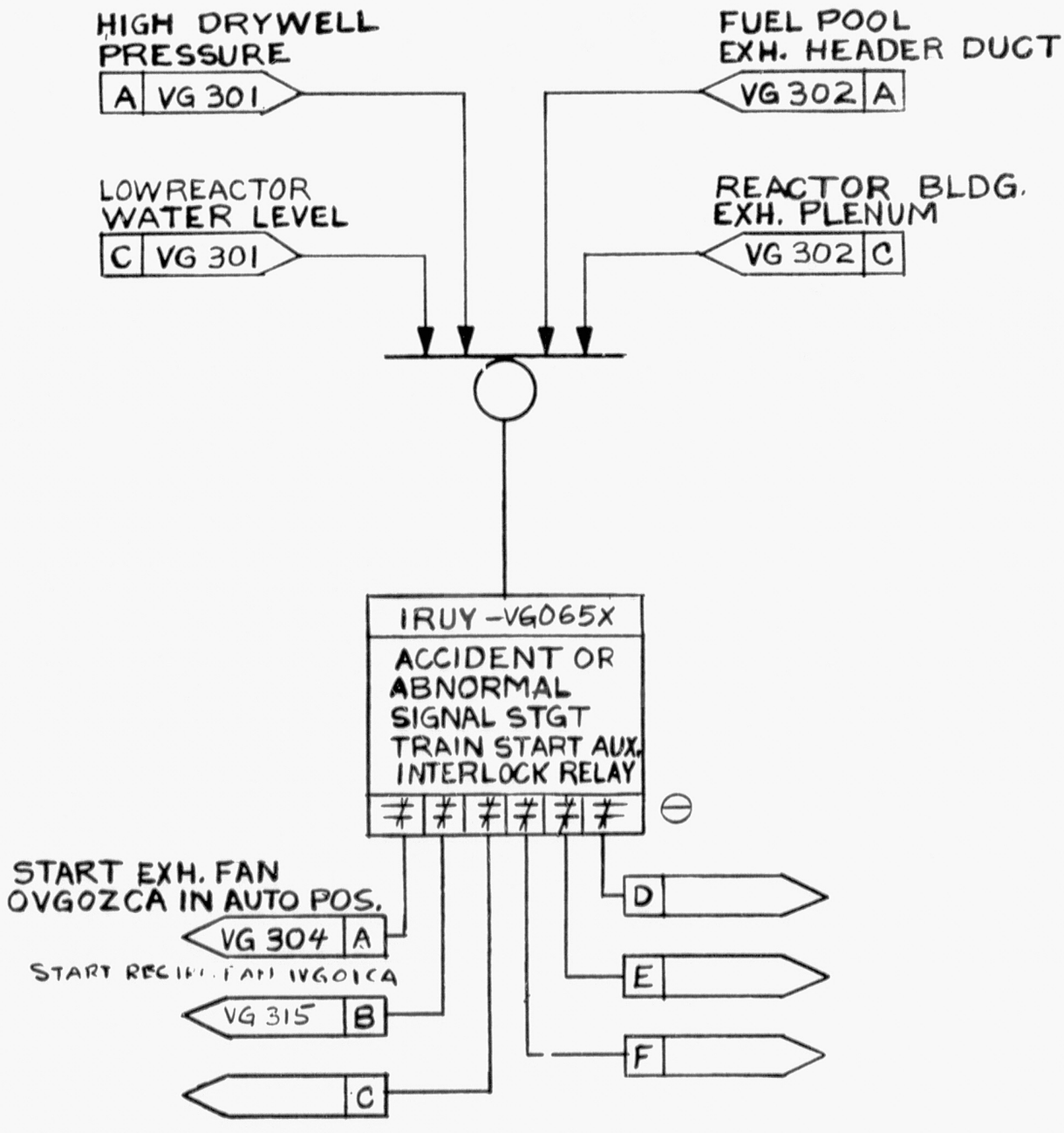
2

'A'
NDER SPEC.
CONTROL PANEL IPL

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 2 of 41)



NOTE :- INSTRUMENTS MARKED WITH ⊖ ARE LOCATED AT LOCAL CON

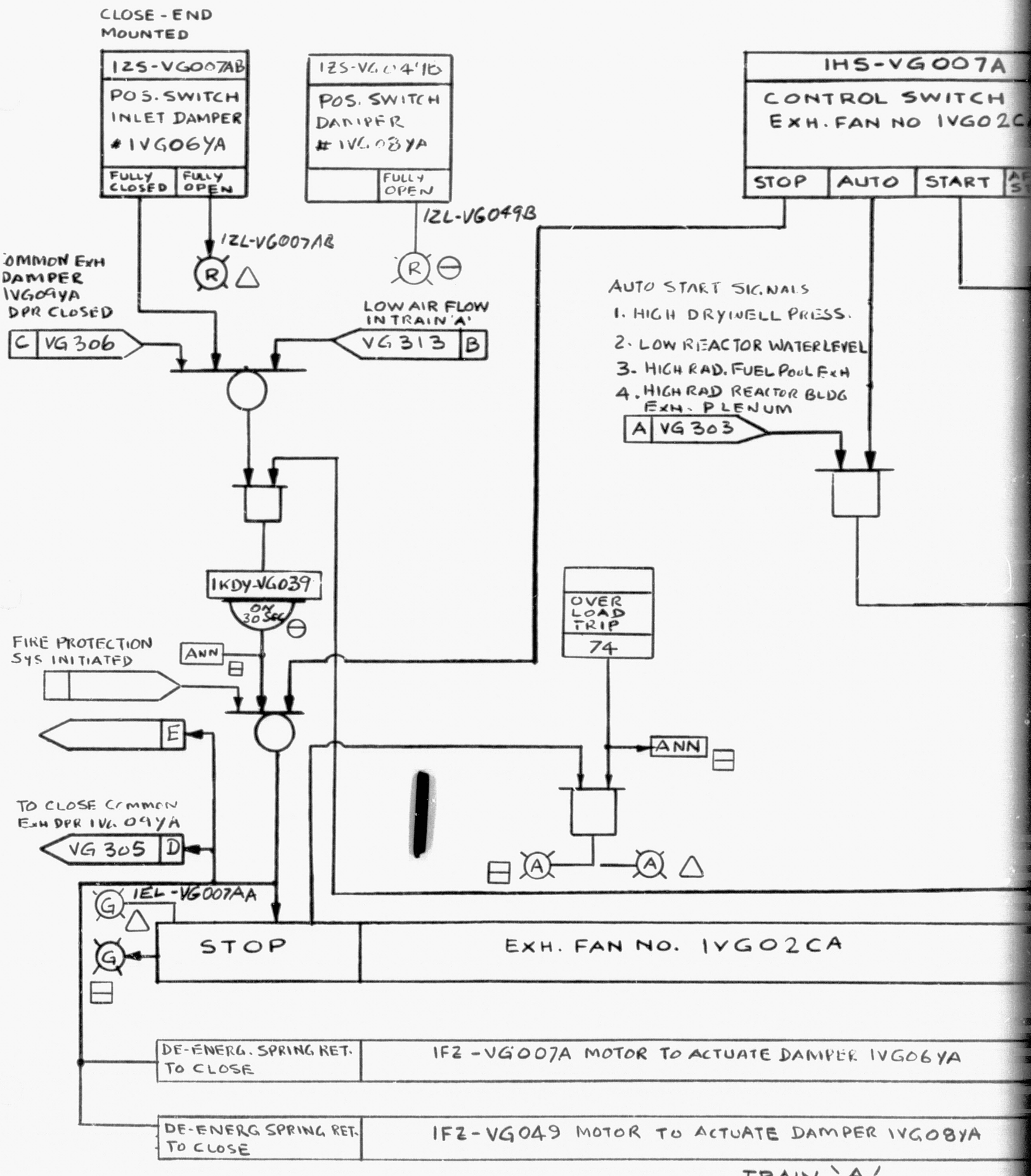
UCT

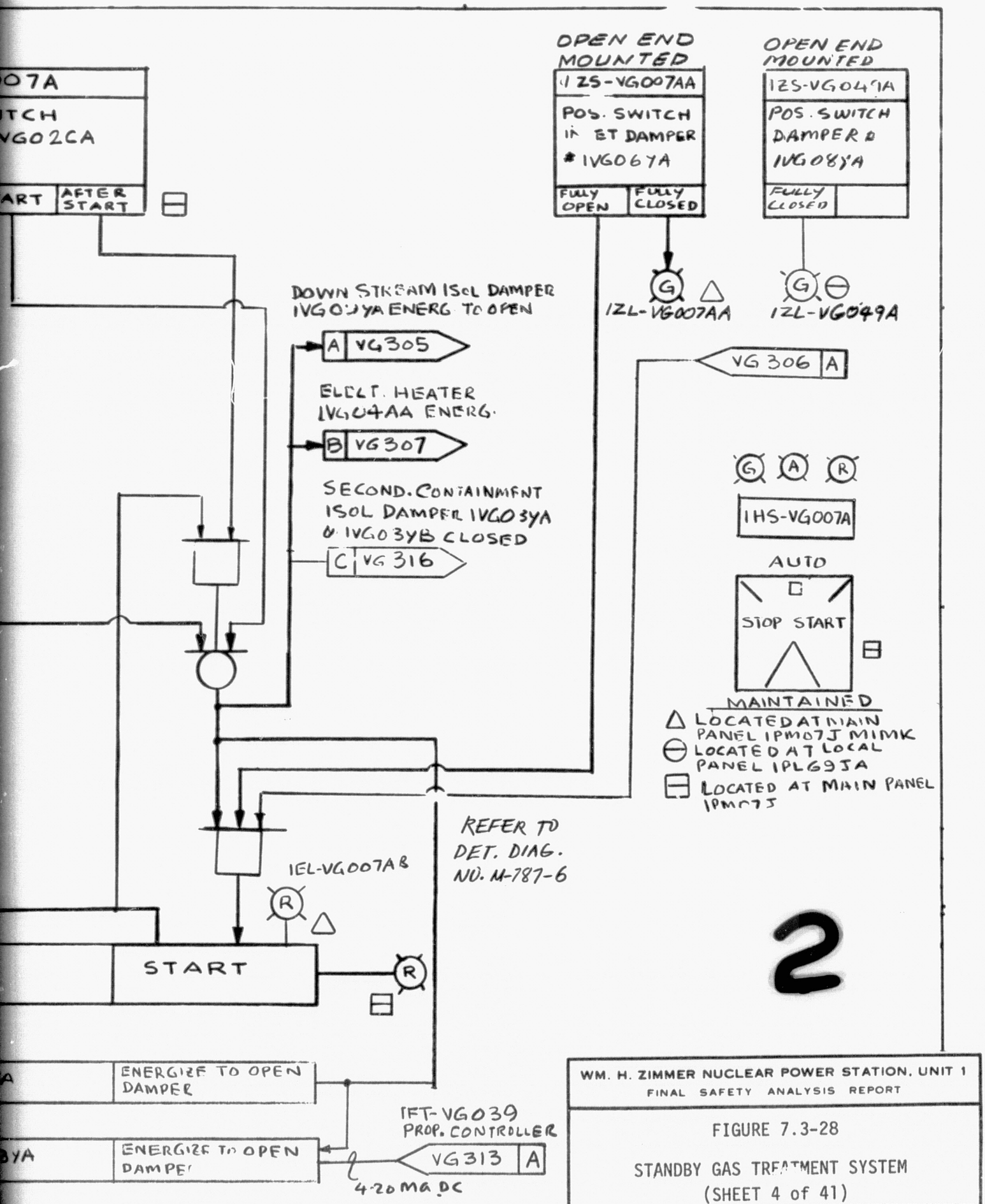
G.

RELAY ENERGIZES WHEN
ANY ONE OF THE ABOVE
SIGNAL COMES THROUGH
CONTACTS SHOWN ARE
IN ENERGIZED POS.

2

CAL CONTROL PANEL 1PL69JA


CLOSE - END MOUNTED
1ZS-VG007AB
POS. SWITCH INLET DAMPER #1VG06YA
FULLY CLOSED
FULLY OPEN
1ZS-VG049B
POS. SWITCH DAMPER #1VG08YA
FULLY OPEN
1HS-VG007A
CONTROL SWITCH
EXH. FAN NO 1VG02C
STOP
AUTO
START
1ZL-VG007AB
1ZL-VG049B
COMMON EXH DAMPER 1VG09YA DPR CLOSED
C VG306
LOW AIR FLOW IN TRAIN 'A'
VG313 B
AUTO START SIGNALS
1. HIGH DRYWELL PRESS.
2. LOW REACTOR WATERLEVEL
3. HIGH RAD. FUEL POOL EXH
4. HIGH RAD REACTOR BLDG EXH. PLENUM
A VG303
1KDY-VG039
ON 30 SEC
OVER LOAD TRIP
74
FIRE PROTECTION SYS INITIATED
ANN
E
TO CLOSE COMMON EXH DPR 1VG09YA
VG305 D
ANN
1EL-VG007AA
STOP
EXH. FAN NO. 1VG02CA
DE-ENERG. SPRING RET. TO CLOSE
1FZ-VG007A MOTOR TO ACTUATE DAMPER 1VG06YA
DE-ENERG SPRING RET. TO CLOSE
1FZ-VG049 MOTOR TO ACTUATE DAMPER 1VG08YA
TRAIN 'A'

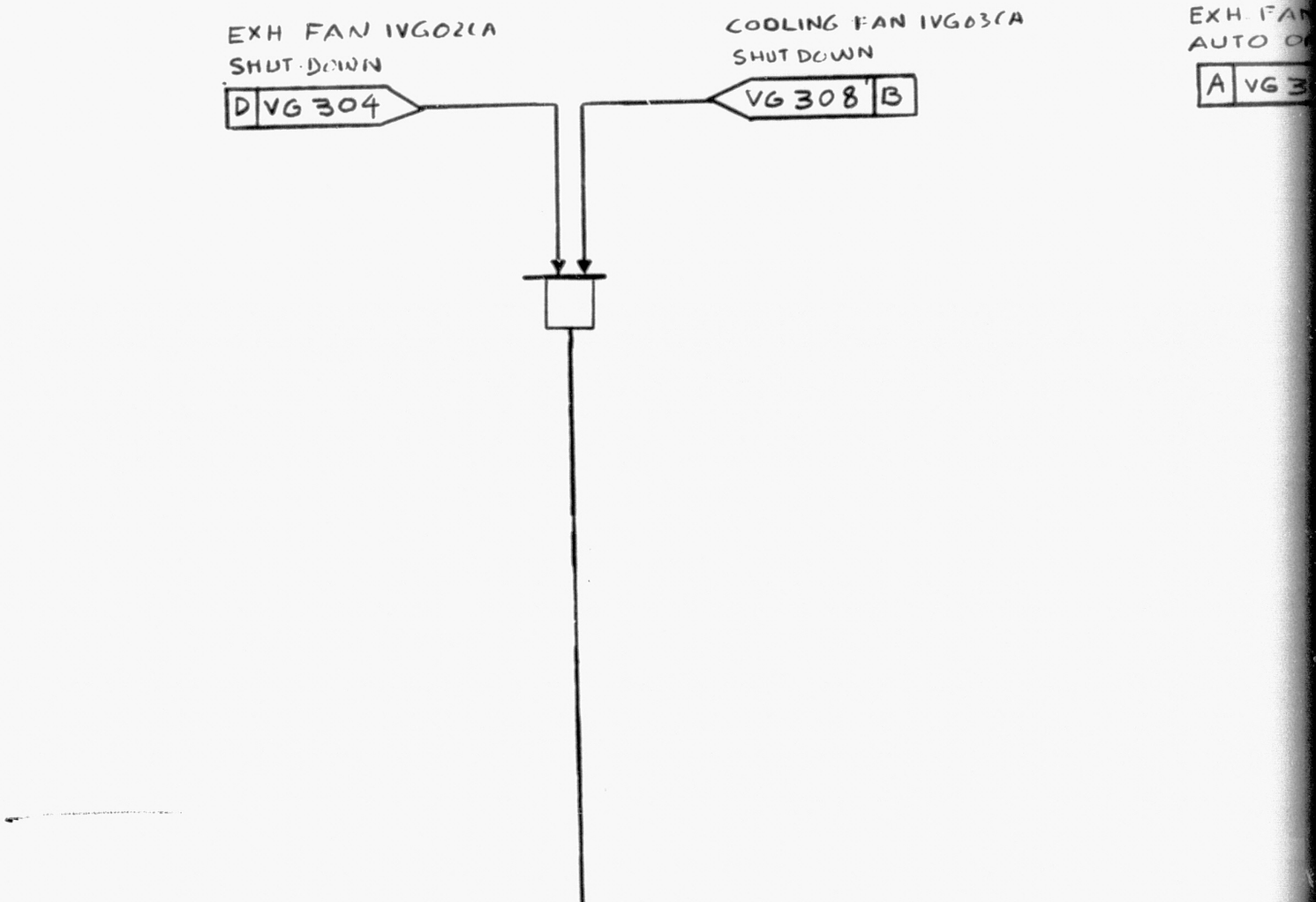


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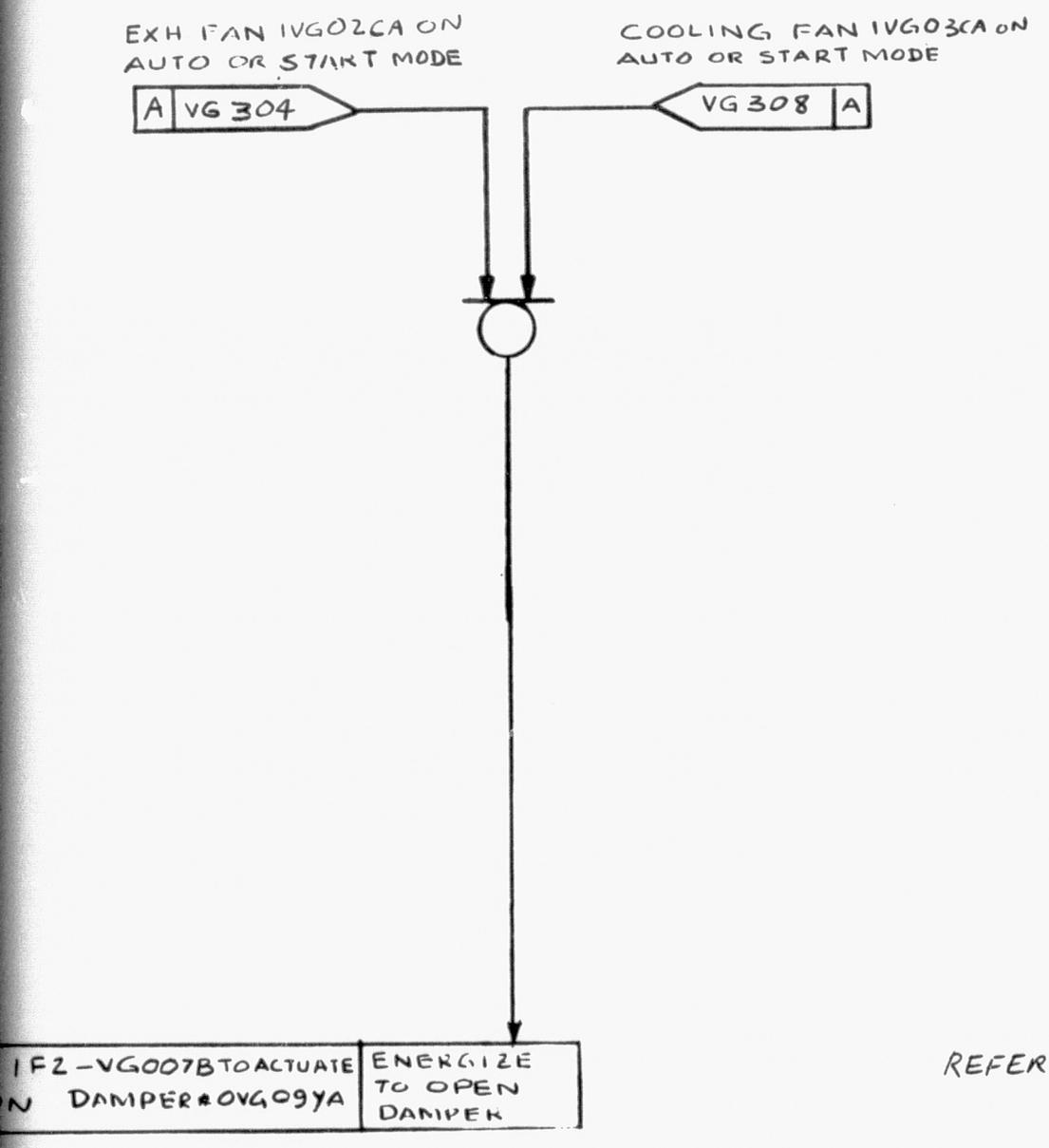
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 4 of 41)


EXH FAN IVG02CA
SHUT-DOWN
D VG 304
COOLING FAN IVG03CA
SHUT DOWN
VG 308 B
EXH FAN
AUTO O
A VG 3
DE-ENERGIZE
TO CLOSE
DAMPER
DAMPER MOTOR NO. 1FZ-VG007BTO
UPSTREAM ISOLATION DAMPER

TRAIN 'A'



REFER TO DET. DIAG M-787-6

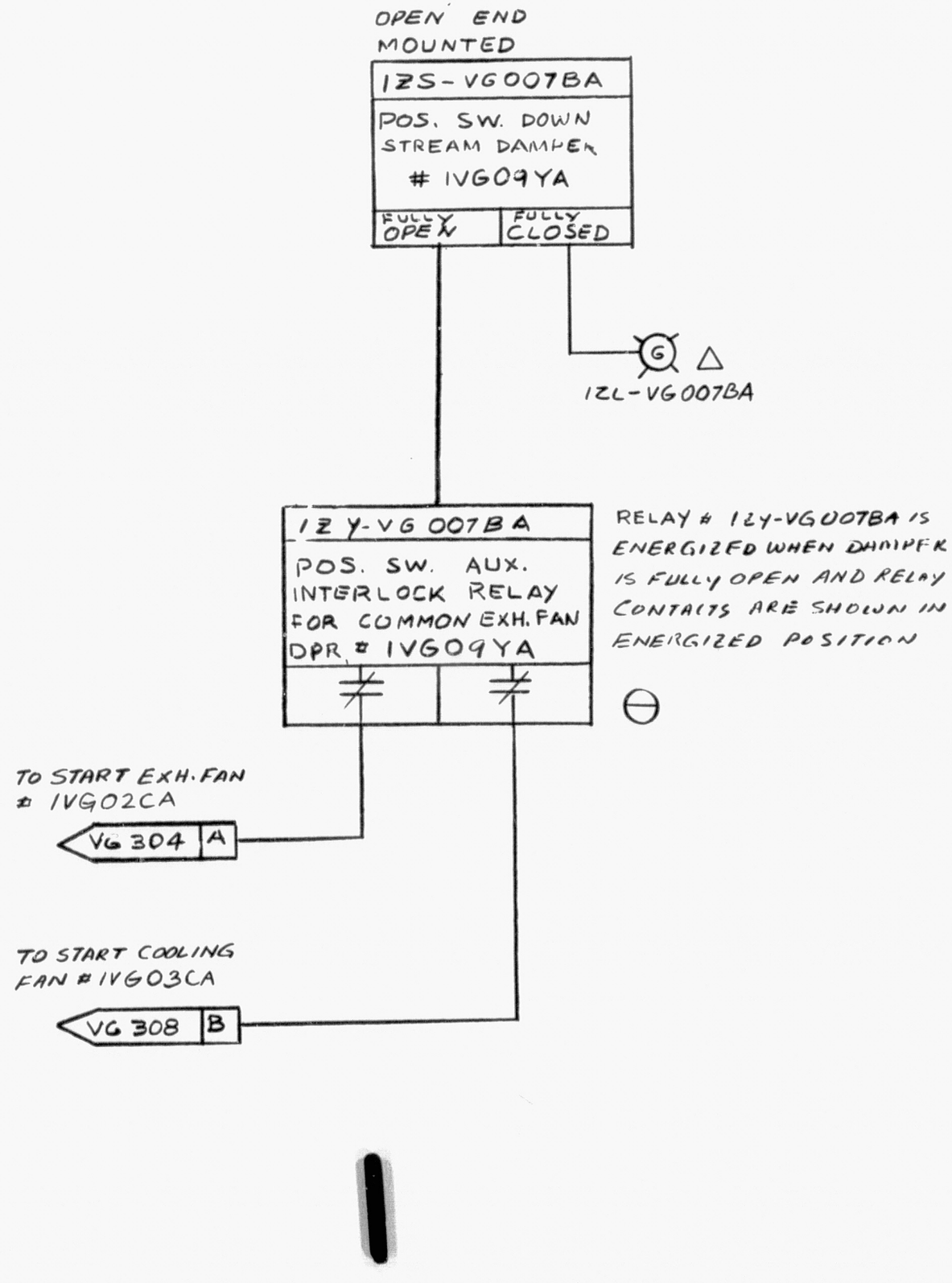
2

'A'

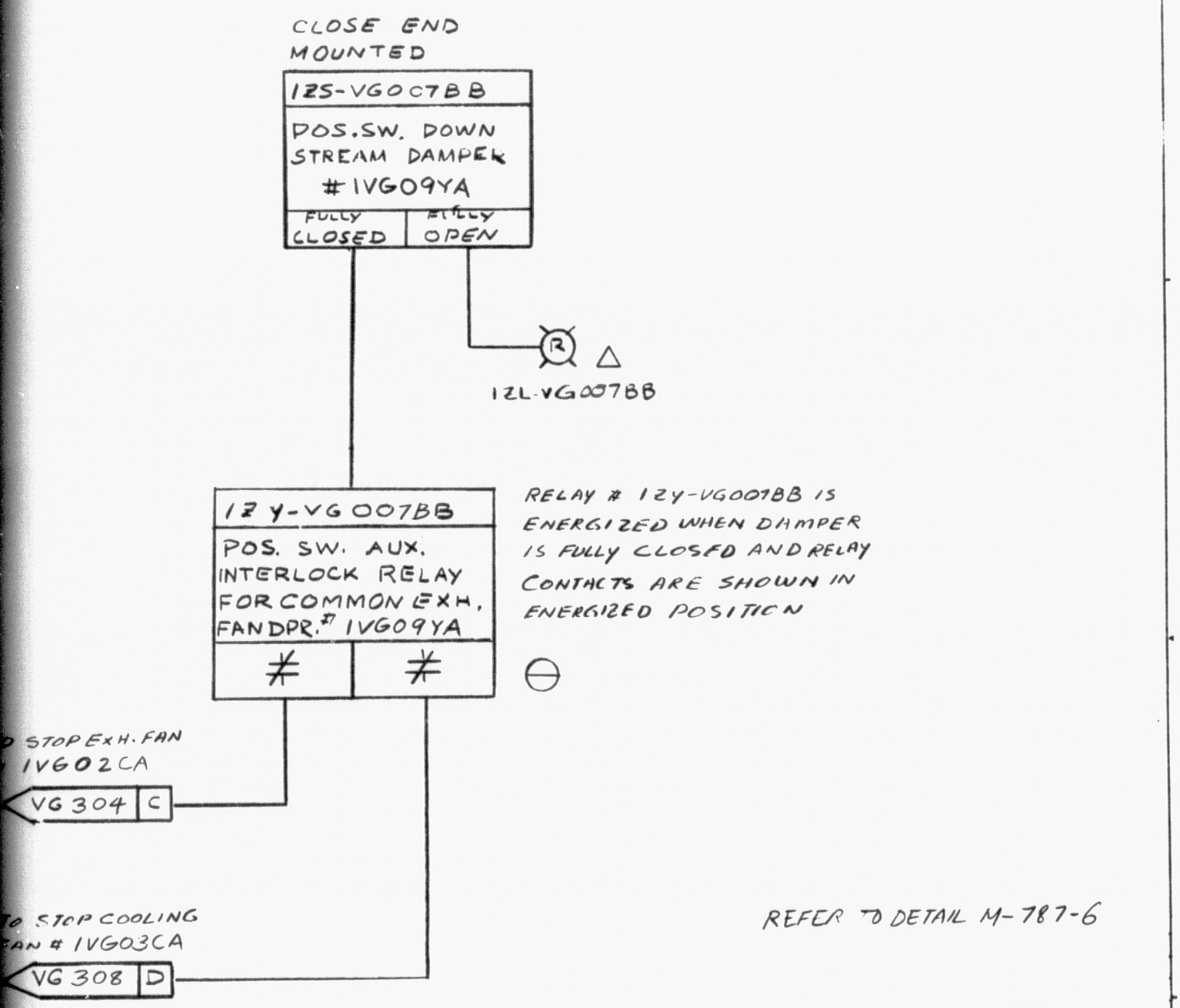
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 5 of 41)



NOTE INSTRUMENTS MARKED 'Θ' ARE TO BE MOUNTED AT LOC

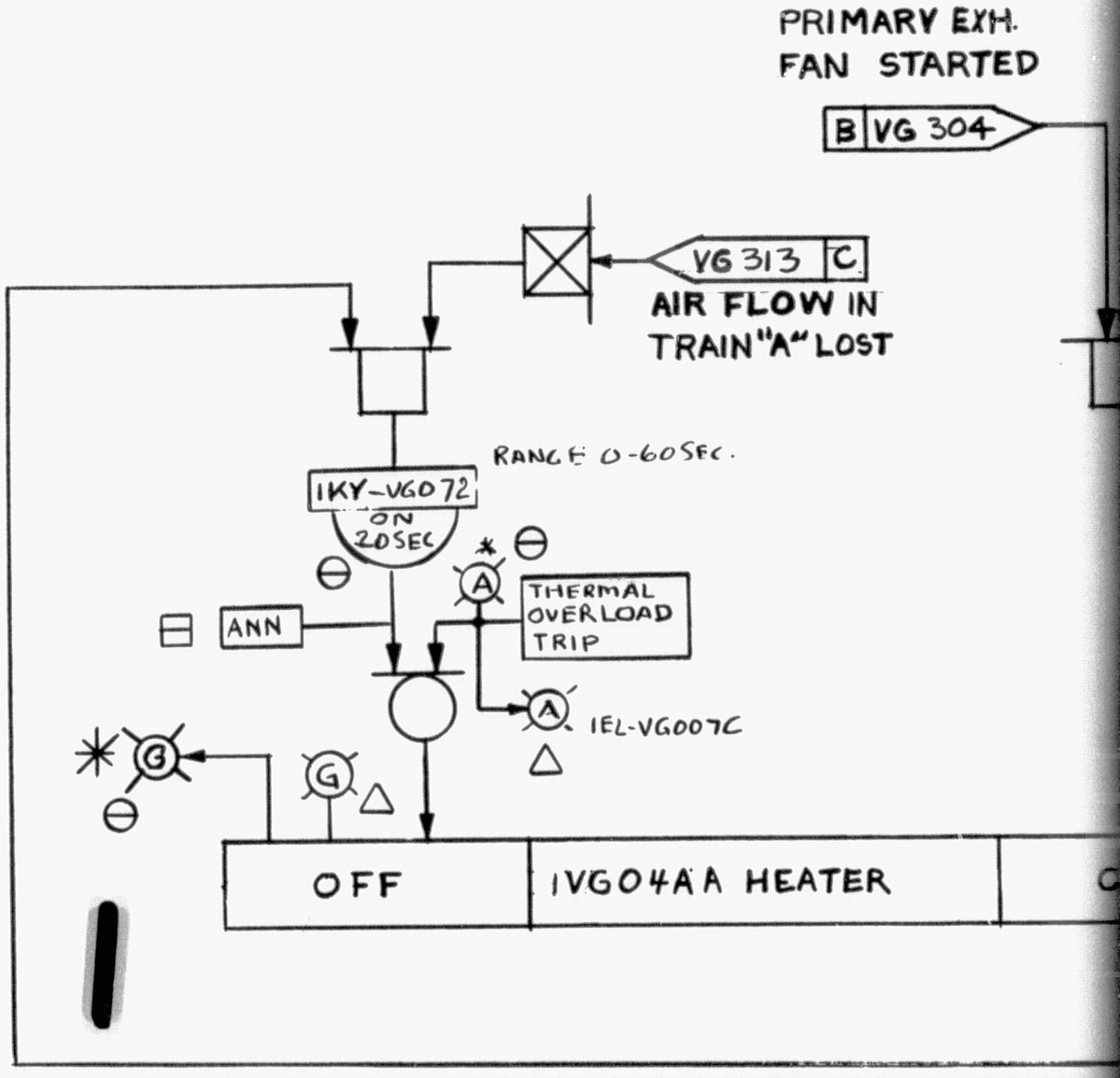


2

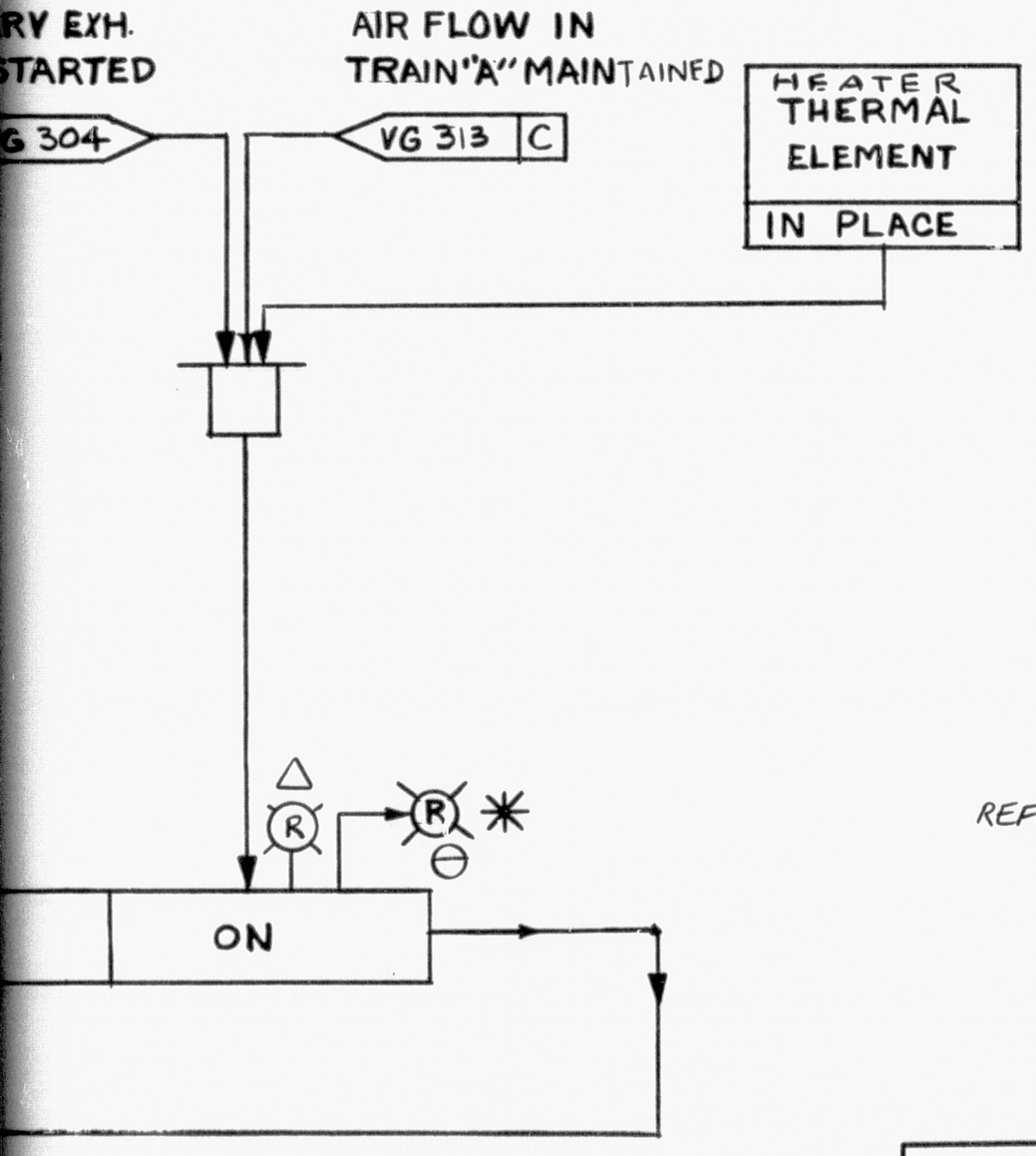
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 6 of 41)



NOTE: 1. INSRUMENTS MARKED WITH '*' ARE FURNISHED BY MANUFACTURE
// // // '⊖' // TO BE LOCATED AT HEATE
// // // '△' // // // // // MAIN



REFER TO DETAIL M-787-1

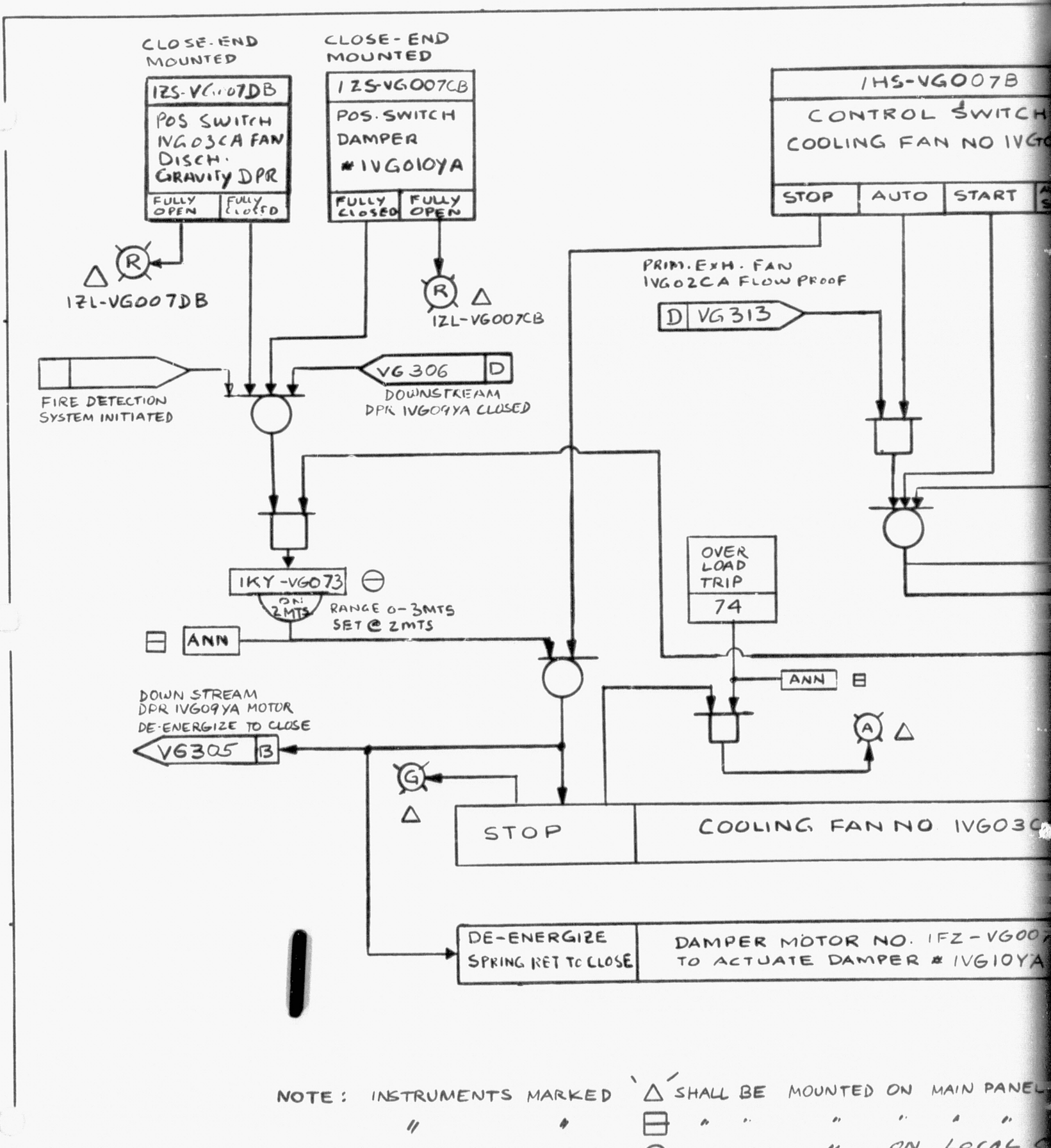
2

ANUFACTURER WITH HEATER
AT HEATER CONTROL CABINET
" MAIN CONTROL PANEL 1PM07J MIMIC

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

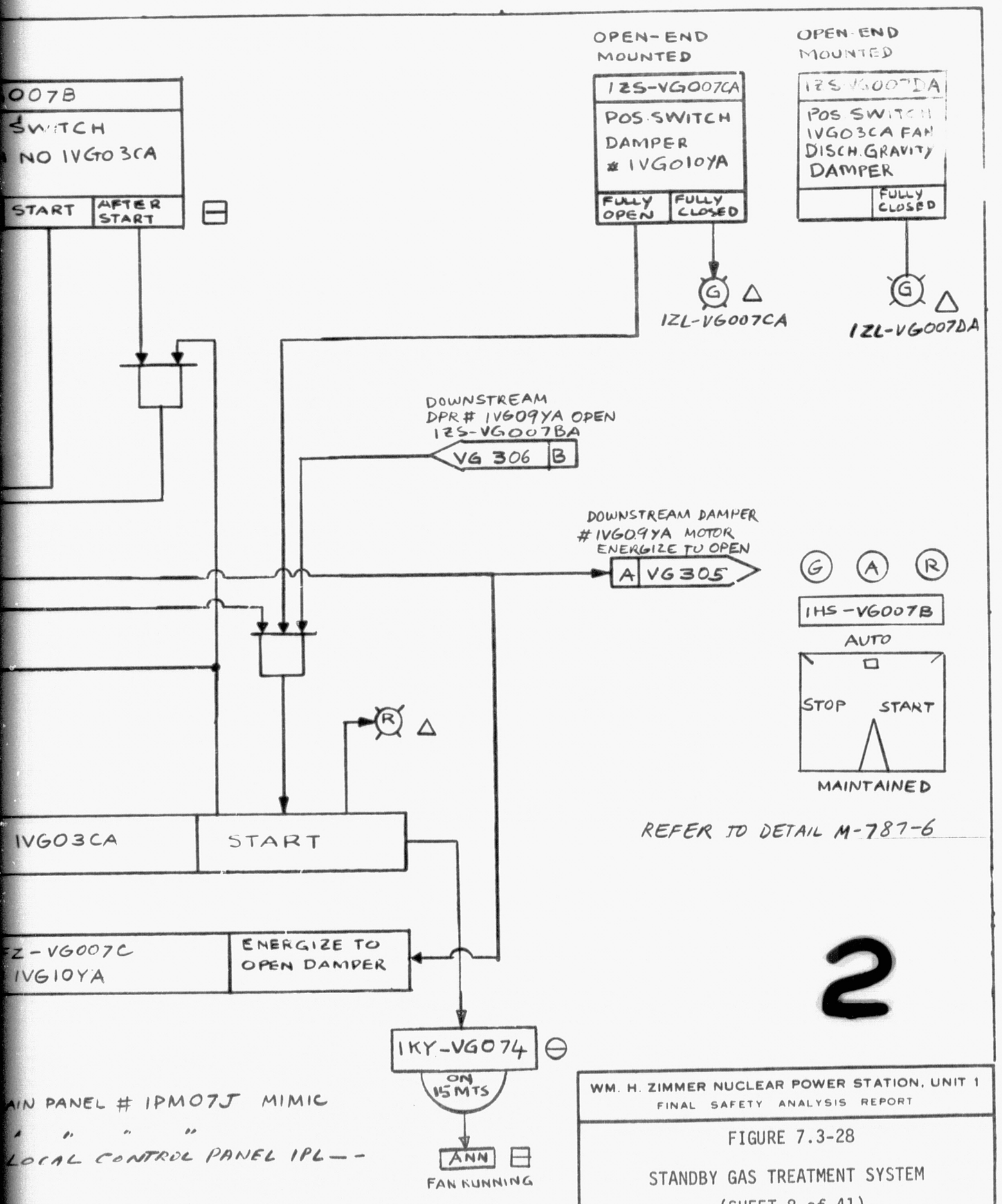
STANDBY GAS TREATMENT SYSTEM
(SHEET 7 of 41)



NOTE: INSTRUMENTS MARKED △ SHALL BE MOUNTED ON MAIN PANEL

" " ⊟ " " " " " "

" " ⊖ " " " ON LOCAL

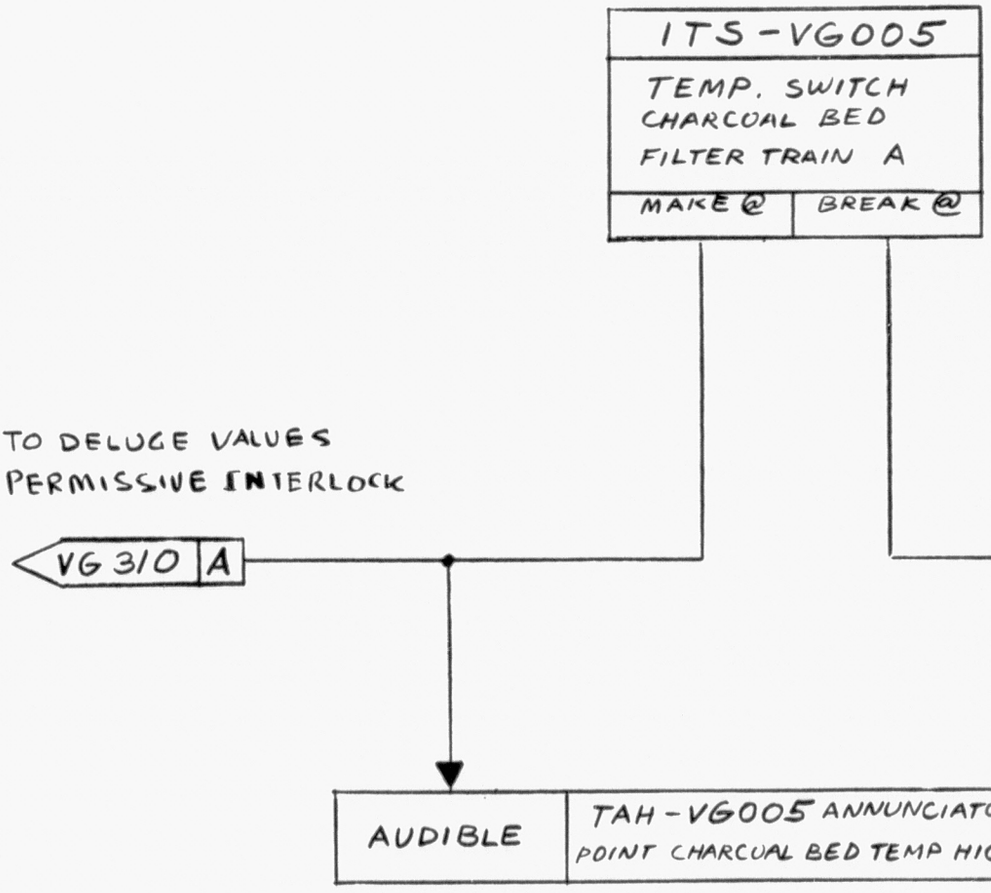


WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

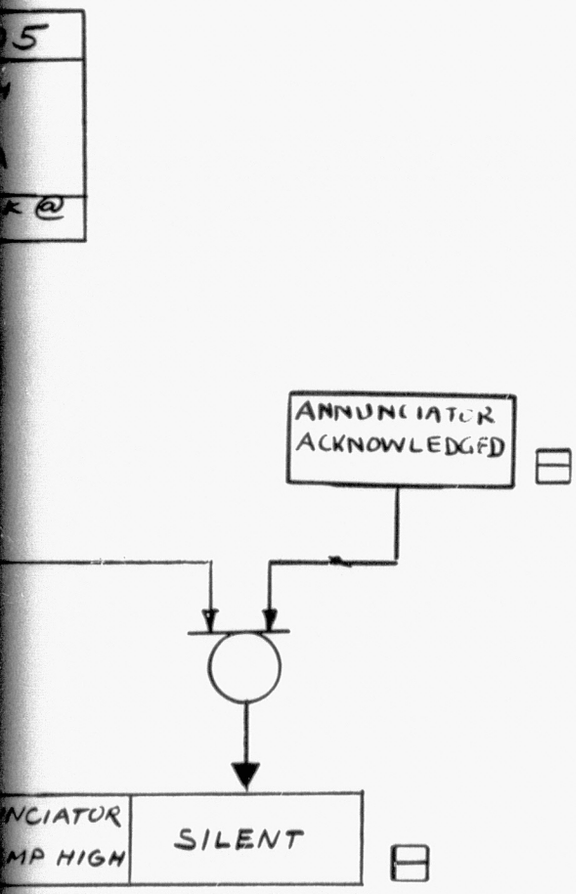
STANDBY GAS TREATMENT SYSTEM

(SHEET 8 of 41)



TRAIN 'A'

NOTE:- INSTRUMENTS MARKED ⊟ ARE FURNISHED & INSTALLED UNDER SPEC.



REFER TO DETAIL M-787-5

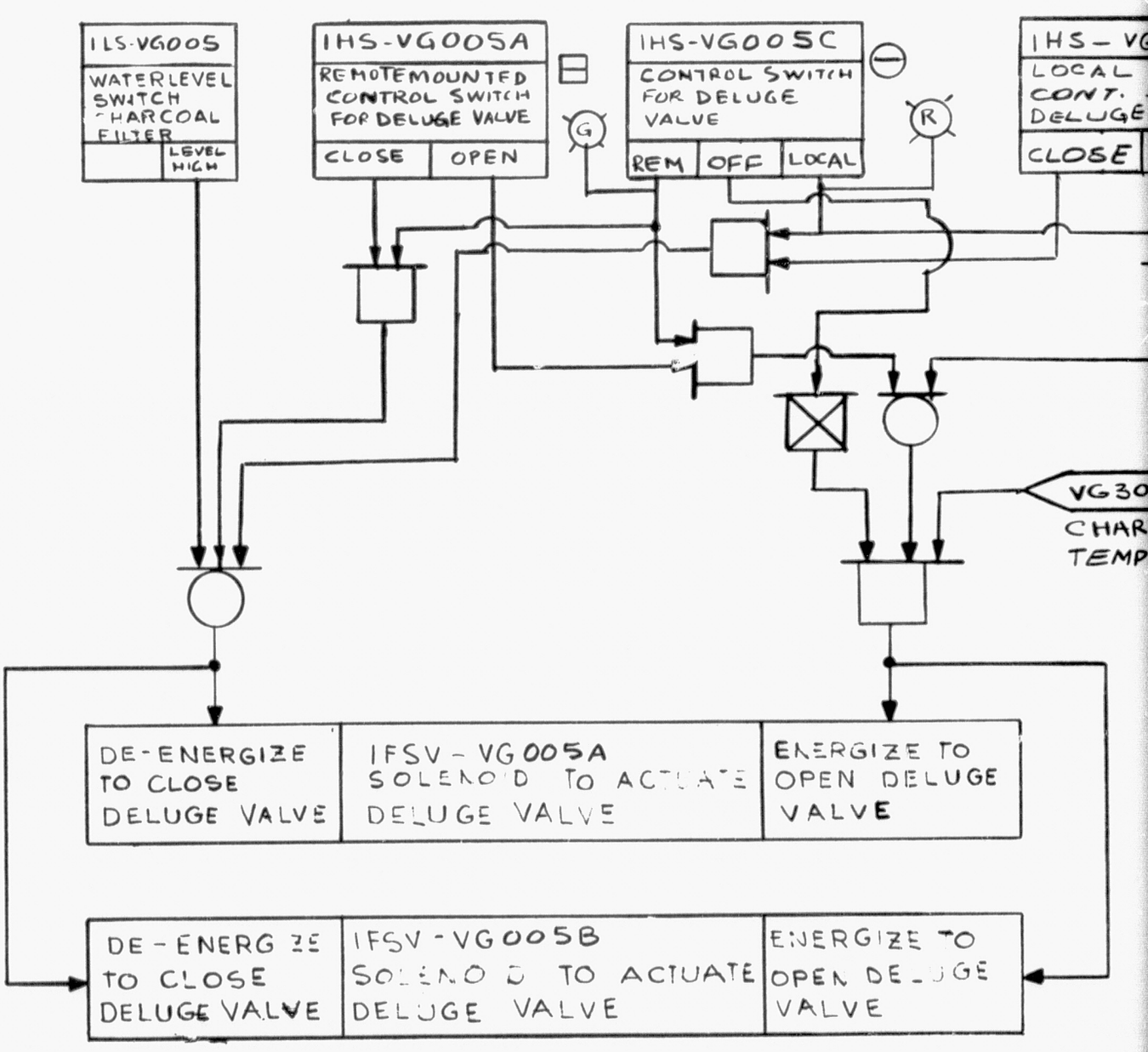
2

SPEC. & ARE LOCATED AT MAIN PANEL 1PM07J

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

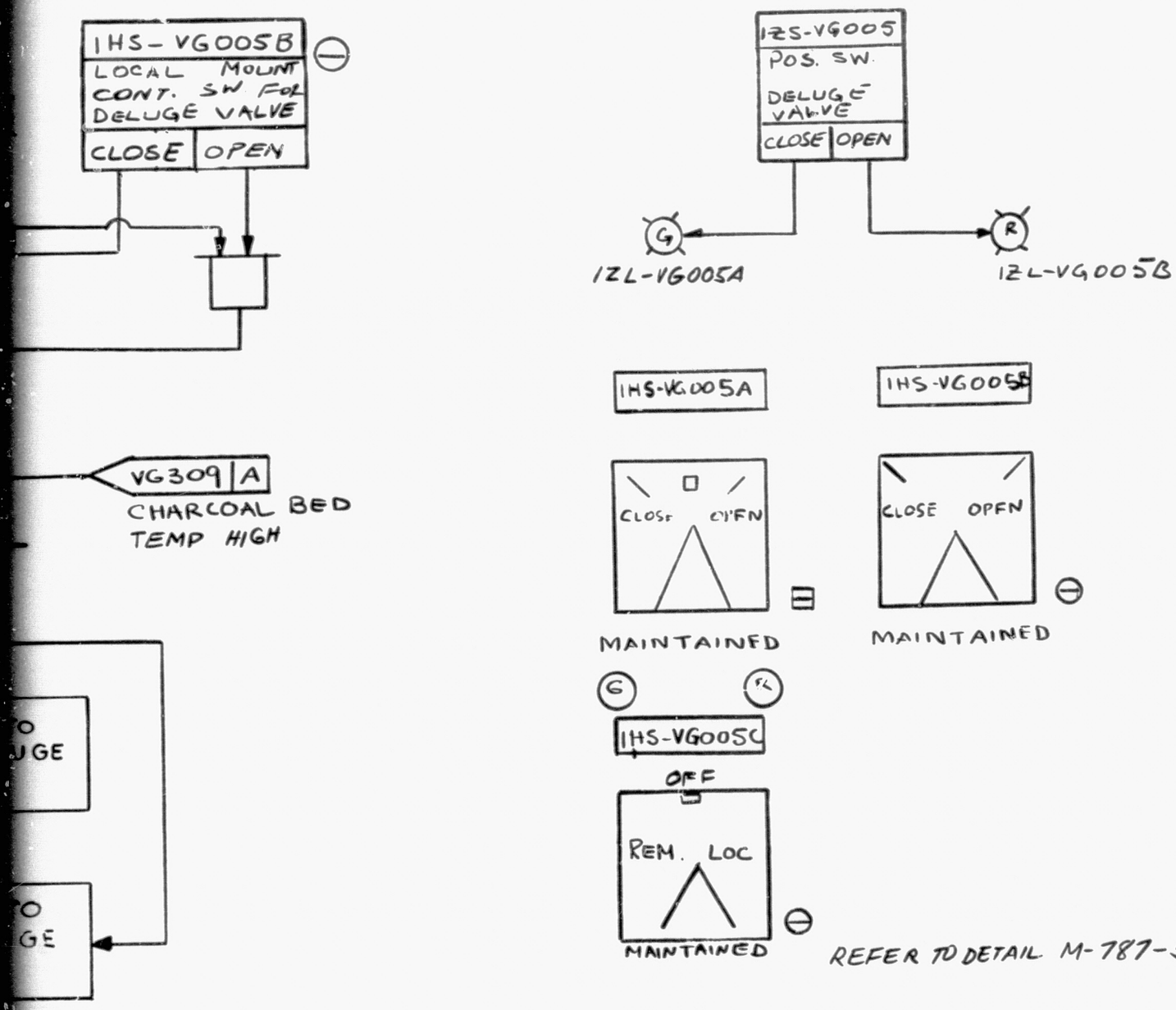
STANDBY GAS TREATMENT SYSTEM
(SHEET 9 of 41)



NOTE :- INSTRUMENTS MARKED ⊟ TO BE LOCATED ON MAIN PANEL

" " " △ " " " " " "

" " " ⊖ " " " " LOCAL CONTRO



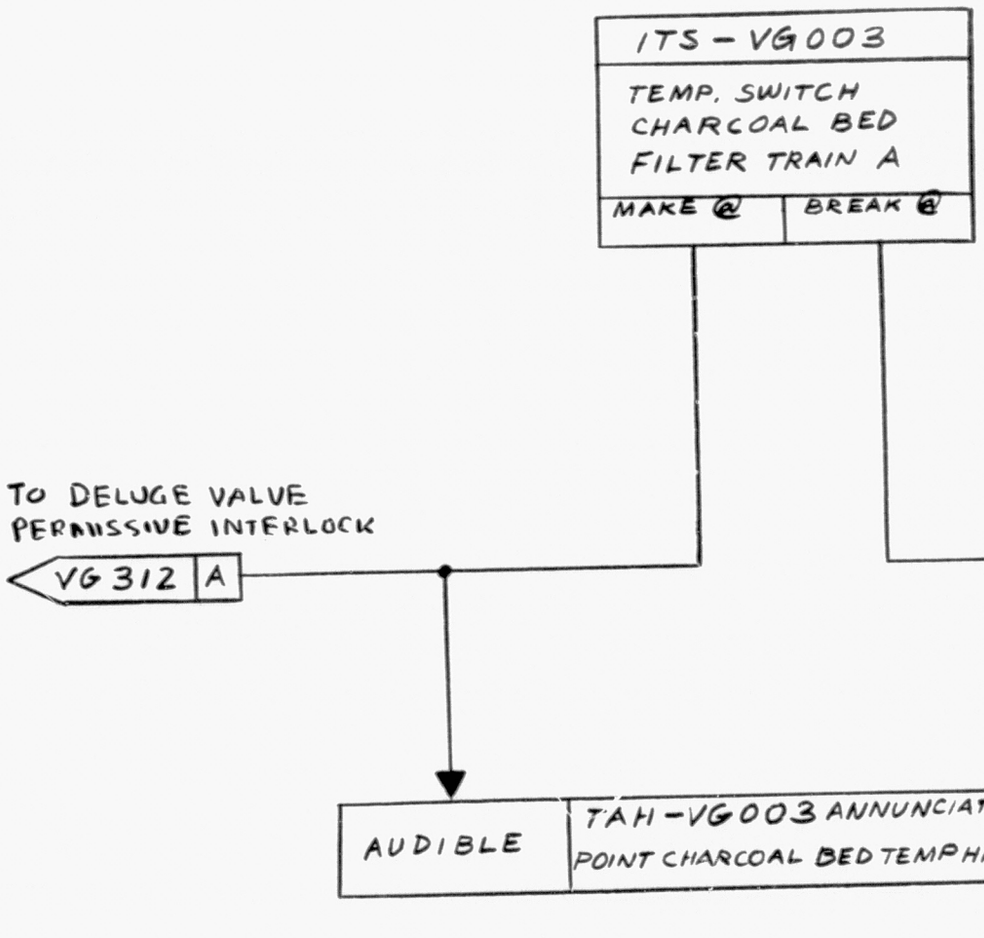
2

IN PANEL 1PM07J
" " MIMIC
OCAL CONTROL PANEL 1PL--

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

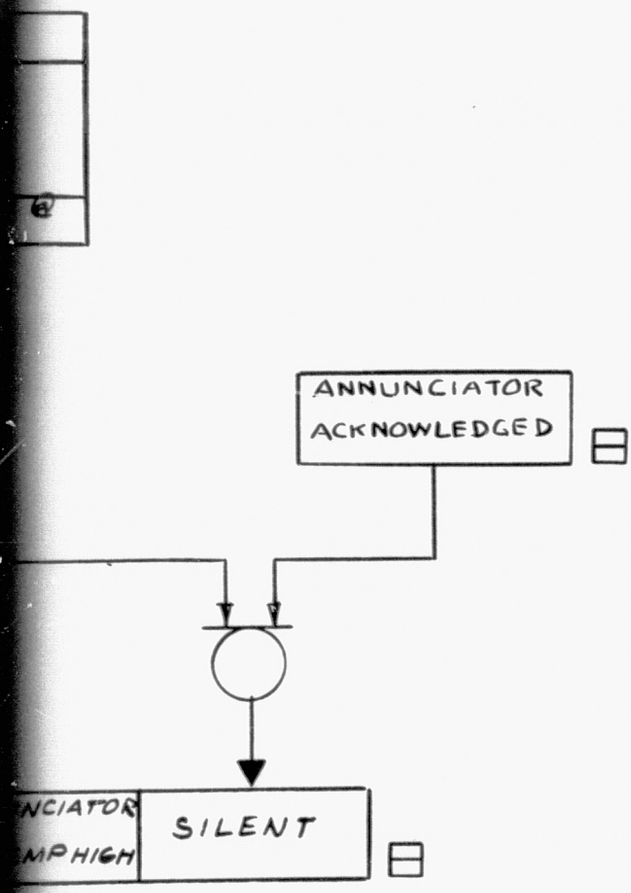
FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 10 of 41)



TRAIN 'A'

NOTE :- INSTRUMENTS MARKED WITH ARE FURNISHED & INSTALLED UNDE



REFER TO DETAIL M-787-5

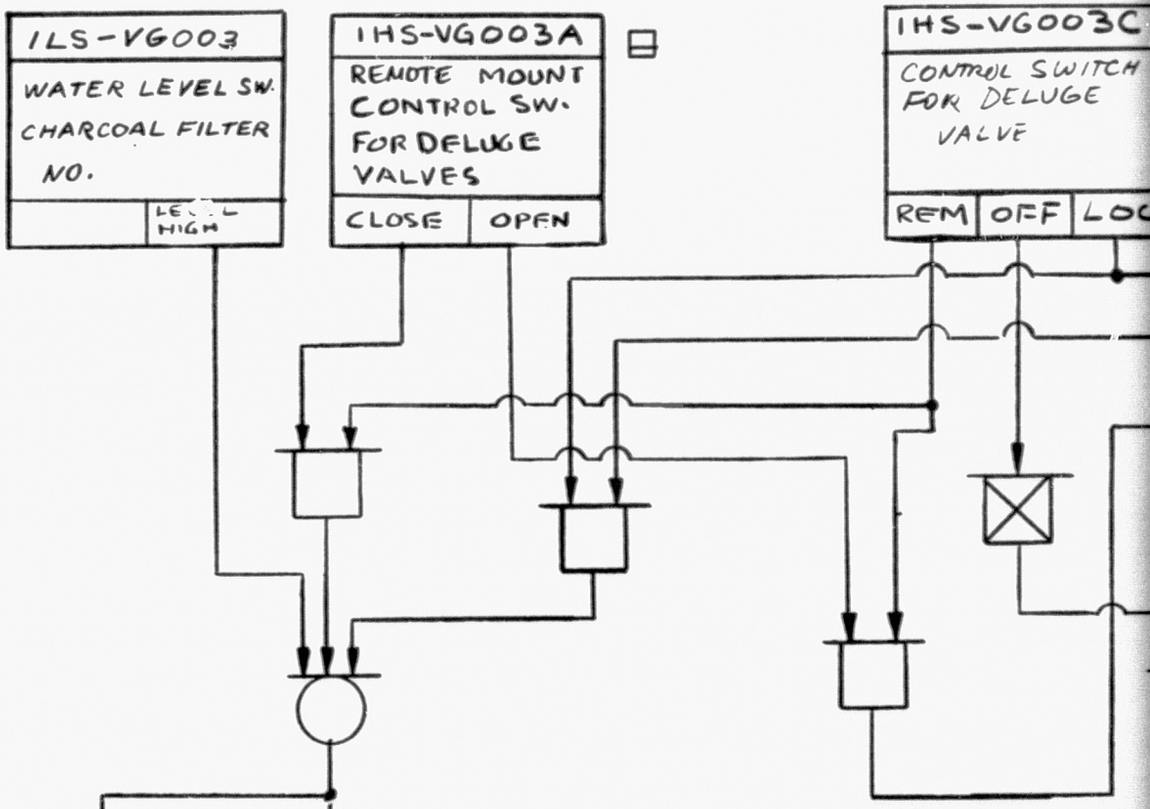
2

D UNDER SPEC. & ARE LOCATED AT 1PM07J

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 11 of 41)

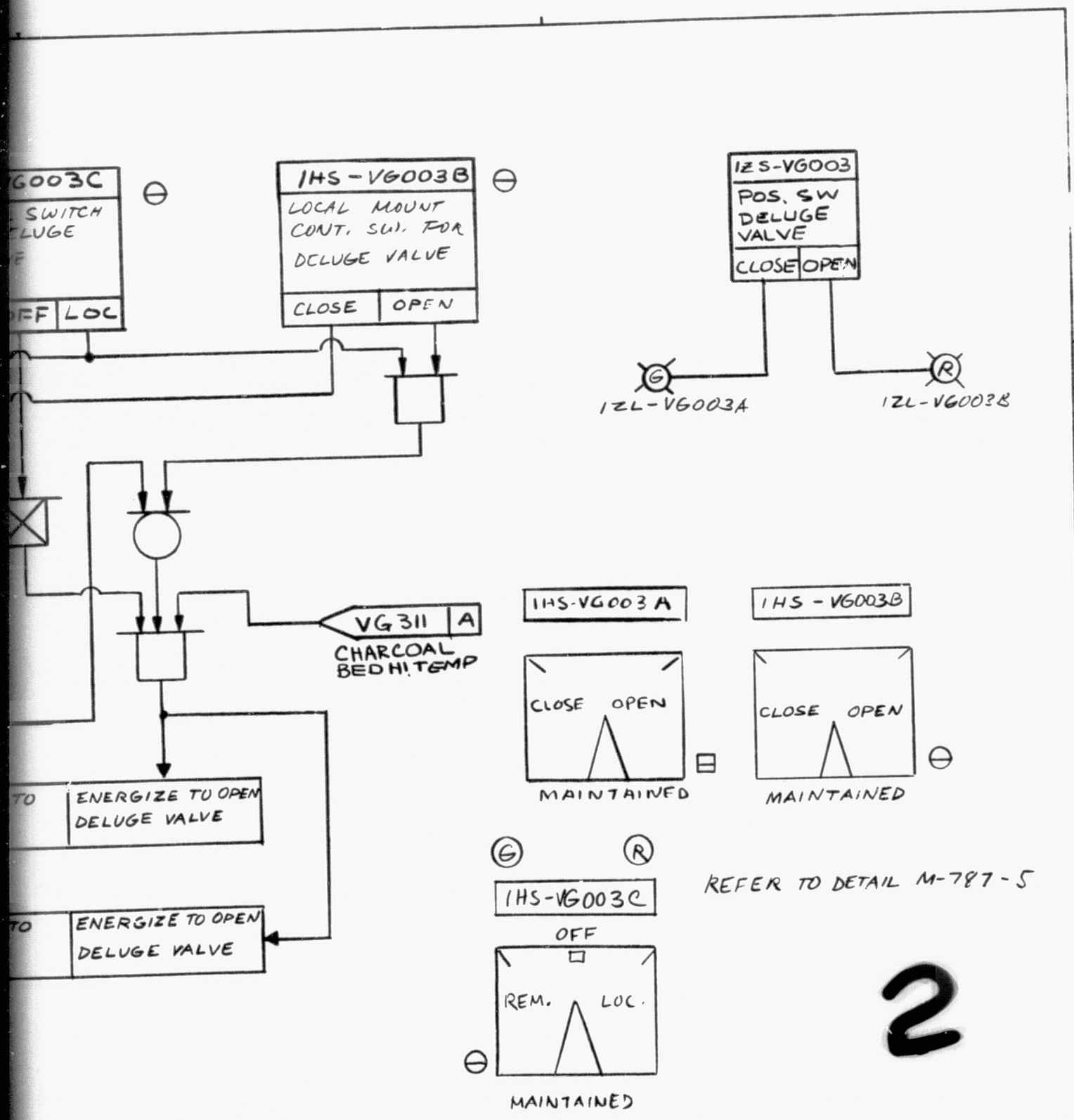


TRAIN A

NOTE:- INSTRUMENTS MARKED ⊖ TO BE LOCATED AT LOCAL CONTROL P

" " ⊟ " " " " MAIN "

" " △ " " " " " " "

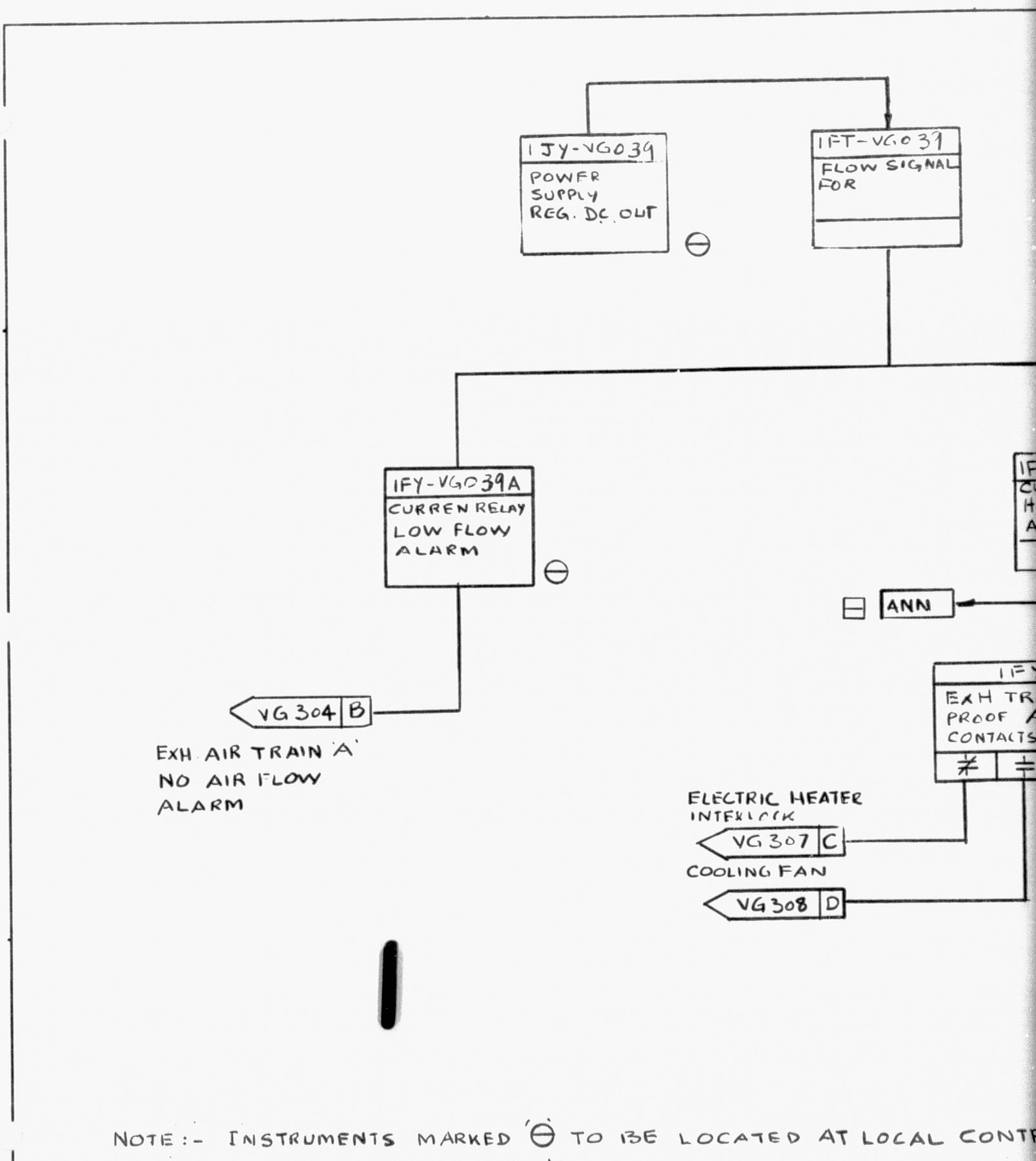


CONTROL PANEL 1PL
" " 1PM07J
" " MIMIC

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 12 of 41)

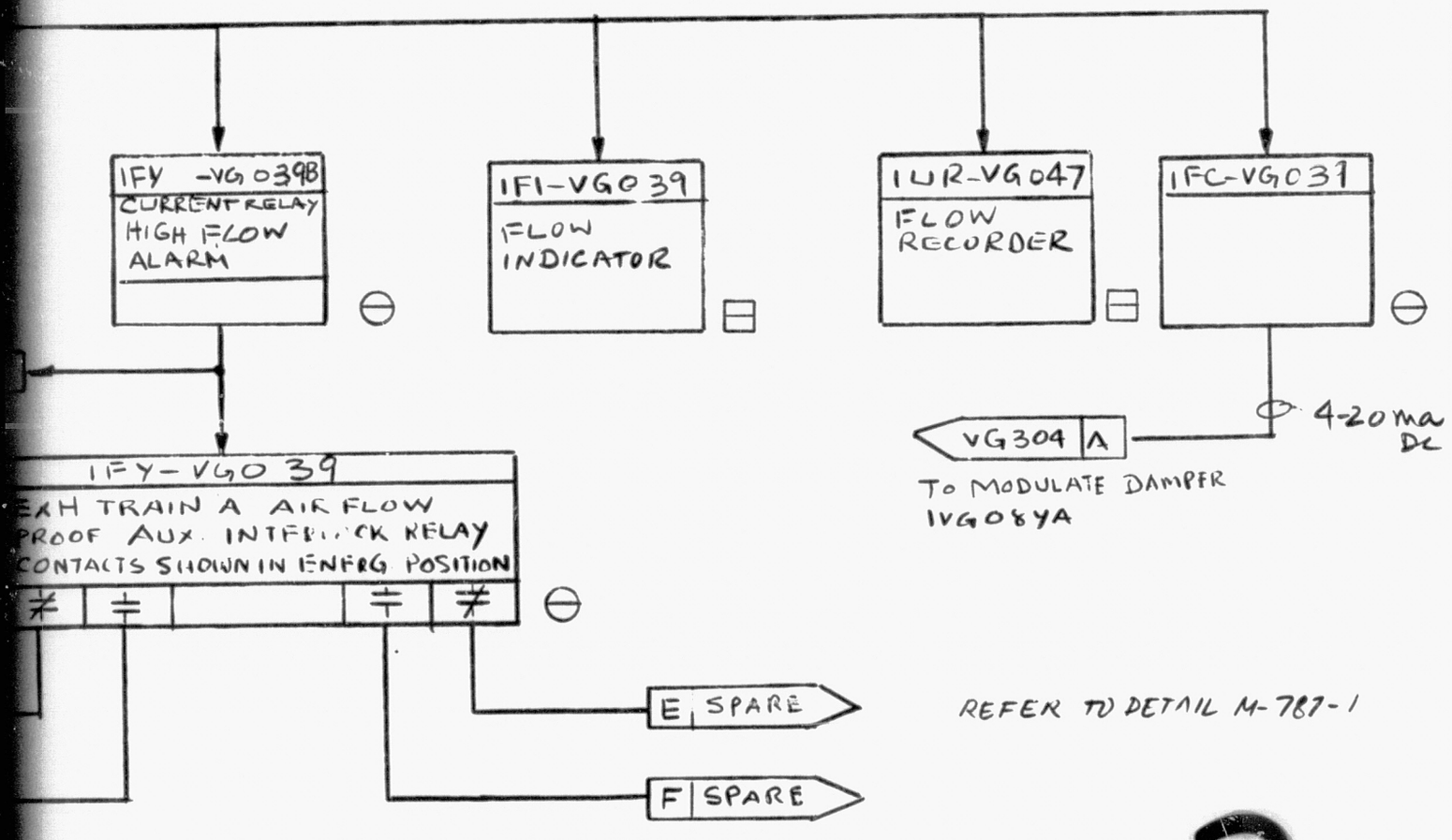


NOTE :- INSTRUMENTS MARKED '⊖' TO BE LOCATED AT LOCAL CONTR

" " '⊟' " " " ON MAIN CONTR

ESS-2

DIV-



REFER TO DETAIL M-787-1

2

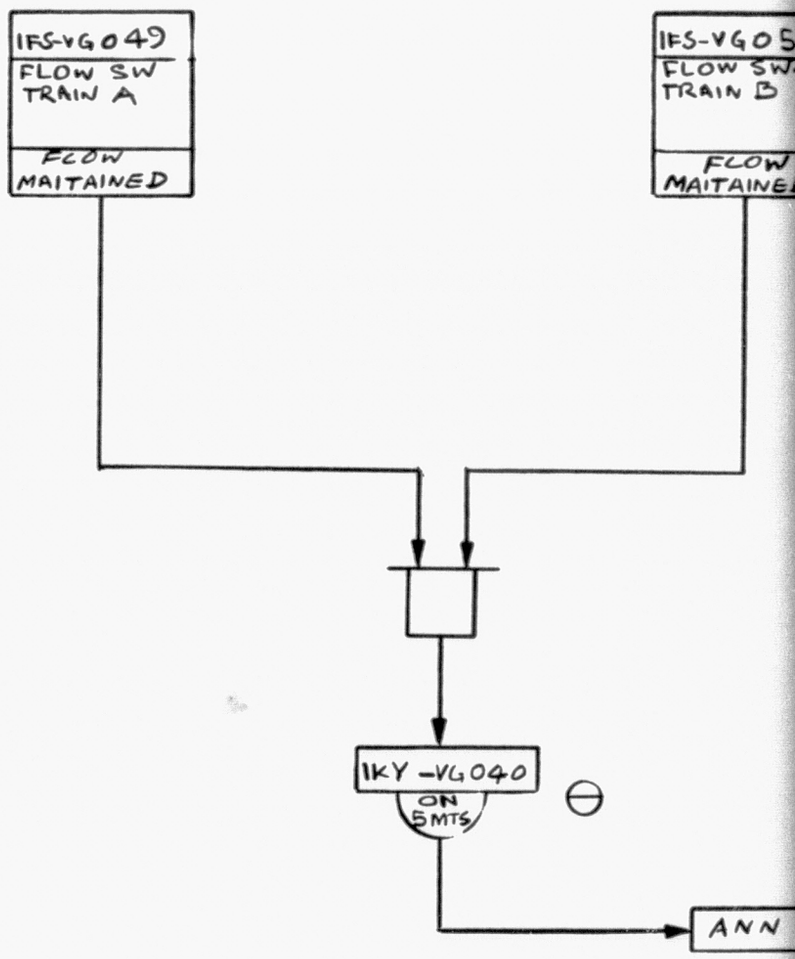
CONTROL PANEL 1PL69JA

CONTROL PANEL 1PM07J

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

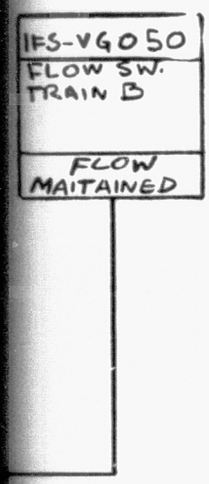
FIGURE 7.3-28

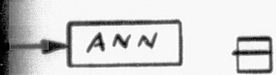
STANDBY GAS TREATMENT SYSTEM
(SHEET 13 of 41)



NOTE :— INSTRUMENTS MARKED ⊖ TO BE LOCATED

" " ⊟ " . " ON MAIN CONT





REFER TO DETAIL M-787-2

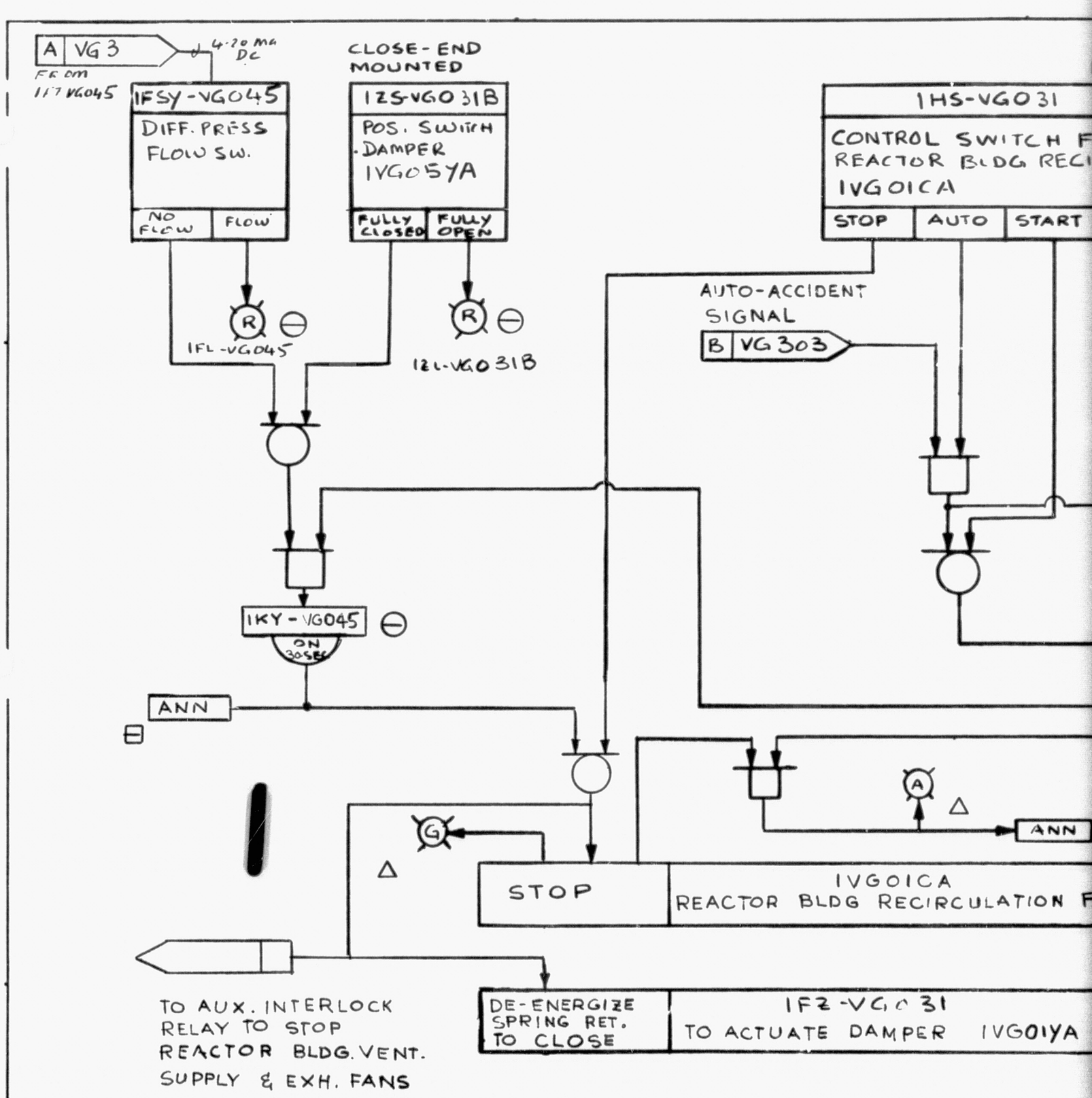
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IN CONTROL PANEL 1PM07J

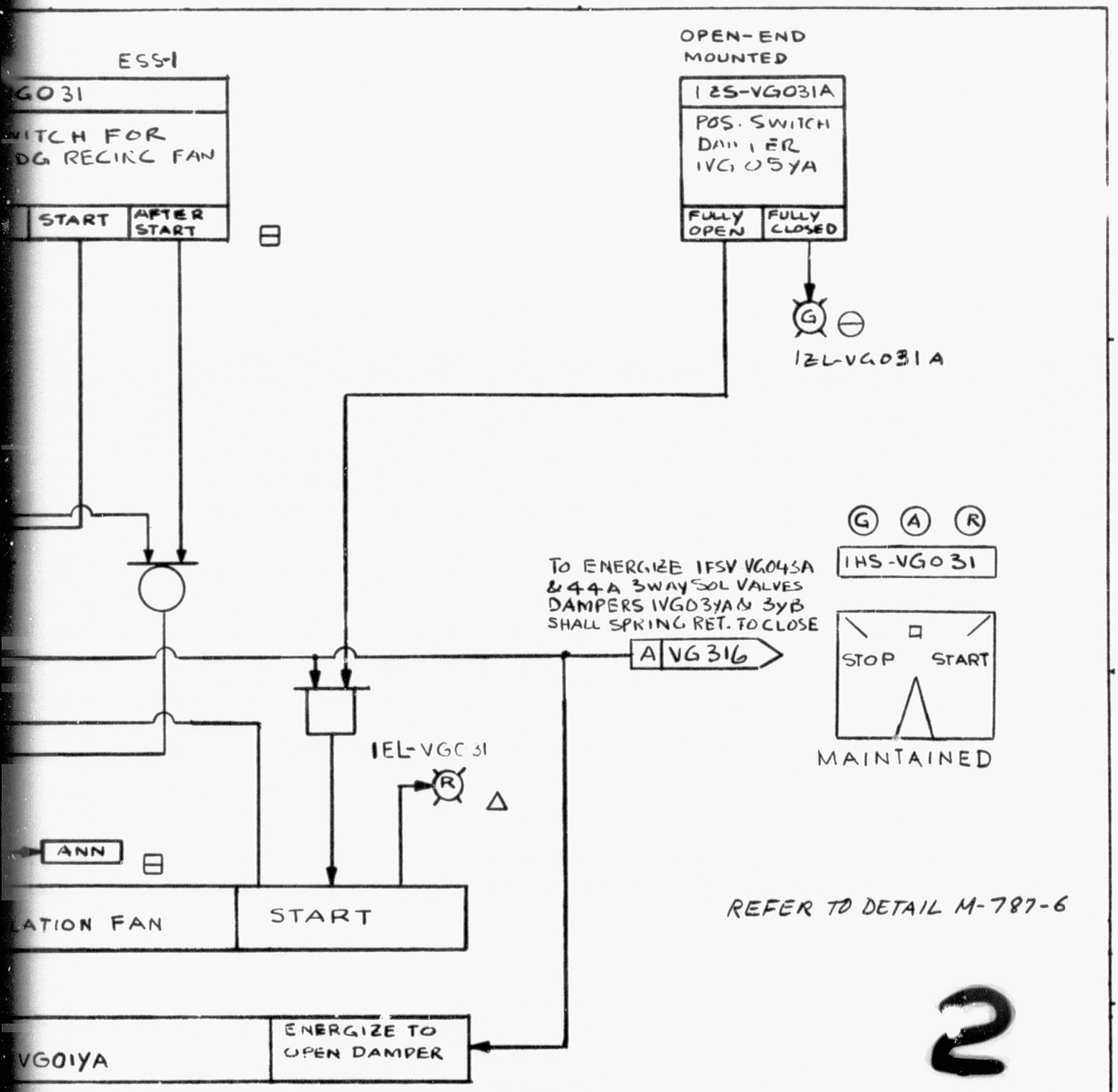
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 14 of 41)



NOTE INSTRUMENTS MARKED '⊖' TO BE LOCATED AT LOCAL CONTRO
" " " " " '⊟' ON MAIN CONTRO
" " " " " '△' " " "

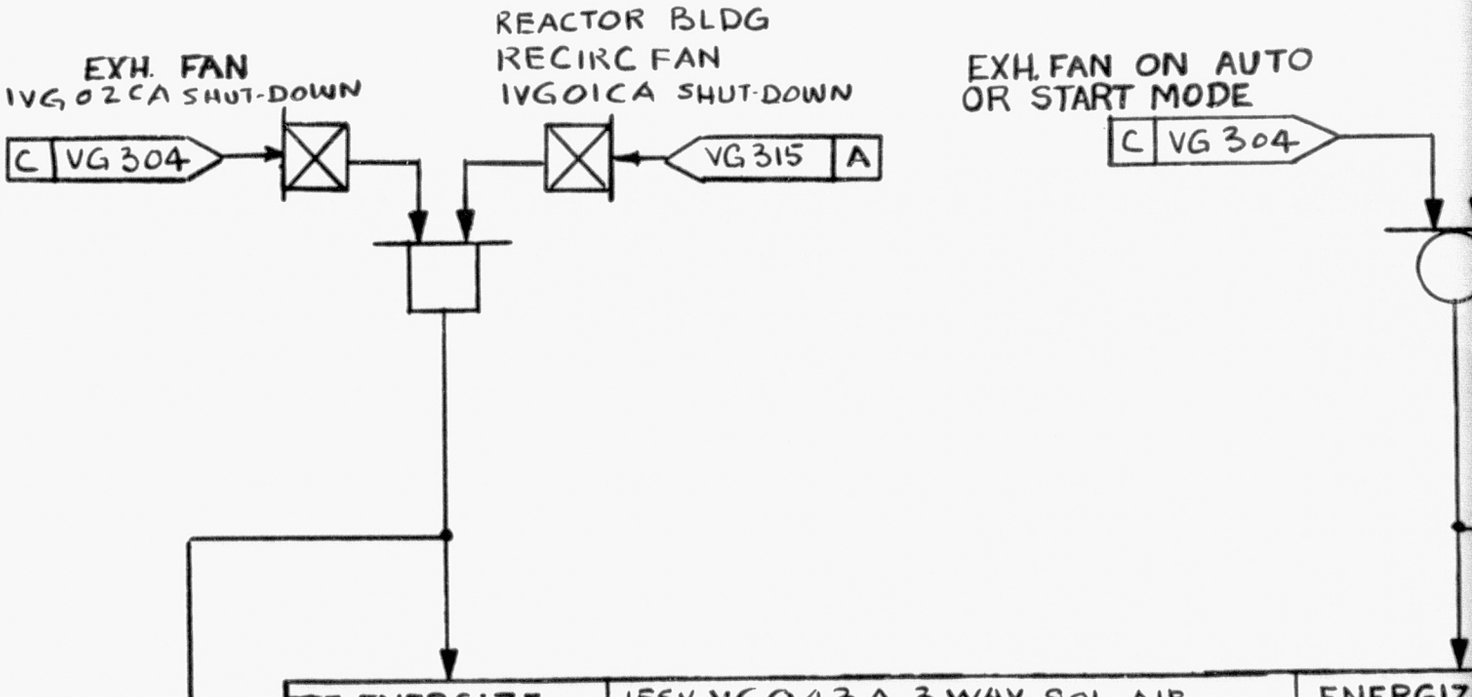


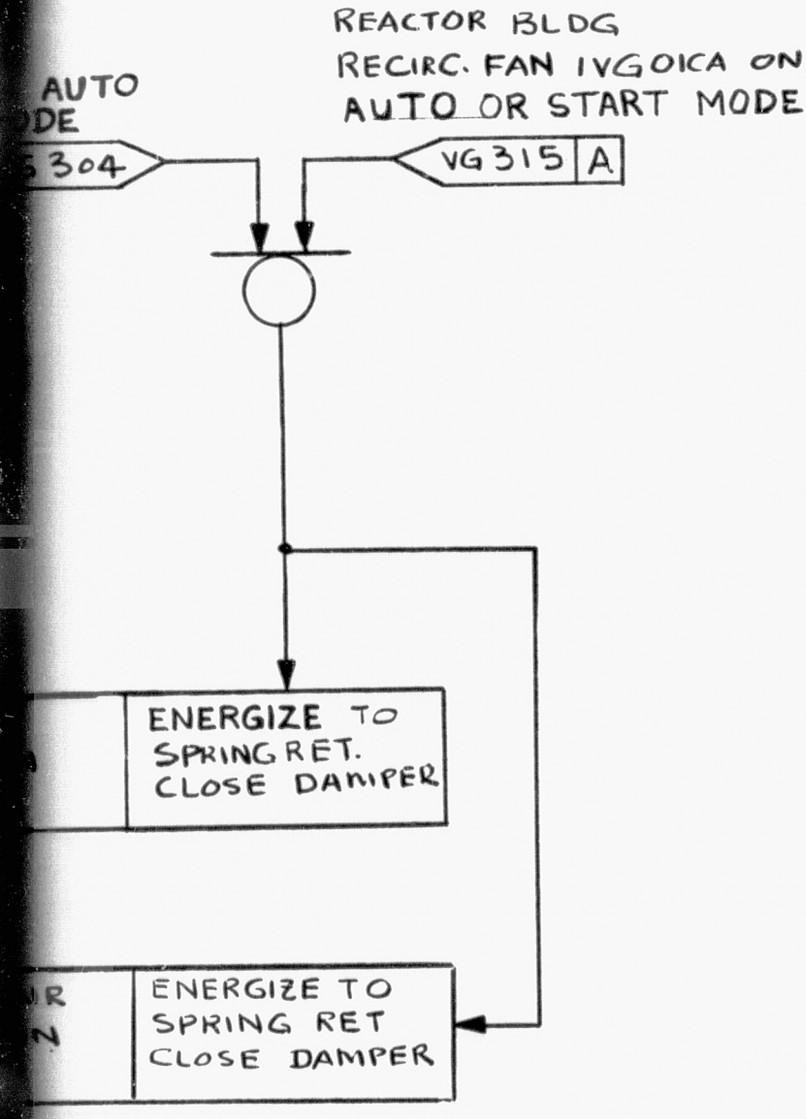
CONTROL PANEL 1PL
CONTROL PANEL 1PM07J
" " " MIMIC

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 15 of 41)


EXH. FAN
IVG02CA SHUT-DOWN
C
VG 304
REACTOR BLDG
RECIRC FAN
IVG01CA SHUT-DOWN
VG 315
A
EXH. FAN ON AUTO
OR START MODE
C
VG 304
DE-ENERGIZE
TO OPEN
DAMPER
IFSV-VG043A 3 WAY SOL. AIR
VALVE TO ACTUATE ISOLATION
DAMPER IVG03YA
ENERGIZ
SPRING R
CLOSE
DE-ENERGIZE
TO OPEN
DAMPER
IFSV-VG044A 3 WAY SOL. AIR
VALVE TO ACTUATE ISOLATION
DAMPER IVG03YB
ENERGIZ
SPRING
CLOSE



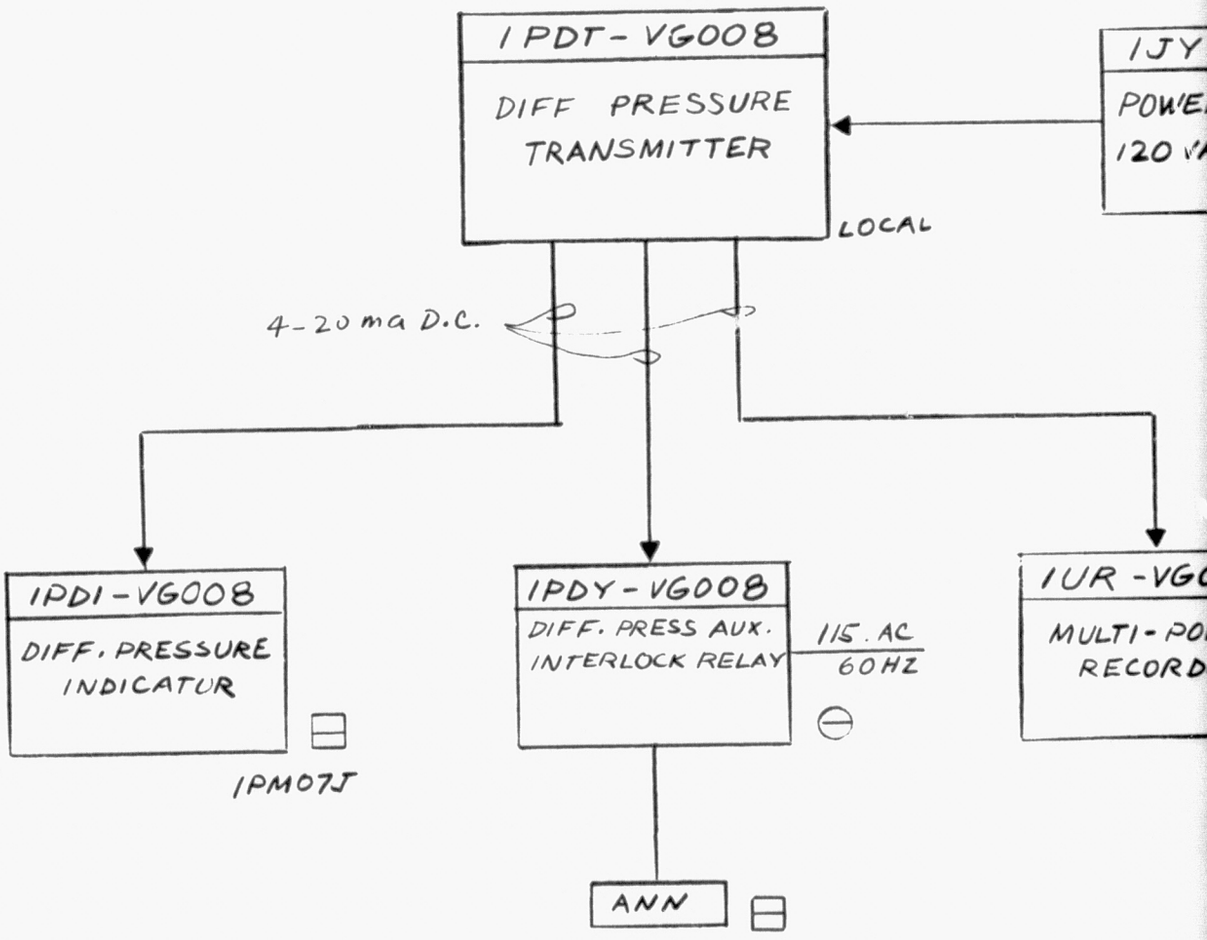
REFER TO DETAIL M-787-6

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

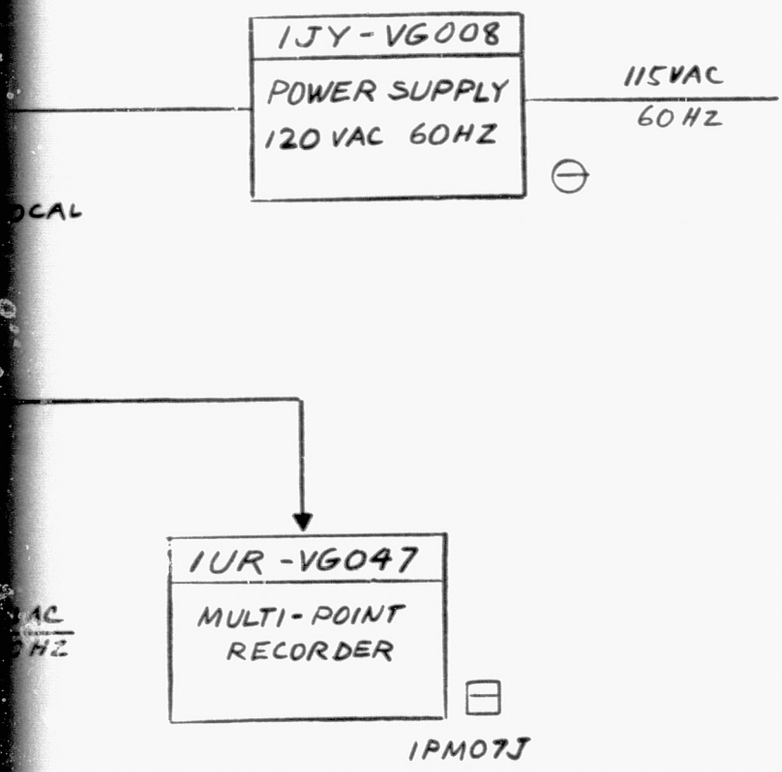
STANDBY GAS TREATMENT SYSTEM
(SHEET 16 of 41)



NOTE: 1. ✱ ⊖ – FURNISHED BY SPEC. H-2288 AND INSTALLED ON LOCAL PANEL

2. ⊟ – FURNISHED AND INSTALLED ON MAIN CONTROL PANEL 1PM0

3. ✱ – FURNISHED AND INSTALLED ON FILTER TRAIN BY SPEC. H-



REFER TO DETAIL M-787-4

2

LED ON LOCAL PANEL # 1PL69JA BY SPEC. H-2299

STROL PANEL 1PM07J BY SPEC. H-2175

RAIN BY SPEC. H-2288

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM

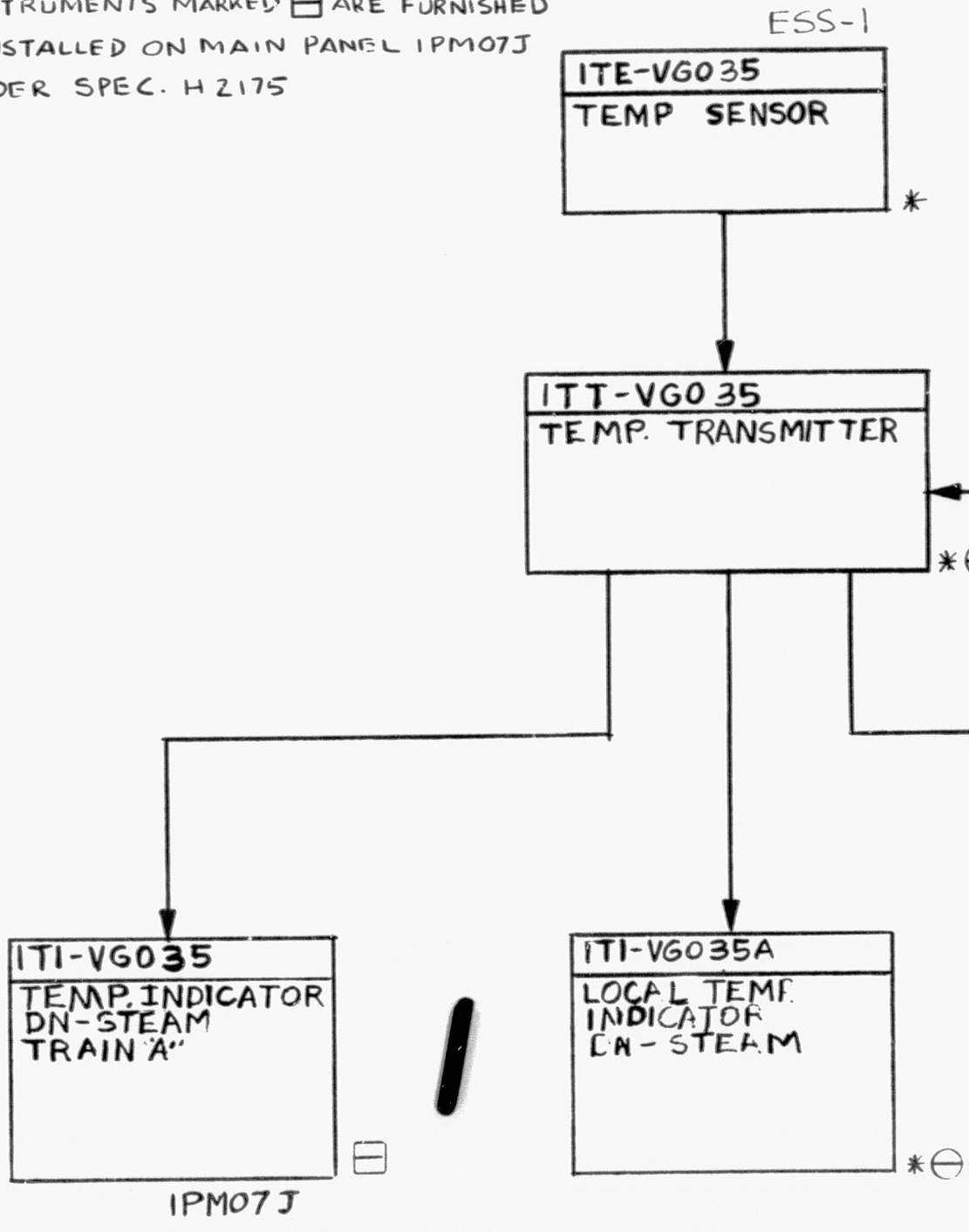
(SHEET 17 of 41)

ESS-

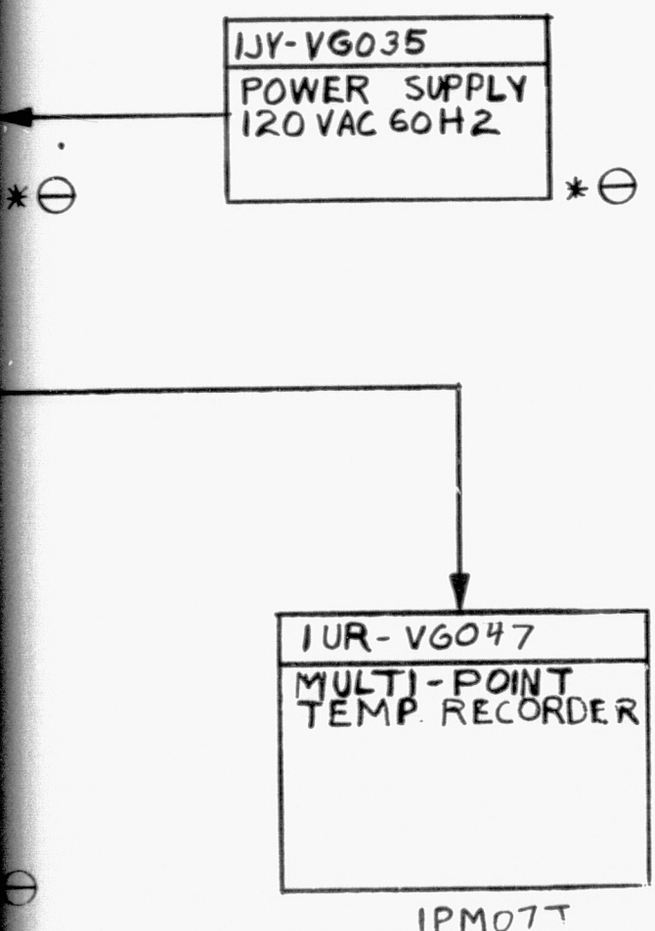
NOTE :- 1 INSTRUMENTS MARKED '*' ARE FURNISHED & INSTALLED UNDER SPEC. H-2288

2. INSTRUMENTS MARKED '*⊖' ARE FURNISHED UNDER SPEC. H-2288 & INSTALLED ON LOCAL CONTROL PANEL IPL69JA UNDER SPEC. H-2299

3 INSTRUMENTS MARKED '⊟' ARE FURNISHED & INSTALLED ON MAIN PANEL IPM07J UNDER SPEC. H 2175



ESS-1 / DIV. 1



REFER TO DETAIL M-787-3

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

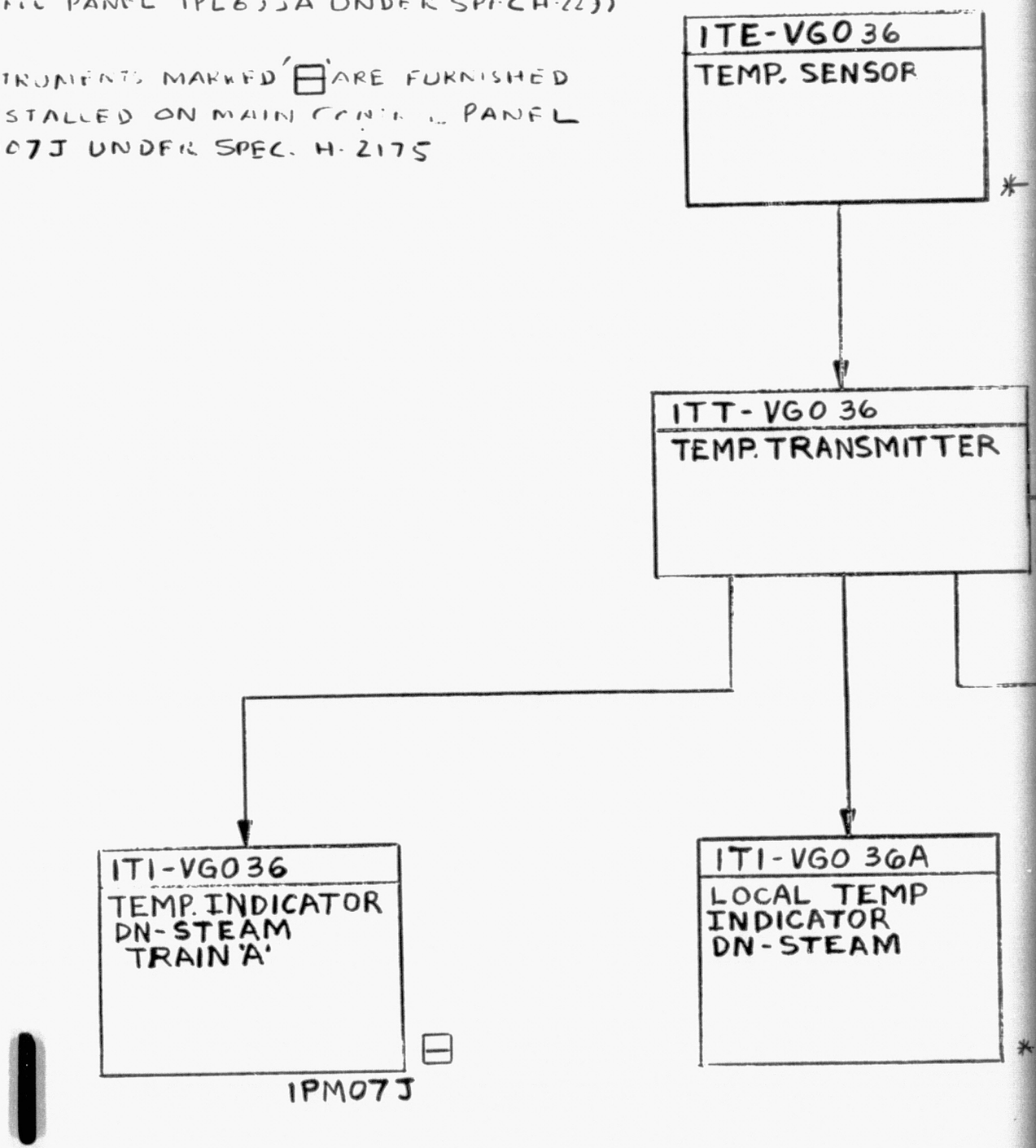
STANDBY GAS TREATMENT SYSTEM

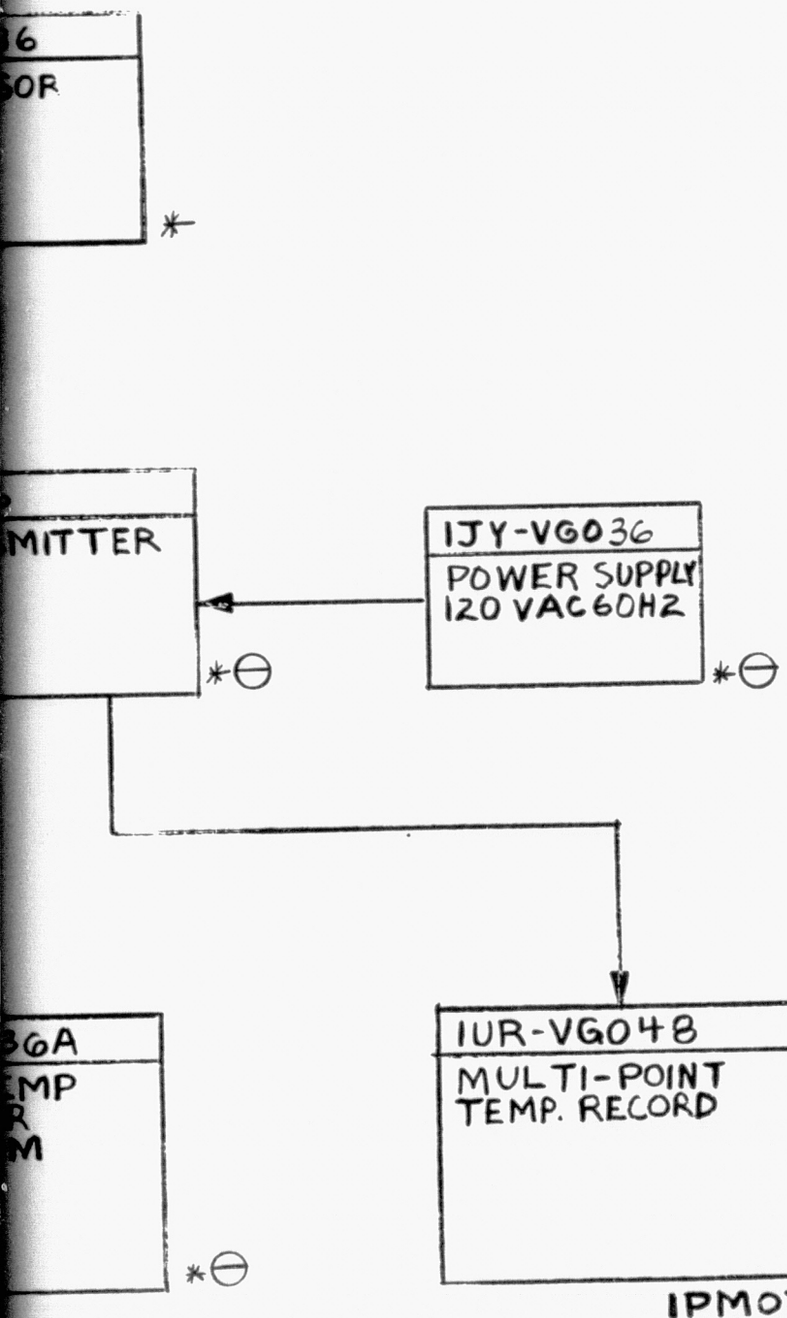
(SHEET 18 of 41)

NOTE :- 1 INSTRUMENTS MARKED '*' ARE FURNISHED AND INSTALLED UNDER SPEC H 2285

2. INSTRUMENTS MARKED '*⊖' ARE FURNISHED UNDER SPEC H-2288 & INSTALLED ON LOCAL CONTROL PANEL 1PL63JA UNDER SPEC H-2233

3 INSTRUMENTS MARKED '⊟' ARE FURNISHED & INSTALLED ON MAIN CONTROL PANEL 1PM07J UNDER SPEC. H-2175





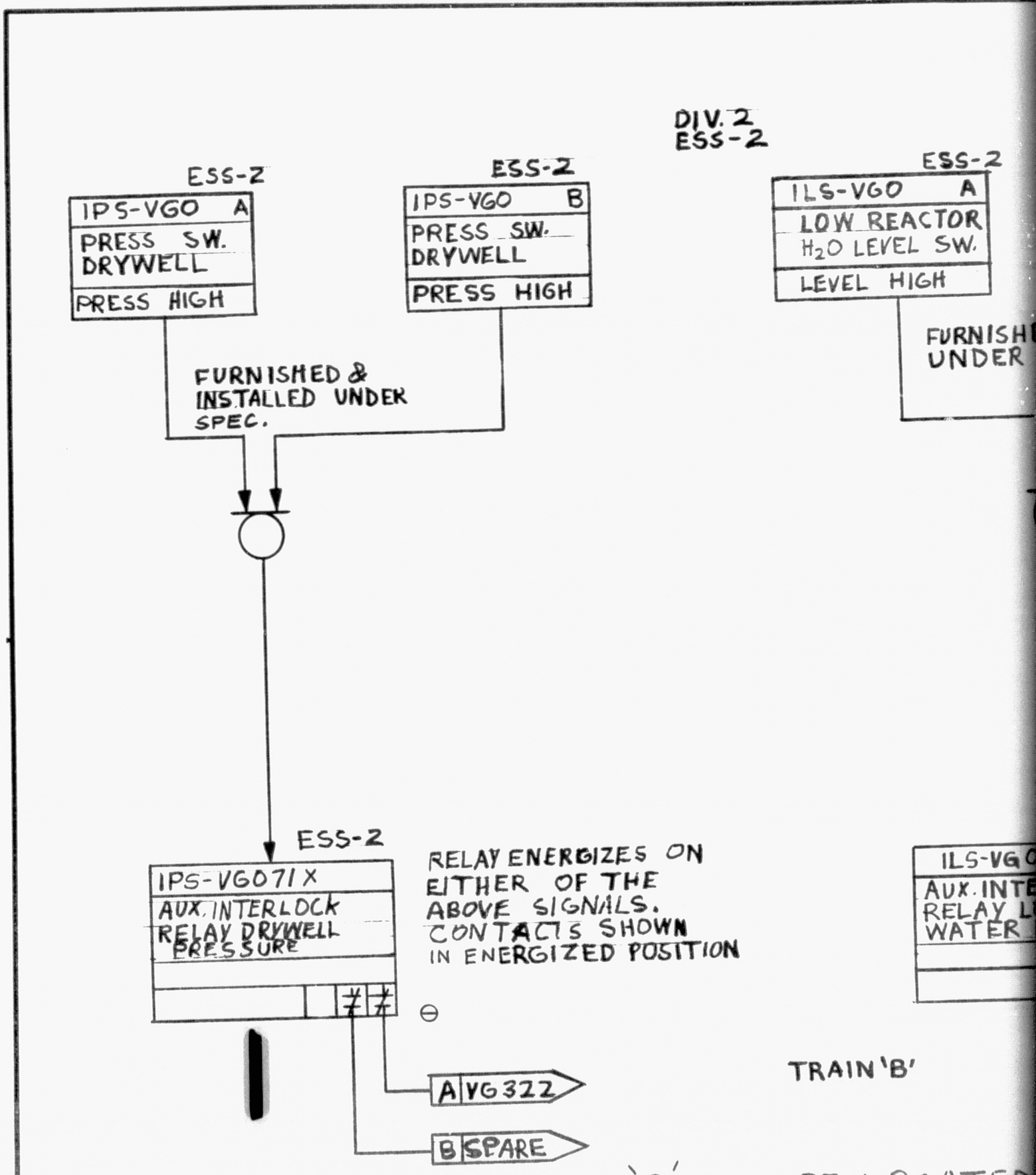
REFER TO DETAIL M-787-7

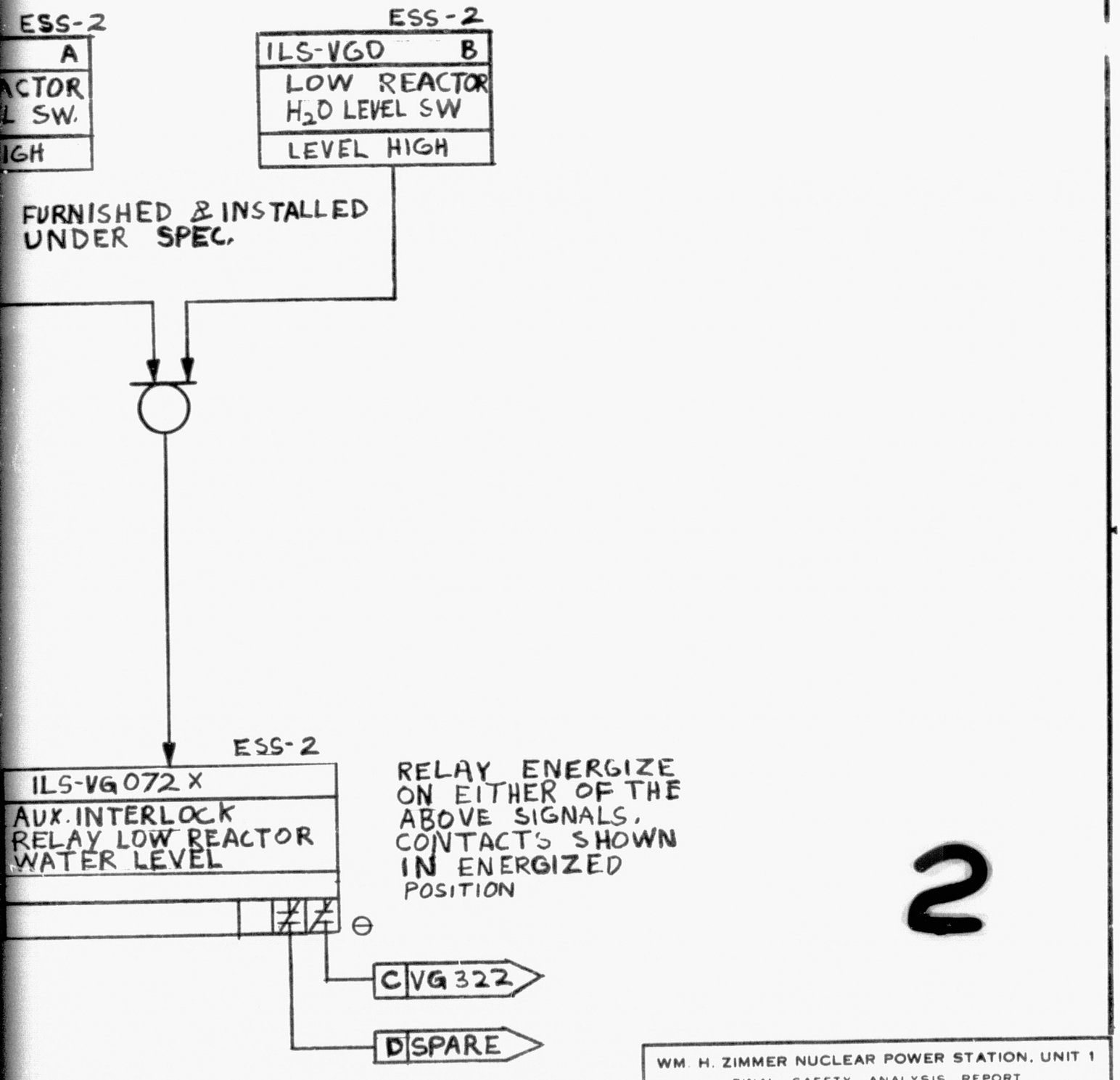
2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 19 of 41)


DIV. 2
ESS-2
ESS-2
IPS-VGO A
PRESS SW. DRYWELL
PRESS HIGH
ESS-2
IPS-VGO B
PRESS SW. DRYWELL
PRESS HIGH
ESS-2
ILS-VGO A
LOW REACTOR H_2O LEVEL SW.
LEVEL HIGH
FURNISHED & INSTALLED UNDER SPEC.
FURNISHED UNDER
ESS-2
IPS-VG071X
AUX. INTERLOCK RELAY DRYWELL PRESSURE
RELAY ENERGIZES ON EITHER OF THE ABOVE SIGNALS. CONTACTS SHOWN IN ENERGIZED POSITION
ILS-VG
AUX. INTE
RELAY L
WATER
A VG322
B SPARE
TRAIN 'B'
NOTE: INSTRUMENTS MARKED '⊖' SHALL BE LOCATED



2

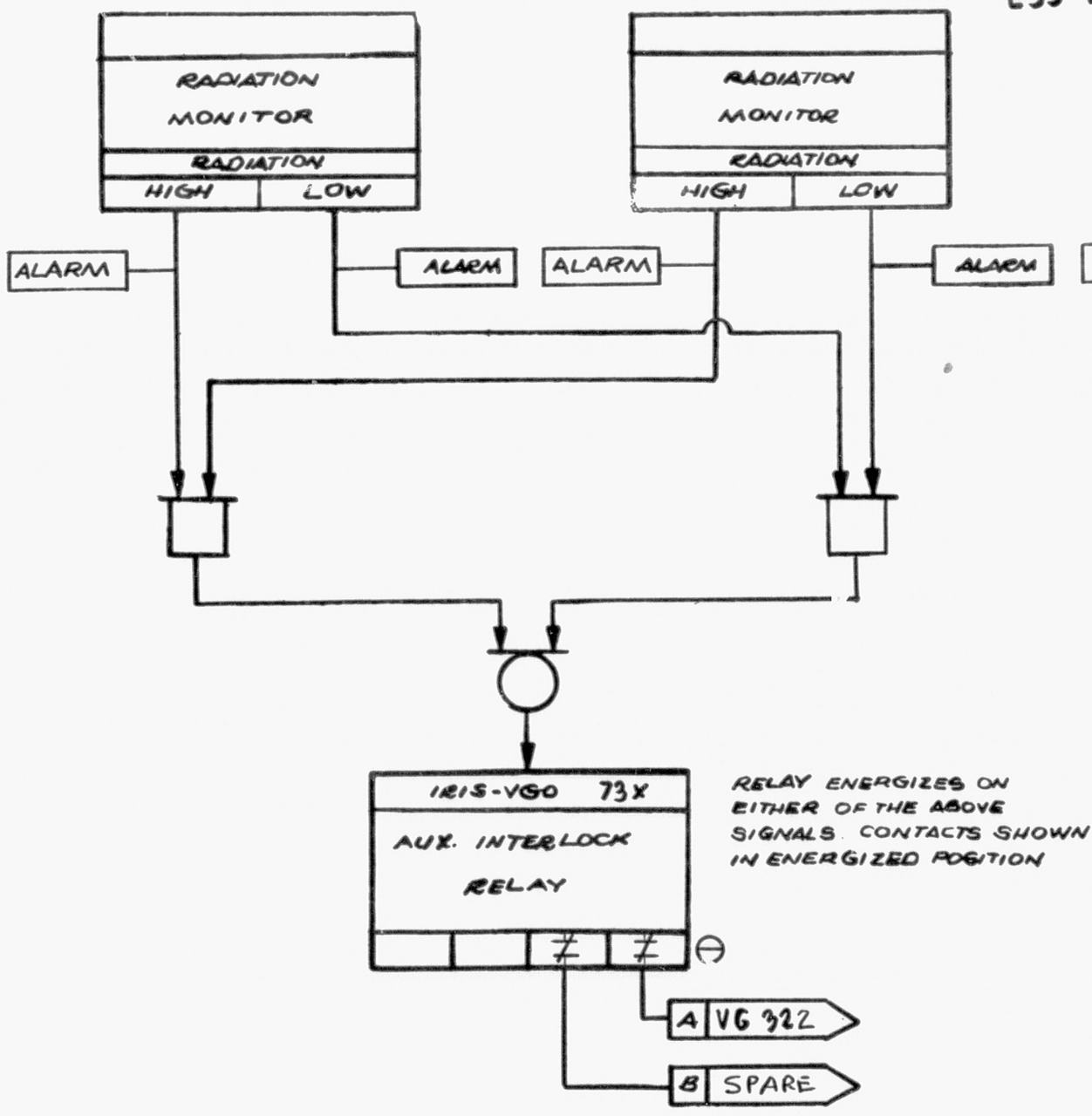
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 20 of 41)

RADIATION MONITORS LOCATED AT FUEL BLDG. FUEL POOL EXH. HEADER DUCT

DIVISION 2
ESS-2

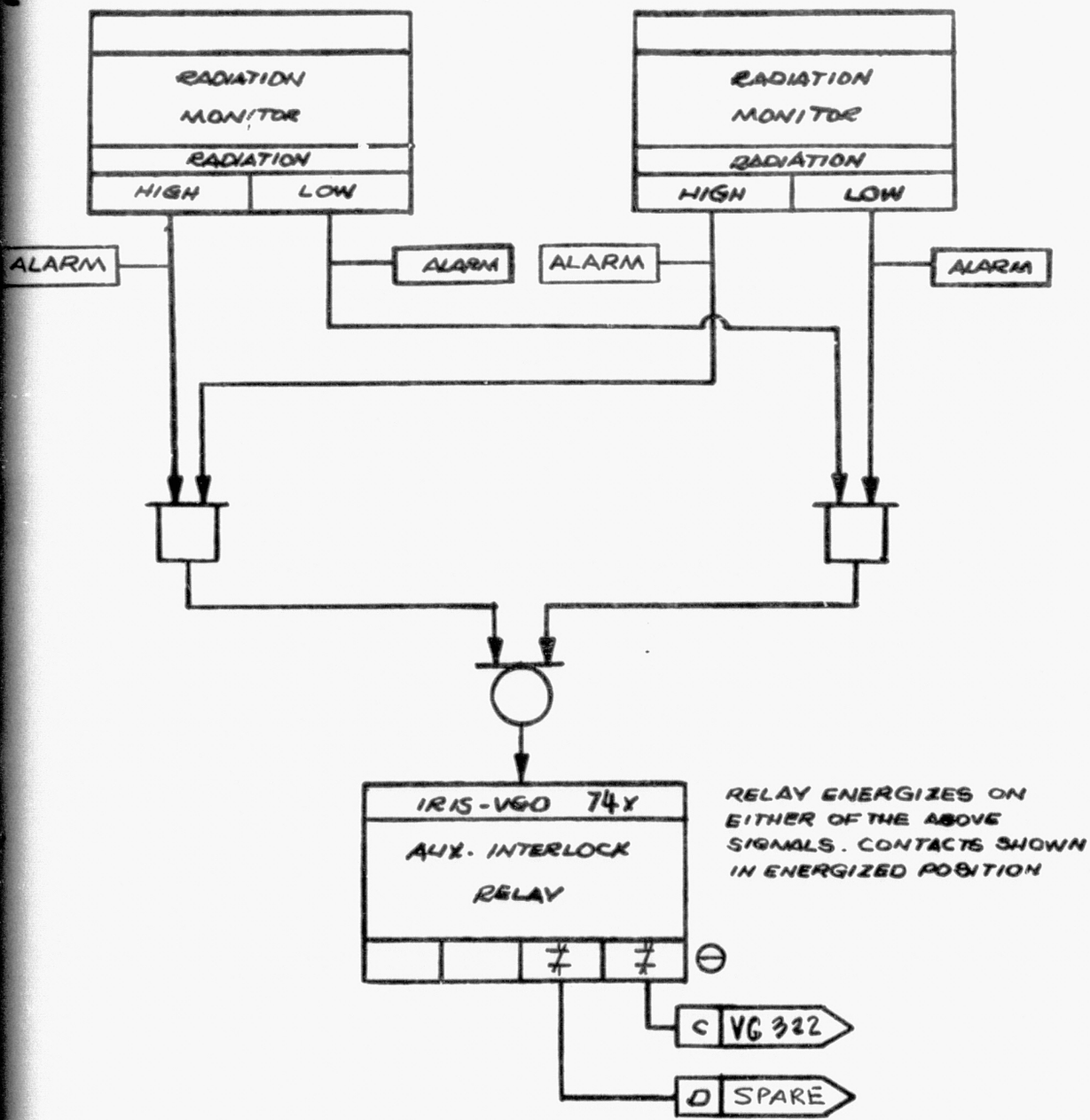


TRAIN "B"

NOTE:- 1. RADIATION MONITORS ARE FURNISHED & INSTALLED UNDER SPEC.
2. INSTRUMENTS MARKED ⊖ SHALL BE LOCATED ON LOCAL CONTRO

N 2
2

RADIATION MONITORS LOCATED AT
REACTOR BLDG. EXH. PLENUM DUCT



2

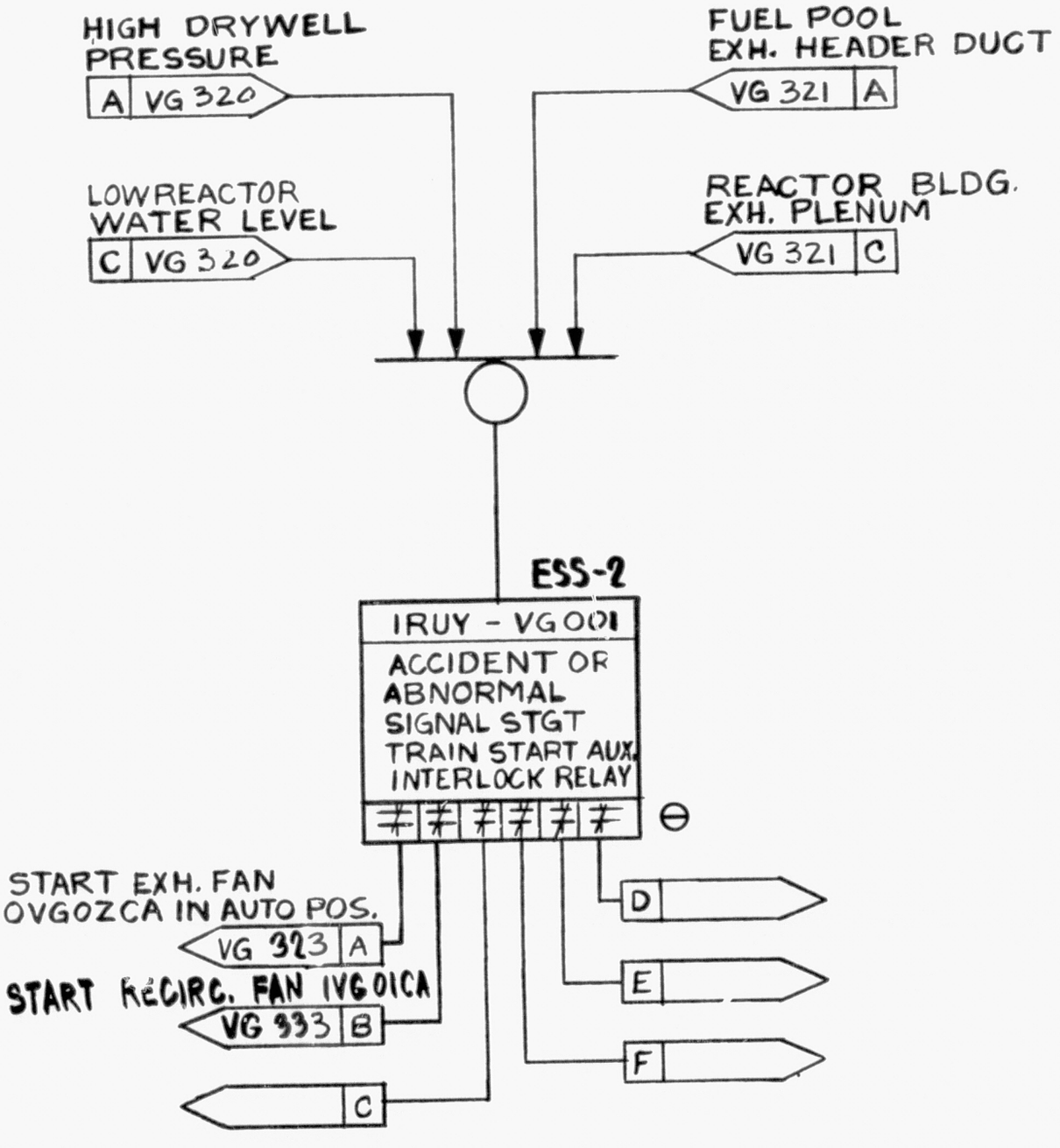
PEC.
ONTROL PANEL 1PL69JB

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 21 of 41)

ESS-2
DIV. 2


HIGH DRYWELL PRESSURE
A VG 320
FUEL POOL EXH. HEADER DUCT
VG 321 A
LOW REACTOR WATER LEVEL
C VG 320
REACTOR BLDG. EXH. PLENUM
VG 321 C
ESS-2
IRUY - VG001
ACCIDENT OR ABNORMAL SIGNAL STGT TRAIN START AUX. INTERLOCK RELAY
START EXH. FAN OVGOZCA IN AUTO POS.
VG 323 A
START RECIRC. FAN IVG01CA
VG 333 B
C
D
E
F

RELAY ENERGIZES WHEN ANY ONE OF THE ABOVE SIGNAL COMES THROUGH CONTACTS SHOWN ARE IN ENERGIZED POS.

2

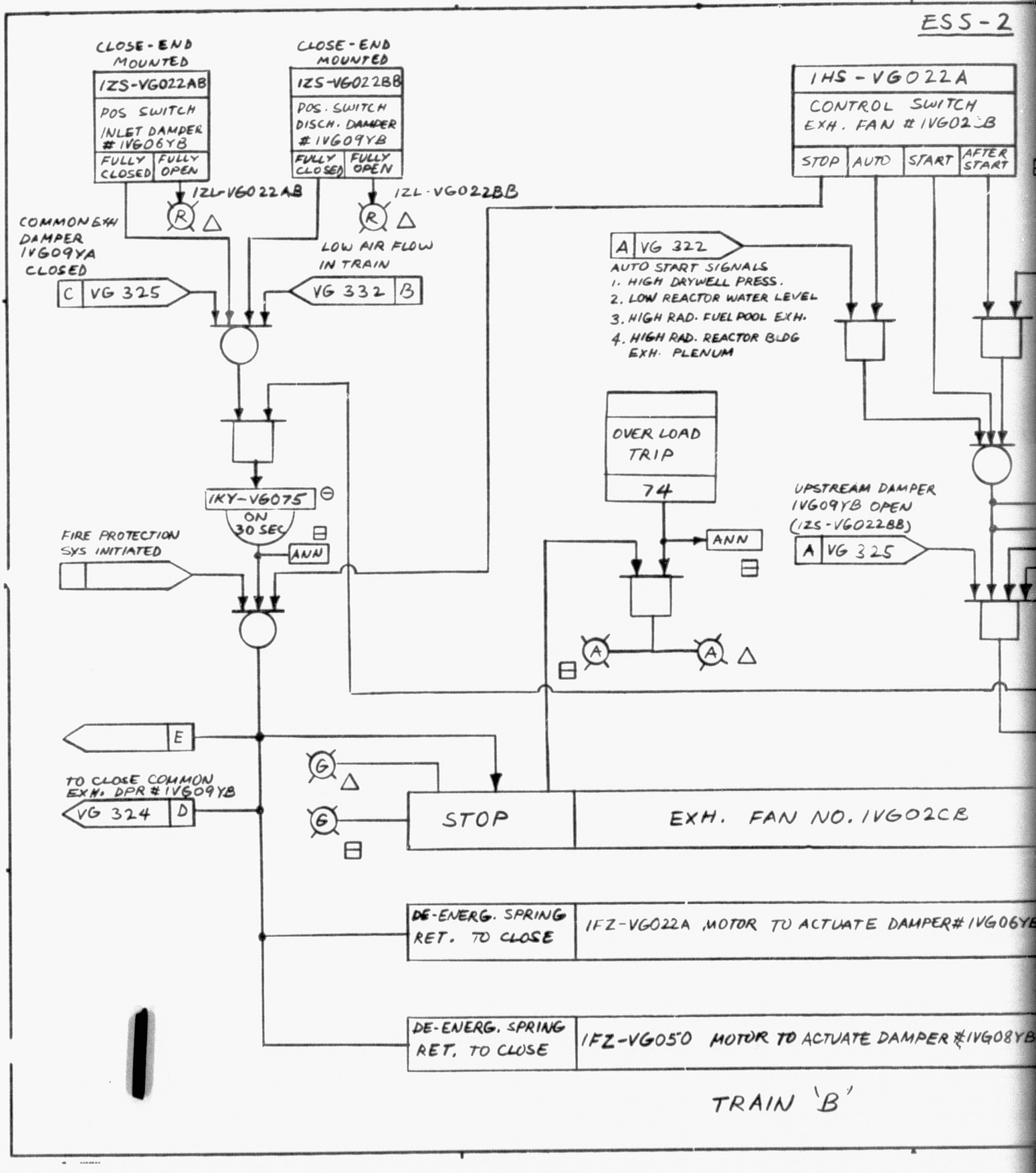
⊖ IPL69JB

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 2
FINAL SAFETY ANALYSIS REPORT

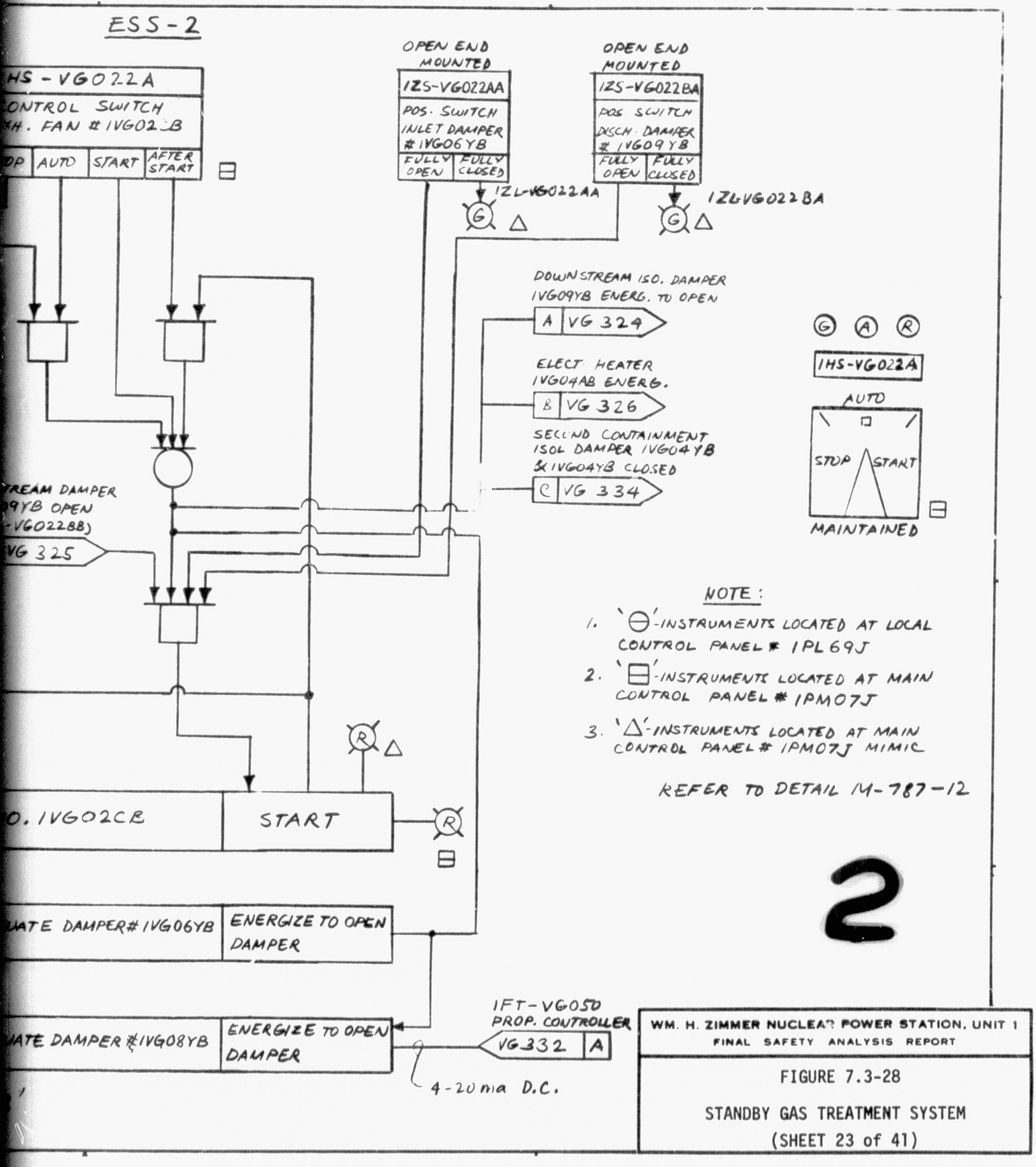
FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 22 of 41)

ESS-2


CLOSE-END MOUNTED
1ZS-VG022AB
POS SWITCH INLET DAMPER #1VG06YB
FULLY CLOSED
FULLY OPEN
CLOSE-END MOUNTED
1ZS-VG022BB
POS. SWITCH DISCH. DAMPER #1VG09YB
FULLY CLOSED
FULLY OPEN
1HS-VG022A
CONTROL SWITCH EXH. FAN #1VG02CB
STOP
AUTO
START
AFTER START
1ZL-VG022AB
1ZL-VG022BB
COMMON EXH DAMPER 1VG09YA CLOSED
LOW AIR FLOW IN TRAIN
C VG 325
VG 332 B
A VG 322
AUTO START SIGNALS
1. HIGH DRYWELL PRESS.
2. LOW REACTOR WATER LEVEL
3. HIGH RAD. FUEL POOL EXH.
4. HIGH RAD. REACTOR BLDG EXH. PLENUM
OVER LOAD TRIP
74
1KY-VG075
ON 30 SEC
FIRE PROTECTION SYS INITIATED
ANN
UPSTREAM DAMPER 1VG09YB OPEN (1ZS-VG022BB)
A VG 325
E
TO CLOSE COMMON EXH. DPR #1VG09YB
VG 324 D
STOP
EXH. FAN NO. 1VG02CB
DE-ENERG. SPRING RET. TO CLOSE
1FZ-VG022A MOTOR TO ACTUATE DAMPER #1VG06YB
DE-ENERG. SPRING RET. TO CLOSE
1FZ-VG050 MOTOR TO ACTUATE DAMPER #1VG08YB

TRAIN 'B'



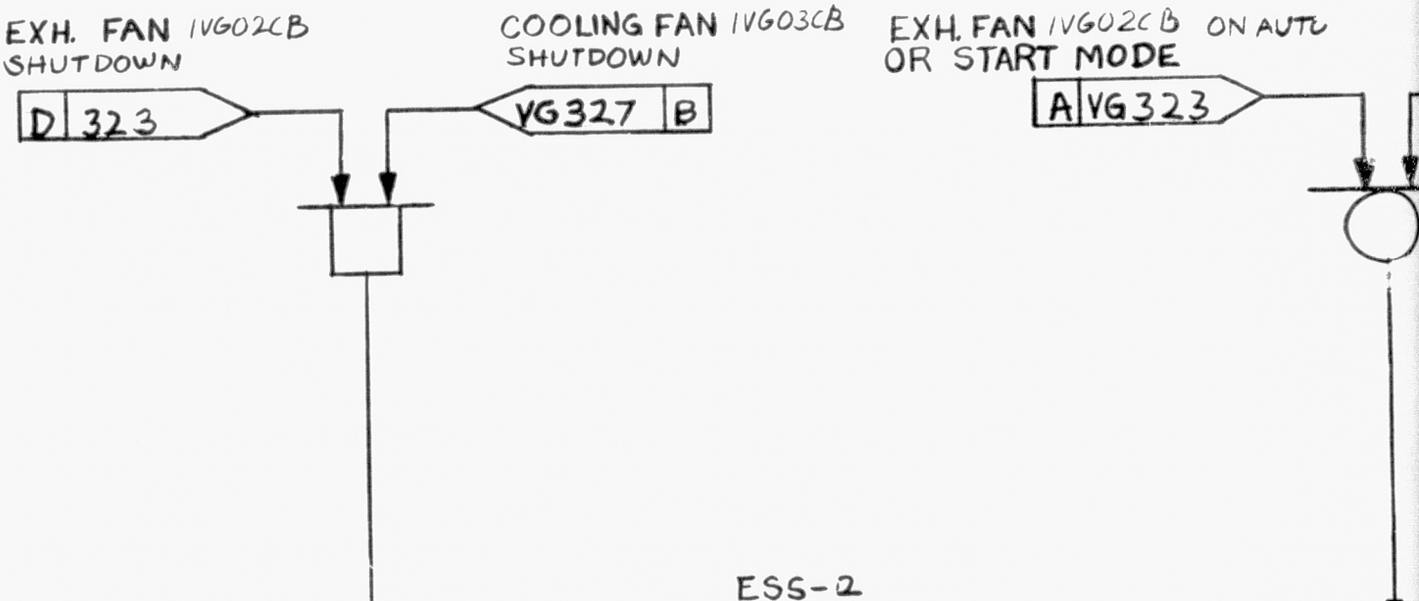
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

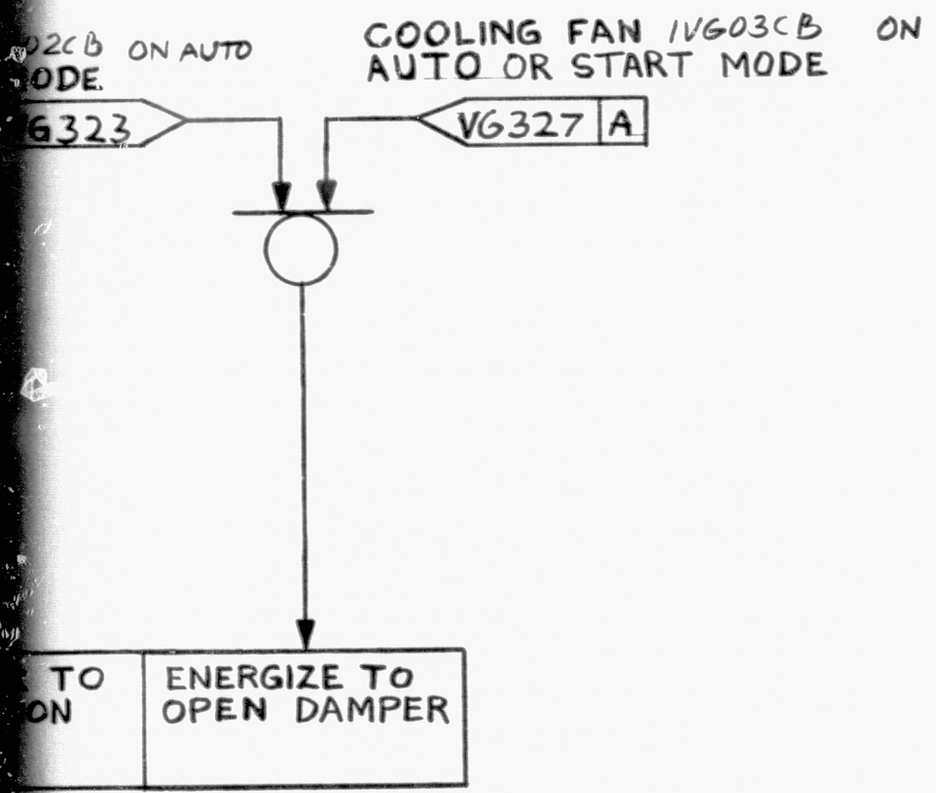
STANDBY GAS TREATMENT SYSTEM

(SHEET 23 of 41)

ESS-2
DIV.-2



TRAIN "B"



2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 24 of 41)

ESS-2
DIV-2

OPEN END MOUNTED

1ZS-VG022BA	
POS. SW. DOWN STREAM DAMPER 1VG09YB	
FULLY OPEN	FULLY CLOSED

1ZL-VG022BA

RELAY # 1ZY-VG022BA IS ENERGIZED WHEN DAMPER # 1VG09YB IS FULLY OPEN. RELAY CONTACTS ARE SHOWN IN ENERGIZED POSITION

1ZY-VG022BA	
POS. SW. AUX. INTERLOCK RELAY FOR COMMON EXH. FAN DPR. # 1VG09YB	
≠	≠

θ

TO START EXH. FAN # 1VG02CB

VG323 | A

TO START COOLING FAN # 1VG03CB

V6327 | B

TO STOP E
1 VG02

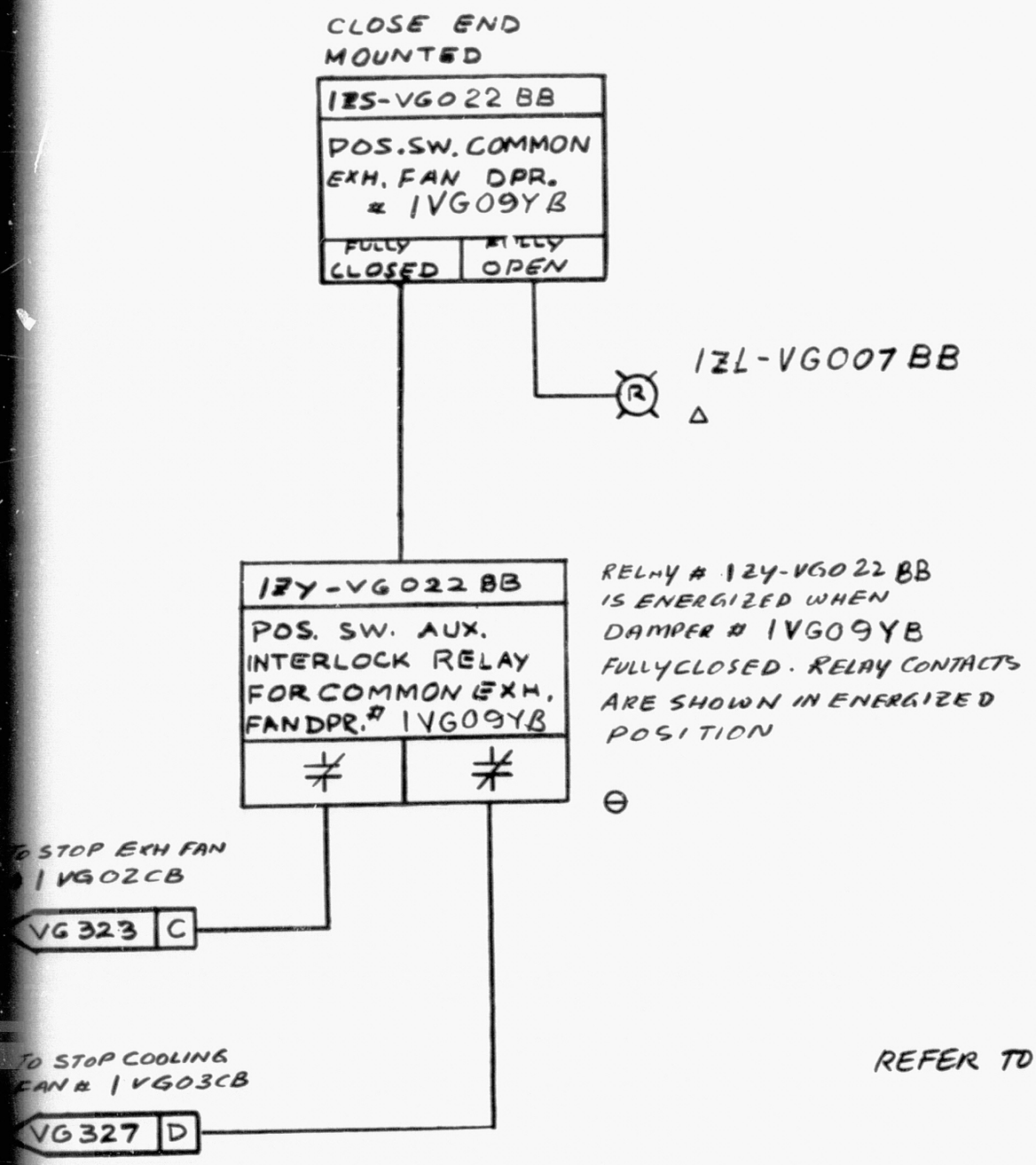
VG323

TO STOP CO
FAN # 1 V

VG327

TRAIN "B"

NOTE: INSTRUMENTS MARK 'θ' ARE TO BE
AT LOCAL CONTROL PANEL 1PLG09JB



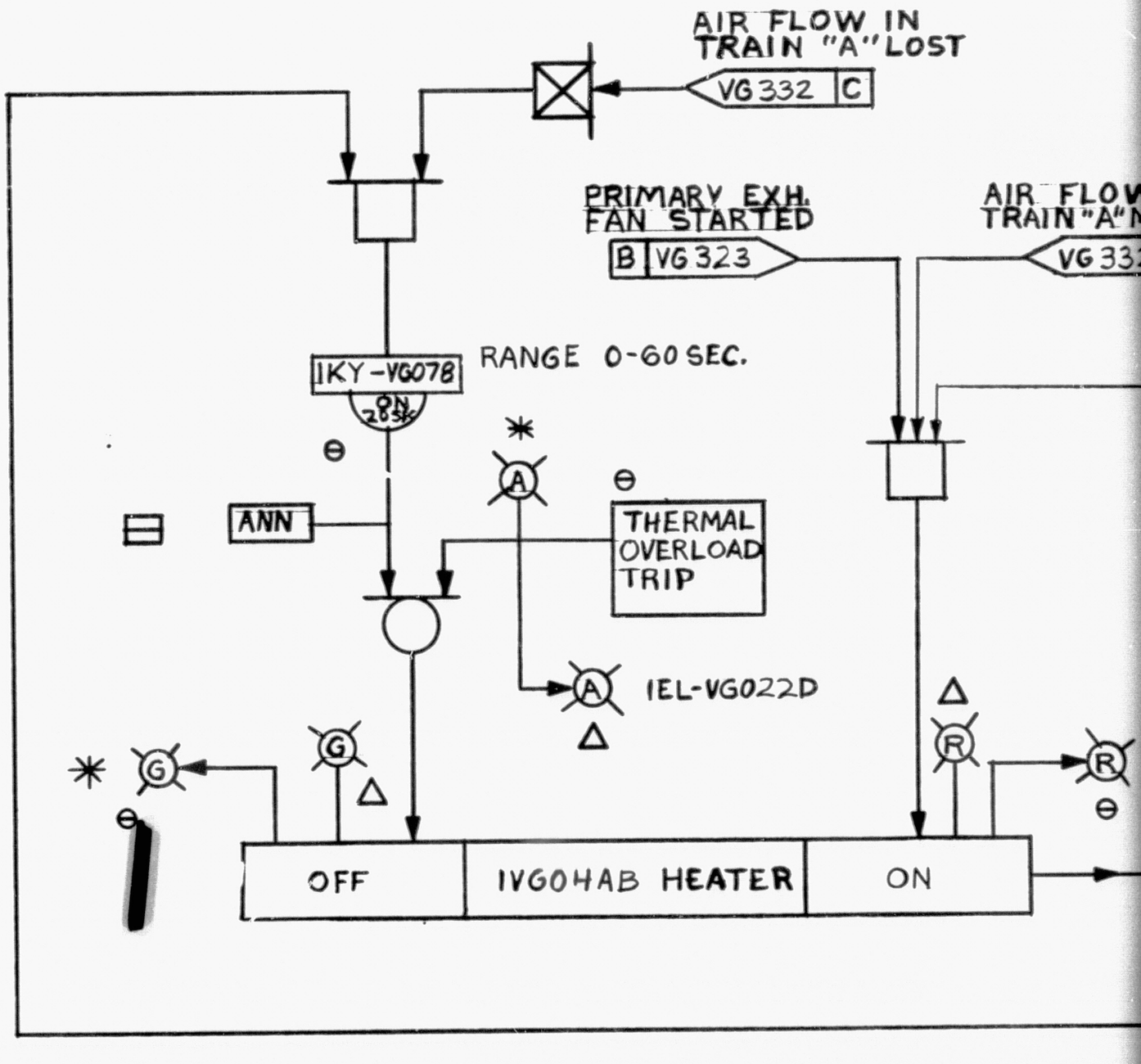
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

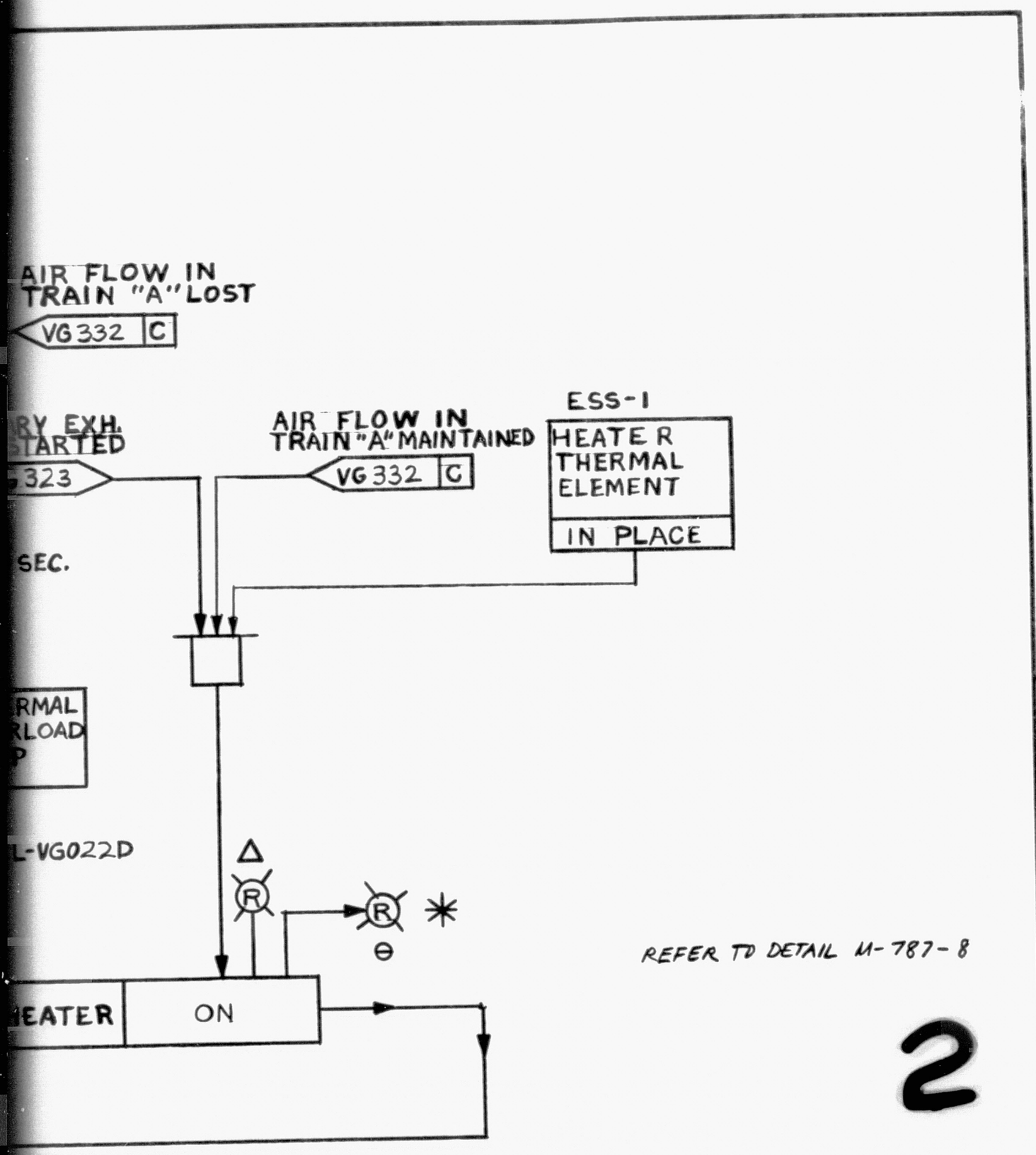
FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 25 of 41)

~~ESS-2~~
~~DIV.-2~~



NOTE: 1. INSRUMENTS MARKED WITH '✱' ARE FURNISHED BY MANUFACTURE
WITH HEATER. '' '' '' 'Θ' TO BE LOCATED AT HEATER CONTR
'' '' '' 'Δ' '' '' '' '' MAIN CONTRO

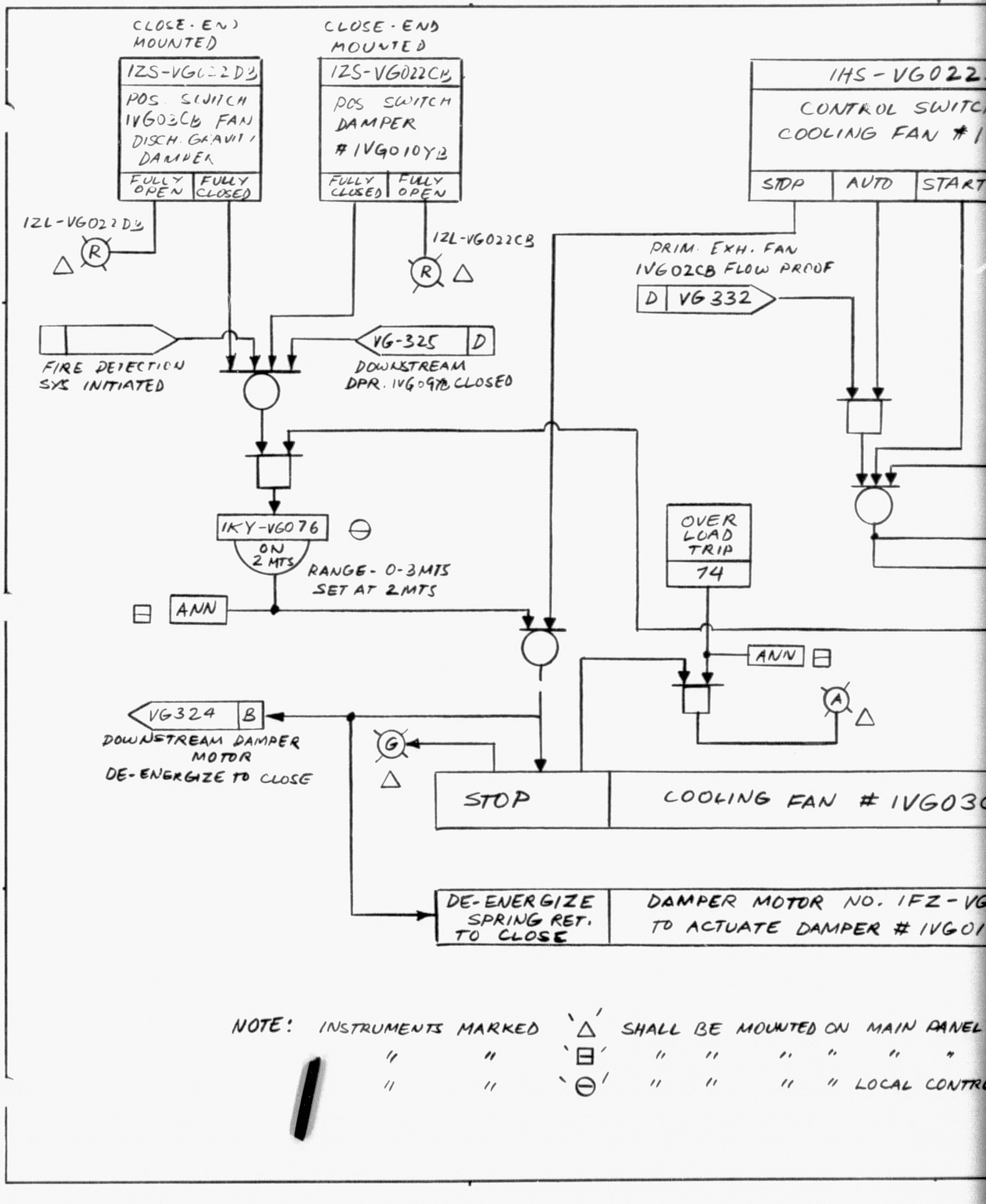


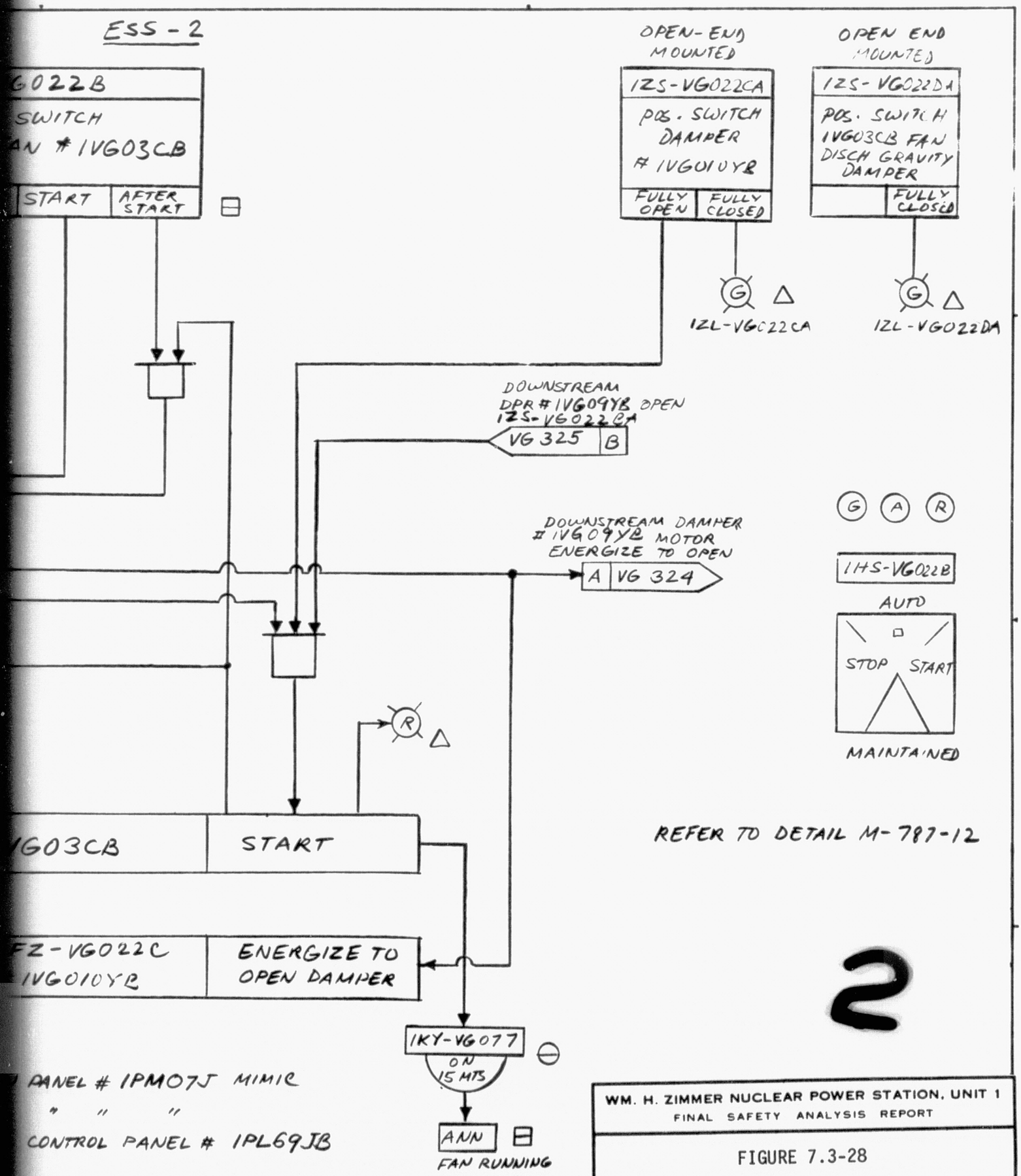
FURNISHED BY MANUFACTURER
LOCATED AT HEATER CONTROL CABINET
" " " MAIN CONTROL PANEL 1PM07J
MIMIC

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 26 of 41)


CLOSE-END MOUNTED
1ZS-VG022DB
POS. SWITCH IVG03CB FAN DISCH. GRAVITY DAMPER
FULLY OPEN
FULLY CLOSED
CLOSE-END MOUNTED
1ZS-VG022CB
POS SWITCH DAMPER #IVG010YB
FULLY CLOSED
FULLY OPEN
1HS-VG022
CONTROL SWITCH
COOLING FAN #1
STOP
AUTO
START
1ZL-VG022DB
1ZL-VG022CB
R
PRIM. EXH. FAN IVG02CB FLOW PROOF
D
VG 332
FIRE DETECTION SYS INITIATED
VG-325
D
DOWNSTREAM DPR. IVG09B CLOSED
1KY-VG076
ON 2 MTS
RANGE - 0-3 MTS
SET AT 2 MTS
ANN
OVER LOAD TRIP
74
ANN
A
VG324
B
DOWNSTREAM DAMPER MOTOR
DE-ENERGIZE TO CLOSE
G
STOP
COOLING FAN #IVG03
DE-ENERGIZE SPRING RET. TO CLOSE
DAMPER MOTOR NO. 1FZ-VG
TO ACTUATE DAMPER #IVG01
NOTE: INSTRUMENTS MARKED △ SHALL BE MOUNTED ON MAIN PANEL
" " ⊟ " " " " " "
" " ⊖ " " " " LOCAL CONTRO

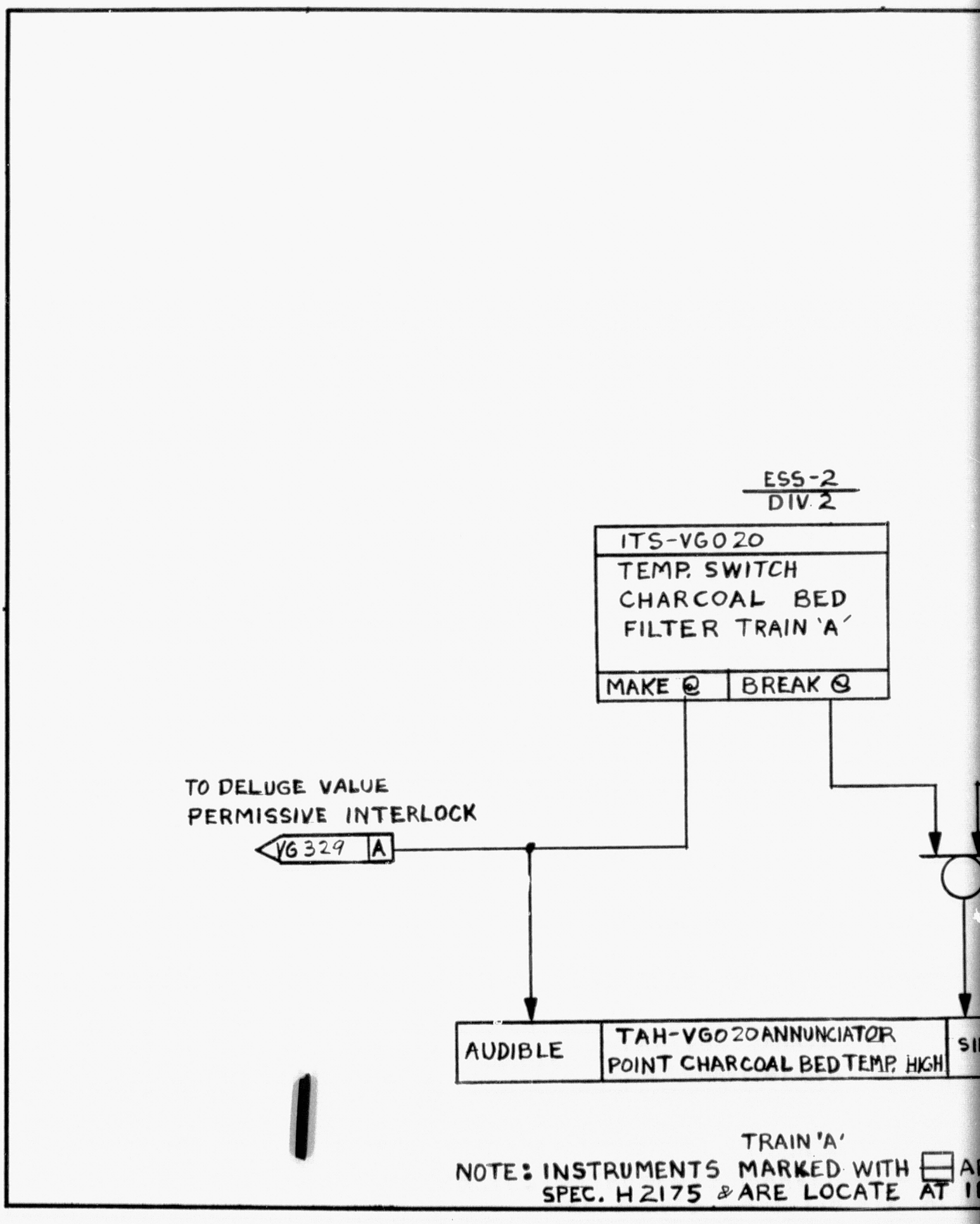


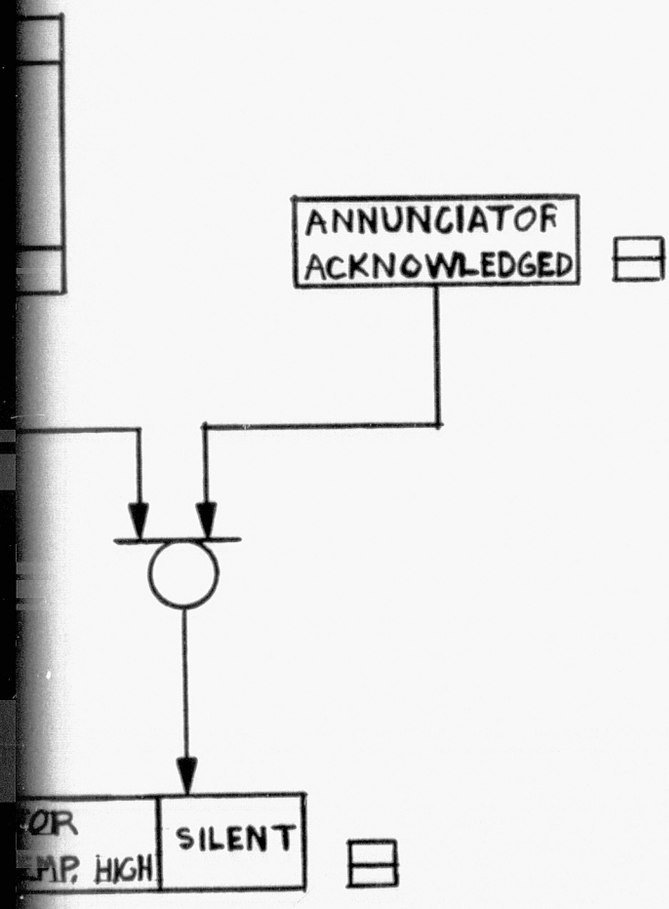
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 27 of 41)


ESS-2
DIV 2
ITS-VG020
TEMP. SWITCH
CHARCOAL BED
FILTER TRAIN 'A'
MAKE
BREAK
TO DELUGE VALVE
PERMISSIVE INTERLOCK
VG329
A
AUDIBLE
TAH-VG020 ANNUNCIATOR
POINT CHARCOAL BED TEMP. HIGH
TRAIN 'A'
NOTE: INSTRUMENTS MARKED WITH
SPEC. H2175 & ARE LOCATE AT



REFER TO DETAIL M-787-11

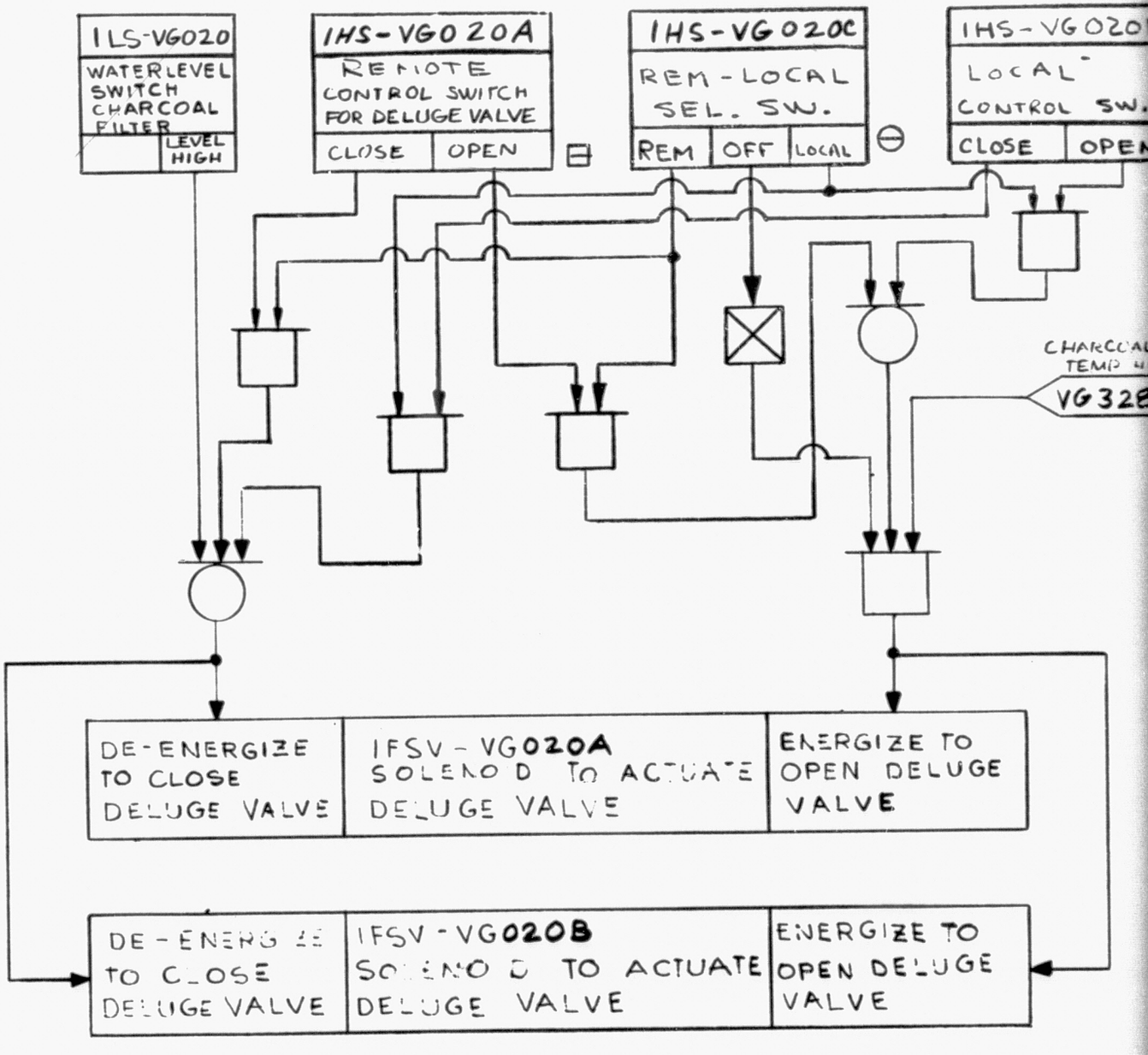
2

WITH ⊟ ARE FURNISHED & INSTALLED UNDER
TE AT 1PM07J

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 28 of 41)

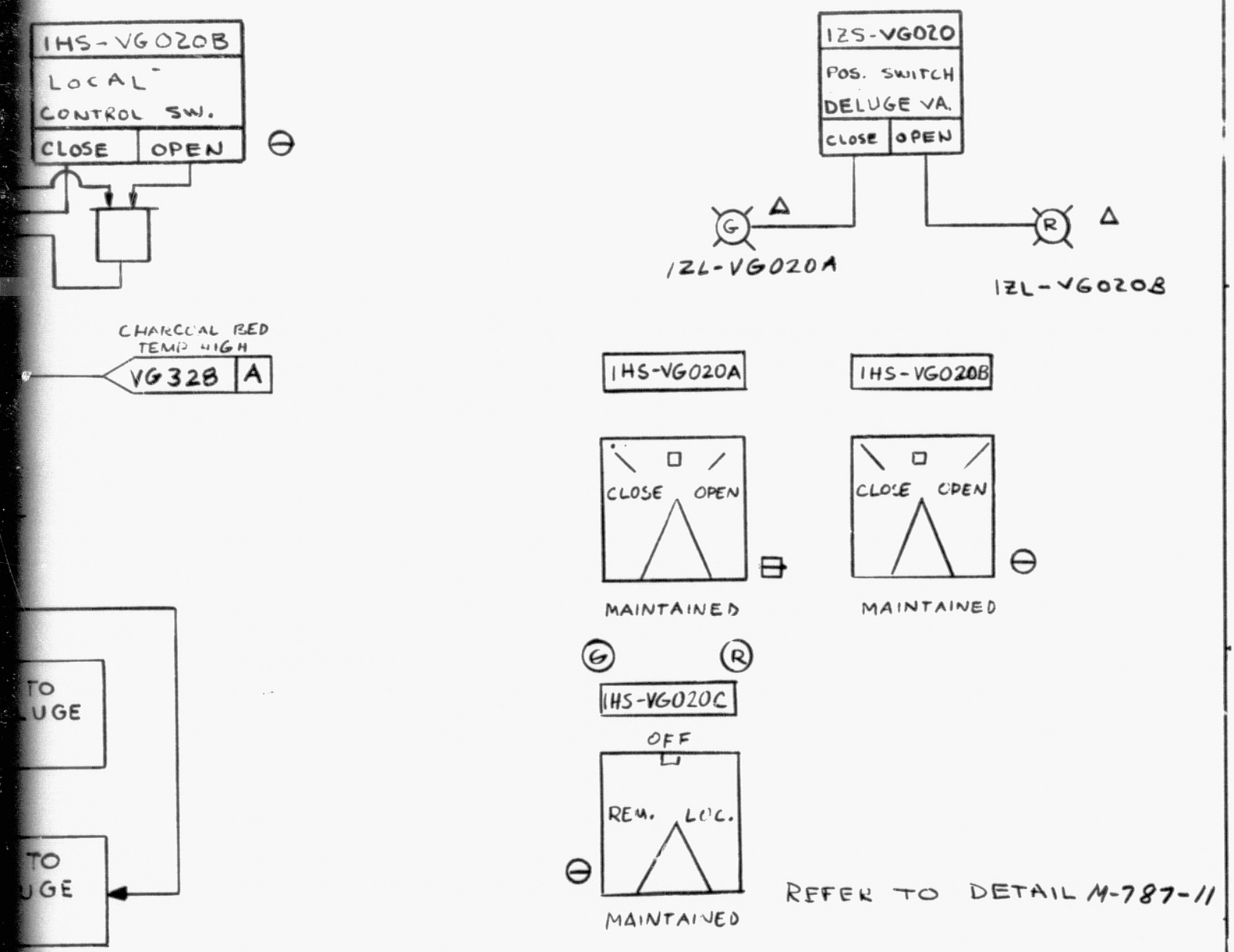


ESS 2, DIV. 2

NOTE: 1. INSTRUMENTS MARKED ⊟ TO BE LOCATED AT MAIN PANEL 1PM07J

2. " " △ " " " " " " " " M

3. " " ⊖ " " " LOCAL CONTROL PANEL



2

L 1PM07J
" MIMIC
TROL PANEL # 1PL69JB

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 29 of 41)

ESS-2, DIV. 2

ITS-VG028	
TEMP. SWITCH CHARCOAL BED FILER TRAIN 'A'	
MAKE @	BREAK @

AN
AC

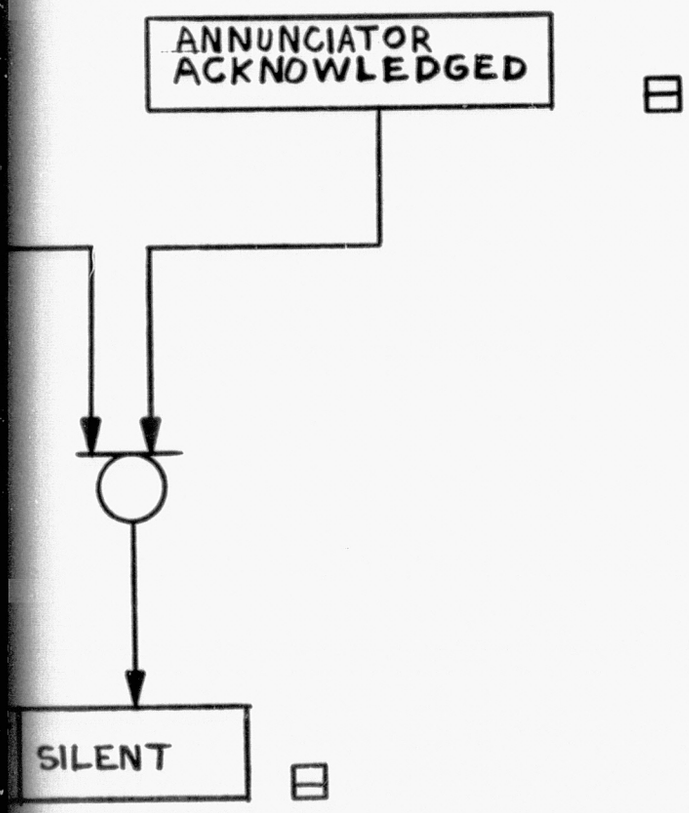
TO DELUGE VALUE
PERMISSIVE INTERLOCK

VG331 | A

AUDIBLE	TAH-VG028 ANNUNCIATOR POINT CHARCOAL BED TEMP. HIGH	SILENT

TRAIN 'A'

NOTE: INSTRUMENTS MARKED ⊟ ARE FURNISHED
H2175 & ARE LOCATED AT MAIN PANEL 1PM07J



REFER TO DETAIL M-787-11

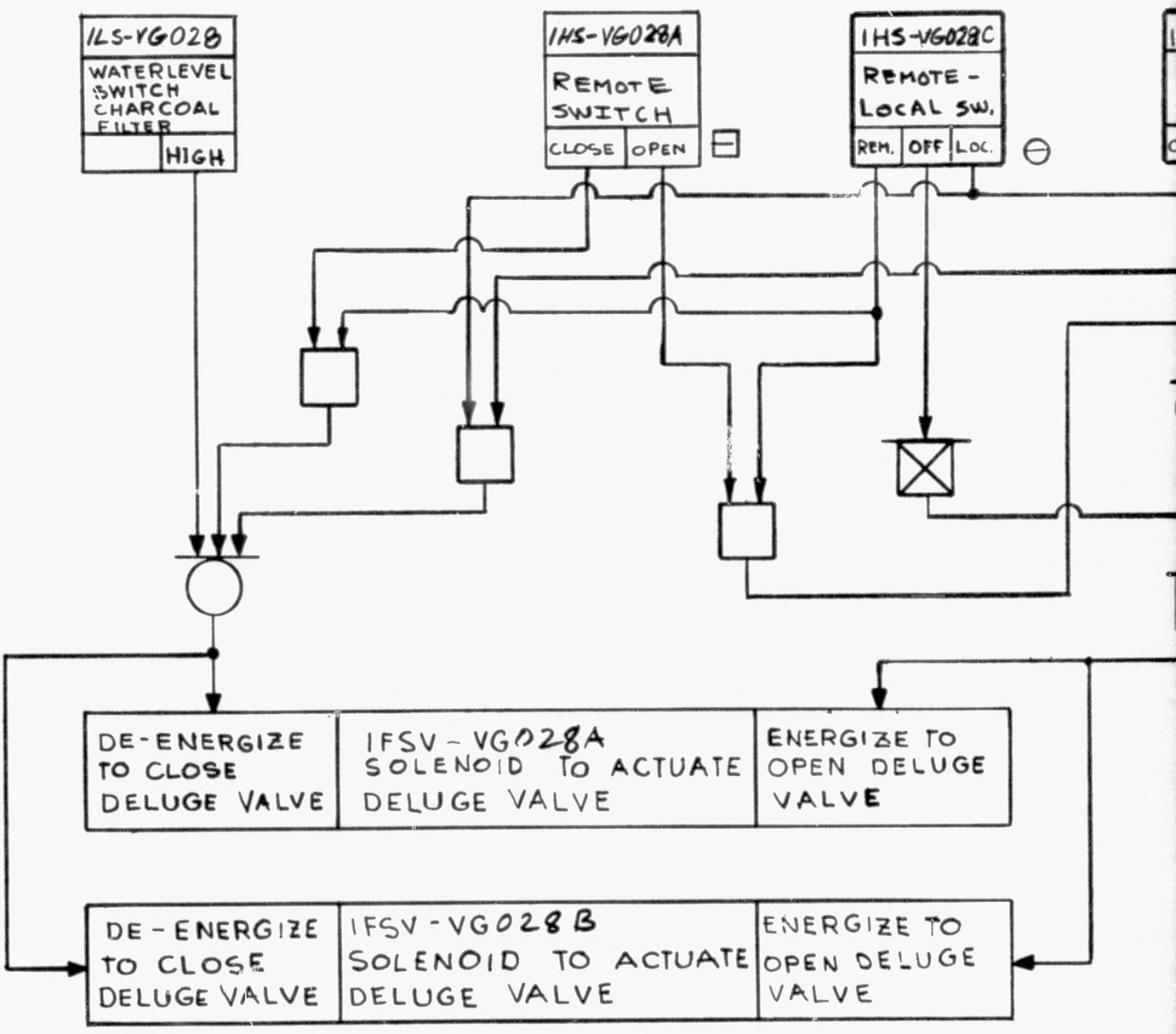
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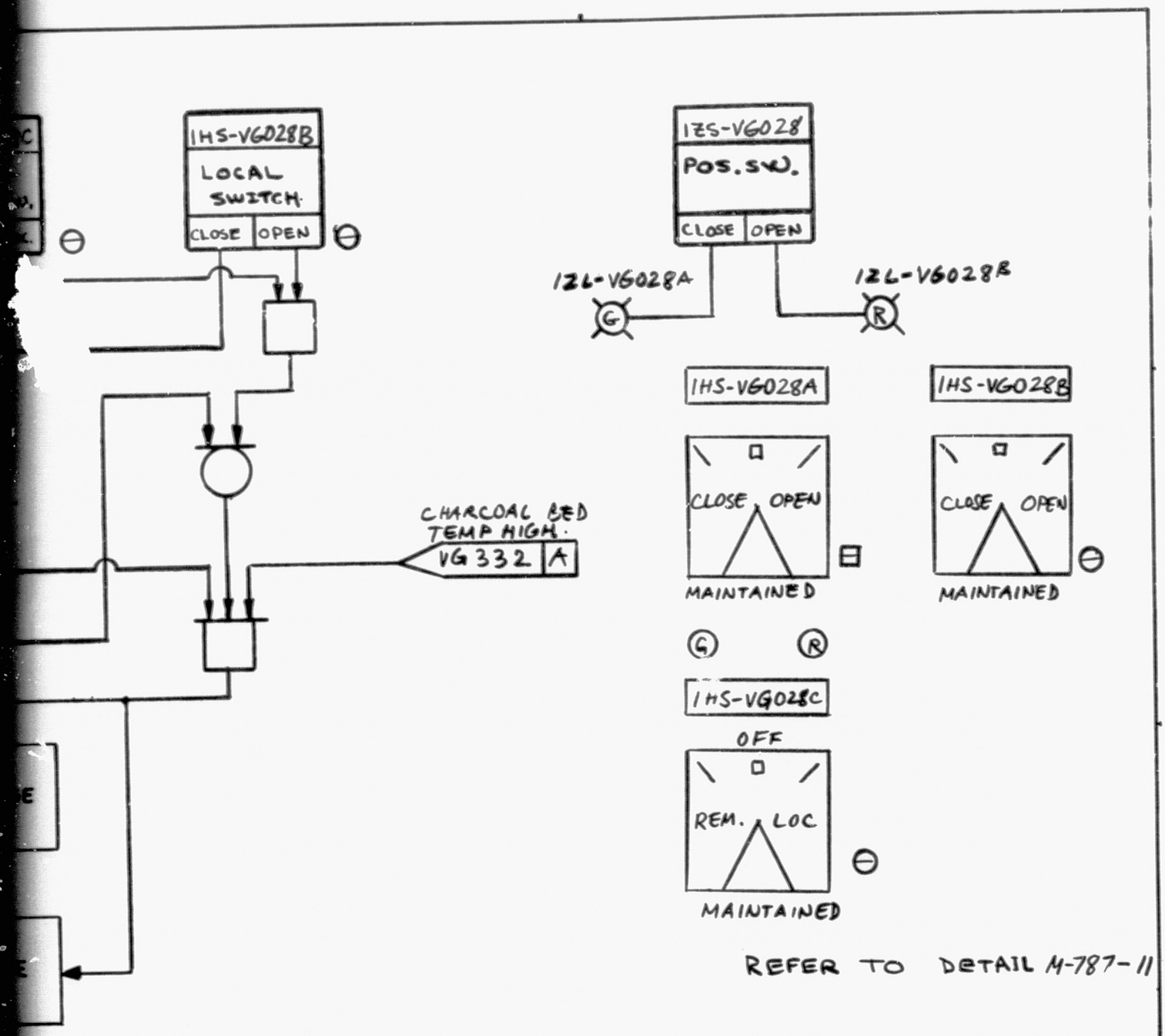
FURNISHED & INSTALLED UNDER SPEC. M07J

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 30 of 41)


1LS-VG028
WATER LEVEL SWITCH CHARCOAL FILTER
HIGH
1HS-VG028A
REMOTE SWITCH
CLOSE
OPEN
1HS-VG028C
REMOTE - LOCAL SW.
REM.
OFF
LOC.
DE-ENERGIZE TO CLOSE DELUGE VALVE
1FSV-VG028A SOLENOID TO ACTUATE DELUGE VALVE
ENERGIZE TO OPEN DELUGE VALVE
DE-ENERGIZE TO CLOSE DELUGE VALVE
1FSV-VG028B SOLENOID TO ACTUATE DELUGE VALVE
ENERGIZE TO OPEN DELUGE VALVE

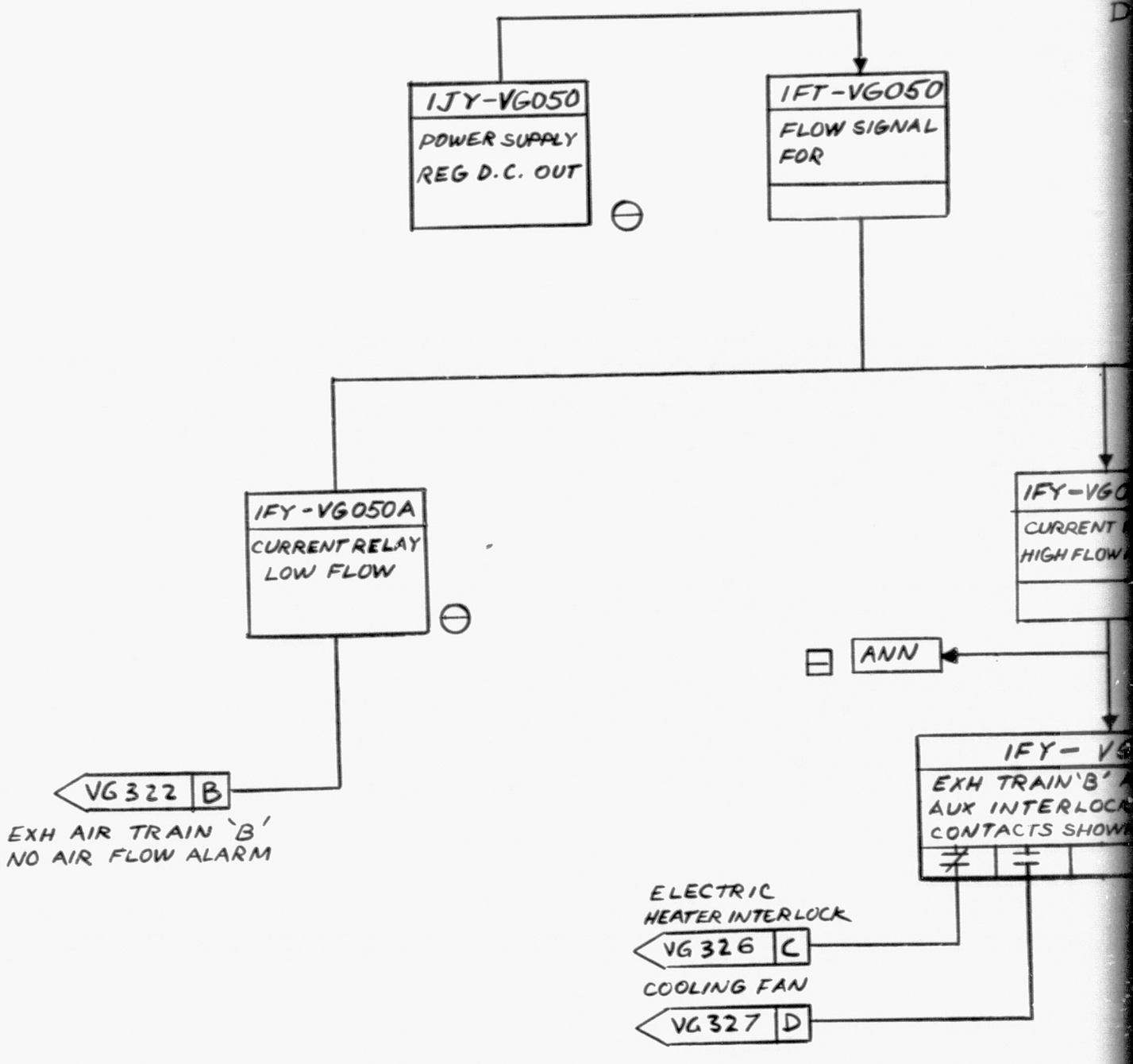


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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

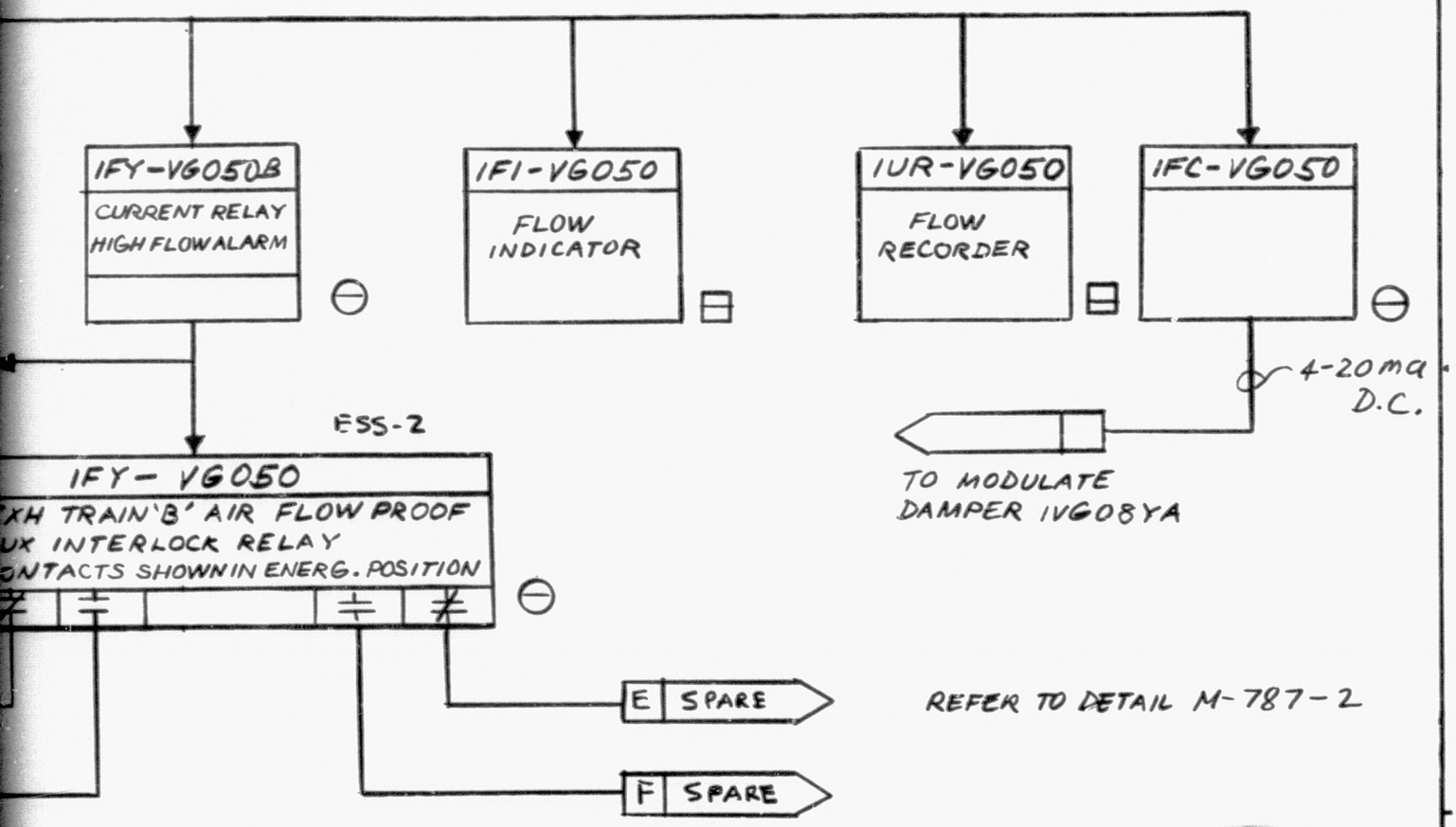
FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 31 of 41)



NOTE : INSTRUMENTS MARKED ⊖ TO BE LOCATED AT LOCAL CONTR
" " ⊟ " " " " MAIN CONTR

ESS-2
DIV. 2



REFER TO DETAIL M-787-2

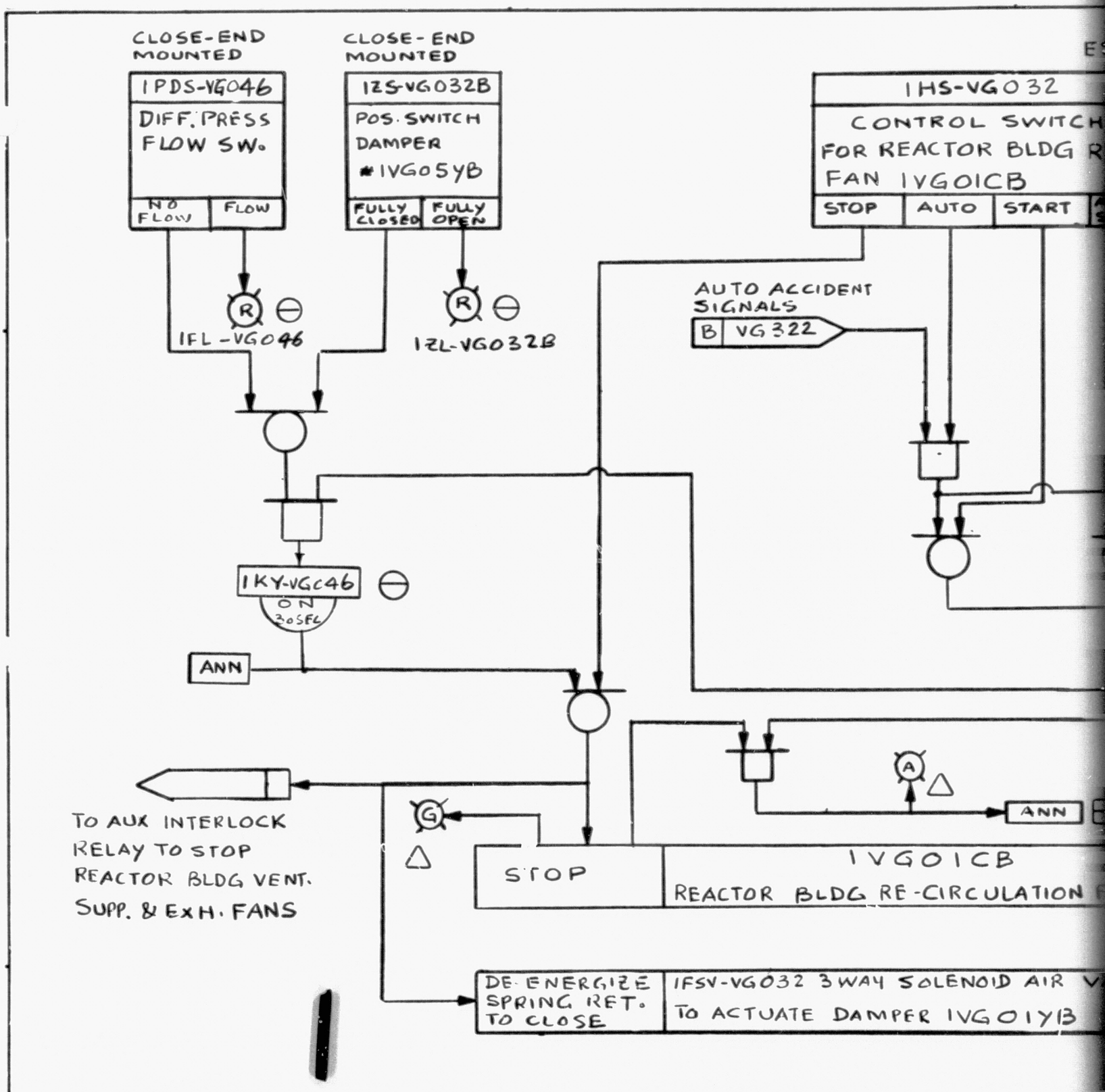
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LOCAL CONTROL PANEL 1PL69JB
MAIN CONTROL PANEL 1PM07J

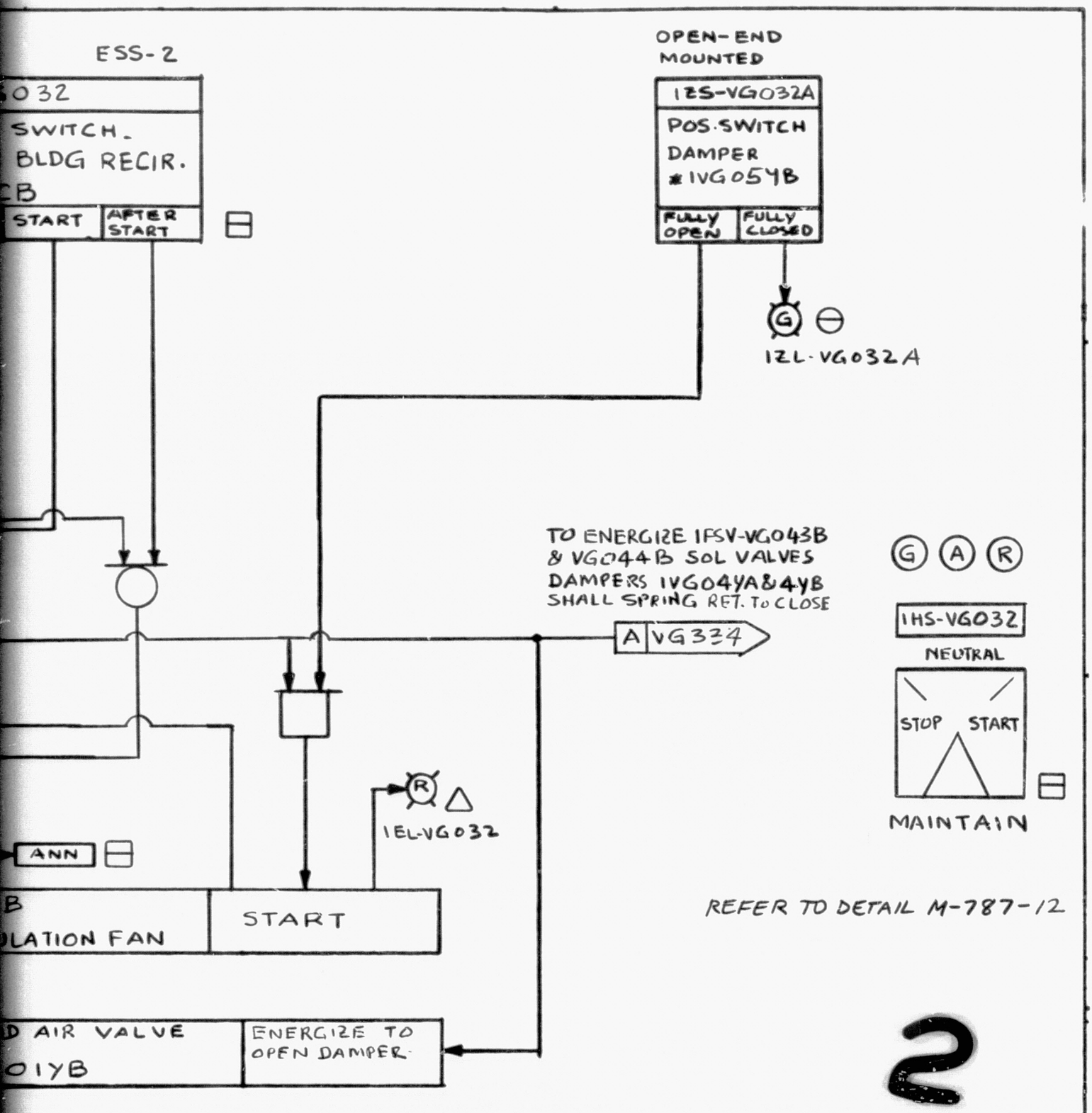
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 32 of 41)



NOTE:- INSTRUMENTS MARKED ⊖ SHALL BE LOCATED AT LOCAL CONTROL PA
" " ⊟ " " " " MAIN "
" " △ " " " " " "

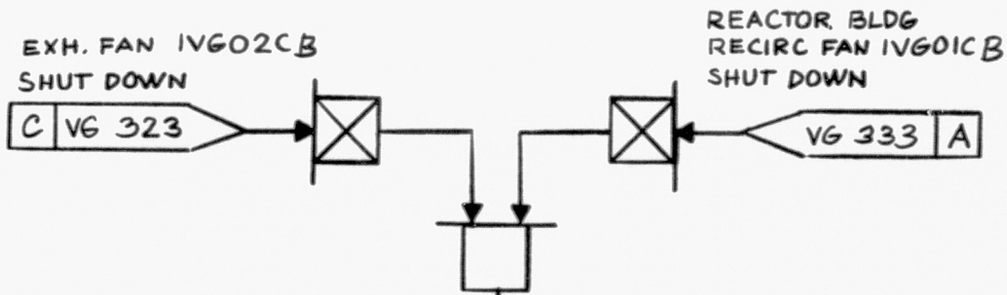


WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

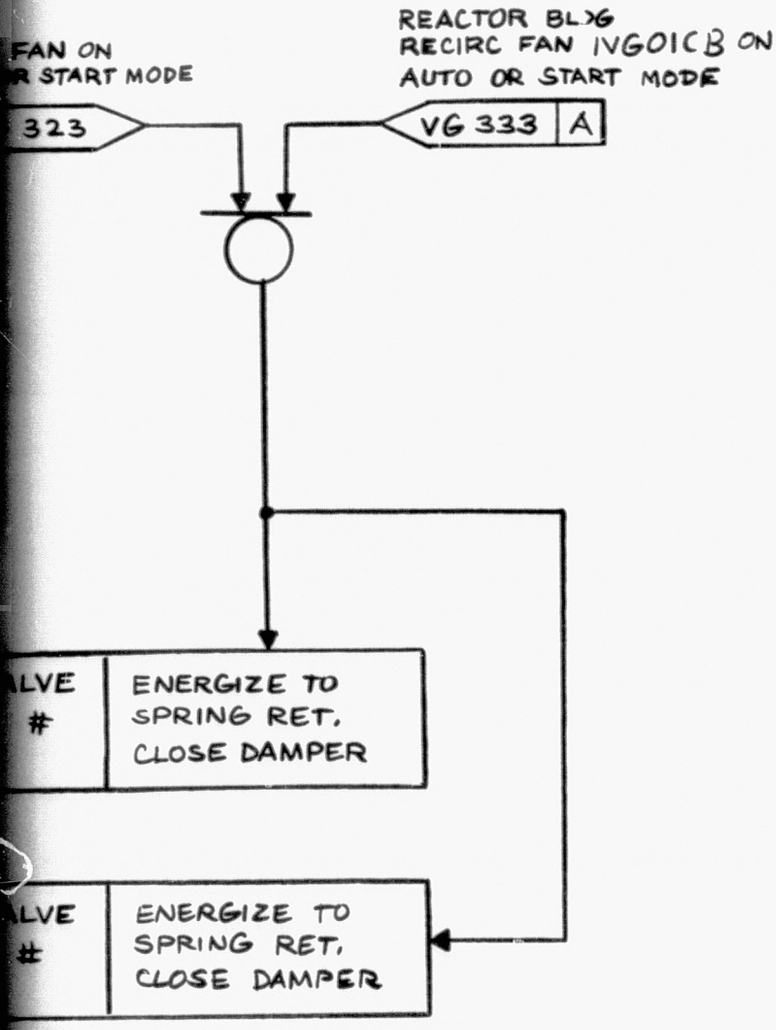
FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 33 of 41)

ESS - 2
DIV - 2



DE-ENERGIZE TO OPEN DAMPER	1FSV-VG043B 3-WAY SOL. AIR VALVE TO ACTUATE ISOLATION DAMPER # 1VG04YA	ENE SPR CLOS
DE-ENERGIZE TO OPEN DAMPER	1FSV-VG044B 3-WAY SOL. AIR VALVE TO ACTUATE ISOLATION DAMPER # 1VG04YB	ENE SPR CLOS



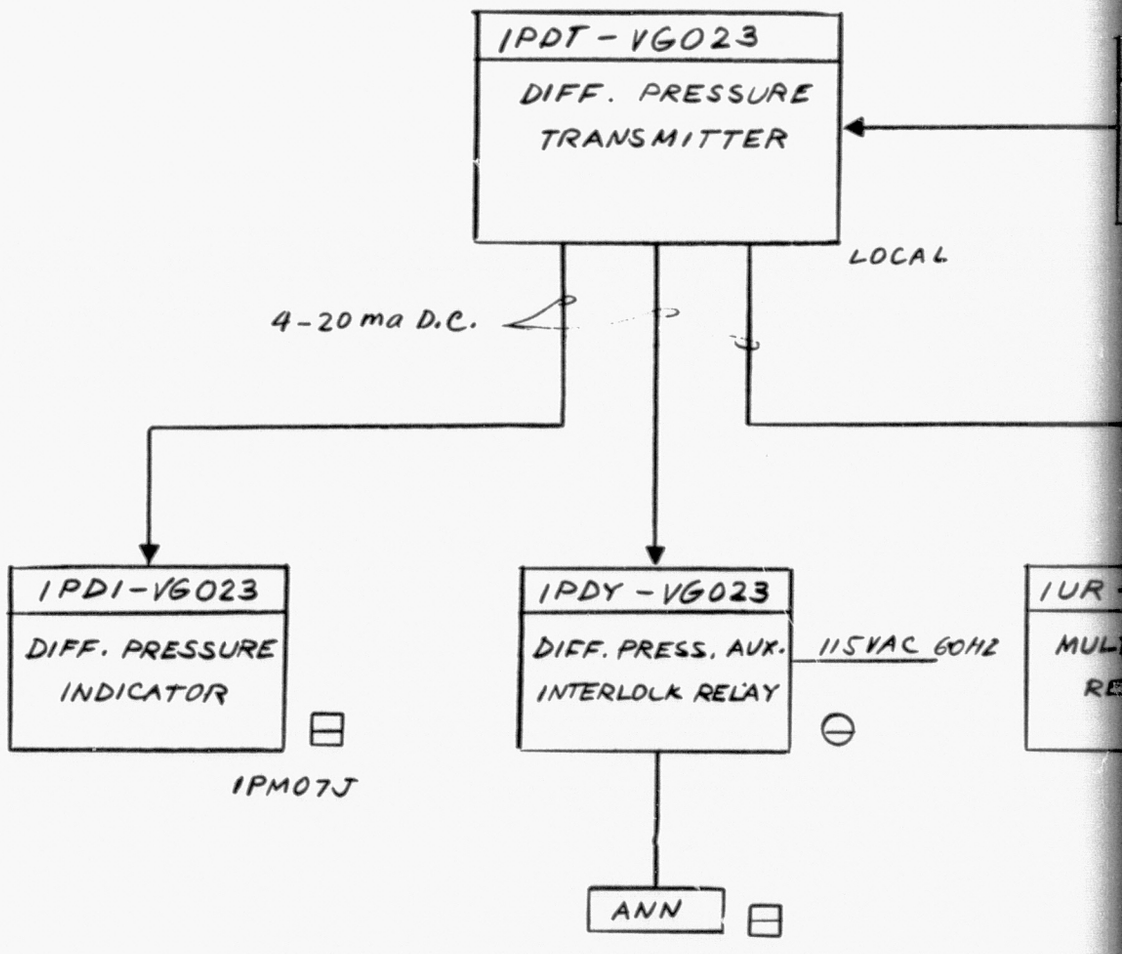
REFER TO DETAIL M-787-12

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

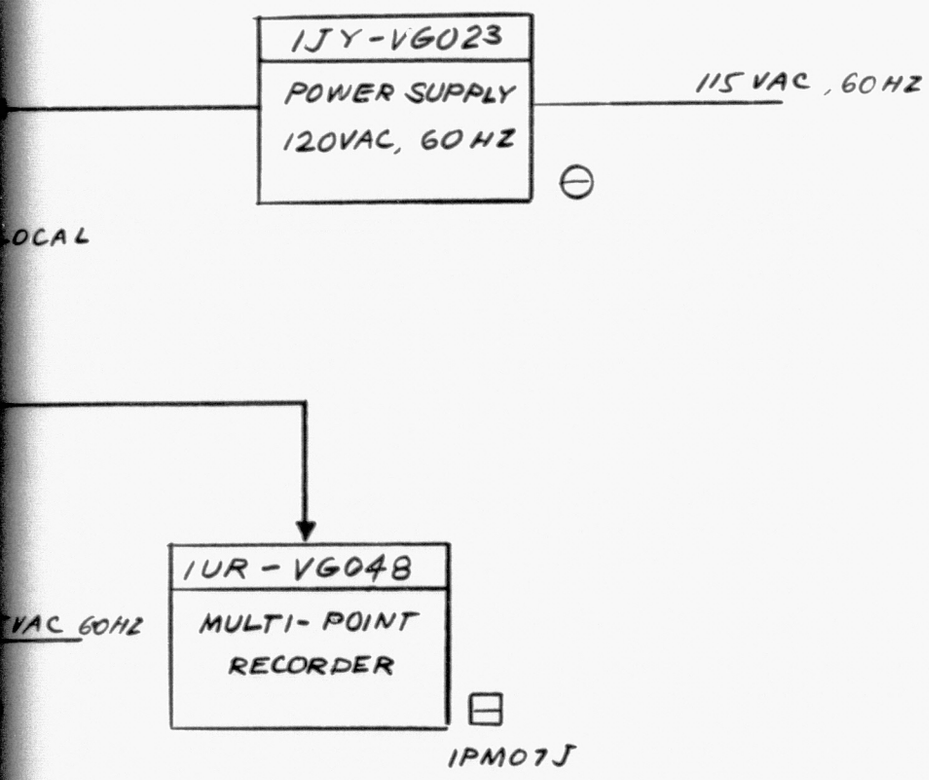
STANDBY GAS TREATMENT SYSTEM
(SHEET 34 of 41)



NOTE: 1. ✱ ⊖ - FURNISHED BY SPEC. H-2288 AND INSTALLED ON LOCAL PANE

2. ⊟ - FURNISHED AND INSTALLED ON MAIN CONTROL PANEL # 1P

3. ✱ - FURNISHED AND INSTALLED ON FILTER TRAIN BY SPEC #



REFER TO DETAIL M-787-10

2

D ON LOCAL PANEL # 1PL69JA BY SPEC. H-2299

TROL PANEL # 1PM07J BY SPEC. H-2175

AIN BY SPEC # H-2288

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

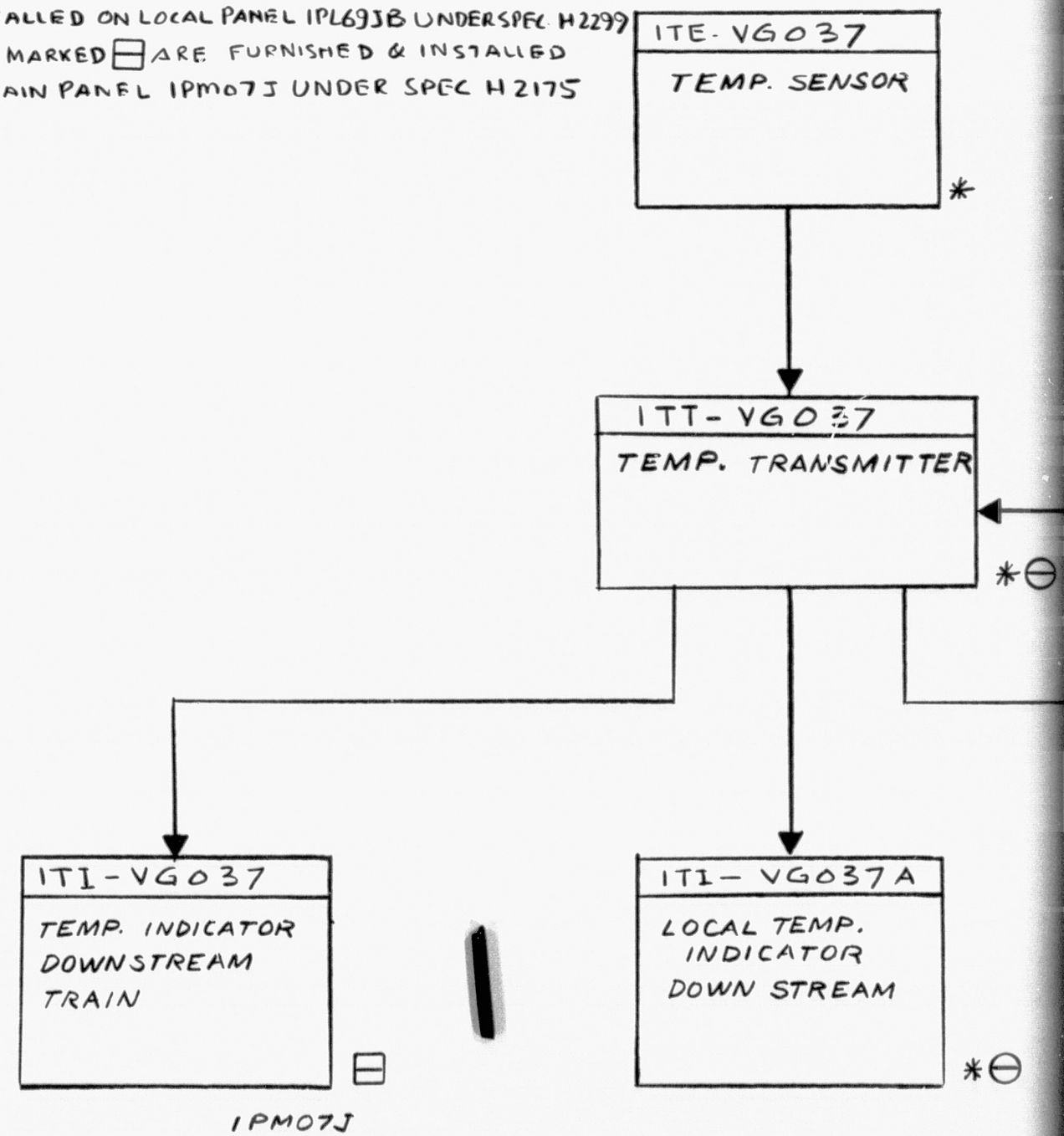
FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 35 of 41)

NOTE:- 1 INST. MARKED * ARE FURNISHED & INSTALLED UNDER SPEC. H-2288

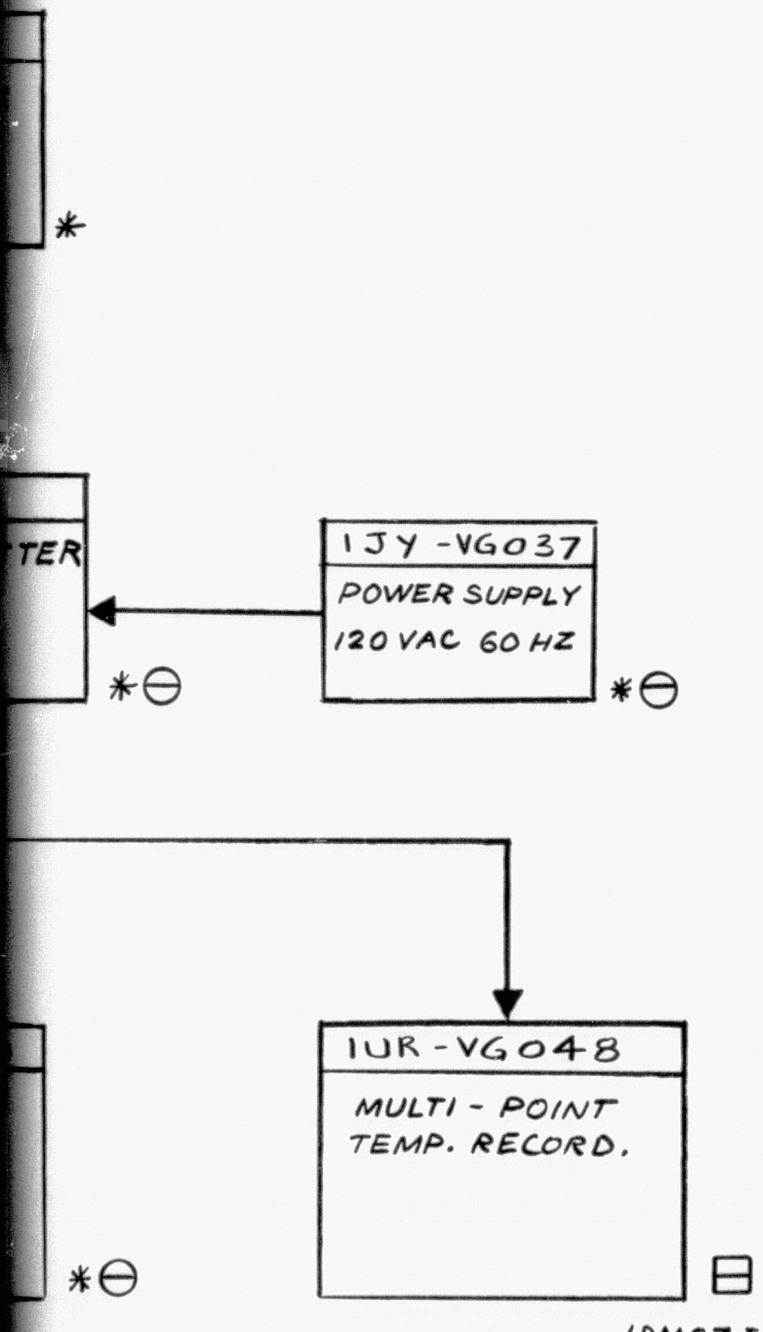
2 INST. MARKED *⊖ IS FURNISHED UNDER SPEC H2288 & INSTALLED ON LOCAL PANEL IPL69JB UNDERSPEC H2299

3. INST. MARKED ⊟ ARE FURNISHED & INSTALLED ON MAIN PANEL IPM07J UNDER SPEC H2175



IPM07J

-2/DIV.2



REFER TO DETAIL M-787-9

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

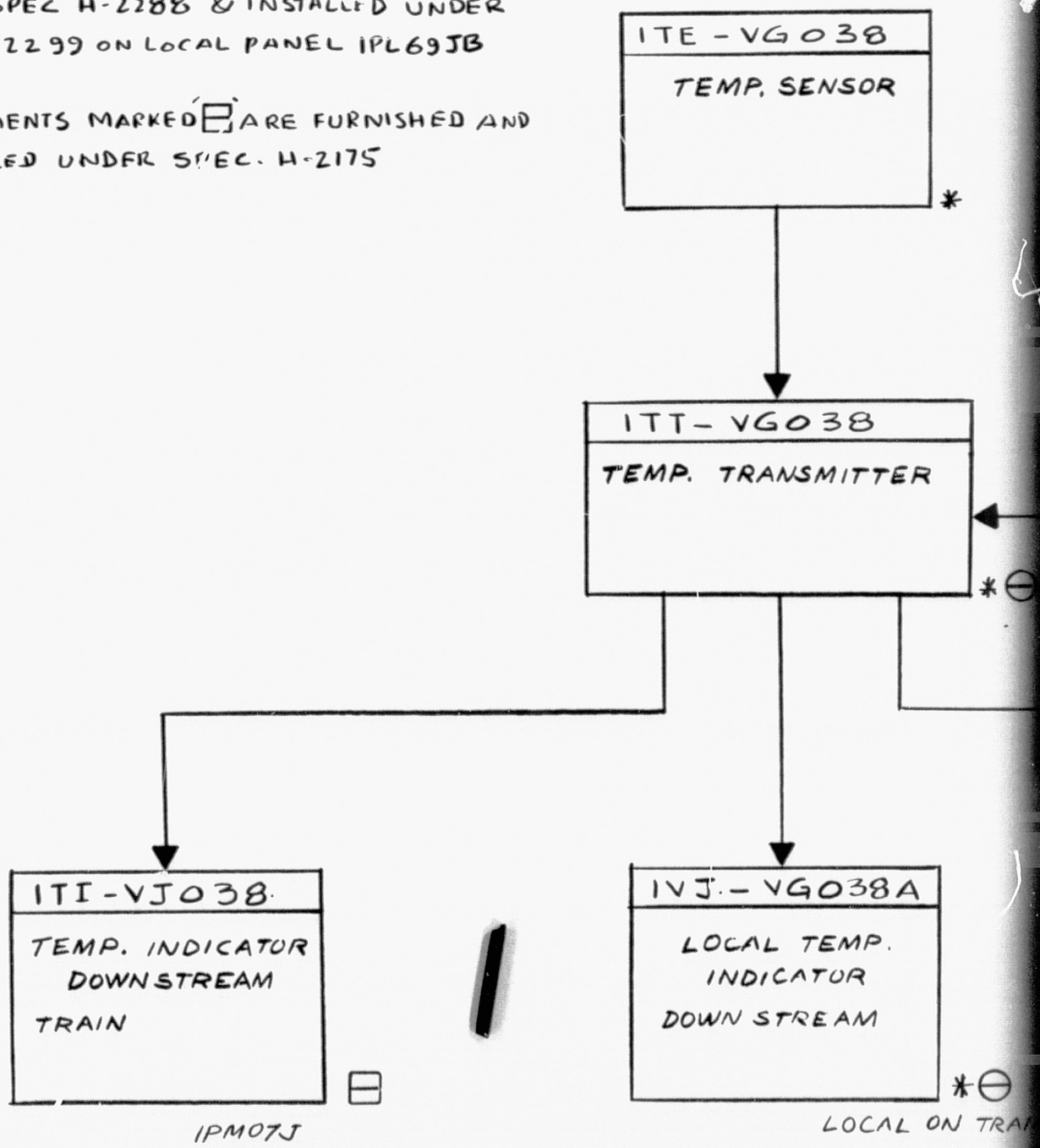
FIGURE 7.3-28

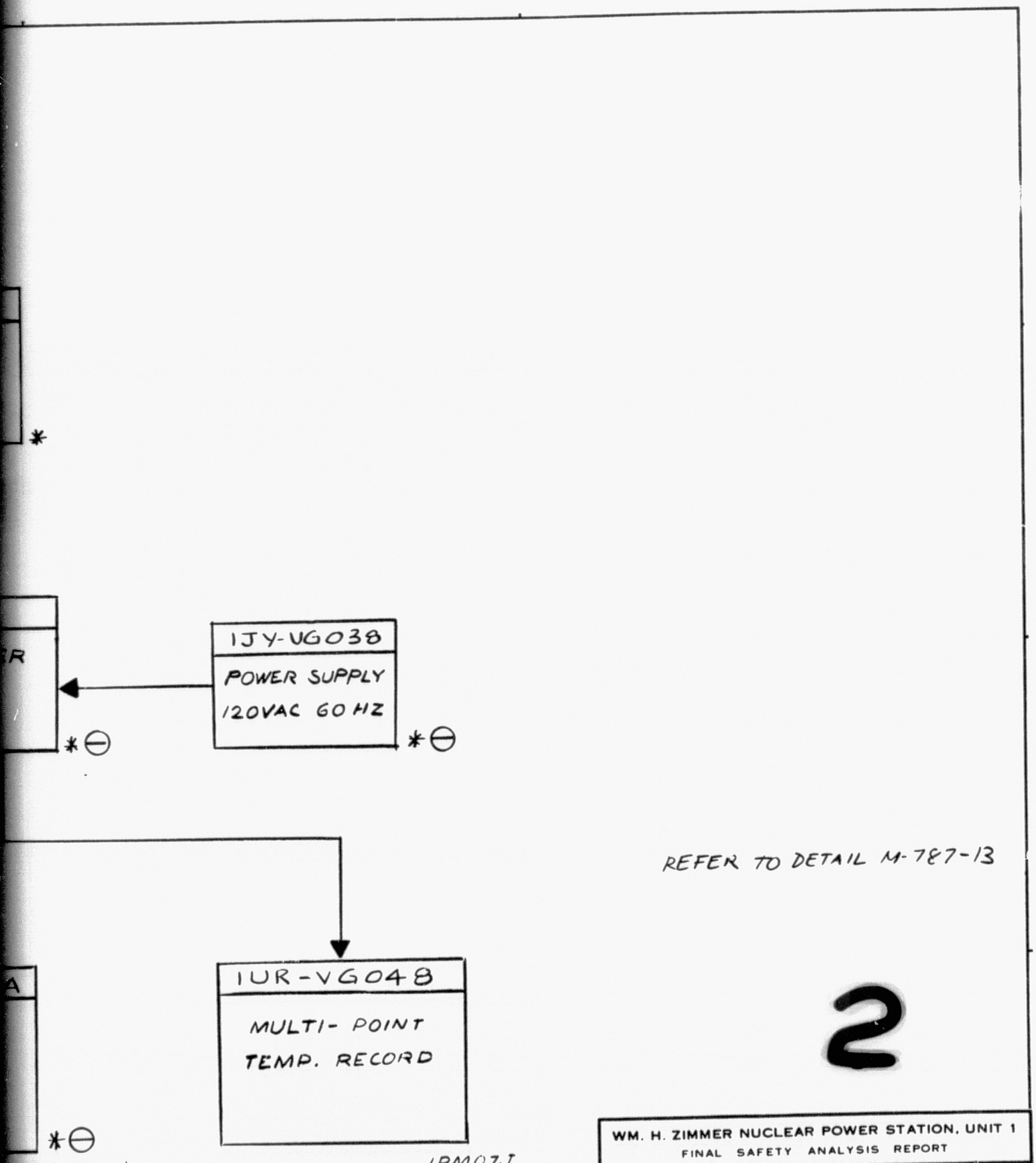
STANDBY GAS TREATMENT SYSTEM
(SHEET 36 of 41)

NOTE: 1 INSTRUMENTS MARKED '*' ARE FURNISHED AND INSTALLED UNDER SPEC H-2288

2 INSTRUMENTS MARKED '*⊖' ARE FURNISHED UNDER SPEC H-2288 & INSTALLED UNDER SPEC. H-2299 ON LOCAL PANEL IPL69JB

3. INSTRUMENTS MARKED '⊟' ARE FURNISHED AND INSTALLED UNDER SPEC. H-2175

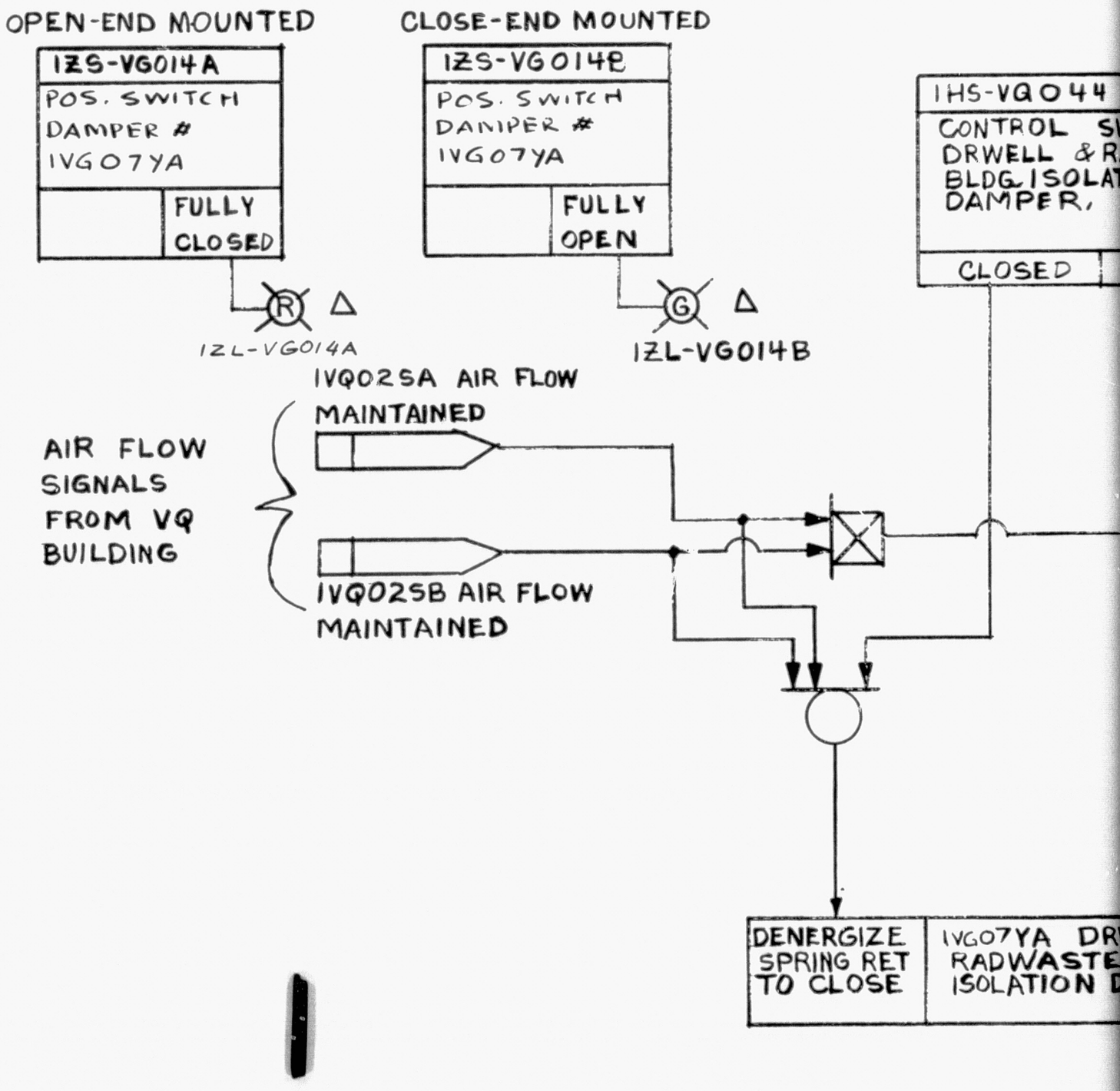




WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

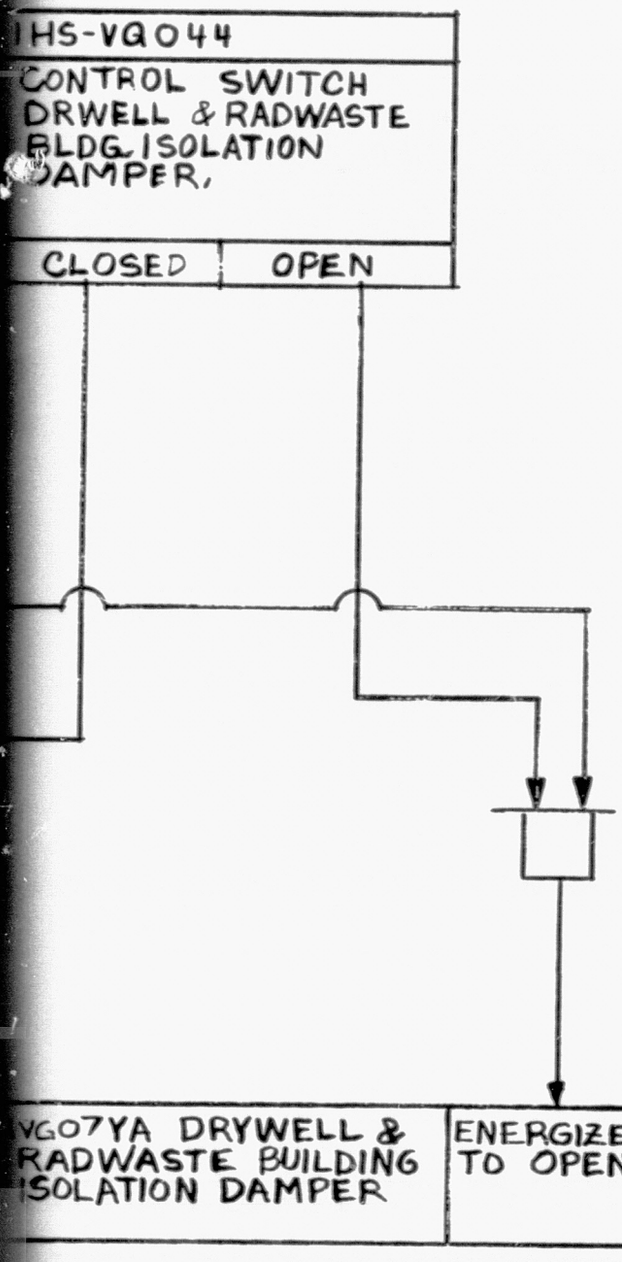
FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 37 of 41)



NOTE · 1 INSTRUMENTS MARKED ⊟ SHALL BE LOCATED AT MAIN CO

2 " " △ " " " " "



REFER TO DETAIL M-787-6

2

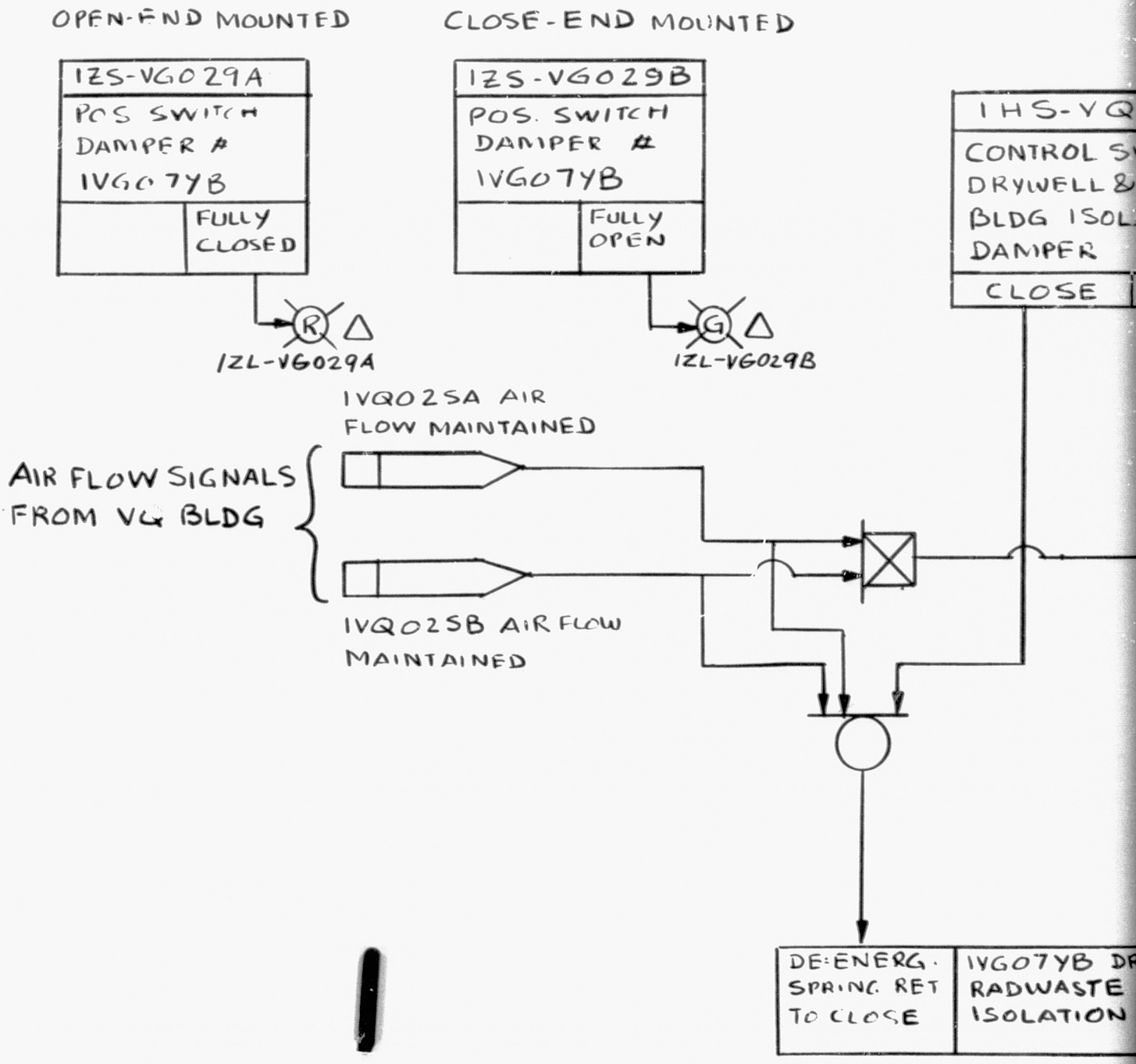
MAIN CONTROL PANEL 1PM07J

" " " " MIMIC

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

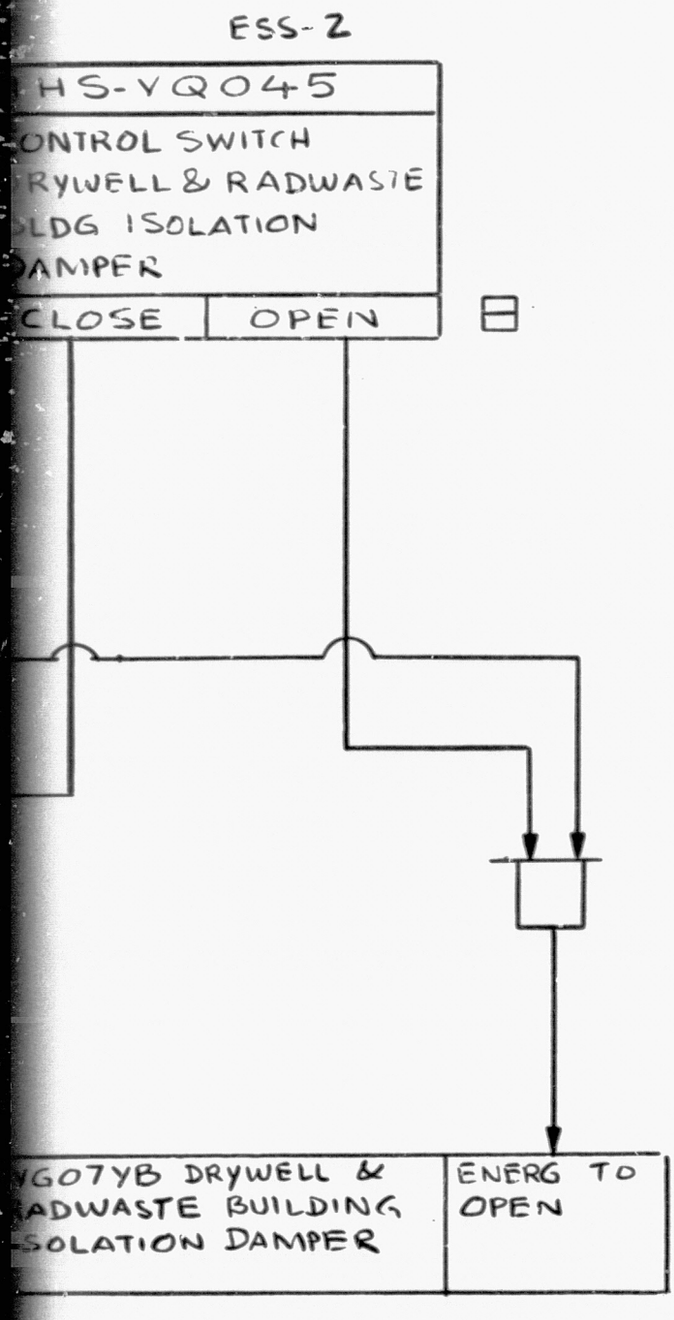
FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 38 of 41)



NOTE:- INSTRUMENTS MARKED ⊟ SHALL BE LOCATED AT MAIN CO

" " △ " " " " "



REFER TO DETAIL M-787-12

2

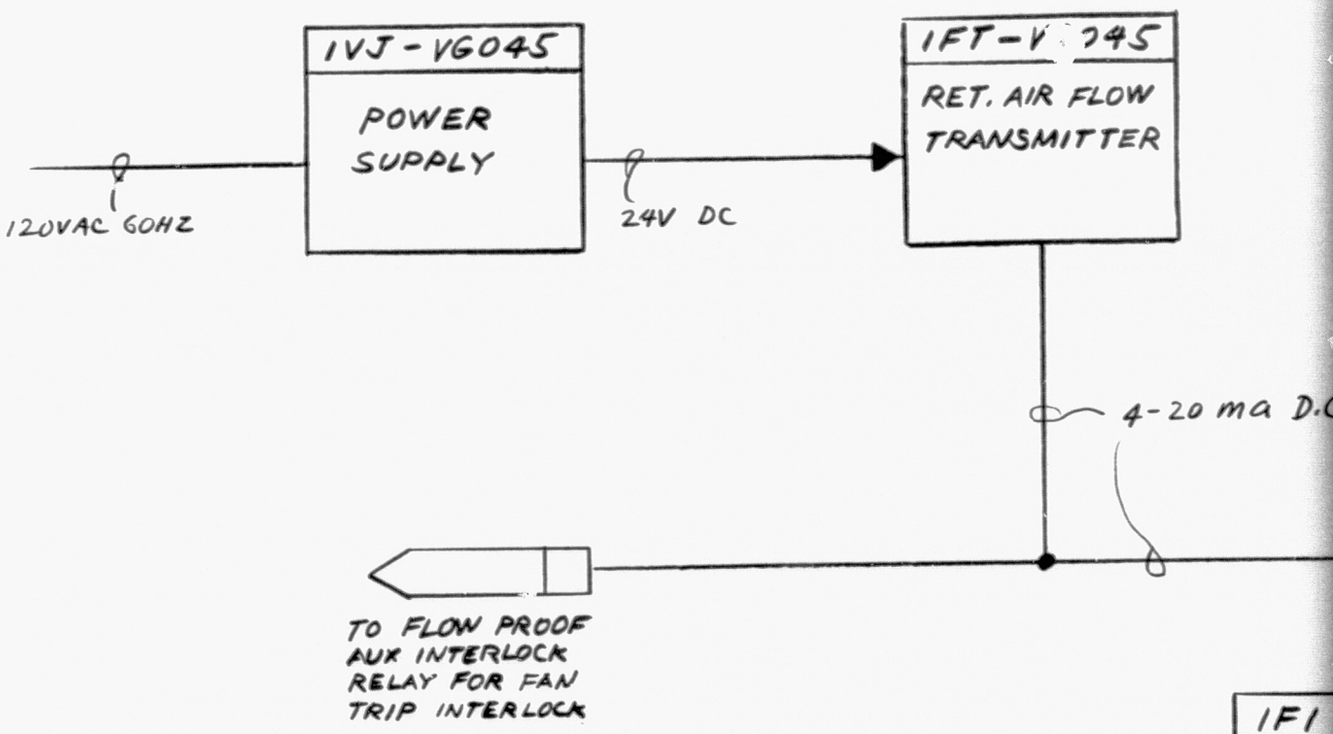
MAIN CONTROL PANEL 1PM07J

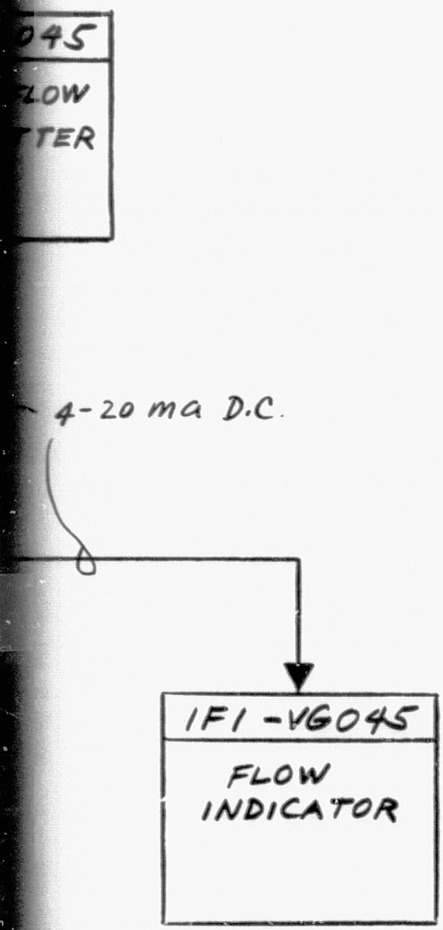
" " " " MIMIC

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 39 of 41)


1VJ-VG045
POWER SUPPLY
120VAC 60HZ
24V DC
1FT-V 045
RET. AIR FLOW TRANSMITTER
4-20 ma D.C
TO FLOW PROOF AUX INTERLOCK RELAY FOR FAN TRIP INTERLOCK
1FI
FL
IND



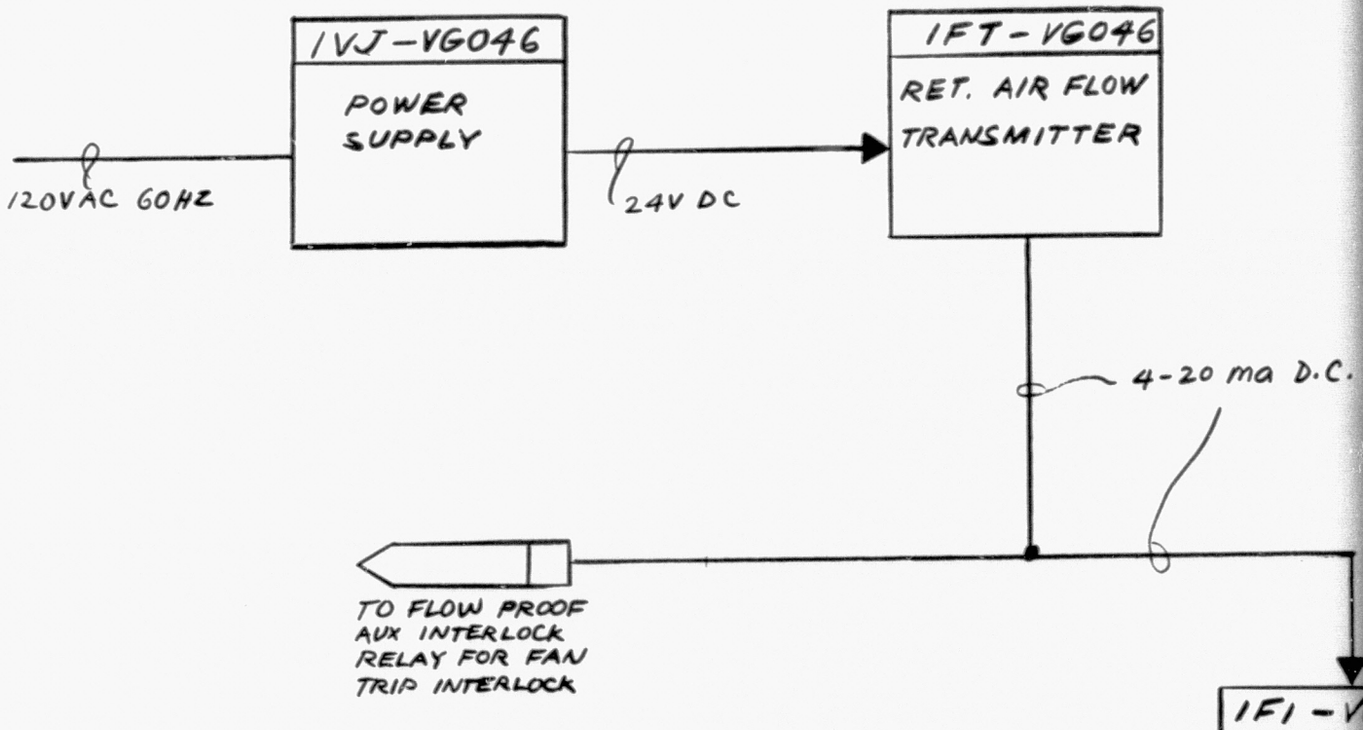
REFER TO DETAIL M-787-14

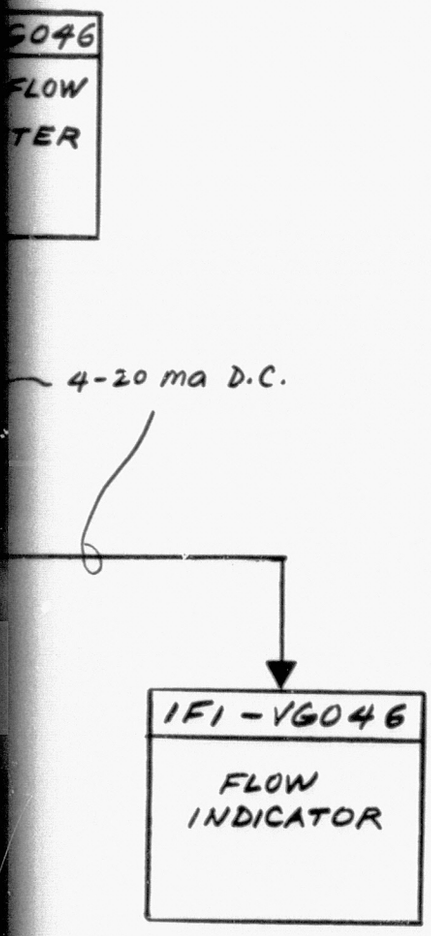
2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 40 of 41)


1VJ-VG046
POWER SUPPLY
120VAC 60HZ
24V DC
1FT-VG046
RET. AIR FLOW TRANSMITTER
4-20 ma D.C.
TO FLOW PROOF AUX INTERLOCK RELAY FOR FAN TRIP INTERLOCK
1FI-V
FLO
INDIC



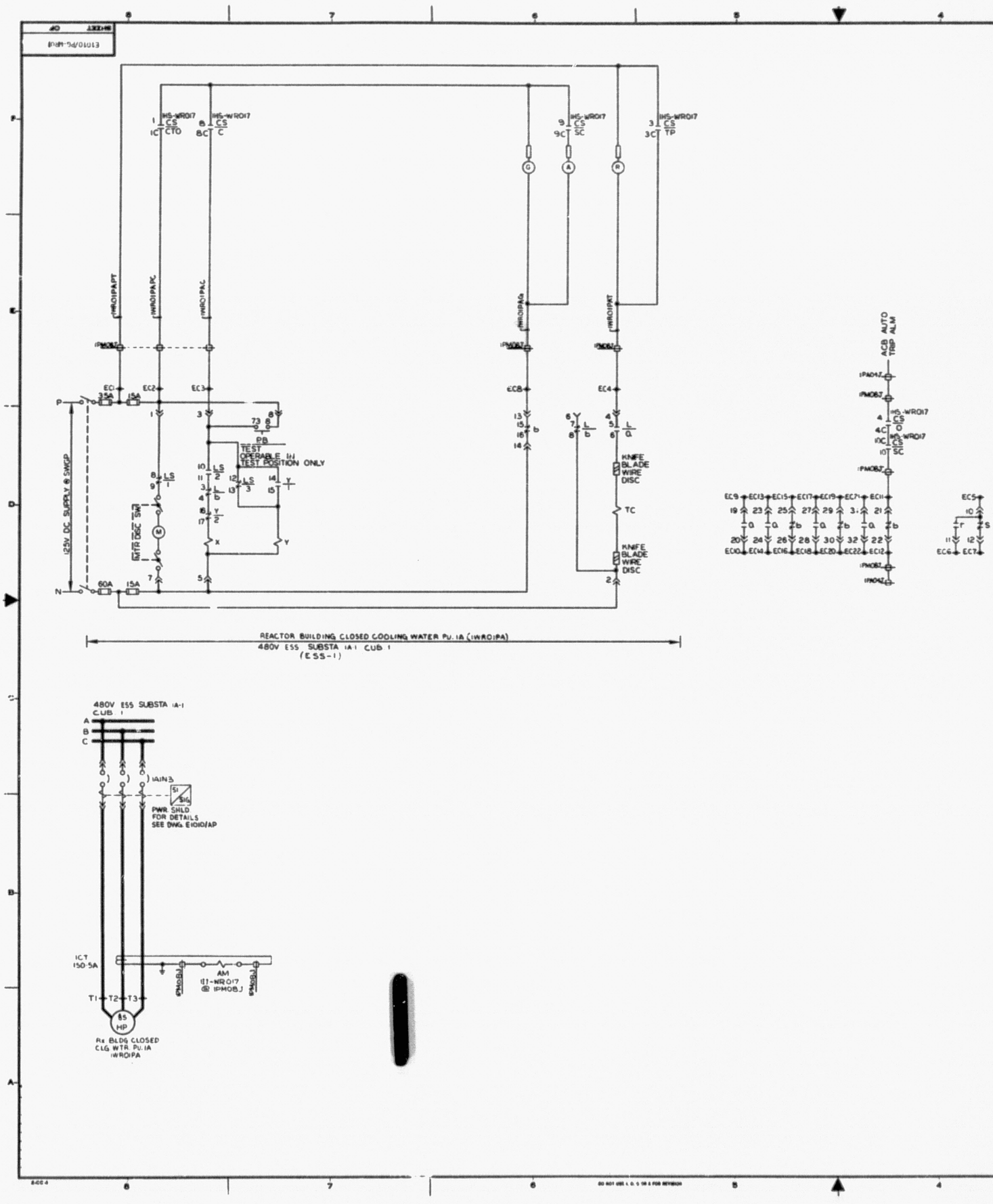
REFER TO DETAIL M-787-14

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-28

STANDBY GAS TREATMENT SYSTEM
(SHEET 41 of 41)

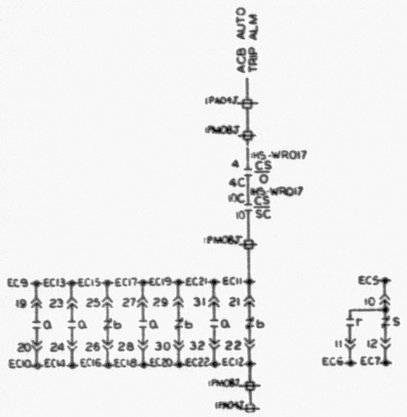

IHS-WR017
CS
CTO
C
SC
TP
IWR01PA.FT
IWR01PA.PC
IWR01PA.C
IWR01PAG
IWR01PRT
IPM087
EC1
EC2
EC3
EC8
EC4
35A
15A
60A
125V DC SUPPLY @ SWGP
NITR DISC SW
TEST
OPERABLE IN
TEST POSITION ONLY
KNIFE
BLADE
WIRE
DISC
TC
REACTOR BUILDING CLOSED COOLING WATER PU. 1A (IWR01PA)
480V ESS SUBSTA 1A-1 CUB 1
(ESS-1)
ACB AUTO
TRIP ALM
IPA047
EC9
EC13
EC15
EC17
EC19
EC7
EC11
EC5
EC10
EC14
EC16
EC18
EC20
EC22
EC12
EC6
480V ESS SUBSTA 1A-1
CUB 1
IAIN3
PWR SHLD
FOR DETAILS
SEE DWG. E1010AP
ICT
150-5A
AM
(1)-WR017
@ IPM08J
T1
T2
T3
85
HP
RX BLDG CLOSED
CLG WTR PU 1A
IWR01PA



CONTACTS ODD	CONTACTS EVEN		SYMB	POSITION: PULL TO LOCK	POSITION: STOP	POSITION: NORMAL (AFTER STOP)	POSITION: NORMAL (AFTER START)	POSITION: START
1C 0 1 0	2C 2 0 1 0	1	CTD		X	X	X	A
		2	P	X				
3C 0 1 0	4C 4 0 1 0	3	TP	X	X			
		4	O			X	X	
5C 0 1 0	6C 6 0 1 0	5	O			X	X	
		6	O			X	X	
7C 0 1 0	8C 8 0 1 0	7	O			X	X	
		8	C					X
9C 0 1 0	10C 10 0 1 0	9	SC				X	X
		10	SC				X	X
11C 0 1 0	12C 12 0 1 0	11	SC				X	X
		12	SC				X	X
13C 0 1 0	14C 14 0 1 0	13	STP	X	X	X		
		14	STP	X	X	X		

X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK PISTOL GRIP HANDLE (SB-1)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB 1PM08J



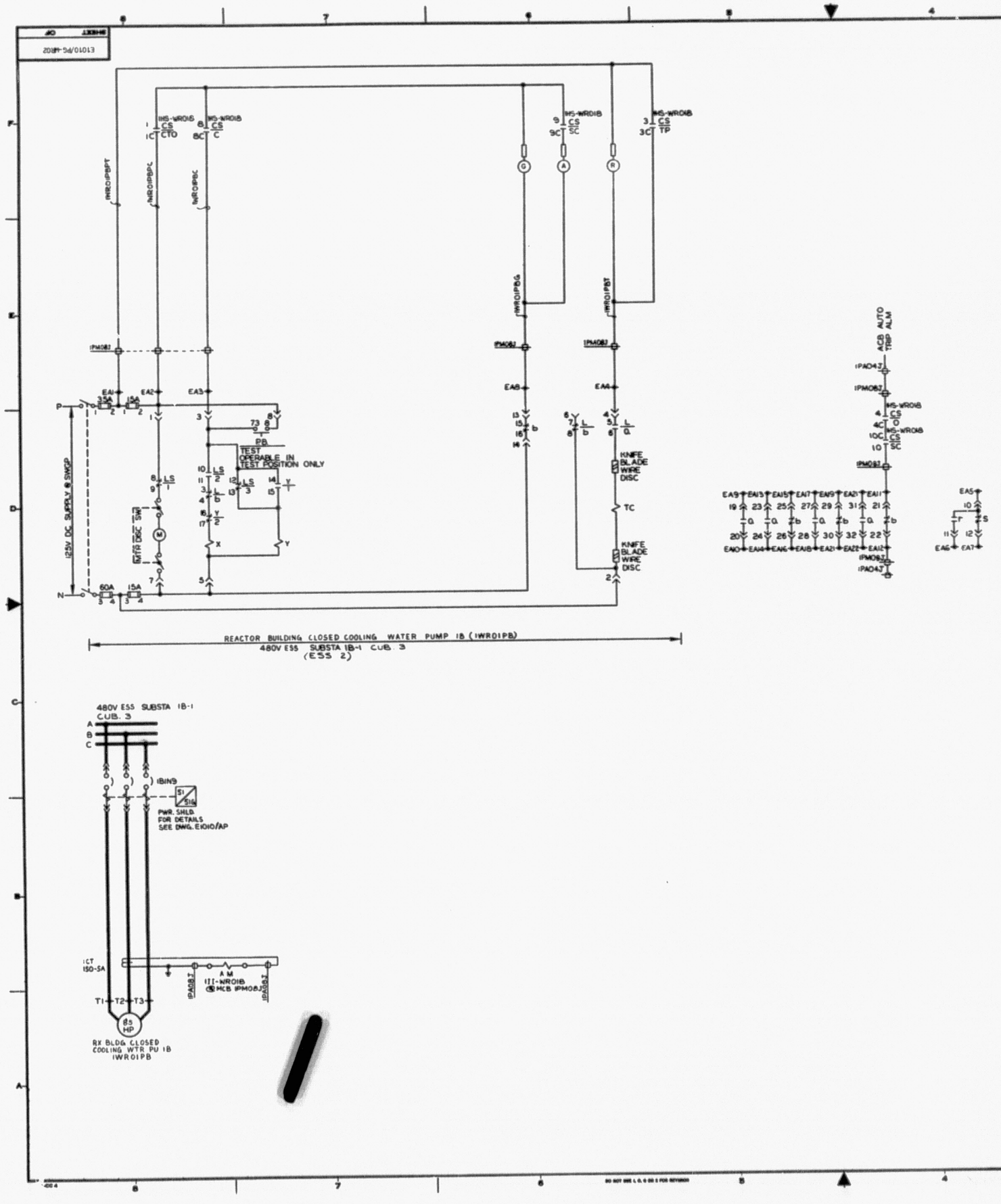
2

ESSENTIAL COMPONENTS
INCLUDED

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-29

ESSENTIAL RBCCW SYSTEM ESD
(SHEET 1 of 9)

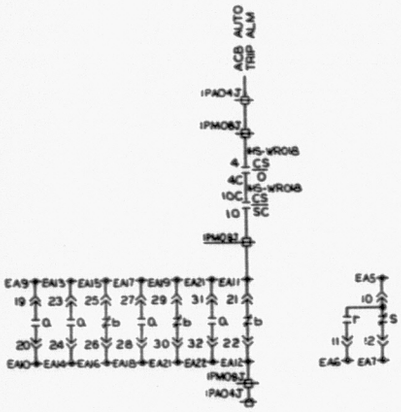

1WS-WR01A
1WS-WR01B
1WS-WR01AB
1WR01PBT
1WR01PBC
1WR01PBG
1PM08J
EA1
EA2
EA3
EA4
EA5
EA6
125V DC SUPPLY & SWGR
60A
15A
35A
TEST
OPERABLE IN
TEST POSITION ONLY
PB
LS
Y
MOTOR DISC SW
KNIFE BLADE WIRE DISC
TC
REACTOR BUILDING CLOSED COOLING WATER PUMP 1B (1WR01PB)
480V ESS SUBSTA 1B-1 CUB. 3
(ESS 2)
ACB AUTO TRIP ALM
1PA04J
480V ESS SUBSTA 1B-1
CUB. 3
1BIN9
PWR. SHLD.
FOR DETAILS
SEE DWG. E10I0/AP
1GT
150-5A
A M
1II-WR01B
MCB 1PM08J
1PA08J
T1 T2 T3
85
HP
RX BLDG CLOSED
COOLING WTR PU 1B
1WR01PB



CONTACTS ODD	CONTACTS EVEN	SYMB	POSITION: PULL TO LOCK	STOP	NORMAL AFTER STOP	NORMAL AFTER START	START
1 1C 01 10	2C 2 01 10	1 CTO		X	X	X	X
		2 P	X				
3 3C 01 10	4C 4 01 10	3 TP	X	X			
		4 O			X	X	
5 5C 01 10	6C 6 01 10	5 O			X	X	
		6 O			X	X	
7 7C 01 10	8C 8 01 10	7 O			X	X	
		8 C					X
9 9C 01 10	10C 10 01 10	9 SC				X	X
		10 SC				X	X
11 11C 01 10	12C 12 01 10	11 SC				X	X
		12 SC				X	X
13 13C 01 10	14C 14 01 10	13 STP	X	X	X		
		14 STP	X	X	X		

X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK PISTOL GRIP HANDLE (SB-1)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB (PM08J)



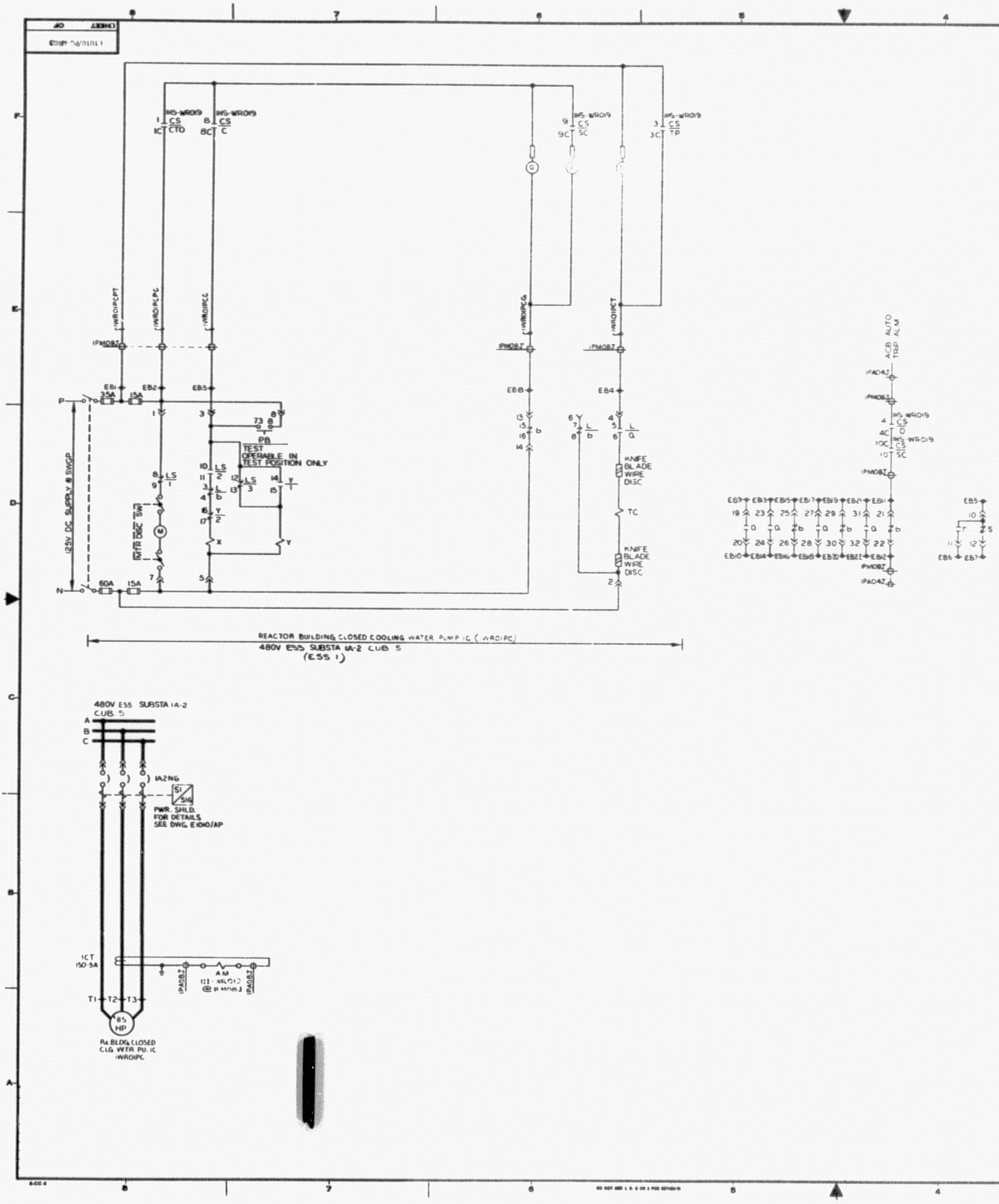
ESSENTIAL COMPONENTS
INCLUDED

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-29

ESSENTIAL RBCCW SYSTEM ESD
(SHEET 2 of 9)

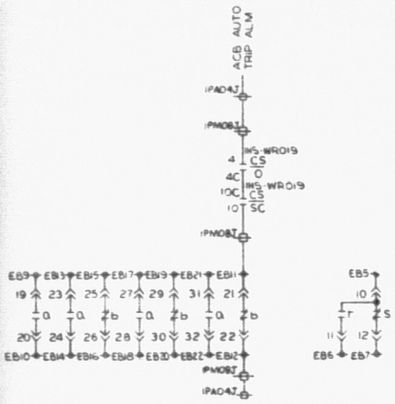

IWS-WR019
1C CS CTO
8C CS C
9C CS SC
3C CS TP
1WROIPCPT
1WROIPCPC
1WROIPCG
1WROIPCG
1WROIPCT
1PM08J
EB1
EB2
EB3
EB8
EB4
3.5A
15A
60A
15A
125V DC SUPPLY & SWGR
PB
TEST
OPERABLE IN
TEST POSITION ONLY
LS
MTR DISC SW
KNIFE
BLADE
WIRE
DISC
TC
KNIFE
BLADE
WIRE
DISC
REACTOR BUILDING CLOSED COOLING WATER PUMP IC (WRDIPC)
480V ESS SUBSTA 1A-2 CUB 5
(ESS 1)
ACB AUTO
TRIP ALM
1PA04J
1PM08J
EB9
EB3
EB5
EB7
EB9
EB21
EB1
EB5
EB10
EB4
EB6
EB8
EB30
EB22
EB2
EB6
EB7
480V ESS SUBSTA 1A-2
CUB. 5
A
B
C
1A2NG
PWR. SHLD.
FOR DETAILS
SEE DWG. E-10K0/AP
1CT
150-5A
T1
T2
T3
85
HP
Rx BLDG CLOSED
C.LG WTR PU. IC
1WROIPC



CONTACTS ODD	CONTACTS EVEN		SYMB.	POSITION: PULL TO LOCK	POSITION: STOP	POSITION: NORMAL AFTER START	POSITION: NORMAL AFTER TRIP	POSITION: START
1C 0+1+0	2C 2 0+1+0	1	LTO		X	X	X	X
		2	P	X				
3 3C 0+1+0	4C 4 0+1+0	3	TP	X	X			
		4	C			X	X	
5 5C 0+1+0	6C 6 0+1+0	5	O			X	X	
		6	O			X	X	
7 7C 0+1+0	8C 8 0+1+0	7	O			X	X	
		8	C					X
9 9C 0+1+0	10C 10 0+1+0	9	SC				X	X
		10	SC				X	X
11 11C 0+1+0	12C 12 0+1+0	11	SC				X	X
		12	SC				X	X
13 13C 0+1+0	14 14 0+1+0	13	STP	X	X	X		
		14	STP	X	X	X		

X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK PISTOL GRIP HANDLE (SB-1)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB 1PM08J



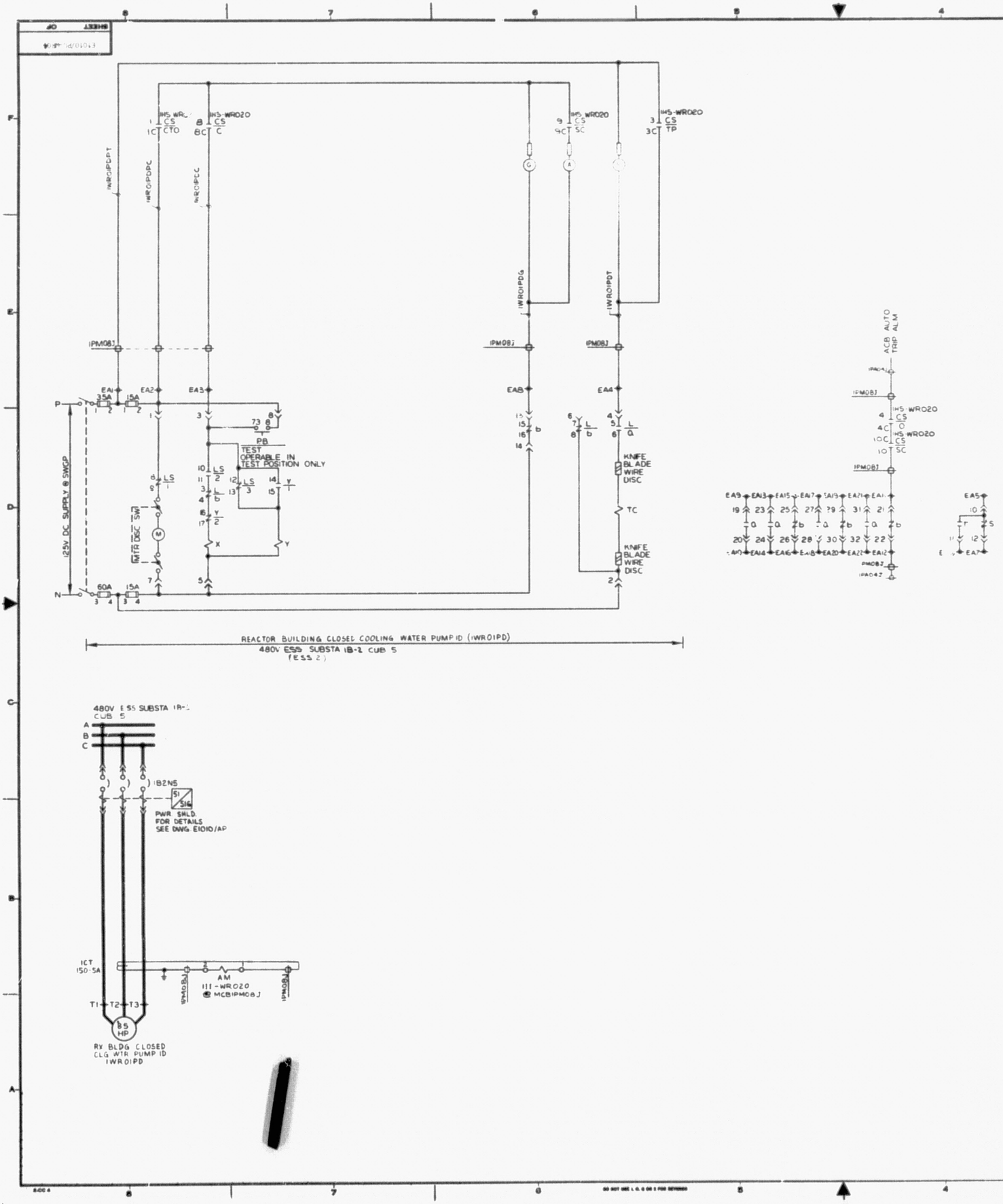
ESSENTIAL COMPONENTS
INCLUDED

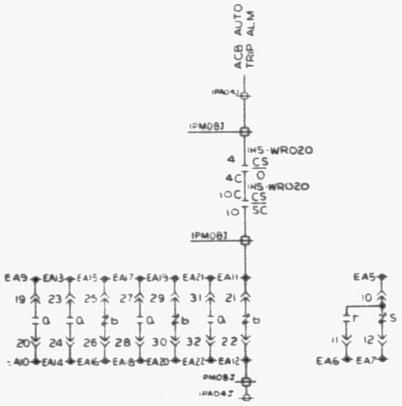
2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-29

ESSENTIAL RBCCW SYSTEM ESD
(SHEET 3 of 9)


1WR01PD
1WR01PD/PC
1WR01PC/T
1WR01PD/G
1WR01PD/T
1PM08J
1WS-WR020
CS
CTO
C
TP
SC
EA1
EA2
EA3
EA4
EA8
35A
15A
60A
PB
TEST
OPERABLE IN
TEST POSITION ONLY
LS
MTR DISC SW
X
Y
TC
KNIFE
BLADE
WIRE
DISC
125V DC SUPPLY @ SWGP
REACTOR BUILDING CLOSED COOLING WATER PUMP ID (1WR01PD)
480V ESS SUBSTA 1B-2 CUB 5
(ESS 2)
ACB AUTO
TRIP ALM
1PA04J
1PA04Z
1PM08Z
480V ESS SUBSTA 1B-2
CUB 5
A
B
C
1B2NS
51
51G
PWR SHLD.
FOR DETAILS
SEE DWG. E1010/AP
ICT
150-5A
AM
111-WR020
@ MCB1PM08J
T1
T2
T3
85
HP
RX BLDG CLOSED
CLG WTR PUMP ID
1WR01PD



IHS-WR020



CONTACTS ODD	CONTACTS EVEN		SYMB	POSITION: PULL TO LOCK	STOP	GENERAL STOP AFTER START	GENERAL START	START
1 1C 0 1 H 0	2C 2 0 1 H 0	1	CO		X	X	X	X
		2	P	X				
3 3C 0 1 H 0	4C 4 0 1 H 0	3	TP	X				
		4	C			X	X	
5 5C 0 1 H 0	6C 6 0 1 H 0	5	O			X	X	
		6	O			X	X	
7 7C 0 1 H 0	8C 8 0 1 H 0	7	O			X	X	
		8	C					X
9 9C 0 1 H 0	10C 10 0 1 H 0	9	SC				X	X
		10	SC				X	X
11 11C 0 1 H 0	12C 12 0 1 H 0	11	SC				X	X
		12	SC				X	X
13 13C 0 1 H 0	14C 14 0 1 H 0	13	STP	X	X	X		
		14	STP	X	X	X		

X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK PISTOL GRIP HANDLE (SB-11)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB 1PM08J

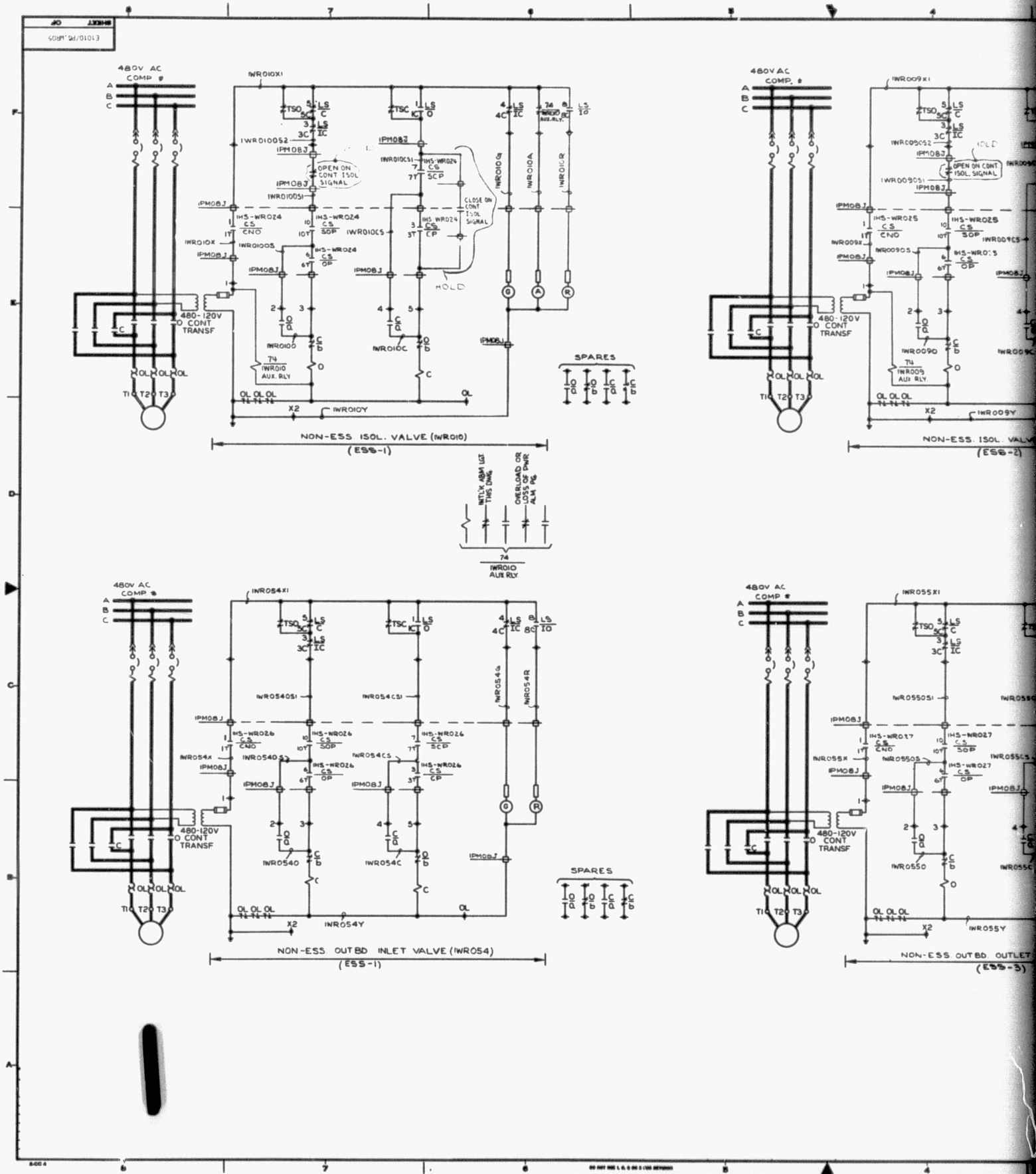
ESSENTIAL COMPONENTS
INCLUDED

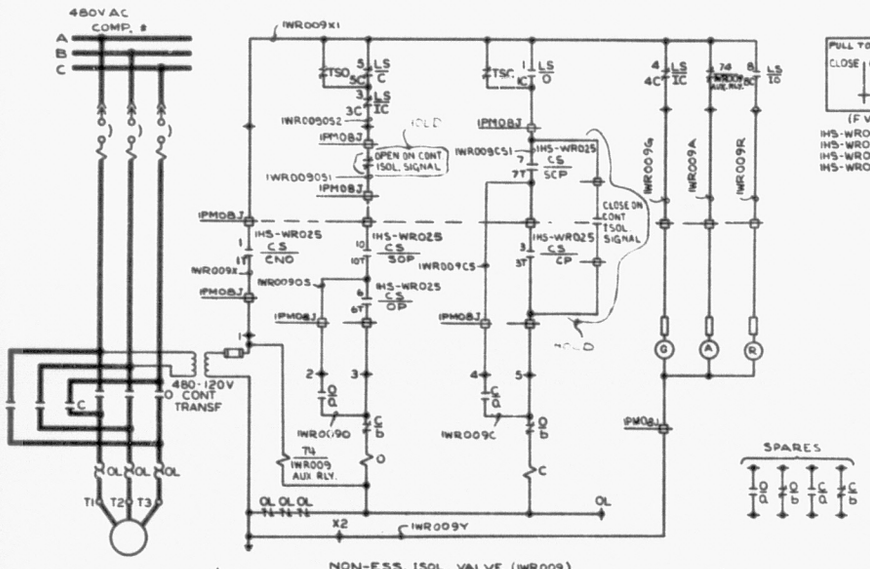
2

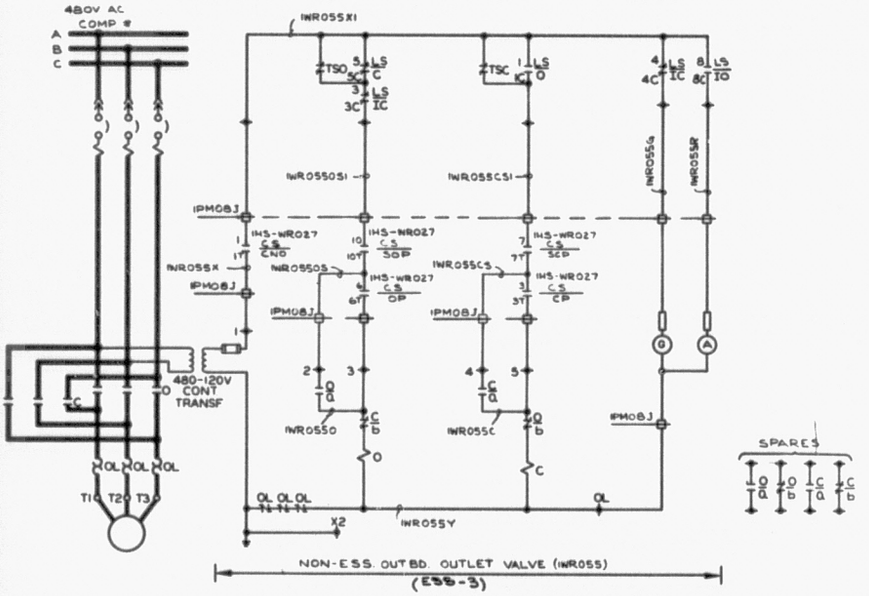
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-29

ESSENTIAL RBCCW SYSTEM ESD
(SHEET 4 of 9)


480V AC COMP #
A
B
C
1WR010X1
1WR010S2
1PM08J
OPEN ON CONT ISOL SIGNAL
1WR010S1
1WR010S
CLOSE ON CONT ISOL SIGNAL
HOLD
1WR010X
1WR010O5
1WR010O
1WR010C
480-120V CONT TRANSF
OL OL OL
T1 T2 T3
OL OL OL
X2
1WR010Y
74 1WR010 AUX. RLY
SPARES
NON-ESS ISOL. VALVE (1WR010)
(ESS-1)
INTLK ABM LGT THIS UNIT
OVERLOAD OR LOSS OF PWR ALM RLY
74 1WR010 AUX RLY
480V AC COMP #
1WR009X1
1WR009S2
1WR009S1
1WR009X
1WR009O5
1WR009O
1WR009C
1WR009Y
NON-ESS. ISOL. VALV
(ESS-2)
480V AC COMP #
1WR054X1
1WR054O1
1WR054C1
1WR054X
1WR054O5
1WR054O
1WR054C
1WR054Y
NON-ESS. OUTBD INLET VALVE (1WR054)
(ESS-1)
480V AC COMP #
1WR055X1
1WR055O1
1WR055X
1WR055O5
1WR055O
1WR055C
1WR055Y
NON-ESS. OUTBD. OUTLET
(ESS-3)





CONTACTS		SYMB.	POSITION						
			CLOSE	NORMAL				OPEN	
				AFTER CLOSE		AFTER OPEN			
			PULL OUT	IN	IN	PULL OUT	IN	IN	PULL OUT
2 2T 1T 1	1	CNO		X	X			X	X	
	2	P	X			X	X			X
4 4T 3T 3	3	CP	X	X						
	4	NP			X	X	X	X		
6 6T 5T 5	5	NP			X	X	X	X		
	6	OP							X	X
8 8T 7T 7	7	SCP	X	X	X	X				
	8	SCP	X	X	X	X				
10 10T 9T 9	9	SOP					X	X	X	X
	10	SOP					X	X	X	X

X - DENOTES CONTACT CLOSED
BLACK OVAL GRIP HANDLE (SERIES 40 ELECTRO SWITCH)
ROTARY SPRING RETURN TO "NORMAL" POSITION
PROVISION FOR PULL-OUT IN ALL THREE POSITIONS (CLOSE-NORMAL-OPEN)
LATERAL SPRING RETURN TO "IN" POSITION ROTATES IN PULL OUT POSITION)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL. 1PM08J

ROTOR	CONTACTS	SYMB.	POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1 O—I—O 1C	O			X
	2 O—I—O 2C	O			X
	3 O—I—O 3C	IC	X	X	
	4 O—I—O 4C	IC	X	X	
2	5 O—I—O 5C	C	X		
	6 O—I—O 6C	C	X		
	7 O—I—O 7C	IO		X	X
	8 O—I—O 8C	IO		X	X
3	9 O—I—O 9C	O			X
	10 O—I—O 10C	O			X
	11 O—I—O 11C	IC	X	X	
	12 O—I—O 12C	IC	X	X	
4	13 O—I—O 13C	C	X		
	14 O—I—O 14C	C	X		
	15 O—I—O 15C	IO		X	X
	16 O—I—O 16C	IO		X	X
TSC			CLOSING TORQUE SWT OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
TSO			OPENING TORQUE SWT OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VLVS 1WR009, 1WR010, 1WR054, 1WR055

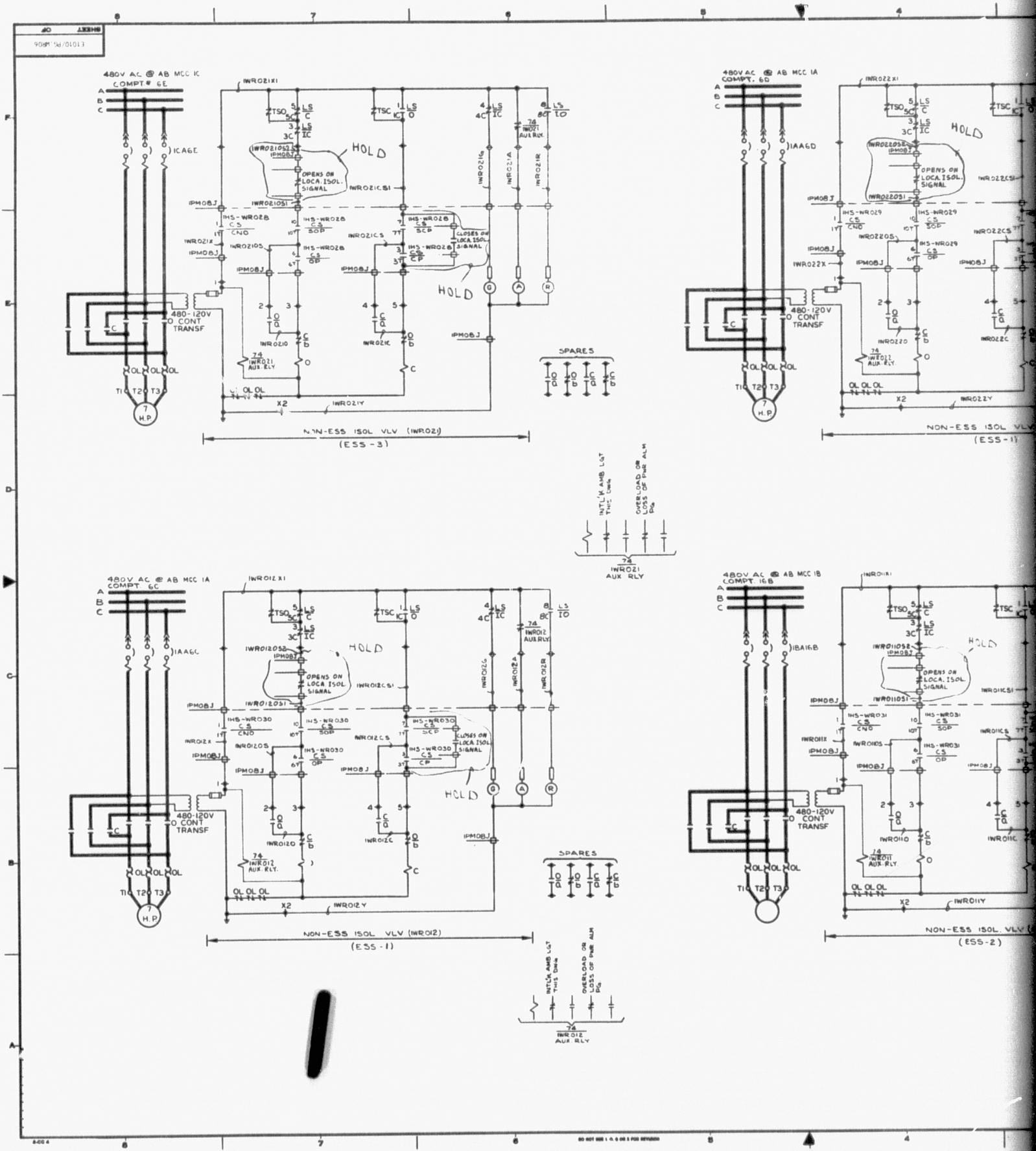
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

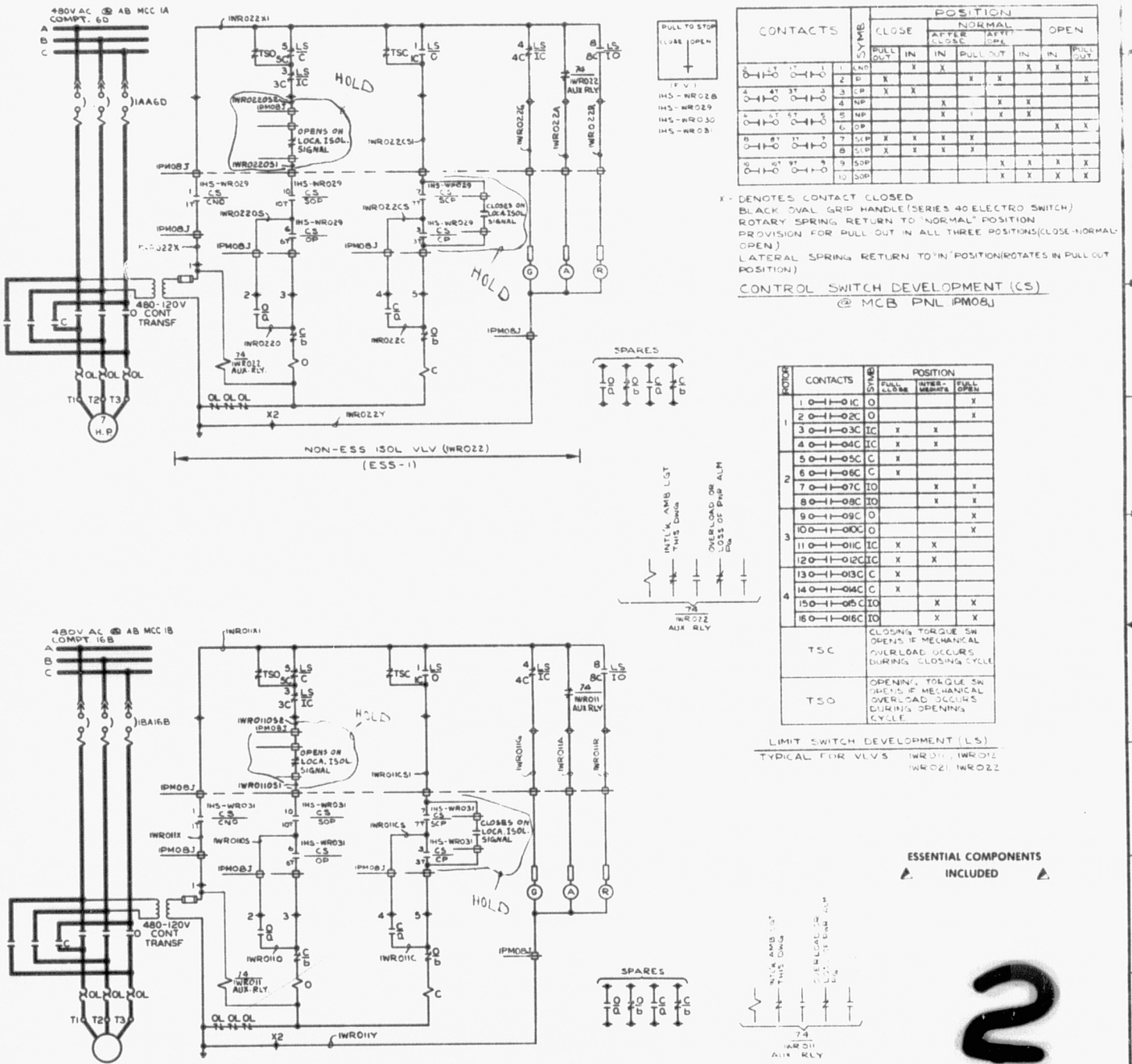
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-29

ESSENTIAL RBCCW SYSTEM ESD
(SHEET 5 of 9)


480V AC @ AB MCC 1C
COMPT.# 6E
IWR021X1
HOLD
OPENS ON LOCA. ISOL. SIGNAL
IWR021CS1
IWR021052
IPM08J
IWR021051
IHS-WR028 CS CNO
IHS-WR028 CS SOP
IHS-WR028 CS SCP
IHS-WR028 CS CP
CLOSES ON LOCA. ISOL. SIGNAL
IWR021X
IWR021OS
IWR021C
IWR021O
IWR021K
74 IWR021 AUX. RLY.
IWR021A
IWR021R
IWR021C
IWR021Y
X2
OL OL OL
T1 T2 T3
7 H.P.
480-120V CONT TRANSF
1AA6E
SPARES
NON-ESS ISOL VLV (IWR021)
(ESS-3)
480V AC @ AB MCC 1A
COMPT. 6D
IWR022X1
IWR022052
IWR022051
IWR022CS1
IWR022X
IWR022OS
IWR022O
IWR022K
IWR022C
IWR022A
IWR022R
IWR022Y
1AA6D
NON-ESS ISOL VLV
(ESS-1)
INTLK AMB LGT THIS DWR
OVERLOAD OR LOSS OF PWR ALM PCs
74 IWR021 AUX RLY
480V AC @ AB MCC 1A
COMPT. 6C
IWR012X1
IWR012052
IWR012051
IWR012CS1
IWR012X
IWR012OS
IWR012O
IWR012K
IWR012C
IWR012A
IWR012R
IWR012Y
1AA6C
NON-ESS ISOL VLV (IWR012)
(ESS-1)
480V AC @ AB MCC 1B
COMPT. 16B
IWR011X1
IWR011052
IWR011051
IWR011CS1
IWR011X
IWR011OS
IWR011O
IWR011K
IWR011C
IWR011Y
1BA16B
NON-ESS ISOL VLV
(ESS-2)
INTLK AMB LGT THIS DWR
OVERLOAD OR LOSS OF PWR ALM PCs
74 IWR012 AUX RLY



PULL TO STOP
CLOSE OPEN
(T.S.V.)
IHS-WR028
IHS-WR029
IHS-WR030
IHS-WR031

CONTACTS		SYMB.	POSITION: CLOSE	NORMAL: AFTER CLOSE	NORMAL: AFTER OPN.	OPEN
			PULL OUT	IN	IN	PULL OUT	IN	IN	PULL OUT
C2 12	1	CNO		X	X		X	X	
2 11	2	P	X			X			X
4 37 3	3	CP	X	X					
4	4	NP			X		X	X	
5	5	NP				X			
6 67 5	6	OP						X	X
8 87 7	7	SCP	X	X	X	X			
8	8	SCP	X	X	X	X			
10 107 9	9	SOP					X	X	X
	10	SOP					X	X	X

X - DENOTES CONTACT CLOSED
BLACK OVAL GRIP HANDLE (SERIES 40 ELECTRO SWITCH)
ROTARY SPRING RETURN TO "NORMAL" POSITION
PROVISION FOR PULL OUT IN ALL THREE POSITIONS (CLOSE-NORMAL-OPEN)
LATERAL SPRING RETURN TO "IN" POSITION (ROTATES IN PULL OUT POSITION)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL 1PM08J

ROTOR	CONTACTS	SYMB.	POSITION: FULL CLOSE	OUTER-MOST	FULL OPEN
1	1 01C	O			X
	2 02C	O			X
	3 03C	IC	X	X	
	4 04C	IC	X	X	
2	5 05C	C	X		
	6 06C	C	X		
	7 07C	IO		X	X
	8 08C	IO		X	X
3	9 09C	O			X
	10 010C	O			X
	11 011C	IC	X	X	
	12 012C	IC	X	X	
4	13 013C	C	X		
	14 014C	C	X		
	15 015C	IO		X	X
	16 016C	IO		X	X
TSC			CLOSING TORQUE SW OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
TSO			OPENING TORQUE SW OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE		

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR VLVS IWR011, IWR012, IWR021, IWR022

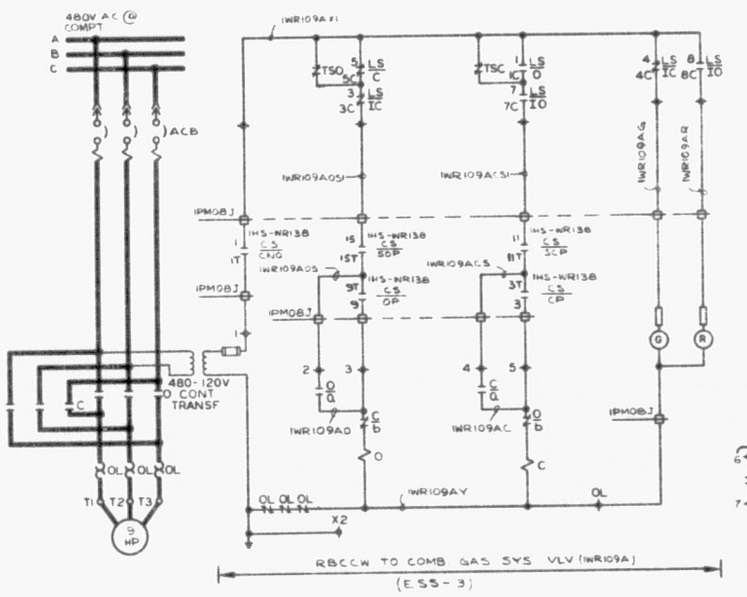
ESSENTIAL COMPONENTS
INCLUDED

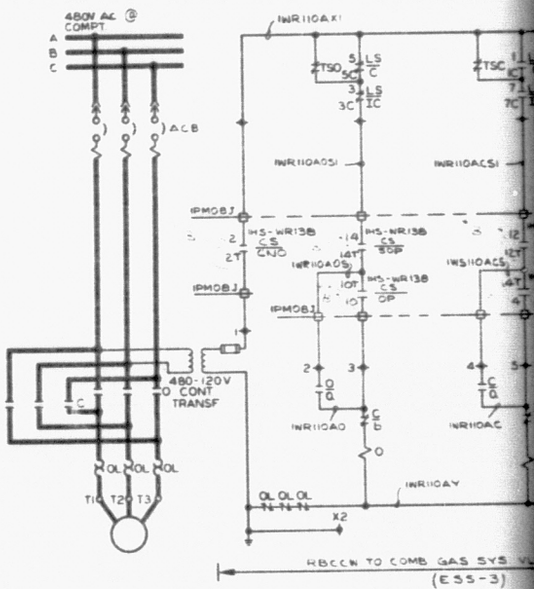
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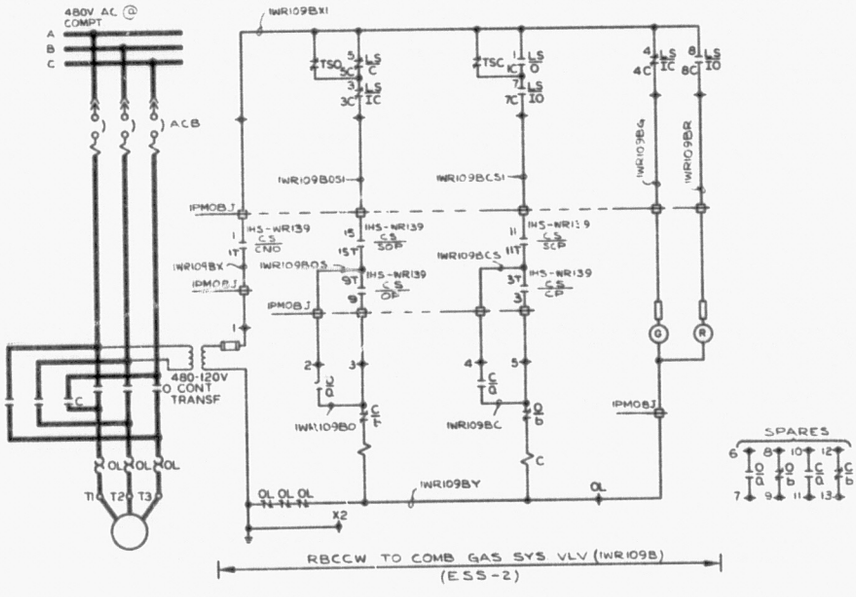
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FINAL SAFETY ANALYSIS REPORT

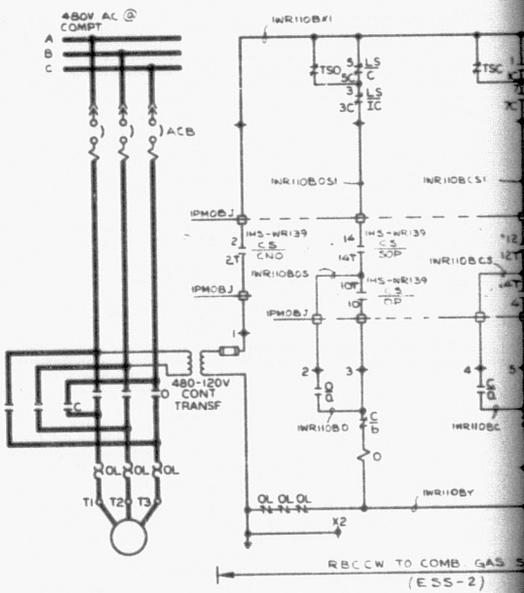
FIGURE 7.3-29

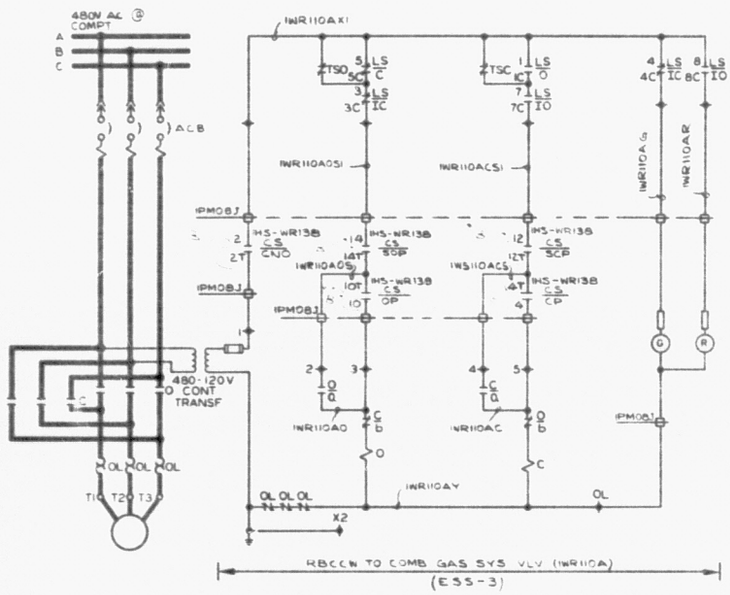
ESSENTIAL RBCCW SYSTEM ESD
(SHEET 6 of 9)


480V AC @ COMPT
A
B
C
ACB
480-120V CONT TRANSF
OL OL OL
T1 T2 T3
9 HP
1WR109AX1
TSO 5C LS C
3C LS IC
TSC 1C LS O
7C LS IO
4C LS IC 8C LS IO
1WR109A05I
1WR109AC5I
1WR109AG
1WR109AR
1PM08J
IHS-WR138 CS CNO
IHS-WR138 CS SOP
IHS-WR138 CS OP
IHS-WR138 CS CP
1WR109A05
1WR109AC5
1WR109AO
1WR109AC
1WR109AY
OL OL OL
X2
SPARES
RBCCW TO COMB GAS SYS VLV (1WR109A)
(ESS-3)


480V AC @ COMPT
A
B
C
ACB
480-120V CONT TRANSF
OL OL OL
T1 T2 T3
1WR110AX1
TSO 5C LS C
3C LS IC
TSC 7C
1WR110A05I
1WR110AC5I
1PM08J
IHS-WR138 CS CNO
IHS-WR138 CS SOP
IHS-WR138 CS OP
1WR110A05
1WS110AC5
1WR110AO
1WR110AC
1WR110AY
OL OL OL
X2
RBCCW TO COMB GAS SYS VL
(ESS-3)


480V AC @ COMPT
A
B
C
ACB
480-120V CONT TRANSF
OL OL OL
T1 T2 T3
1WR109BX1
TSO 5C LS C
3C LS IC
TSC 1C LS O
7C LS IO
4C LS IC 8C LS IO
1WR109B05I
1WR109BC5I
1WR109BG
1WR109BR
1PM08J
IHS-WR139 CS CNO
IHS-WR139 CS SOP
IHS-WR139 CS OP
IHS-WR139 CS CP
1WR109BX
1WR109B05
1WR109BC5
1WR109BO
1WR109BC
1WR109BY
OL OL OL
X2
SPARES
RBCCW TO COMB GAS SYS VLV (1WR109B)
(ESS-2)


480V AC @ COMPT
A
B
C
ACB
480-120V CONT TRANSF
OL OL OL
T1 T2 T3
1WR110BX1
TSO 5C LS C
3C LS IC
TSC 7C
1WR110B05I
1WR110BC5I
1PM08J
IHS-WR139 CS CNO
IHS-WR139 CS SOP
IHS-WR139 CS OP
1WR110B05
1WR110BC5
1WR110BO
1WR110BC
1WR110BY
OL OL OL
X2
RBCCW TO COMB GAS S
(ESS-2)





CONTACTS			SYMB	POSITION						
				CLOSE		NORMAL AFTER CLOSE	NORMAL AFTER OPEN		OPEN	
				PULL OUT	IN	IN	PULL OUT	IN	IN	PULL OUT
2 2T 01 10	1 01 10	1	CNO		X	X		X	X	
		2	CNO		X	X		X	X	
4 4T 01 10	3 01 10	3	CP	X	X					
		4	CP	X	X					
6 6T 01 10	5 01 10	5	NP			X	X	X	X	
		6	NP			X	X	X	X	
8 8T 01 10	7 01 10	7	NP			X	X	X	X	
		8	ND			X	X	X	X	
10 10T 01 10	9 01 10	9	OP						X	X
		10	OP						X	X
12 12T 01 10	11 01 10	11	SCP	X	X	X	X			
		12	SCP	X	X	X	X			
14 14T 01 10	13 01 10	13	SCP	X	X	X	X			
		14	SOP					X	X	X
16 16T 01 10	15 01 10	15	SOP					X	X	X
		16	SOP					X	X	X

X - DENOTES CONTACT CLOSED
BLACK OVAL GRIP HANDLE (SERIES 40 ELECTRO SWITCH)
ROTARY SPRING RETURN TO "NORMAL" POSITION
PROVISION FOR PULL-OUT IN ALL THREE POSITIONS (CLOSE - NORMAL - OPEN)
LATERAL SPRING RETURN TO "IN" POSITION (ROTATES IN PULL OUT POSITION)

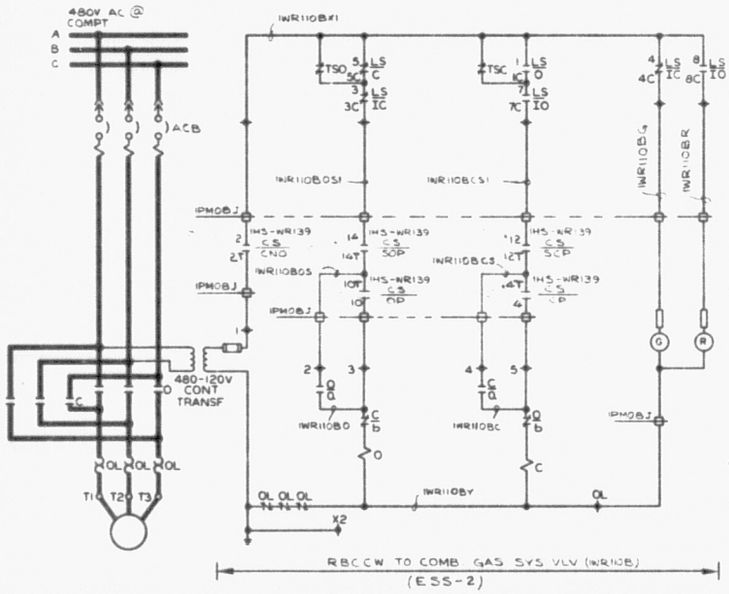
CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL. 1PM08J



ROTOR	CONTACTS	SYMB	POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1 O—I—O 1C	O			X
	2 O—I—O 2C	O			X
	3 O—I—O 3C	IC	X	X	
	4 O—I—O 4C	IC	X	X	
2	5 O—I—O 5C	C	X		
	6 O—I—O 6C	C	X		
	7 O—I—O 7C	IO		X	X
	8 O—I—O 8C	IO		X	X
3	9 O—I—O 9C	O			X
	10 O—I—O 10C	O			X
	11 O—I—O 11C	IC	X	X	
	12 O—I—O 12C	IC	X	X	
4	13 O—I—O 13C	C	X		
	14 O—I—O 14C	C	X		
	15 O—I—O 15C	IO		X	X
	16 O—I—O 16C	IO		X	X

TSC	CLOSING TORQUE SWT OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE
TSO	OPENING TORQUE SWT OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE

LIMIT SWITCH DEVELOPMENT (LS)
TYP. FOR VLVS 1NR109A B
1NR110A B





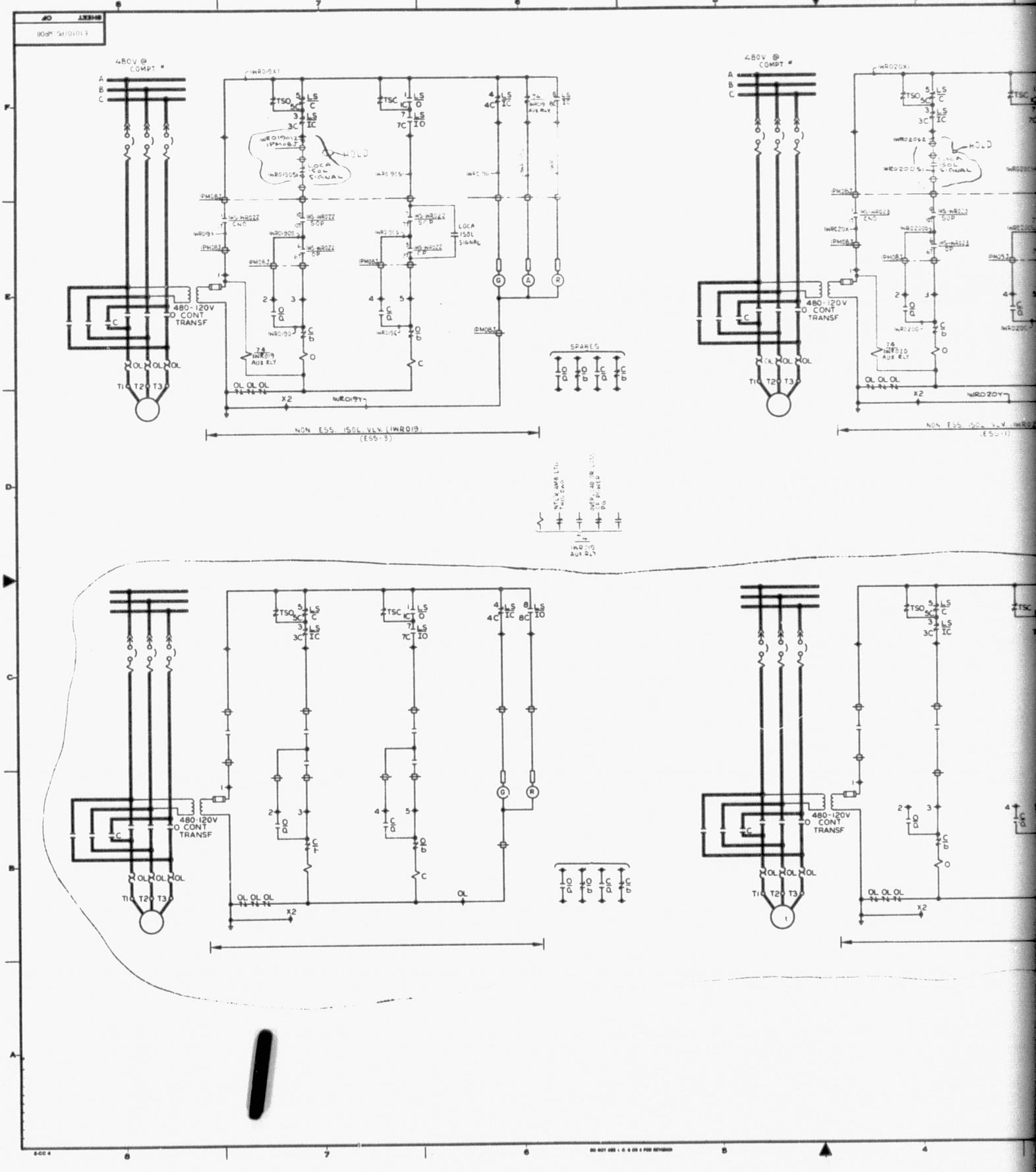
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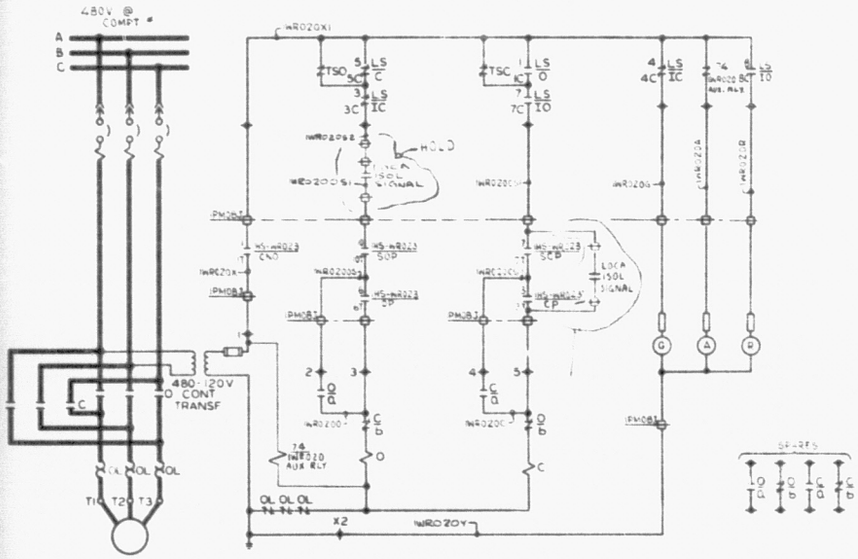
ESSENTIAL COMPONENTS
INCLUDED

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-29

ESSENTIAL RBCCW SYSTEM ESD
(SHEET 7 of 9)


480V @ COMPT.
480-120V CONT TRANSF
T1 T2 T3
OL OL OL
X2
HOLD
LOCA ISOL SIGNAL
SPARES
NON ESS. ISOL VLV. (IWR019) (ESS-3)
NON ESS. ISOL VLV. (IWR020) (ESS-1)





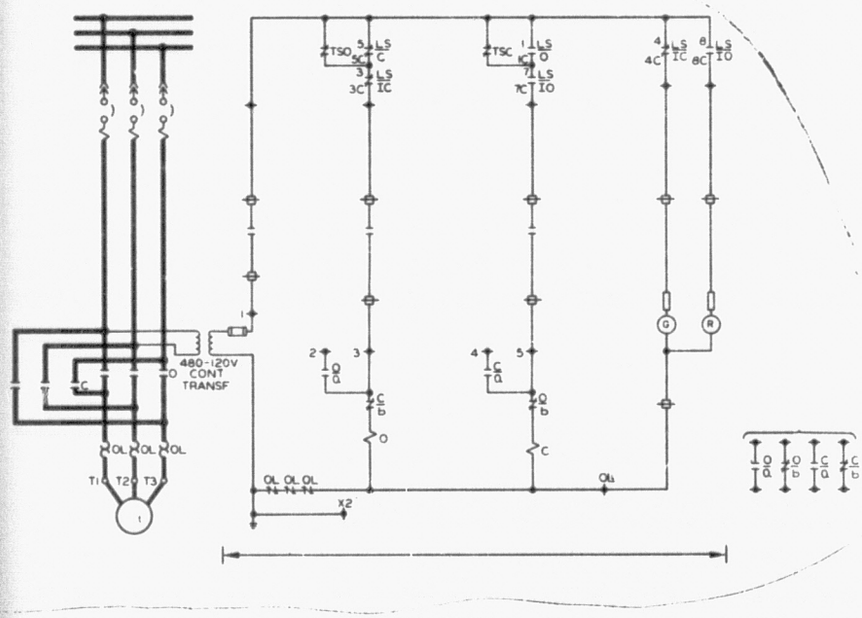
CONTACTS				POSITION					
				CLOSE	INTER-MEDIATE	AFTER 1ST PULL OUT		AFTER 2ND PULL OUT	
E-EN	SOD			PULL OUT	IN	IN	PULL OUT	IN	IN
2	1	1	NO		X	X		X	X
		2	P	X			X	X	
4	3	3	CP	X	X				X
		4	NP			X	X	X	
6	5	5	NP		X	X	X	X	
		6	SP						X
8	7	7	SP	X	X	X	X		
		8	CP	X	X	X	X		
10	9	9	SOP					X	X
		10	SOP					X	X

X-DENOTES CONTACT CLOSED
BLACK OVAL (●) HANDLE (SEE FIG. 4) ELECTRICAL SWITCH
ROTARY SPRING RETURN TO NORMAL POSITION
PROVISION FOR PULL OUT IN ALL THREE POSITIONS (CLOSE NORMAL OPEN)
LATERAL SPRING RETURN TO "IN" POSITION (ROTATES IN PULL OUT POSITION)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL. 1PM08J

MOTOR	CONTACTS	SYMB.	POSITION		
			FULL CLOSE	INTER-MEDIATE	FULL OPEN
1	1 O—I—O 1C	O			X
	2 O—I—O 2C	O			X
	3 O—I—O 3C	IC	X	X	
	4 O—I—O 4C	IC	X	X	
2	5 O—I—O 5C	C	X		
	6 O—I—O 6C	C	X		
	7 O—I—O 7C	IO		X	X
	8 O—I—O 8C	IO		X	X
3	9 O—I—O 9C	O			X
	10 O—I—O 10C	O			X
	11 O—I—O 11C	IC	X	X	
	12 O—I—O 12C	IC	X	X	
4	13 O—I—O 13C	C	X		
	14 O—I—O 14C	C	X		
	15 O—I—O 15C	IO		X	X
	16 O—I—O 16C	IO		X	X
TSC		CLOSING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE			
TSO		OPENING TORQUE SWITCH OPENS IF MECHANICAL OVERLOAD OCCURS DURING OPENING CYCLE			

LIMIT SWITCH DEVELOPMENT (LS)
TYPICAL FOR (LS'S (WR020) (WR023)



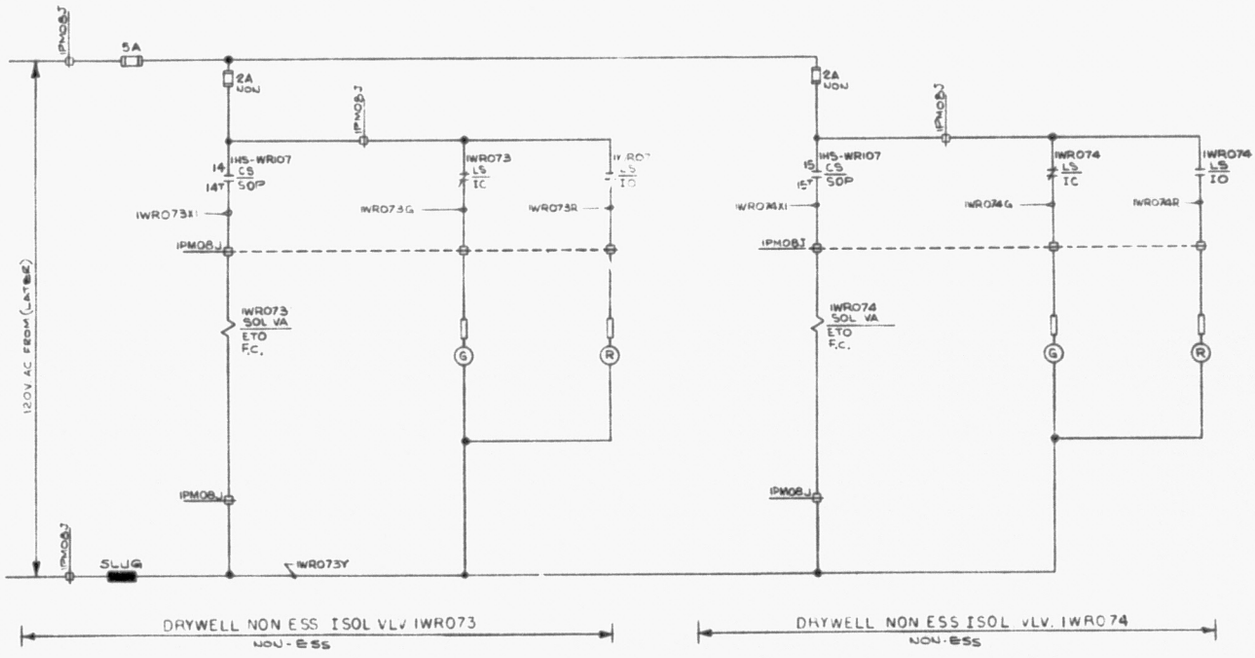
ESSENTIAL COMPONENTS
INCLUDED

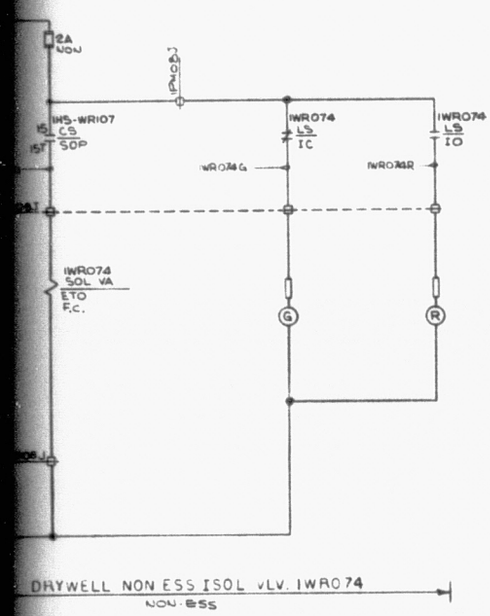
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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-29

ESSENTIAL RBCCW SYSTEM ESD
(SHEET 8 of 9)


5A
2A
NON
1HS-WR107
14
CS
14T
SOP
1WR073
LS
IC
1WR073X
1WR073G
1WR073R
1PM08J
1WR073
SOL VA
ETO
F.C.
120V AC FROM (LATER)
SLUG
1WR073Y
DRYWELL NON ESS ISOL VLV 1WR073
NON-ESS
1HS-WR107
15
CS
15T
SOP
1WR074
LS
IC
1WR074X
1WR074G
1WR074R
1WR074
SOL VA
ETO
F.C.
DRYWELL NON ESS ISOL VLV. 1WR074
NON-ESS





CONTACTS	SYMB	POSITION: CLOSE PULL OUT	CLOSE IN	NORMAL AFTER CLOSED N	NORMAL AFTER OPEN PULL OUT	NORMAL AFTER OPEN IN	OPEN IN	OPEN PULL OUT
2T 1T 1	1 CNE		X	X		X	X	
	2 P	X			X	X		X
4T 3T 3	3 CP	X	X					
	4 CP	X	X					
6T 5T 5	5 NP			X	X	X	X	
	6 NP			X	X	X	X	
8T 7T 7	7 NP			X	X	X	X	
	8 NP			X	X	X	X	
10T 9T 9	9 OP						X	X
	10 OP						X	X
12T 11T 11	11 SCP	X	X	X	X			
	12 SCP	X	X	X	X			
14T 13T 13	13 SCP	X	X	X	X			
	14 SOP					X	X	X
16T 15T 15	15 SOP					X	X	X
	16 SOP					X	X	X

X- DENOTES CONTACT CLOSED
BLACK OVAL GRIP HANDLE (SERIES 40 ELECTRO SWITCH)
ROTARY SPRING RETURN TO "NORMAL" POSITION
PROVISION FOR PULL-OUT IN ALL THREE POSITIONS (CLOSE-NORMAL-OPEN)
LATERAL SPRING RETURN TO "IN" POSITION (ROTATES IN PULL OUT POSITION)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL 1PM08J

2

ESSENTIAL COMPONENTS
INCLUDED

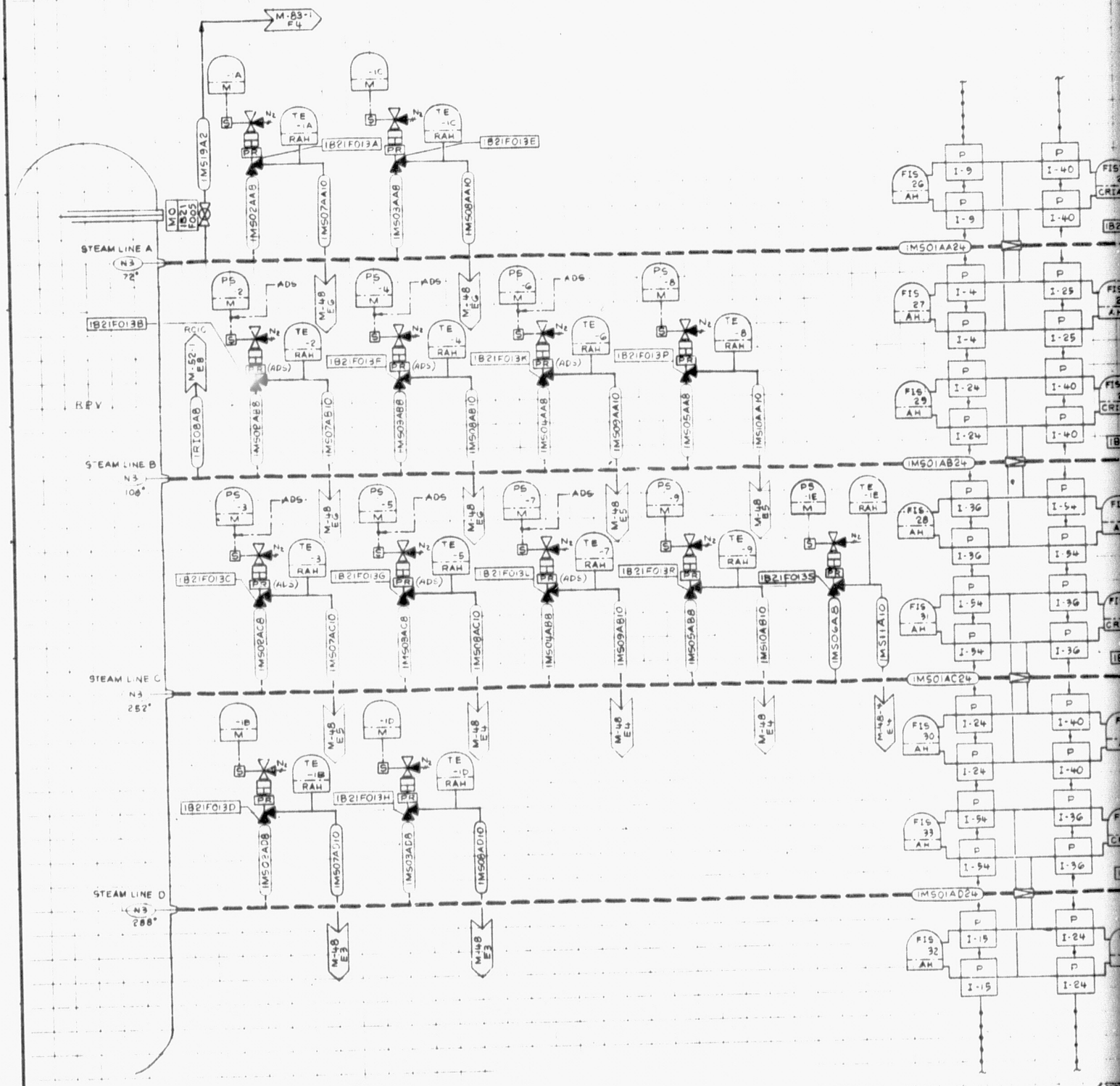
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

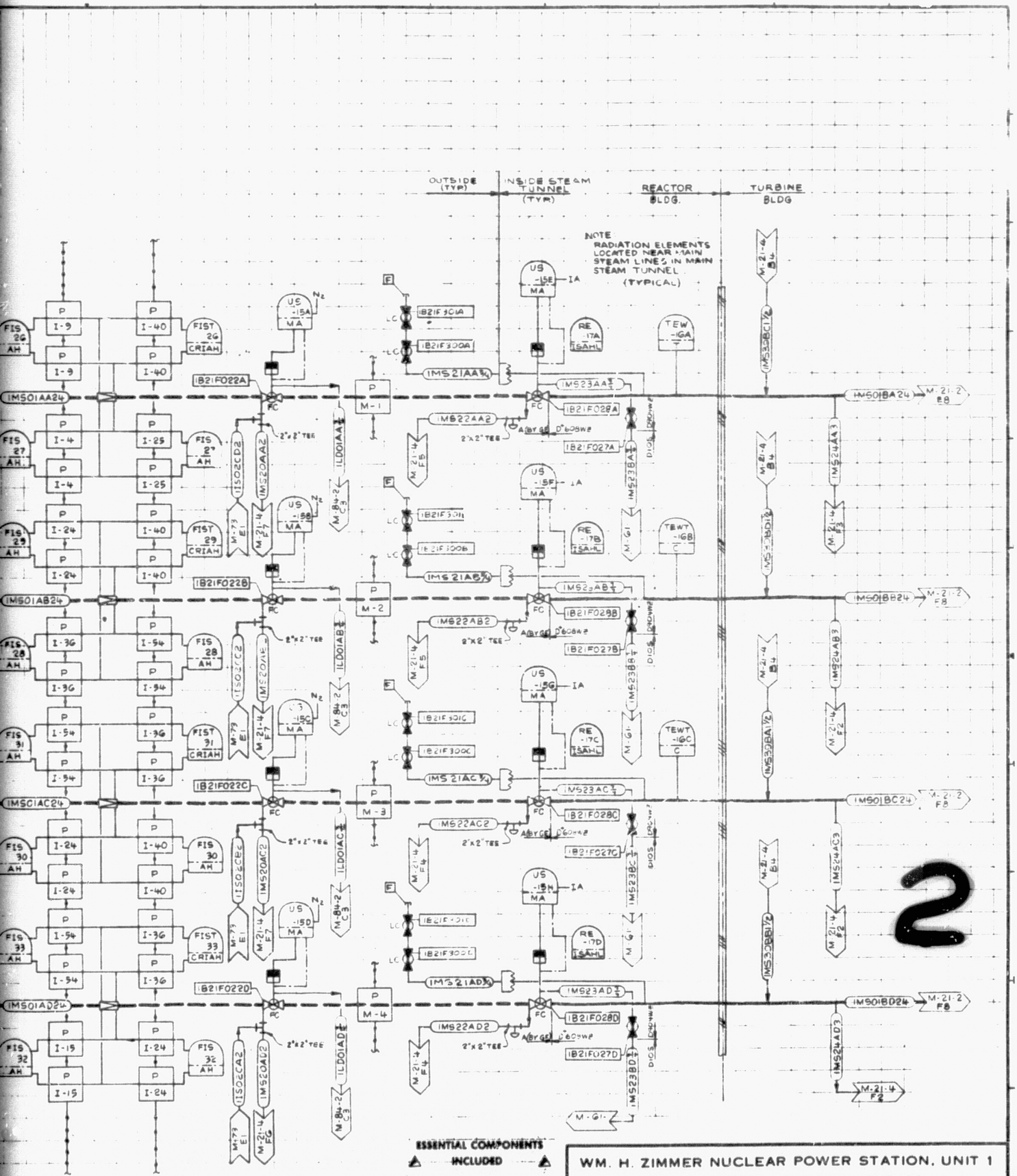
FIGURE 7.3-29

ESSENTIAL RBCCW SYSTEM ESD

(SHEET 9 of 9)

M-21-1


M-83-1 F4
STEAM LINE A
N3 72°
STEAM LINE B
N3 106°
STEAM LINE C
N3 252°
STEAM LINE D
N3 288°
R.P.V.
1B21F013A
1B21F013E
1B21F013B
1B21F013F
1B21F013K
1B21F013P
1B21F013C
1B21F013G
1B21F013L
1B21F013R
1B21F013S
1B21F013D
1B21F013H
1MS19A2
1MS02AA8
1MS07AA10
1MS03AA8
1MS08AA10
1MS01AA24
1MS01AB24
1MS01AC24
1MS01AD24
1R10B4B
1MS02AB8
1MS07AB10
1MS03AB8
1MS08AB10
1MS04AA8
1MS09AA10
1MS05AA8
1MS10AA10
1MS02AC8
1MS07AC10
1MS03AC8
1MS08AC10
1MS04AB8
1MS09AB10
1MS05AB8
1MS10AB10
1MS06AB
1MS11A10
1MS02AD8
1MS07AD10
1MS03AD8
1MS08AD10
ADS
(ADS)
(AL3)
RCIC
M-52 E8
M-48 E6
M-48 E5
M-48 E4
M-48 E3
M-48-9 E4
FIS 26 AH
FIS 27 AH
FIS 29 AH
FIS 28 AH
FIS 31 AH
FIS 30 AH
FIS 33 AH
FIS 32 AH



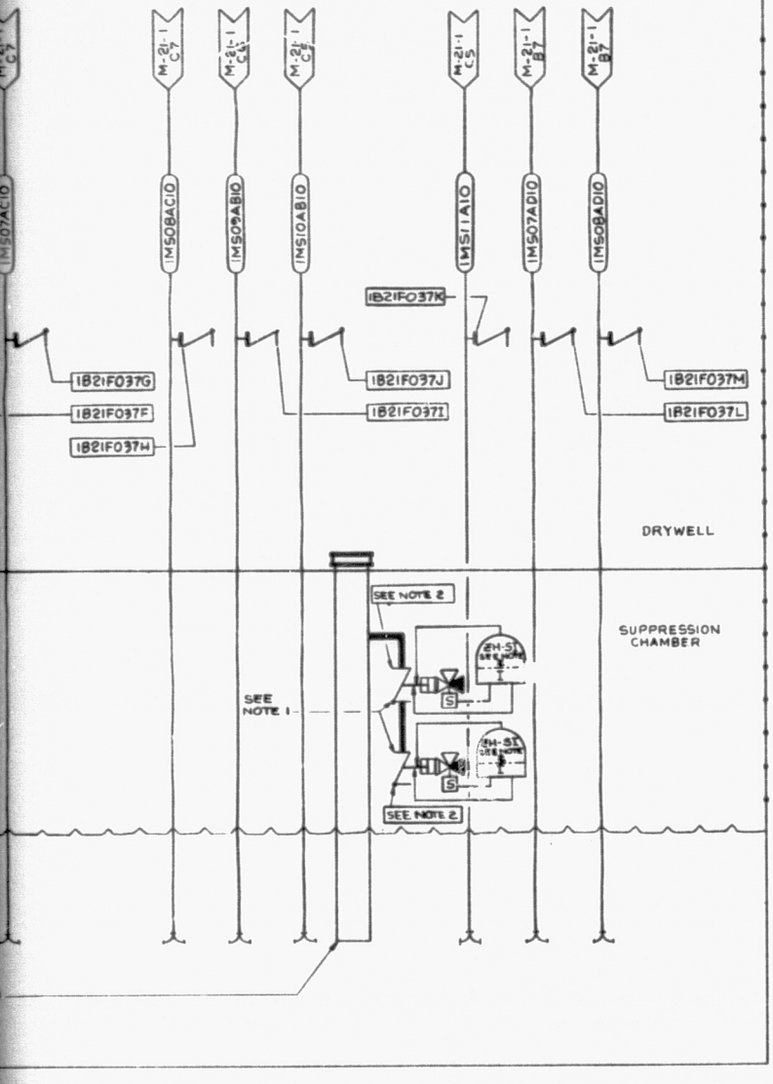
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-30

AUTOMATIC DEPRESSURIZATION SYSTEM P&ID
(SHEET 1 of 2)

DETAIL "A"

NOTE:
THE P & I D/C & I DETAILS
FUNCTION SYMBOLS ARE
UNLESS OTHERWISE NOTE
REFERENCE ARE SHOWN



NOTES:

1. TWO VACUUM RELIEF VALVES PER SELECTED DOWNCOMER. ARRANGEMENT SHOWN IS ONLY FOR QUANTITY.
2. FOR PARTICULAR DOWNCOMER DETAILS, EQUIPMENT, VALVE, LINE AND INSTRUMENT NUMBERS, REFER TO THE FOLLOWING DWGS.

DOWNCOMER AZIMUTH	DETAIL DWG	DOWNCOMER AZIMUTH	DETAIL DWG
24°	M-748-1	216°	M-748-6
72°	M-748-2	252°	M-748-7
108°	M-748-3	288°	M-748-8
144°	M-748-4	348°	M-748-9
180°	M-748-5	0°	M-748-10

ESSENTIAL COMPONENTS
INCLUDED

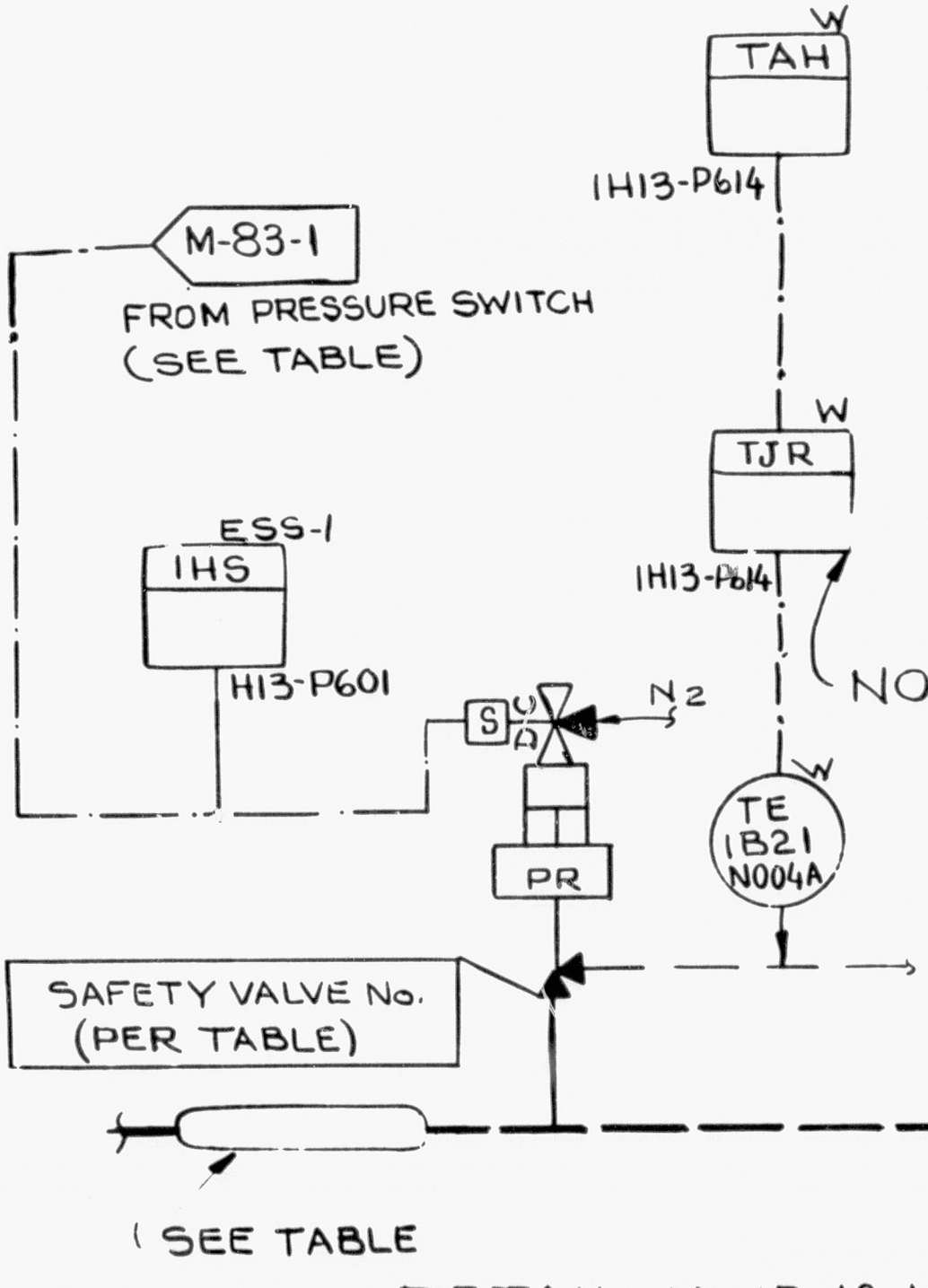
NOTE:
THE P & I D/C & I DETAILS FOR THE C & I FUNCTION SYMBOLS ARE SHOWN ON DRAWING M-748
UNLESS OTHERWISE NOTED. SHEET NUMBER & DETAIL REFERENCE ARE SHOWN IN THE FUNCTION SYMBOL.

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-30

AUTOMATIC DEPRESSURIZATION SYSTEM P&ID
(SHEET 2 of 2)

DETAIL No.	SERVIC
1A	SAFATY V OUTLE TEMP.
1B	
1C	
1D	
1E	
1F	
1G	



DETAIL 1A, 1B, 1C, 1D, 1E
Rx SAFETY VALVE OUTLET TEMP.

(M-21-1)
(M-40-2)

IL	SERVICE	SAFETY VALVE No.	TE No.	MAIN STEAM LINE NUMBER	1HS	1PS
	SAFATY VAL OUTLET TEMP.	1B21 F013A	1B21 N004A	1MS01AA24	1B21C-S020	1B21C N039A
		1B21-F013D	1B21-N004D	1MS01AD24	1B21C-S021	1B21C-N039D
		1B21-F013E	1B21-N004E	1MS01AA24	1B21C-S022	1B21C-N039E
		1B21 F013H	1B21-N004H	1MS01AD24	1B21C-S023	1B21C-N039H
E		1B21-F013S	1B21-N004S	1MS01AC24	1B21C-S009	1B21C-N039S
F		1B21 F013P	1B21-N004P	1MS01BB24	1B21C-S007	1B21C-N039P
G		1B21 F013R	1B21 N004R	1MS01BC24	1B21C-S008	1B21C N039R

MMON MULTI-POINT
MPERATURE RECORDER
R ALL SAFETY VALVES

STEAM LINE

EMP.

ESSENTIAL COMPONENTS

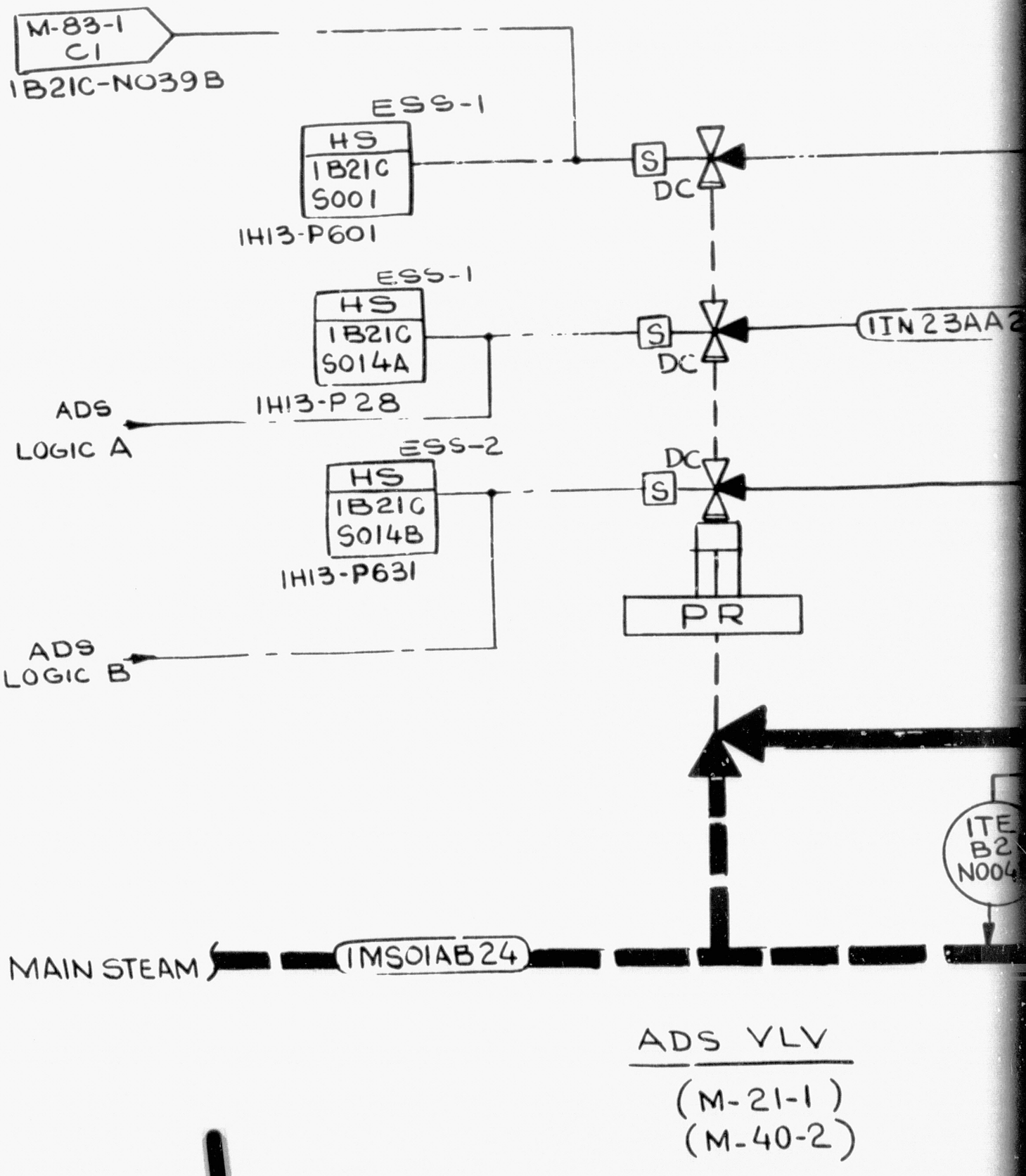
▲ **INCLUDED** ▲

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

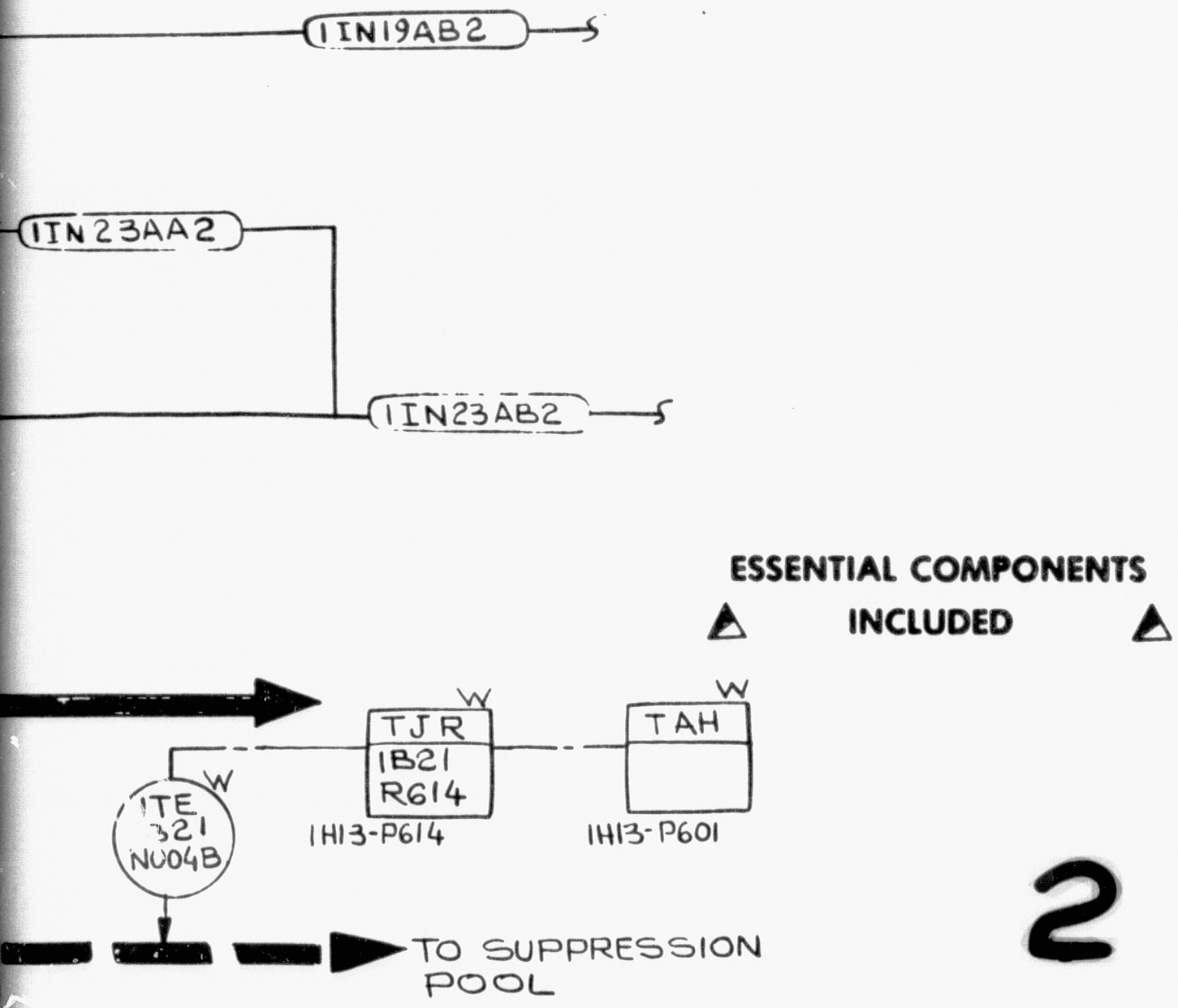
FIGURE 7.3-31

AUTOMATIC DEPRESSURIZATION SYSTEM C&ID
(SHEET 1 of 7)

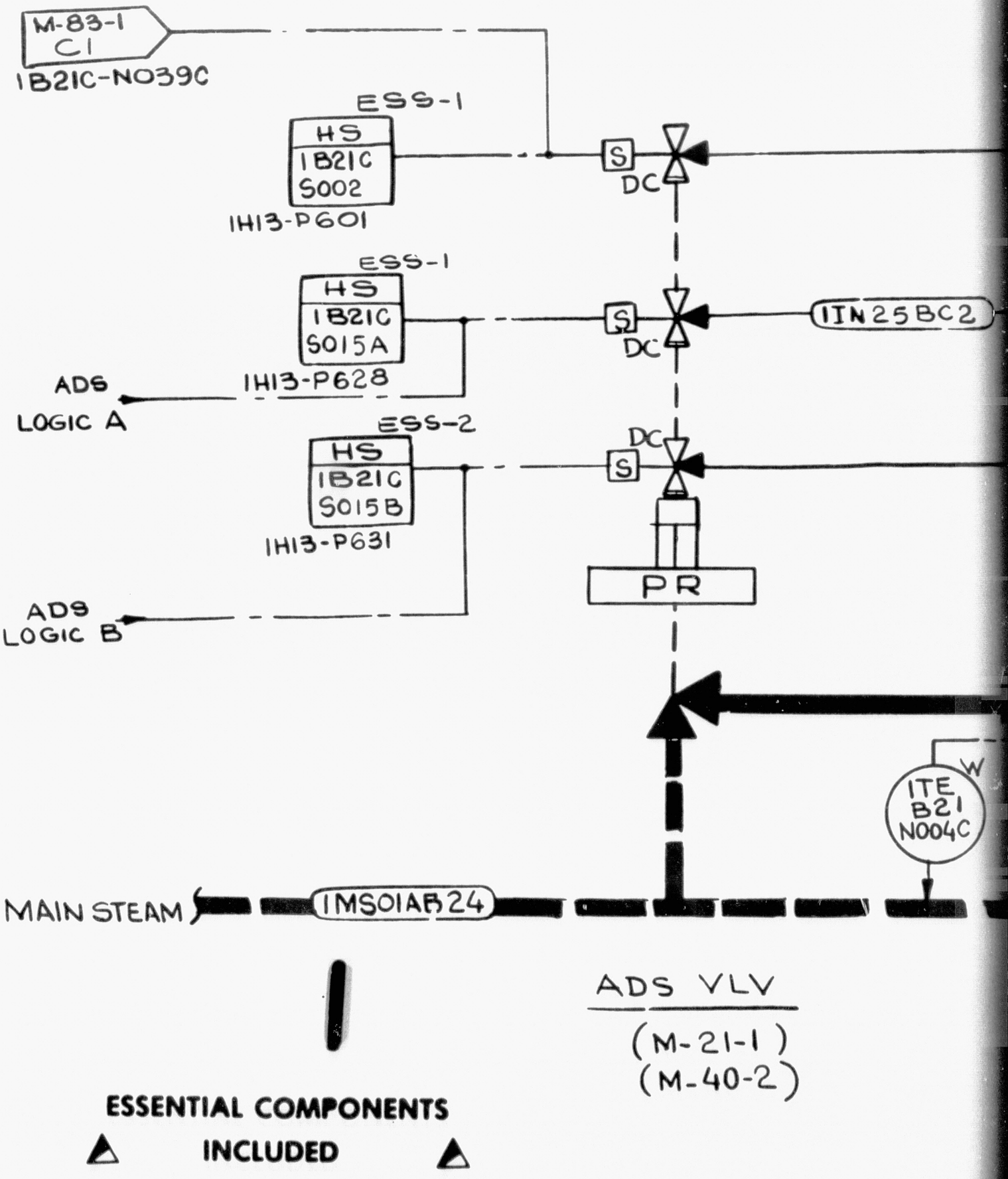


ADS VLV

(M-21-1)
(M-40-2)

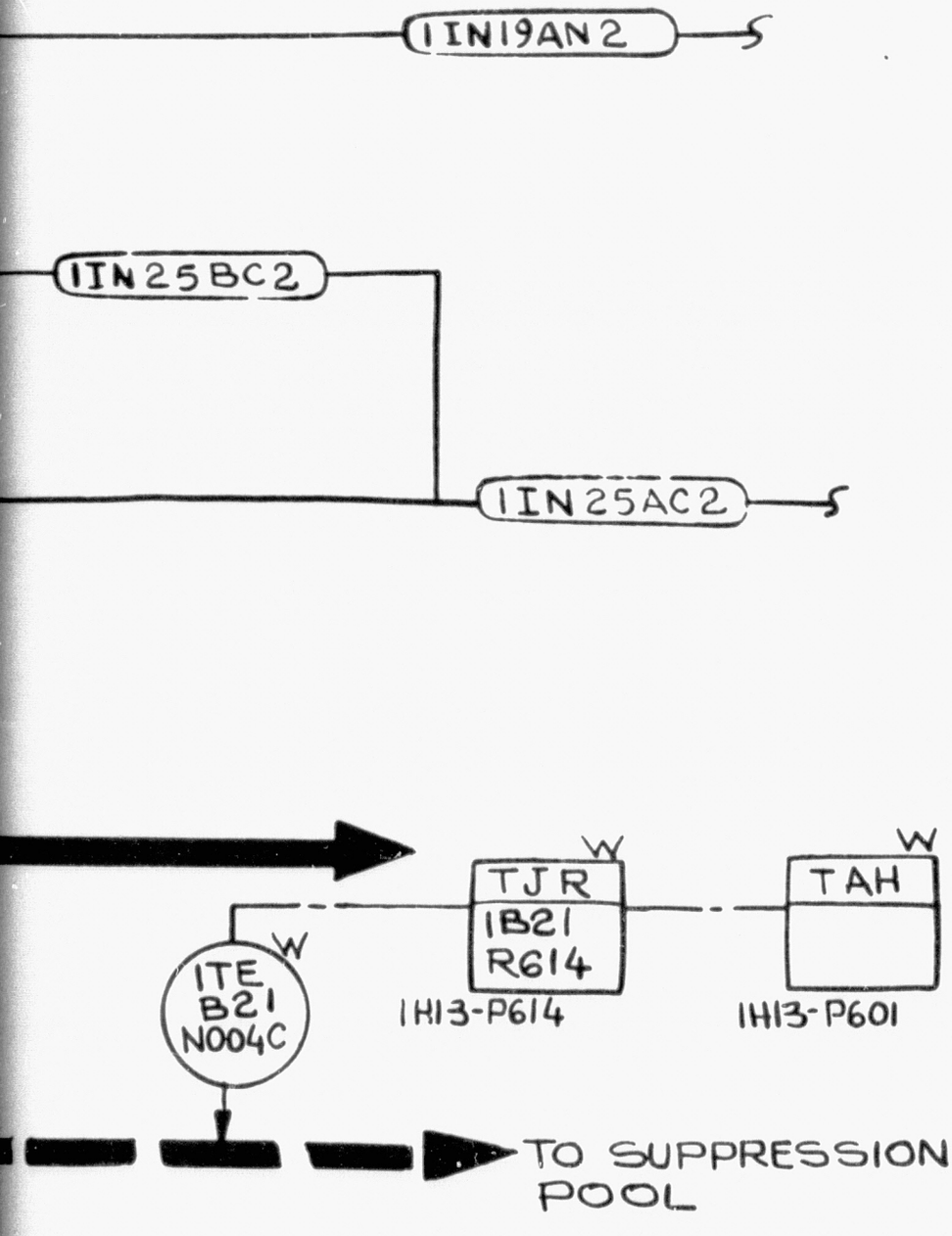


WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-31 AUTOMATIC DEPRESSURIZATION SYSTEM C&ID (SHEET 2 of 7)



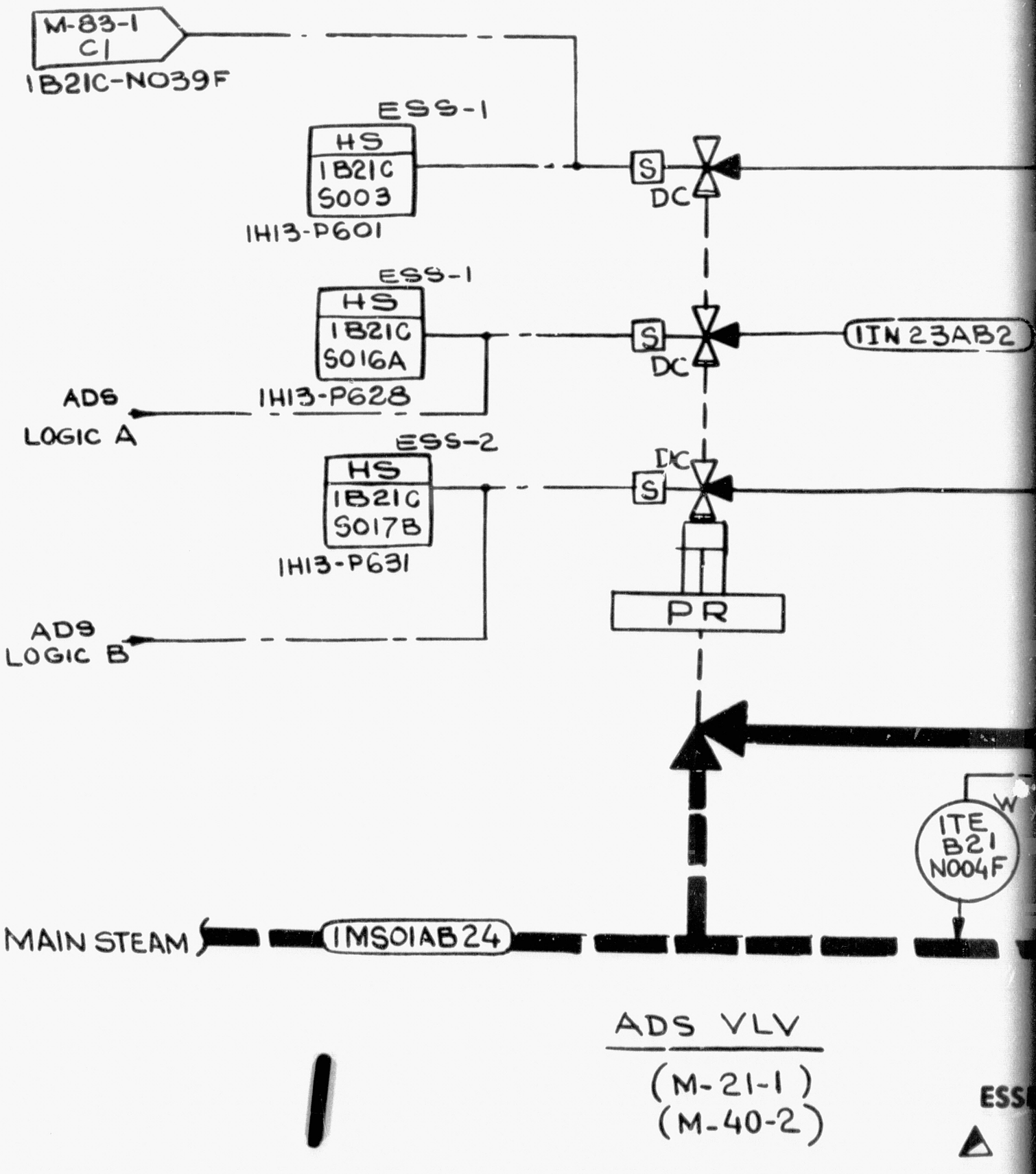
ESSENTIAL COMPONENTS

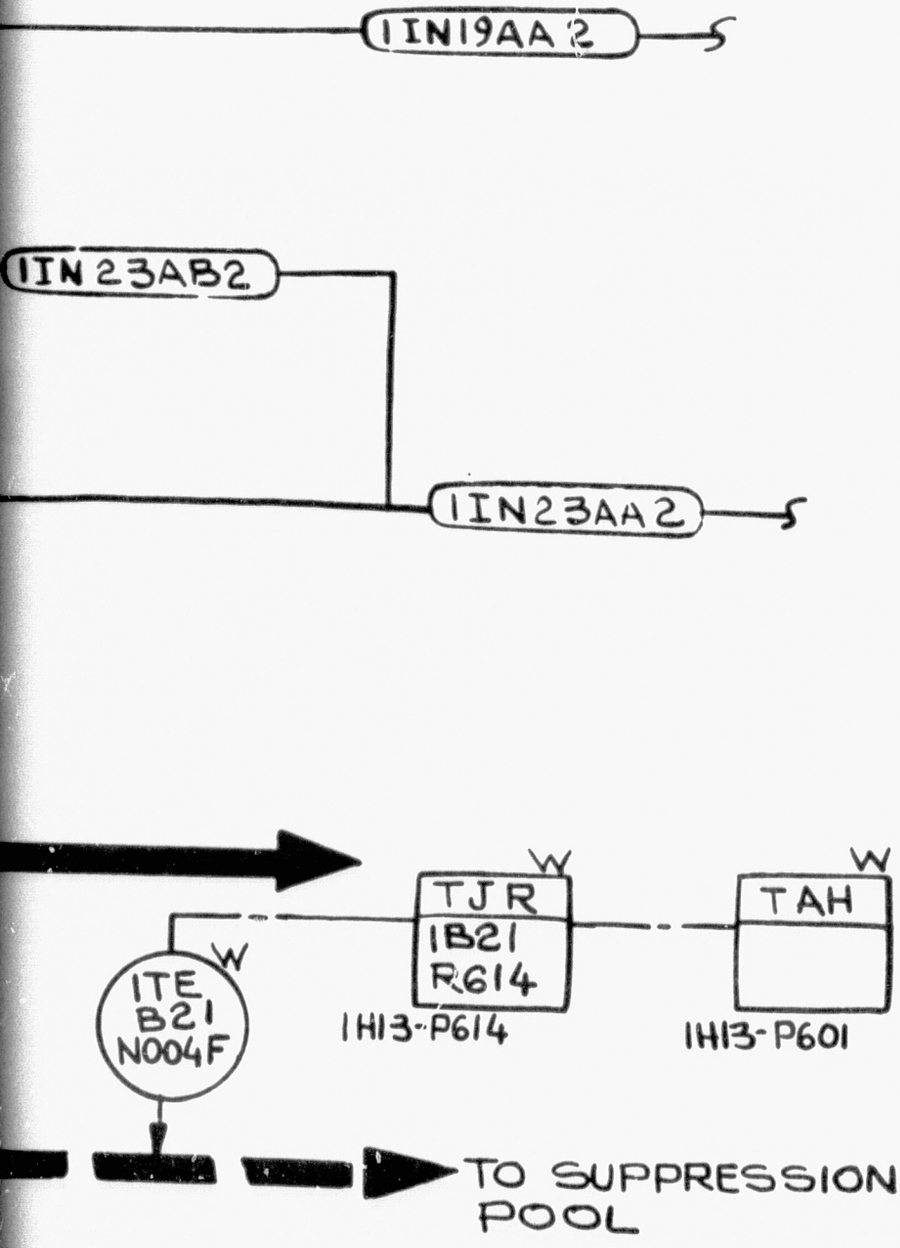
▲ **INCLUDED** ▲



2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-31 AUTOMATIC DEPRESSURIZATION SYSTEM C&ID (SHEET 3 of 7)


M-83-1
C1
1B21C-N039F
ESS-1
HS
1B21C
S003
1H13-P601
S
DC
ESS-1
HS
1B21C
S016A
1H13-P628
S
DC
1IN23AB2
ADS
LOGIC A
ESS-2
HS
1B21C
S017B
1H13-P631
DC
S
PR
ADS
LOGIC B
ITE
B21
N004F
W
MAIN STEAM
1MS01AB24
ADS VLV
(M-21-1)
(M-40-2)
ESS

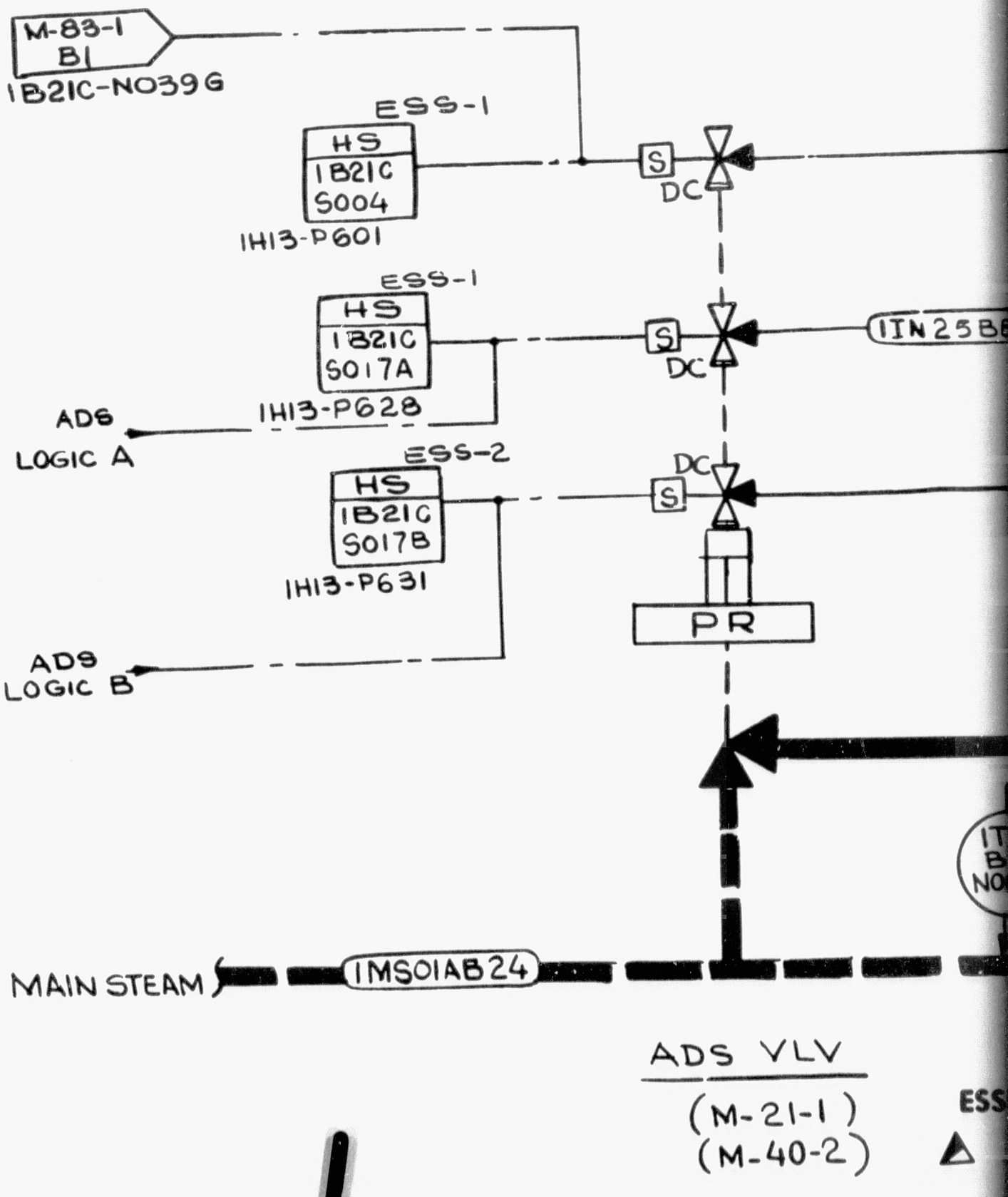


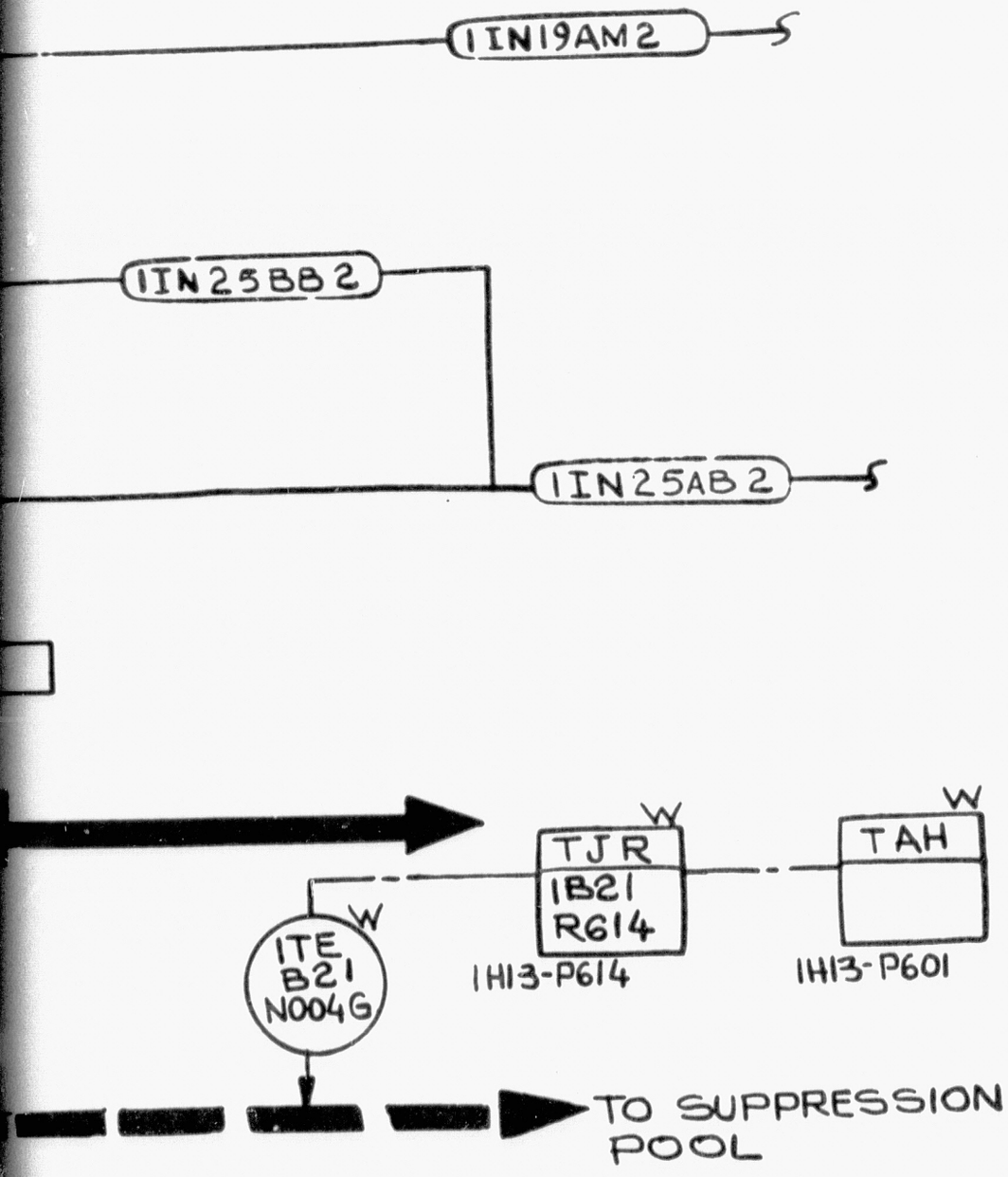
2

ESSENTIAL COMPONENTS

▲ INCLUDED ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-31 AUTOMATIC DEPRESSURIZATION SYSTEM C&ID (SHEET 4 of 7)


M-83-1
B1
1B21C-N039G
ESS-1
HS
1B21C
S004
1H13-P601
S
DC
ESS-1
HS
1B21C
S017A
1H13-P628
ADS
LOGIC A
ESS-2
HS
1B21C
S017B
1H13-P631
ADS
LOGIC B
DC
S
PR
1IN25B
MAIN STEAM
1MS01AB24
ADS VLV
(M-21-1)
(M-40-2)



2

/LV

21-1)
30-2)

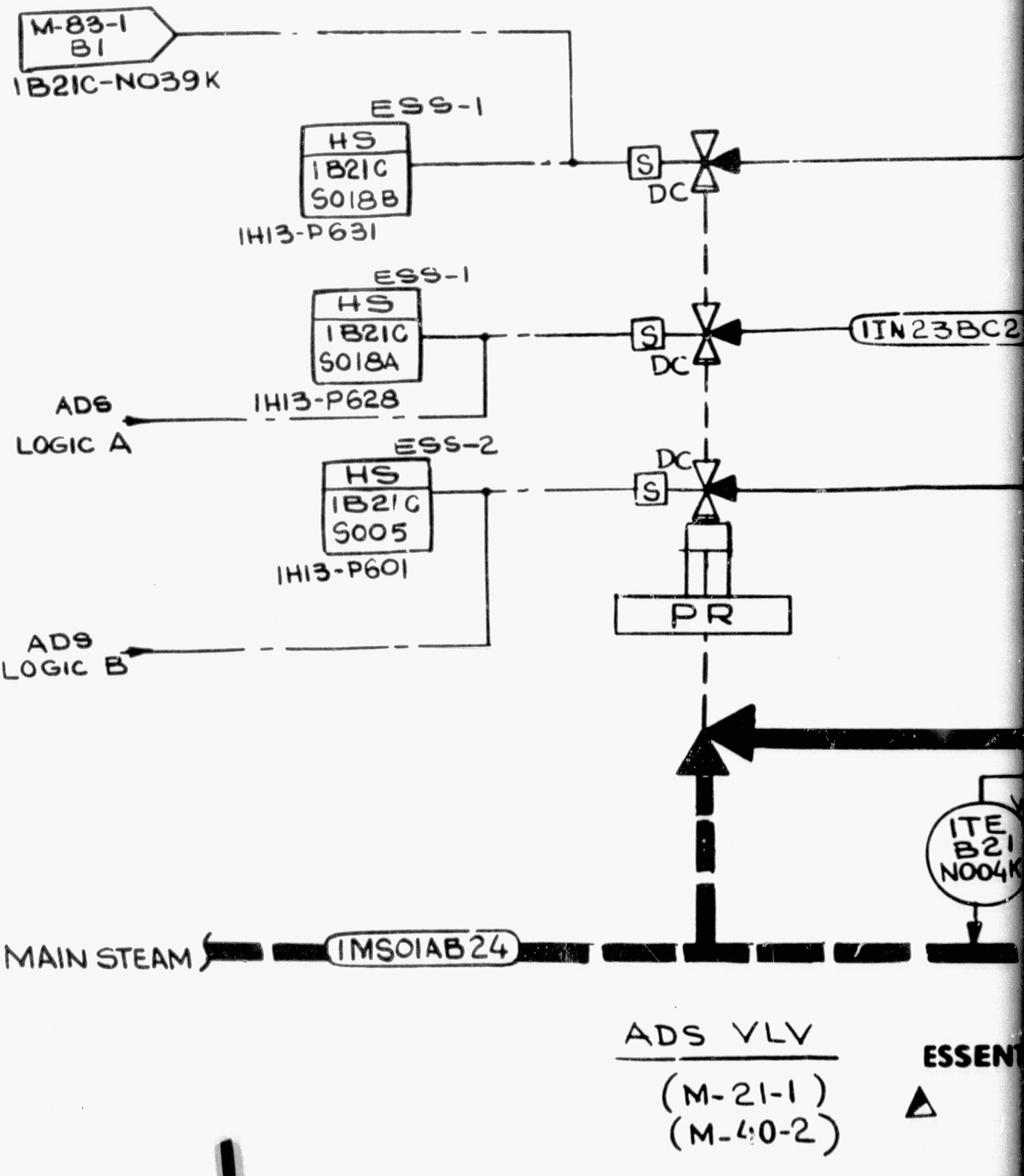
ESSENTIAL COMPONENTS

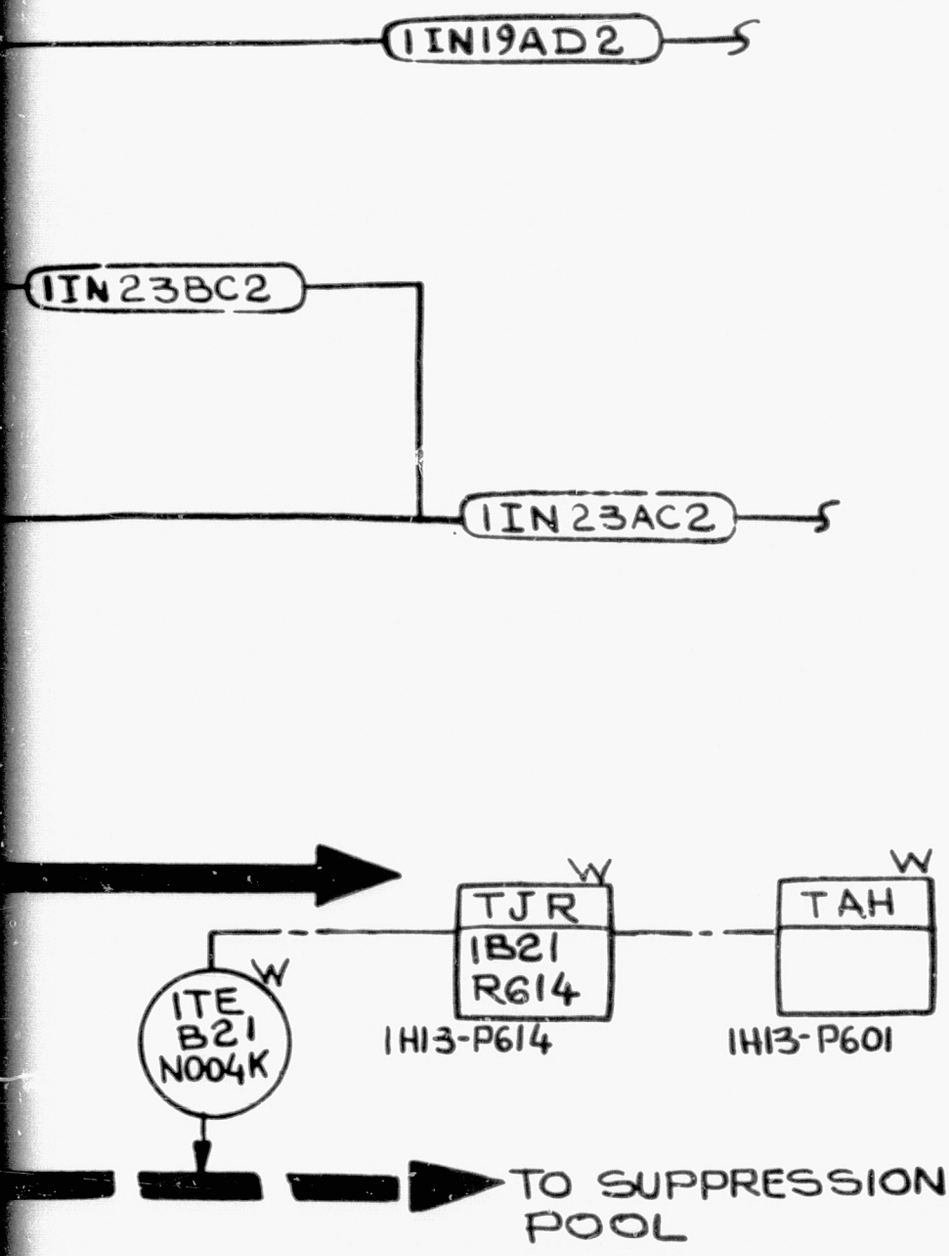
▲ **INCLUDED** ▲

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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-31

AUTOMATIC DEPRESSURIZATION SYSTEM C&ID
(SHEET 5 of 7)


M-83-1
B1
1B21C-N039K
ESS-1
HS
1B21C
S018B
1H13-P631
S
DC
ESS-1
HS
1B21C
S018A
1H13-P628
1IN23BC2
ADS
LOGIC A
ESS-2
HS
1B21C
S005
1H13-P601
DC
S
PR
ADS
LOGIC B
ITE
B21
N004K
MAIN STEAM
1MS01AB24
ADS VLV
(M-21-1)
(M-40-2)
ESSEN

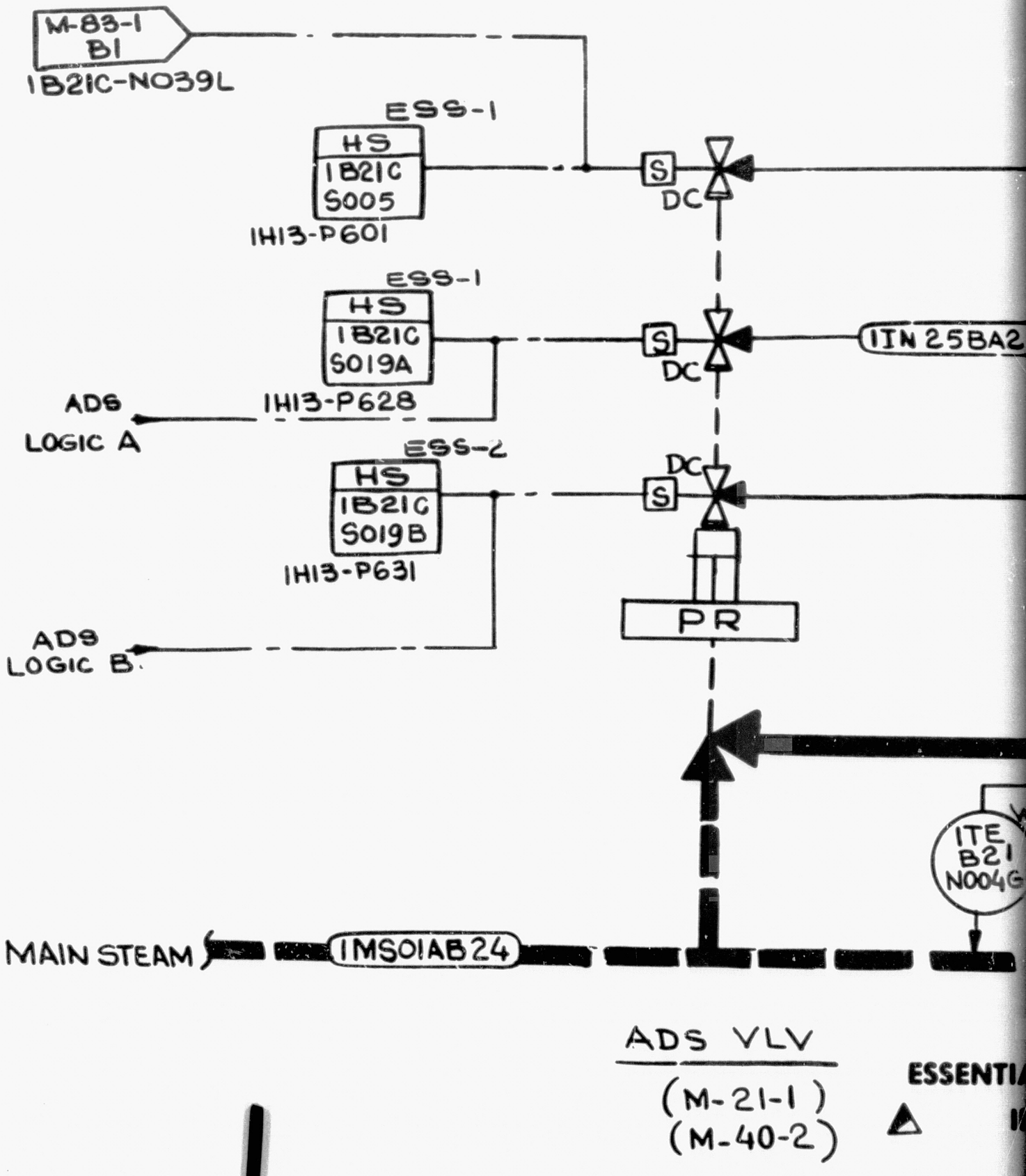


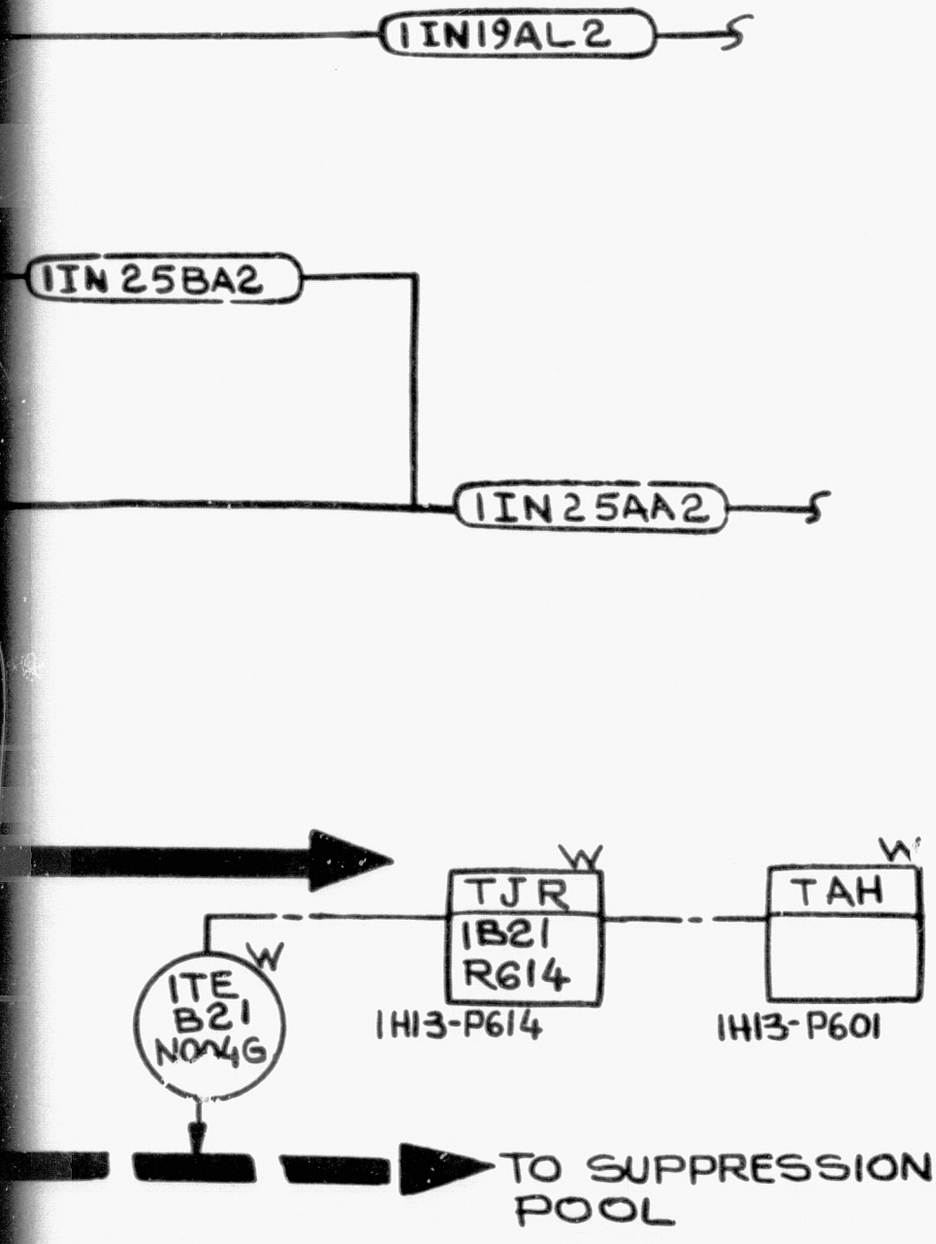
2

ESSENTIAL COMPONENTS

▲ INCLUDED ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-31 AUTOMATIC DEPRESSURIZATION SYSTEM C&ID (SHEET 6 of 7)


M-83-1
B1
1B21C-N039L
ESS-1
HS
1B21C
S005
1H13-P601
S
DC
ESS-1
HS
1B21C
S019A
1H13-P628
1IN25BA2
ADS
LOGIC A
ESS-2
HS
1B21C
S019B
1H13-P631
DC
PR
ADS
LOGIC B
ITE
B21
N004G
MAIN STEAM
1MS01AB24
ADS VLV
(M-21-1)
(M-40-2)
ESSENTIA



ESSENTIAL COMPONENTS

▲ INCLUDED ▲

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FIGURE 7.3-31 AUTOMATIC DEPRESSURIZATION SYSTEM C&ID (SHEET 7 of 7)

M-30-1

IWS01PA, IWS01PB, IWS01PC & IWS01PD
SERVICE WATER PUMPS 1A, 1B, 1C & 1D
H-2233B

IWS02FA & IWS02FB
SERVICE WATER STRAINERS
H-2240

SERVICE WATER INTAKE

IN PLACE BY P.F.

IWS01PA 1A

IWS01PB 1B

IWS01PC 1C

IWS01PD 1D

PUMP VENT

TO FLOOR DRAIN

PUMP DRAIN

TO FLOOR DRAIN

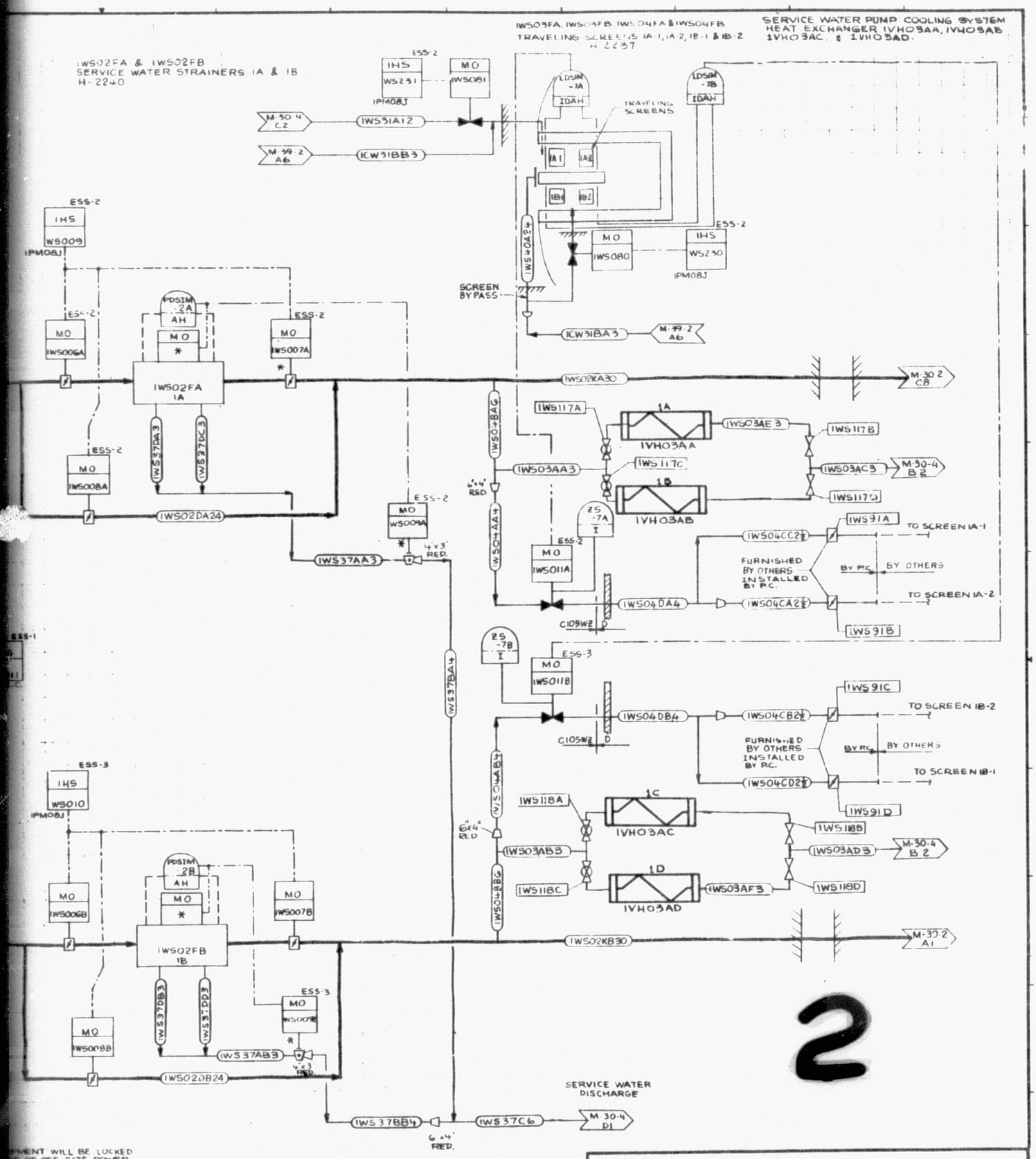
IWS02FA 1A

IWS02FB 1B

NOTE: THE FOLLOWING EQUIPMENT WILL BE LOCKED OUT DURING ANY LOSS OF OFF-SITE POWER. IE CREDIT CANNOT BE TAKEN FOR AUTOMATIC ACTUATION. HOWEVER, THE CIRCUITRY WILL BE OF THE SAME QUALITY AS ESS CIRCUITRY. EQUIPMENT SO THAT MANUAL INITIATION WILL ALWAYS BE POSSIBLE, PROVIDED DIESEL-GENERATOR CAPACITY IS AVAILABLE.

1) S.W. PUMP 1A
2) S.W. PUMP 1C
3) DISCHARGE VALVE IWS004A
4) DISCHARGE VALVE IWS004C
5) VALVE IWS005

NOTE:
THE P & I D/C
FUNCTION SYS
UNLESS OTHE
REFERENCE AG



SHMENT WILL BE LOCKED
SS OF OFF-SITE POWER
BE TAKEN FOR AUTOMATIC
R, THE CIRCUITRY WILL BE
TY AS ESS CIRCUITRY
T MANUAL INITIATION WILL
LE, PROVIDED DIESEL-
TY IS AVAILABLE.

WS004A
WS004C

NOTE:
THE P & I D/C & I DETAILS FOR THE C & I FUNCTION SYMBOLS ARE SHOWN ON DRAWING M- 730
UNLESS OTHERWISE NOTED, SHEET NUMBER & DETAIL REFERENCE ARE SHOWN IN THE FUNCTION SYMBOL.

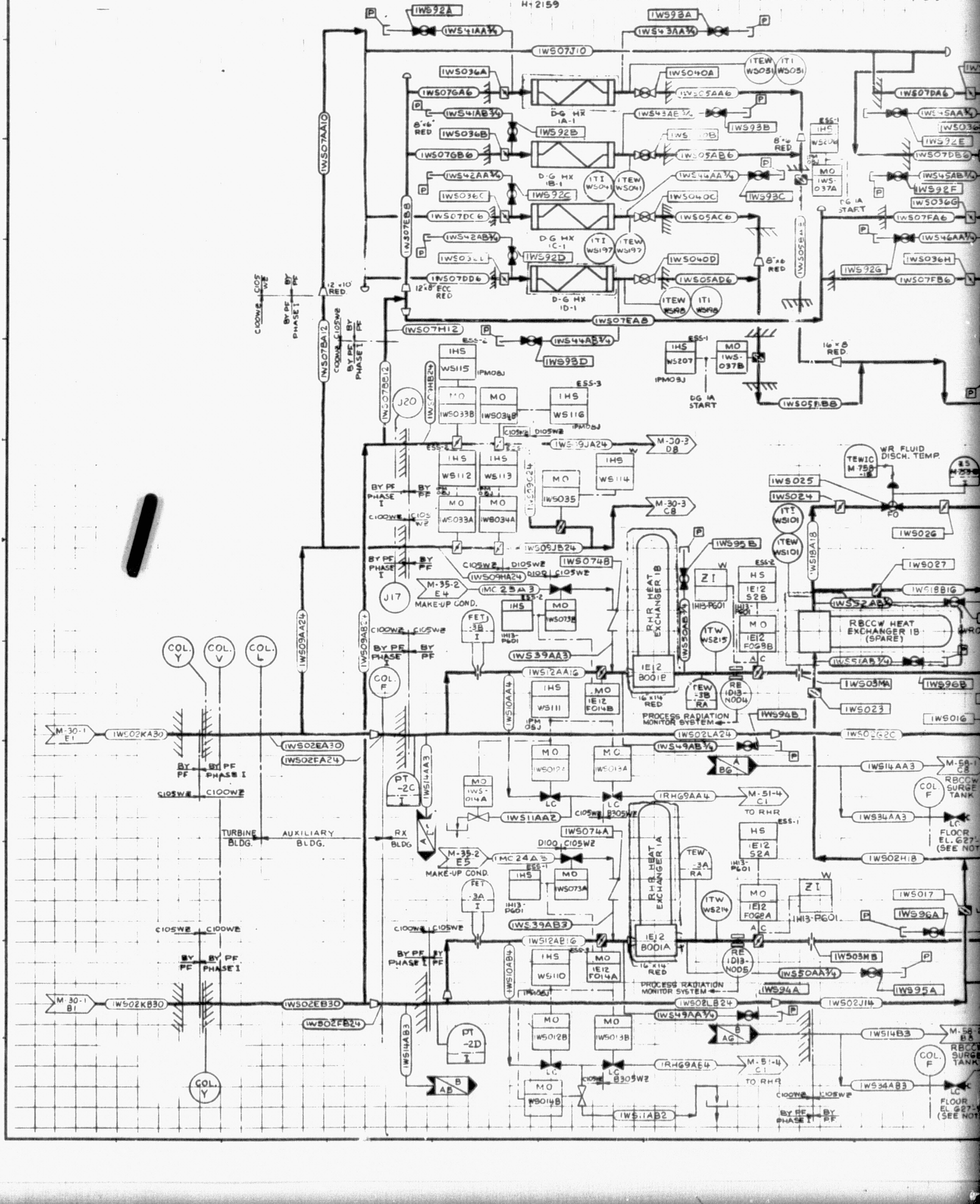
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

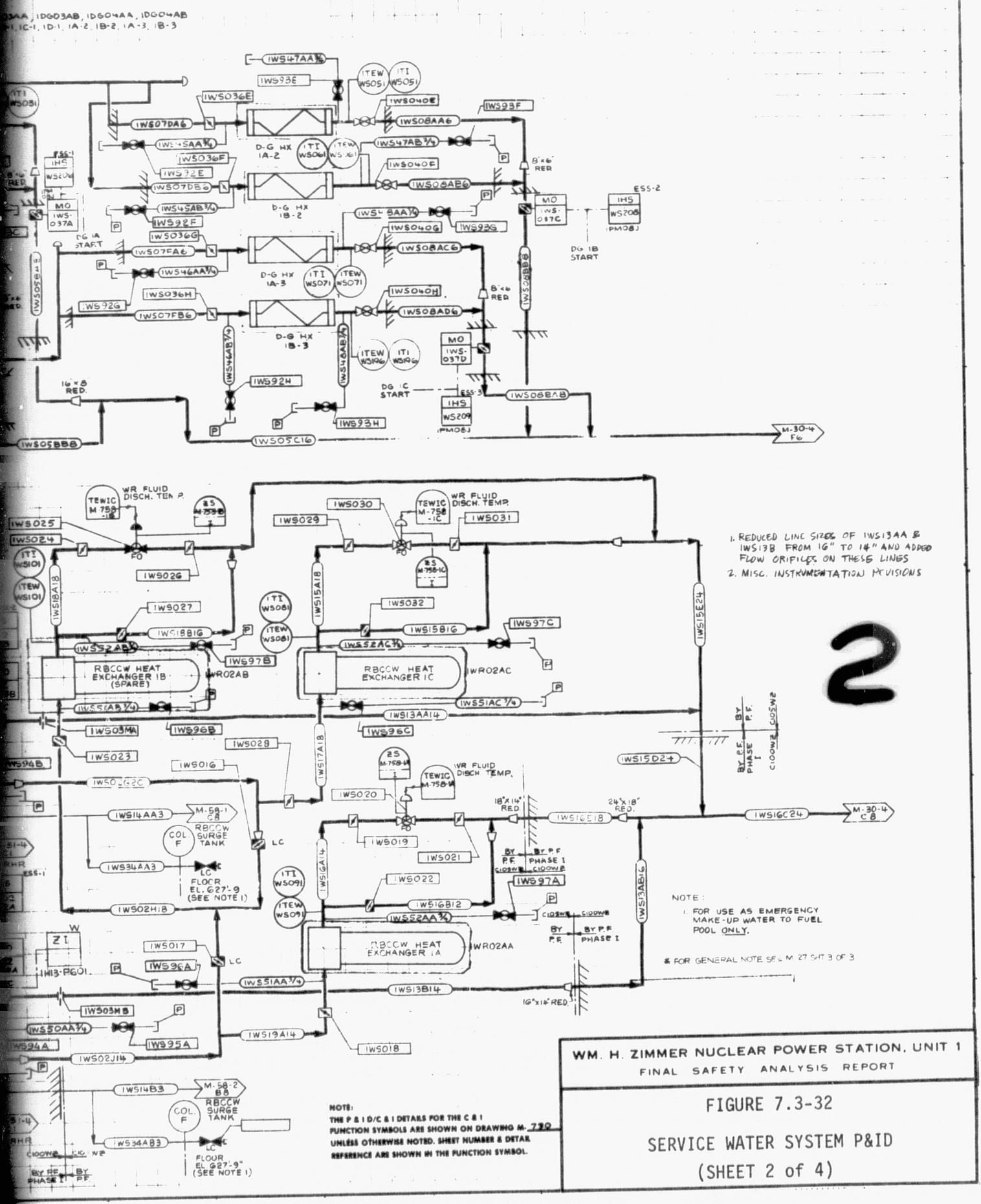
FIGURE 7.3-32

SERVICE WATER SYSTEM P&ID
(SHEET 1 of 4)

M-30-2

1DG02AA, 1DG02AB, 1DG02AC, 1DG02AD & 1DG03AA, 1DG03AB, 1DG04AA, 1DG04AB
DIESEL GENERATOR HEAT EXCHANGERS 1A-1, 1B-1, 1C-1, 1D-1, 1A-2, 1B-2, 1A-3, 1B-3
H-12159





WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-32

SERVICE WATER SYSTEM P&ID
(SHEET 2 of 4)

M-30-3

1TØ5AA & 1TØ5AB
TURBINE OIL COOLERS 1A & 1B
H-2215

1HY04AA, 1HY04AB, 1HY04AC & 1HY04AD
GENERATOR HYDROGEN COOLERS 1A, 1B, 1C & 1D
H-2215

TEWIC M-732 1A — TURB. BLDG COOL. WTR. I-1 DISCH. TEMP.

TEWIC M-732 1B

1TI WS131 / 1TEW WS131

TEWIC -48

1WS045 — 1WS046 — 1WS050A — 1WS051A — 1WS050B — 1WS051B

1WS22B12 — 1WS22AA12 — 1WS22AB12 — 1WS043B — 1WS043A — 1WS044 — 1WS22C8 — 1WS121 — 1WS22E2 — 1WS100 — 1WS049A — 1WS049B — 1WS20BAB — 1WS052A — 1WS052B

M-30-4 F5 — 1WS22D14 — 1WS101A — 1WS556AA¾ — 1WS598A — 1WS554AA¾ — 1WS554AB¾

1TI WS124 / 1TEW WS124 — 1TI WS136 / 1TEW WS136

OIL TO RESERVOIR

1TØ5AA TURBINE OIL COOLER 1A — 1TØ5AB TURBINE OIL COOLER 1B

1TEW WS121 / 1TI WS121

TBCCW HEAT EXCHANGER 1A 1WT03AA — TBCCW HEAT EXCHANGER 1B 1WT03AB

1WS101B — 1WS556AB¾ — 1WS555AB¾

OIL TO RESERVOIR

1WS99B — 1WS553AA¾ — TURBINE OIL COOLERS — 1WS553AB¾

1WS555AA¾ — 1WS102A

1WS99A — IHS WS122 (PMOBJ) — MO 1WS042A — MO 1WS042B — IHS WS123 (PMOBJ) — MO 1WS048A — IHS WS132 (PMOBJ) — MO 1WS048B

1WS21BB12 (14"x12" RED.) — 1WS21BA12 — 1WS21A14 — 1WS35AA12 — 1WS35AB12

1WS09D18 — 1WS09E12 — 18"x12" RED.

IHS WS117 (PMOBJ) — MO 1WS069A — 1WS01MA — 1WS075A

M-30-2 D5 — 1WS09JA24 — 1WS09KA24 — 24"x18" RED — 1WS25A10 — 1WS25B8 — 1WS63A1½

1WS596BA24 — M-30-4 F6 — DILUTION WATER

D105 WE — D100 WE — BY P.F. — BY P.F. PHASE I — COL L-16 — 1WS098A24

1WS105A — 1WS67BA1½ — OFFGAS GLYCOL COOLER — 1WS106A — 1WS68AA1½

1WS105B — 1WS67AA1½ — 30°F — OFFGAS GLYCOL COOLER — 1WS106B — 1WS68AC1½

BY P.C. — INCLUDED W/COOLER — INCLUDED WITH COOLER — BY P.C.

1WS105C — 1WS67AB1½ — OFFGAS GLYCOL COOLER — 1WS106C — 1WS68AB1½

1WS105D — 1WS67BB1½ — +30°F — OFFGAS GLYCOL COOLER — 1WS106D — 1WS68AD1½

1WS66B2

D105 WE — D100 WE — BY P.F. — 1WS098B24 — BY P.F. PHASE I — COL L14

IHS WS118 (PMOBJ) — MO 1WS069B — 1WS075B — M-30-4 F7 — DILUTION WATER — 1WS01MB — 1WS36BB24

M-30-2 D5 — 1WS09JB24 — 1WS09KB24

1WS26A10 — 1WS26B8

1WS115 — 1WS85AA¾ — 1WS85AB½ — 1PI WS152

1WS114D — 1WS114C — 1WS114B — 1WS09G16 — 1WS09F18 — 1WS23CB8 — 1WS23CA8 — 1WS063B — 1WS23 C8 — 1WS23CD8 — 1WS063D — 1WS063A — 1WS111B — 1WS111C — 1WS111D — 1WS111A — 1WS59AA¾ — 1WS59AB¾ — 1WS59AC¾ — 1WS59AD¾ — 1WS114A

GENERATOR H₂ COOLER

1HY04AA 1A — 1HY04AB 1B — 1HY04AC 1C — 1HY04AD 1D

1WS60AA¾ — 1WS60AB¾ — 1WS60AC¾ — 1WS60AD¾

1TI WS155 / 1TEW WS155 — 1WS112D — 1WS115A — 1WS66AA2 — 1WS112A — 1WS112B — 1WS112C — 1WS064C — 1WS064D — 1WS24AA8 — 1WS24AB8 — 1WS24AC8 — 1WS24AD8 — 1WS064A — 1WS24B16

1TEW WS153 / 1TI WS153 — 1TEW WS154 / 1TI WS154 — 1TEW WS156 / 1TI WS156

TEW -4A 1RK — GEN. (HYDROGEN) AVERAGE COLD GAS TEMPERATURE

1WS065 — 1WS066 — 1WS067 — M-30-4 F5 — 16"x12" RED. — 1WS068

1WS65AD2 — 1WS65AC2 — 1WS65AB2 — 1WS65AA2

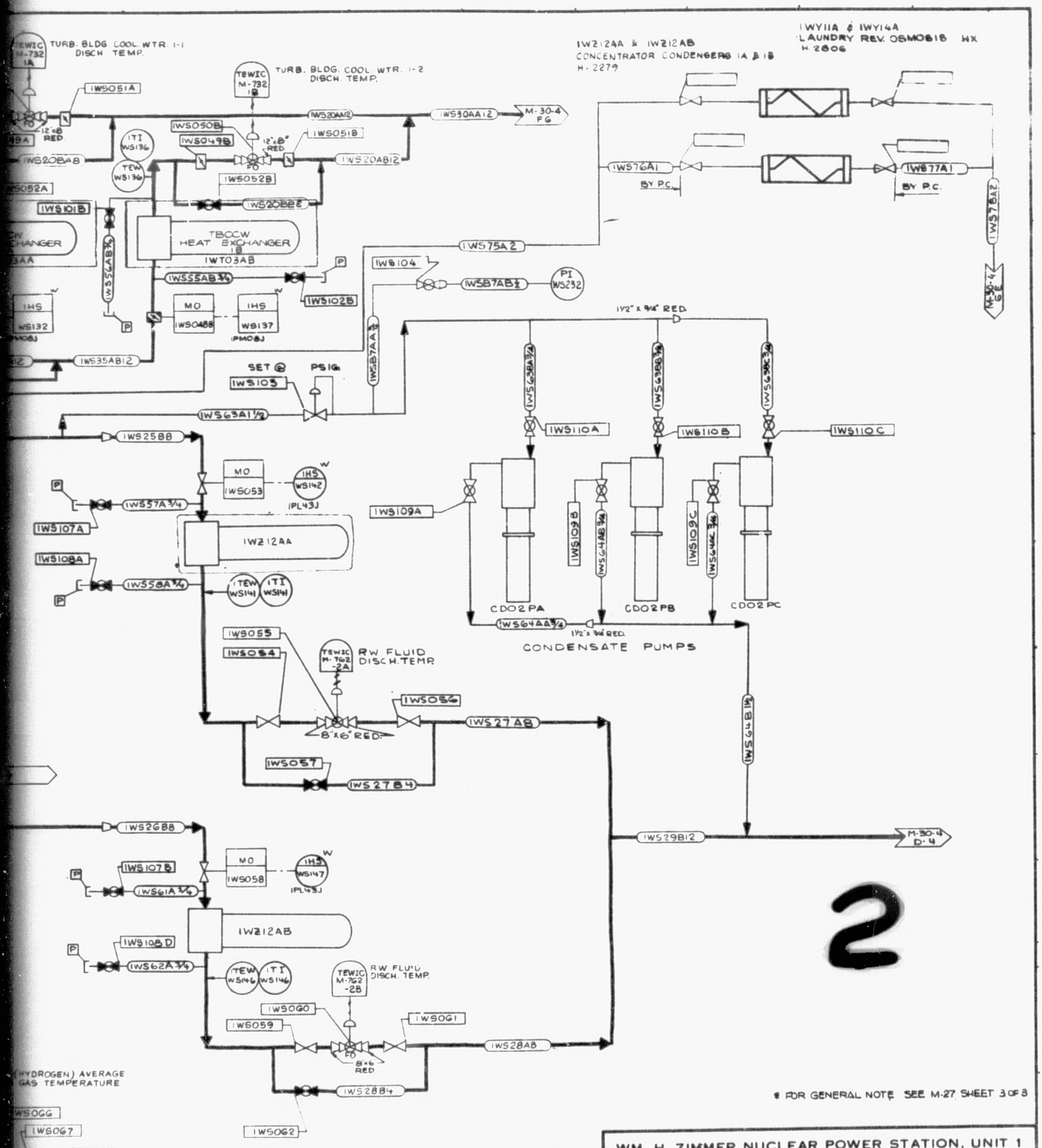
1WS66AB2 — 1WS115B — 1WS064B — 1WS66AC2 — 1WS115C — 1WS66AD2 — 1WS115D — 1WS24C12 — 1WS24D2 — 1WS116

1WS5B6AA¾ — 1WS5B6AB½ — 1PI WS151 — 1WS120

FLOOR DRAIN — FLOOR DRAIN

GENERATOR HYDROGEN COOLERS

NOTE:
THE P & I D/S
FUNCTION SY
UNLESS OTHE
REFERENCE A



NOTE:
THE P & I D/C & I DETAILS FOR THE C & I FUNCTION SYMBOLS ARE SHOWN ON DRAWING M-730 UNLESS OTHERWISE NOTED. SHEET NUMBER & DETAIL REFERENCE ARE SHOWN IN THE FUNCTION SYMBOL.

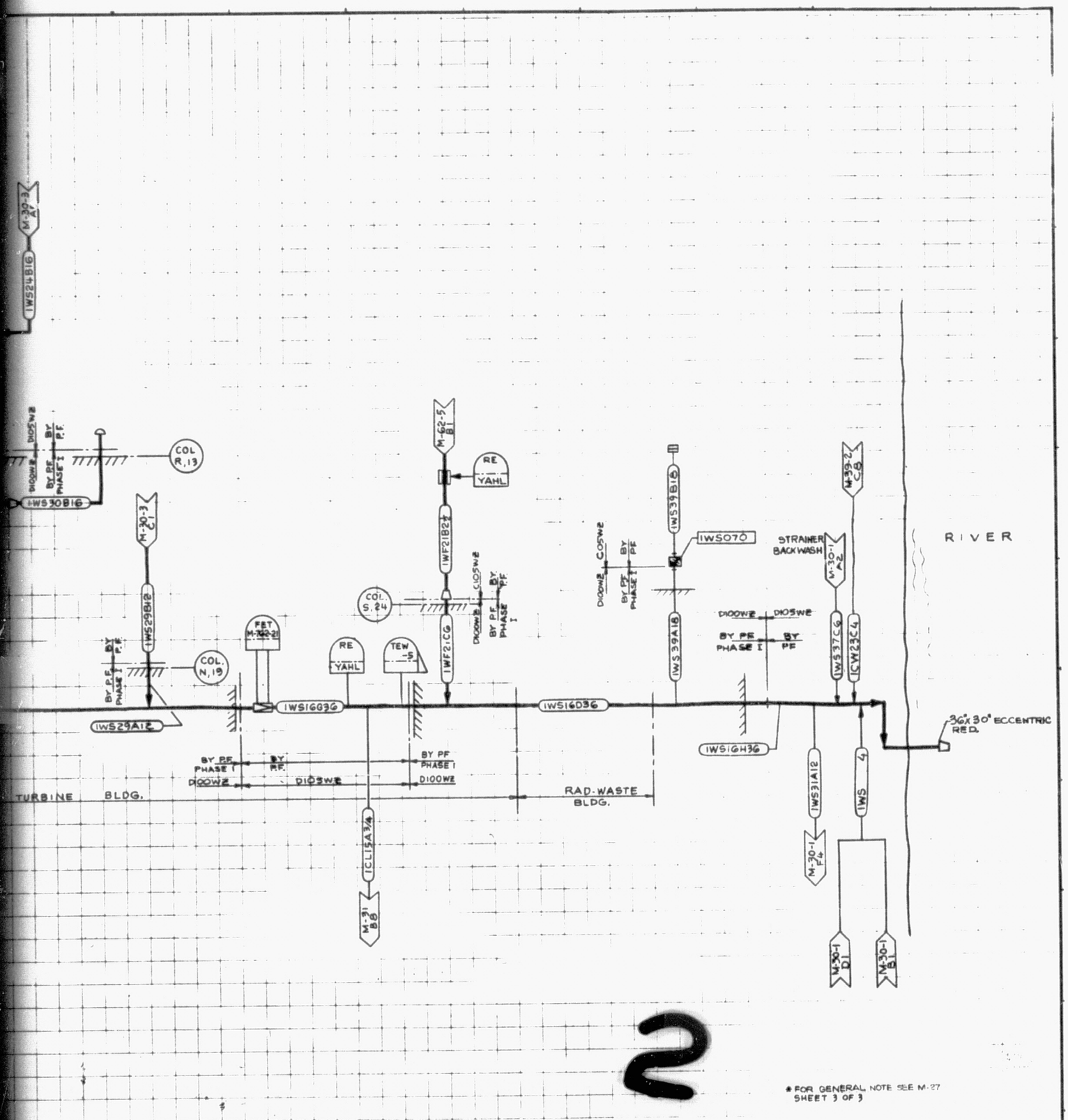
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-32

SERVICE WATER SYSTEM P&ID
(SHEET 3 of 4)

M-30-4

NOTE:
THE P & I D/C & I DETAILS FOR THE C & I
FUNCTION SYMBOLS ARE SHOWN ON DRAW
UNLESS OTHERWISE NOTED. SHEET NUMBER
REFERENCE ARE SHOWN IN THE FUNCTION



2

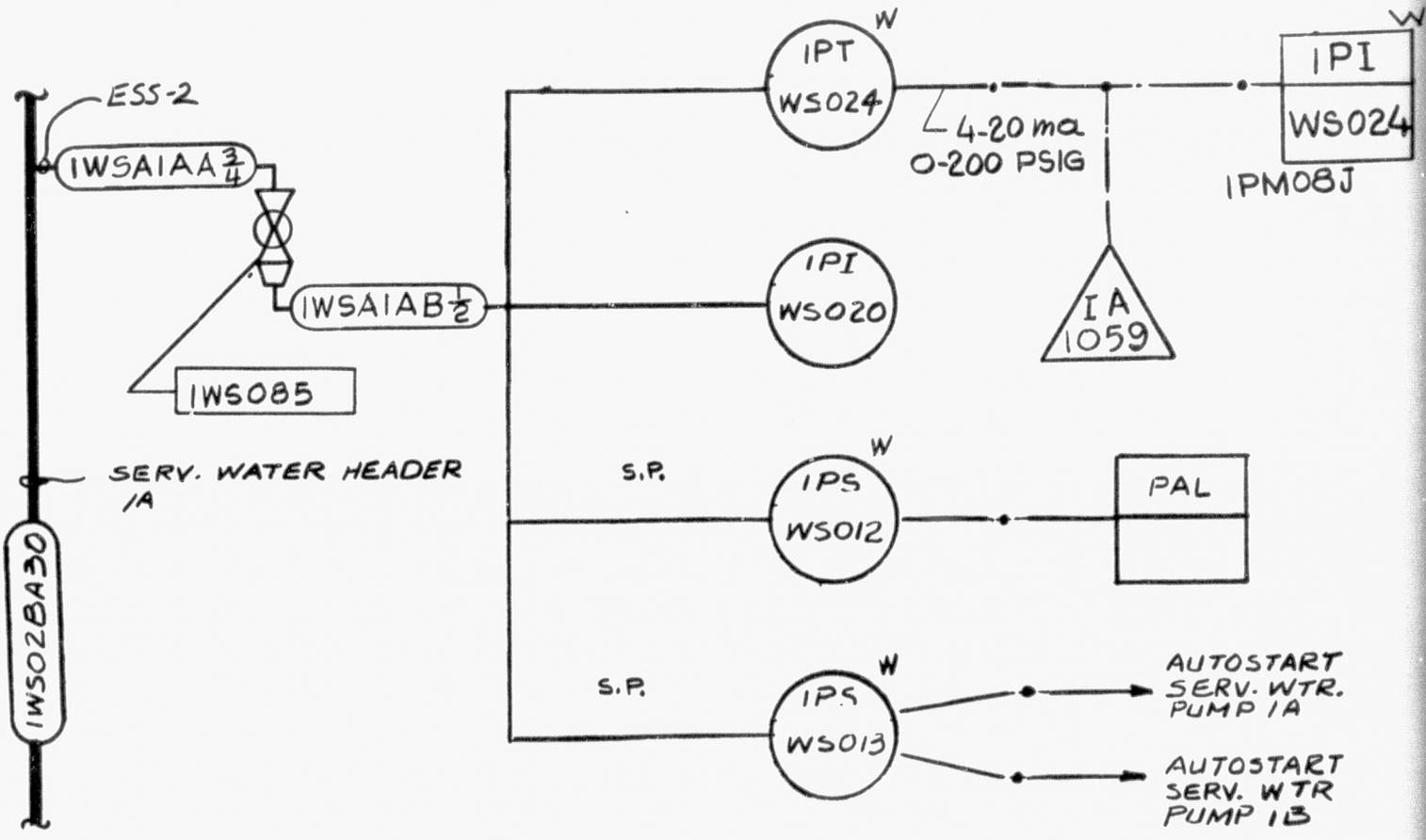
* FOR GENERAL NOTE SEE M-27 SHEET 3 OF 3

NOTE:
THE P & I D/C & I DETAILS FOR THE C & I FUNCTION SYMBOLS ARE SHOWN ON DRAWING M-770
UNLESS OTHERWISE NOTED, SHEET NUMBER & DETAIL REFERENCE ARE SHOWN IN THE FUNCTION SYMBOL.

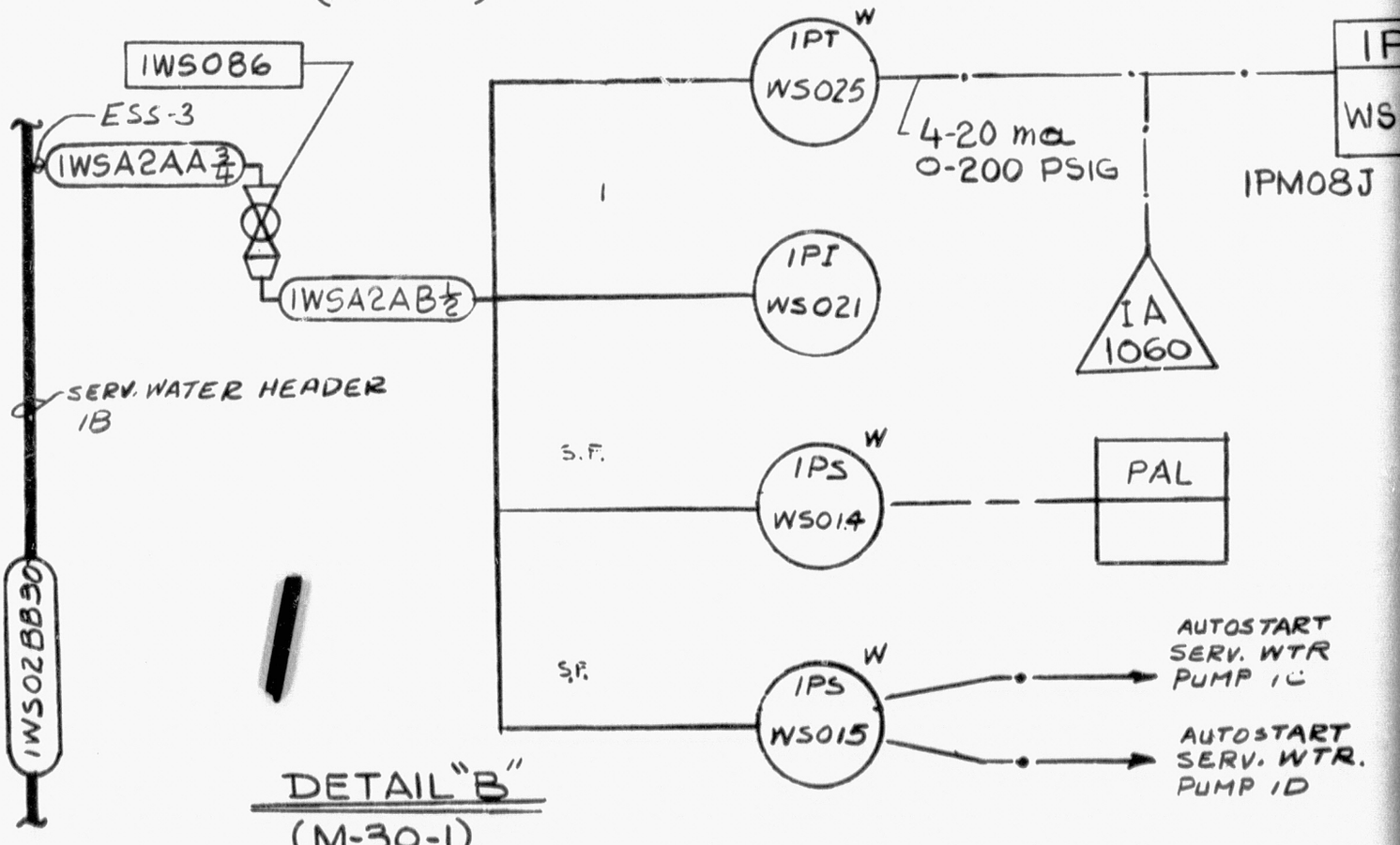
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-32

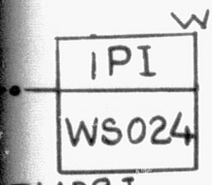
SERVICE WATER SYSTEM P&ID
(SHEET 4 of 4)



DETAIL A
(M-30-1)



DETAIL "B"
(M-30-1)



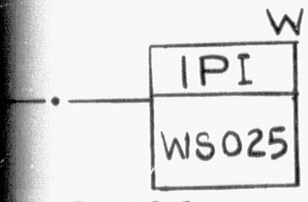
SERVICE WATER HEADER DATA:

MAX. PRESS:	189	PSIG
NOM. PRESS		PSIG
AUTOSTART		PSIG
ALARM PRESS.		PSIG

MAX. PRESSURE TAKEN AS DESIGN PRESS. FROM "PIPING LINE LIST"

OSTART
V. WTR.
P 1A

OSTART
V. WTR
P 1B



TOSTART
RV. WTR
MP 1C

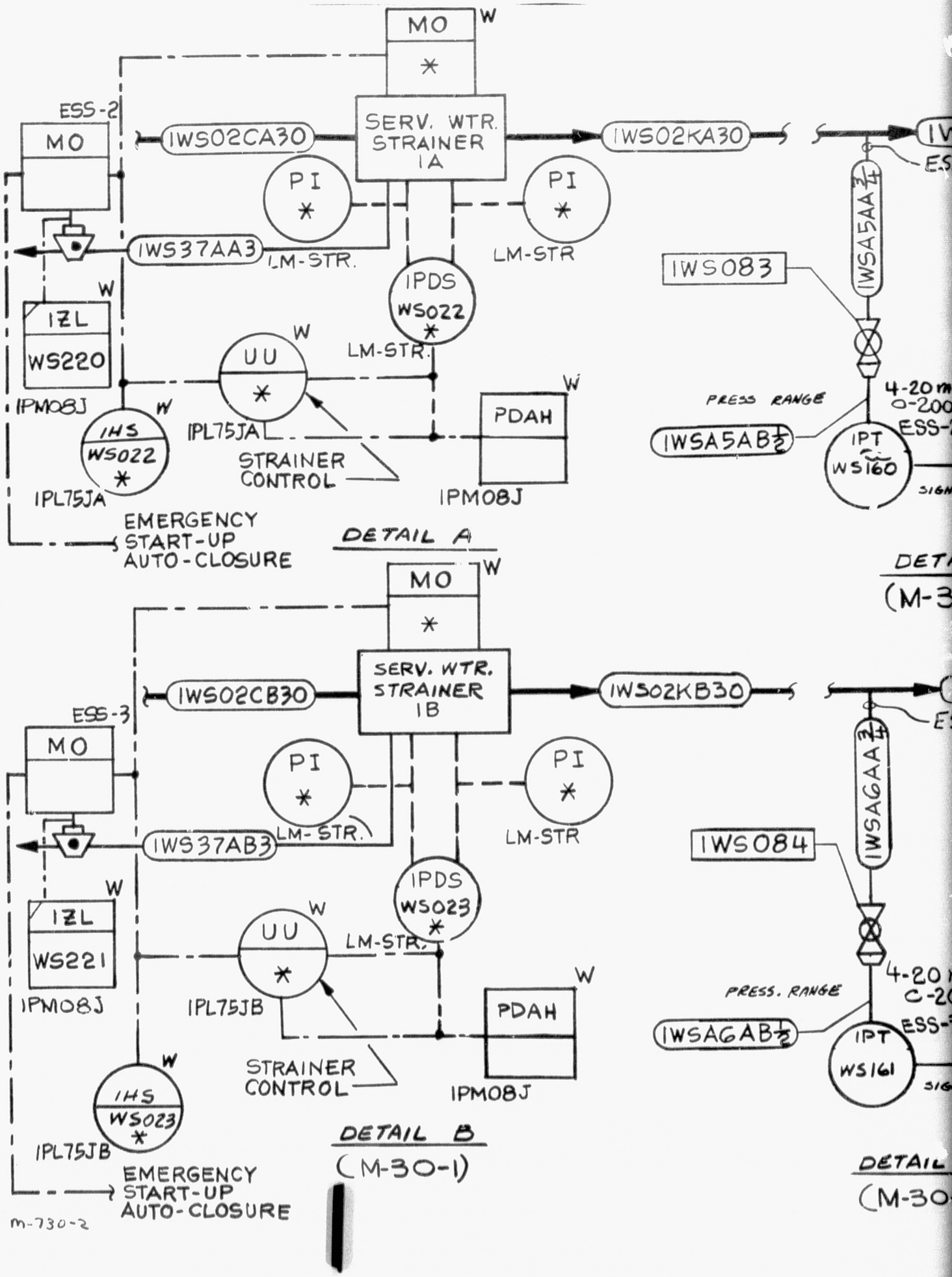
TOSTART
RV. WTR.
MP 1D

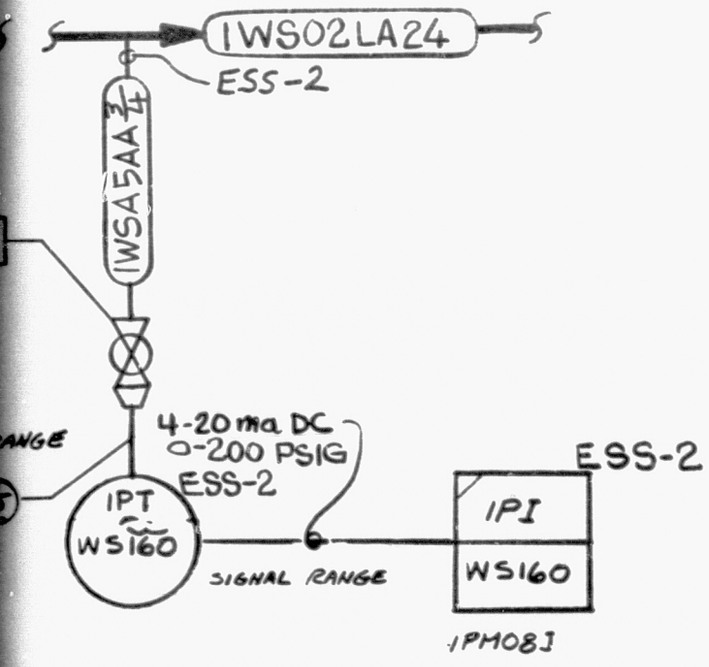
ESSENTIAL COMPONENTS

▲ **INCLUDED** ▲

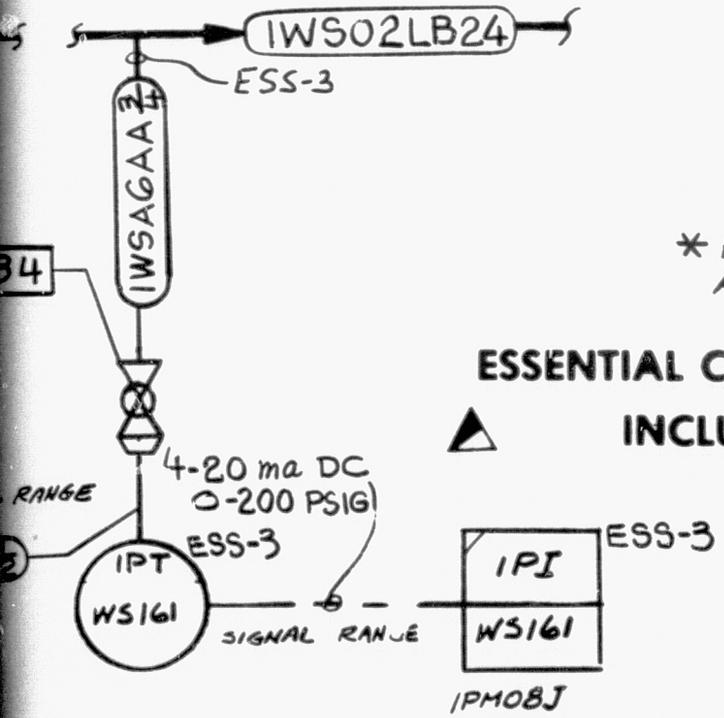
2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-33 SERVICE WATER SYSTEM C&ID (SHEET 1 of 8)


MO
W
*
ESS-2
MO
SERV. WTR. STRAINER 1A
1WS02CA30
1WS02KA30
PI
*
PI
*
1WS37AA3
LM-STR.
LM-STR
IPDS WS022
*
LM-STR.
IZL
WS220
W
UU
*
W
IPM08J
IHS WS022
*
IPL75JA
PDAH
W
STRAINER CONTROL
IPM08J
EMERGENCY START-UP AUTO-CLOSURE
DETAIL A
1WS083
1WSA5AA 3/4
PRESS RANGE
1WSA5AB 1/2
IPT WS160
4-20 m
0-200
ESS-
SIGN
DETA
(M-3
MO
W
*
SERV. WTR. STRAINER 1B
1WS02CB30
1WS02KB30
ESS-3
MO
PI
*
PI
*
1WS37AB3
LM-STR.
LM-STR
IPDS WS023
*
LM-STR.
IZL
WS221
W
UU
*
W
IPM08J
IPL75JB
PDAH
W
STRAINER CONTROL
IPM08J
IHS WS023
*
IPL75JB
EMERGENCY START-UP AUTO-CLOSURE
DETAIL B
(M-30-1)
1WS084
1WSA6AA 3/4
PRESS. RANGE
1WSA6AB 1/2
IPT WS161
4-20
C-20
ESS-
SIG
DETAIL
(M-30
m-730-2



DETAIL C
(M-30-2)



DETAIL D
(M-30-2)

* FURNISHED WITH ASSOCIATED EQUIPMENT

ESSENTIAL COMPONENTS

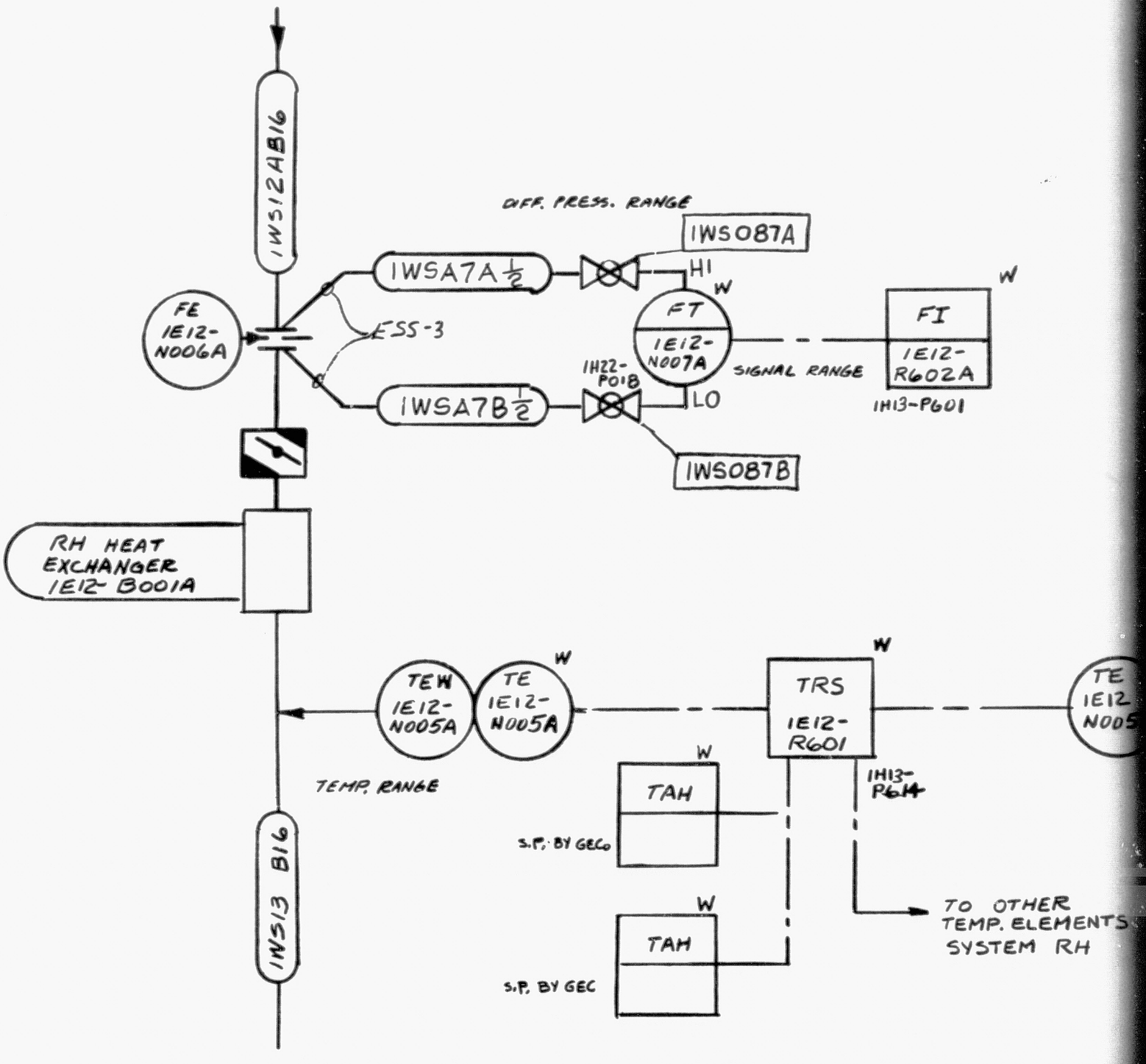
▲ **INCLUDED** ▲

2

M. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

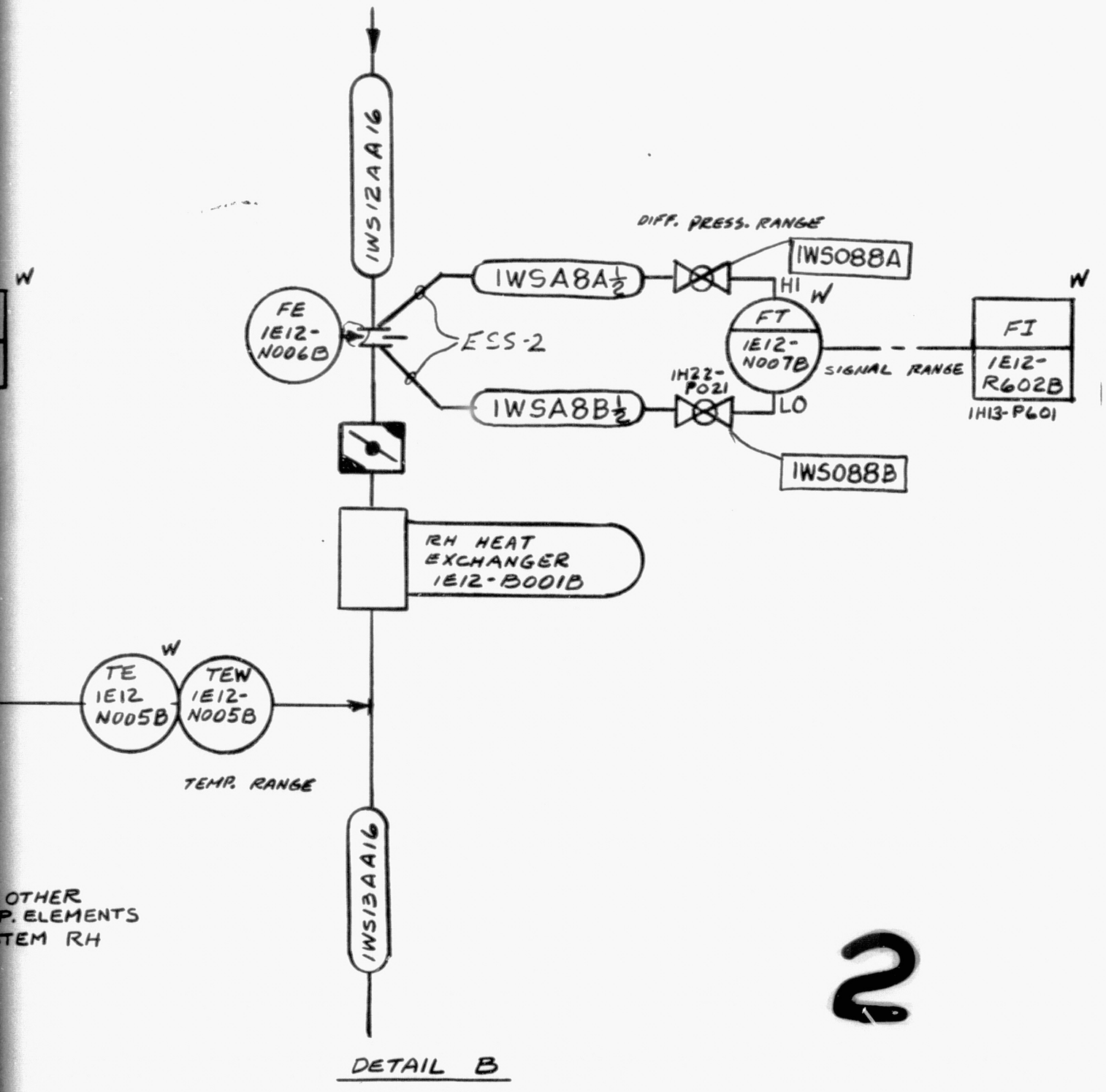
FIGURE 7.3-33

SERVICE WATER SYSTEM C&ID
(SHEET 2 of 8)



DETAIL A

ESSEN



2

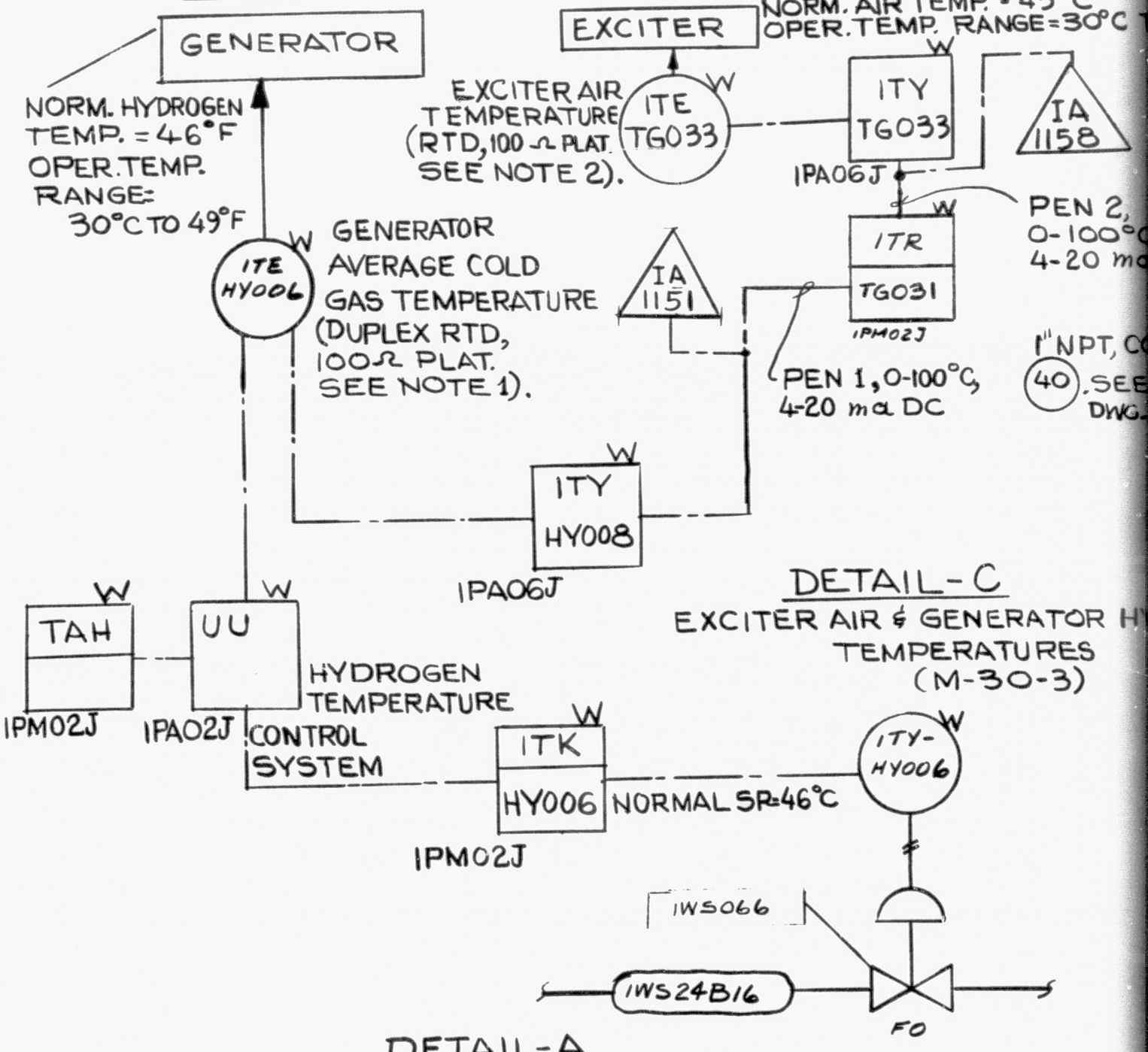
ESSENTIAL COMPONENTS

▲ **INCLUDED** ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-33

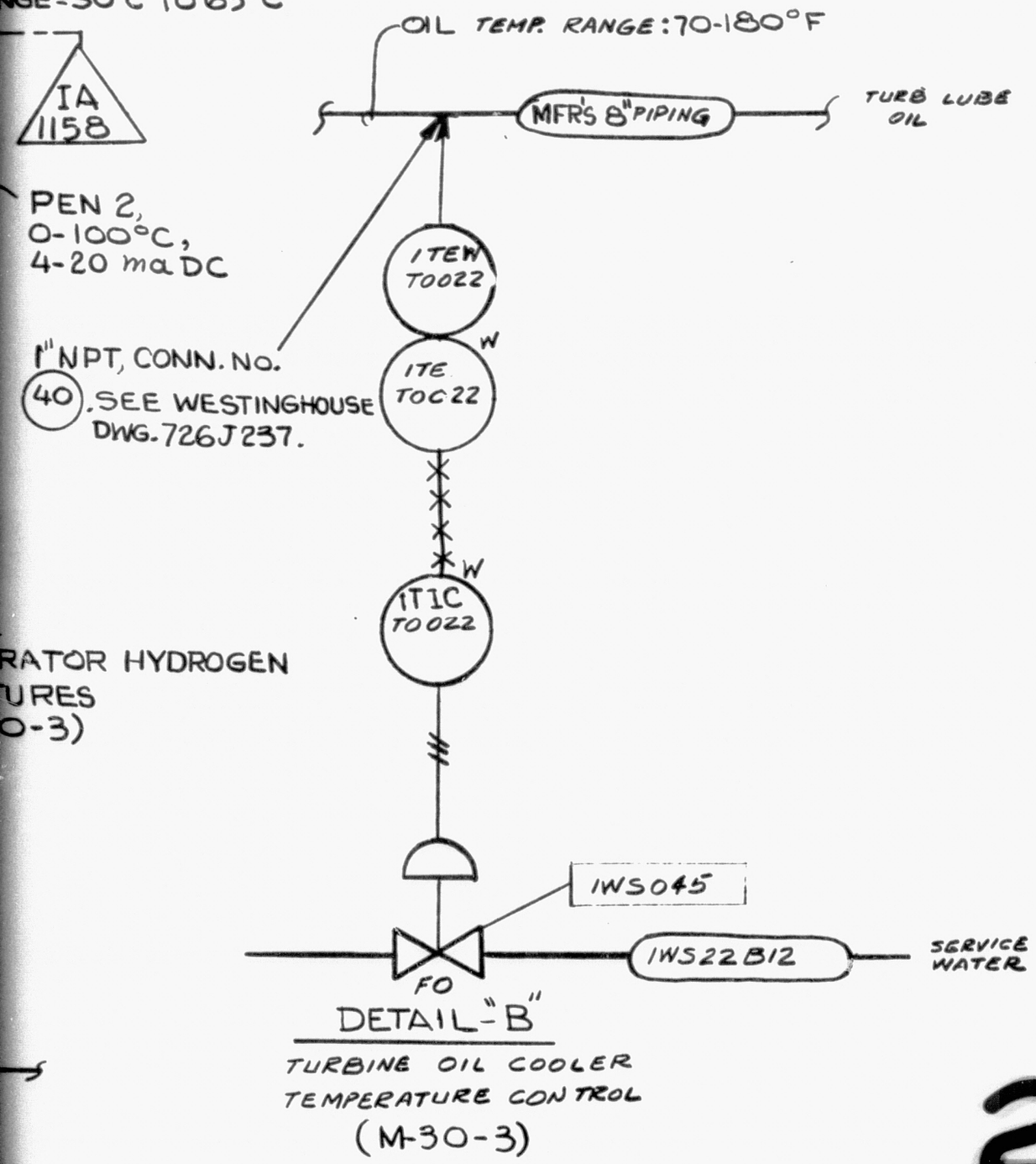
SERVICE WATER SYSTEM C&ID
(SHEET 3 of 8)



NOTES:

1. RTD 51A, 51B, SE GENERATOR DWG.
2. RTD 32A, 32B, WESTINGHOUSE G DWG. 688J893

= 45°C
NGE = 30°C TO 65°C



DETAIL "B"

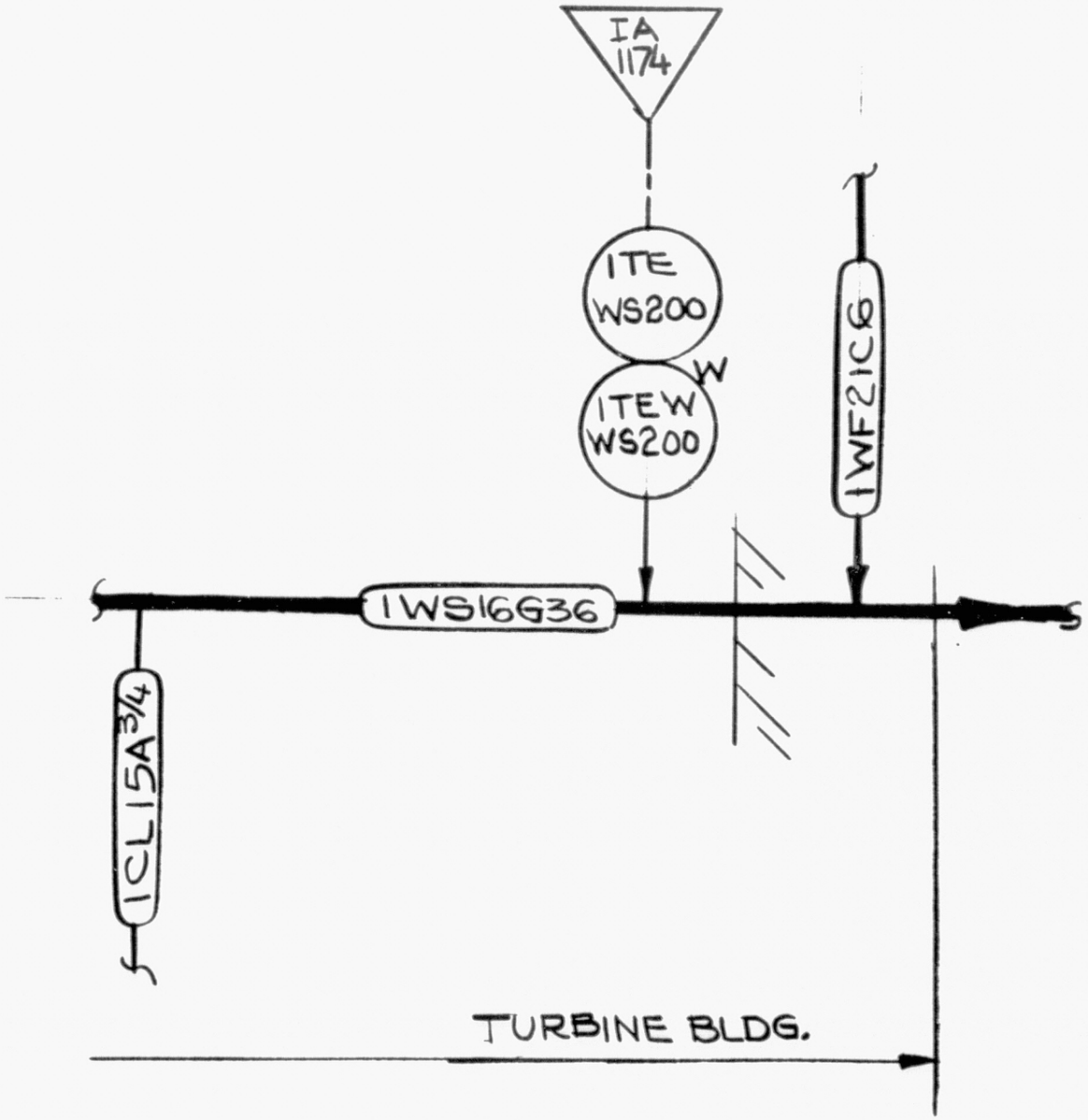
TURBINE OIL COOLER TEMPERATURE CONTROL (M-30-3)

2

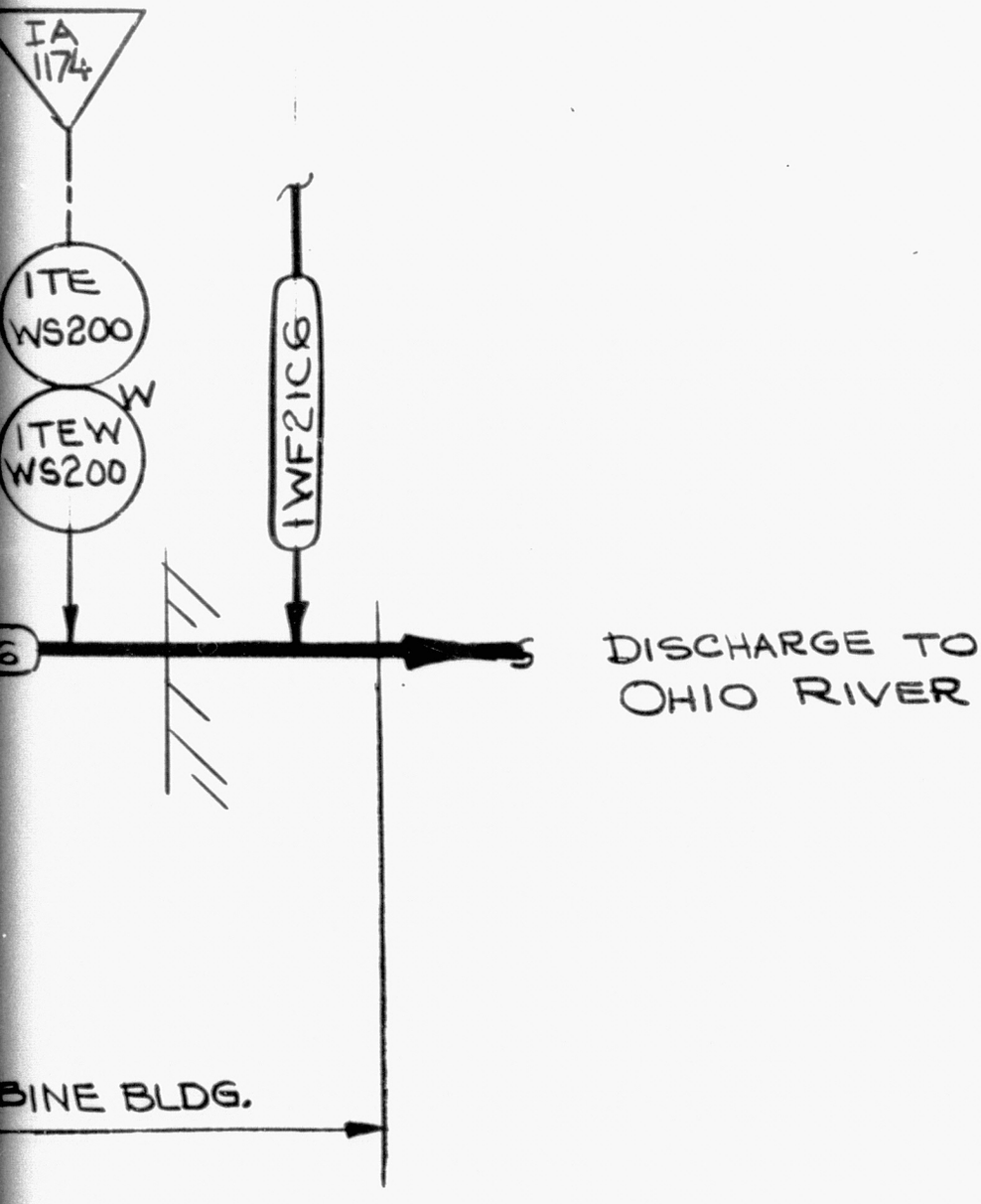
RATOR HYDROGEN
URES
O-3)

51B, SEE WESTINGHOUSE
OR DWG. 688J893.
A, 32B, SEE
IOUSE GENERATOR
8J893.

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-33 SERVICE WATER SYSTEM C&ID (SHEET 4 of 8)


IA
1174
ITE
WS200
ITEW
WS200
W
1WF21C6
1WS16G36
DISCH
OHIO
1CL15A 3/4
TURBINE BLDG.

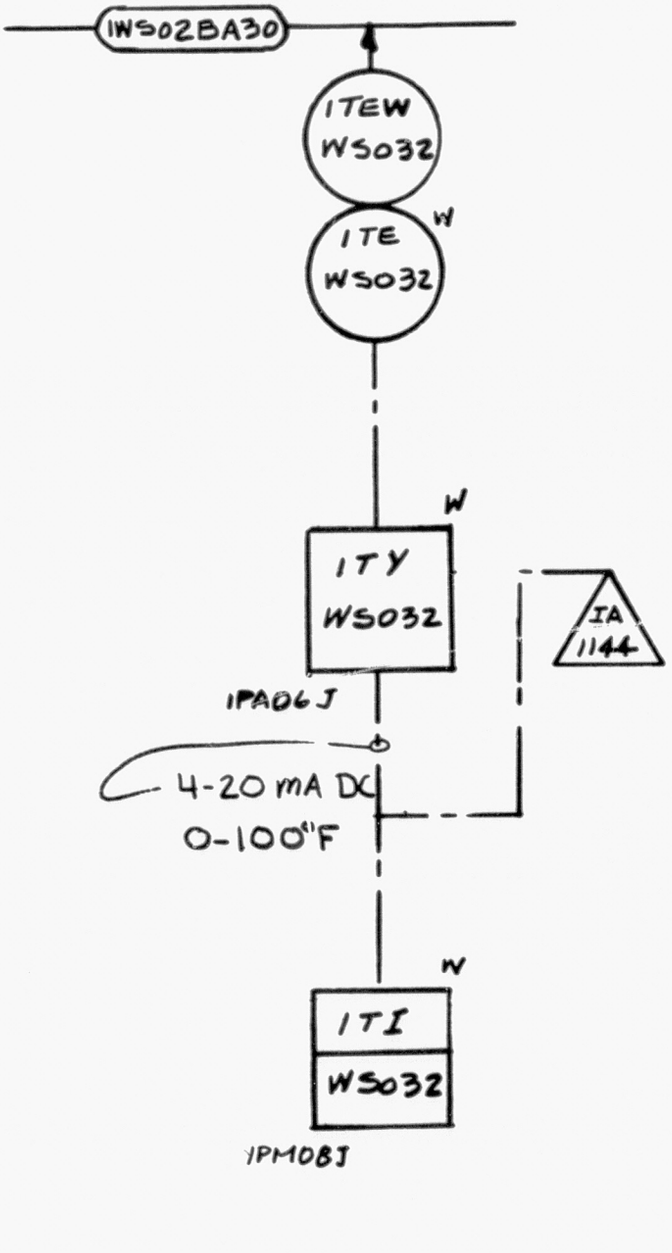
(M - 30-4)



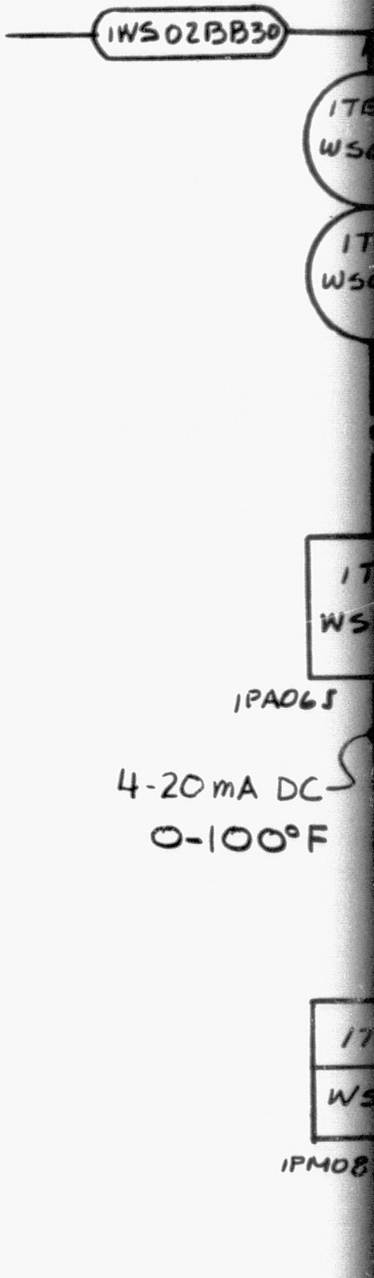
2

4)

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-33 SERVICE WATER SYSTEM C&ID (SHEET 5 of 8)

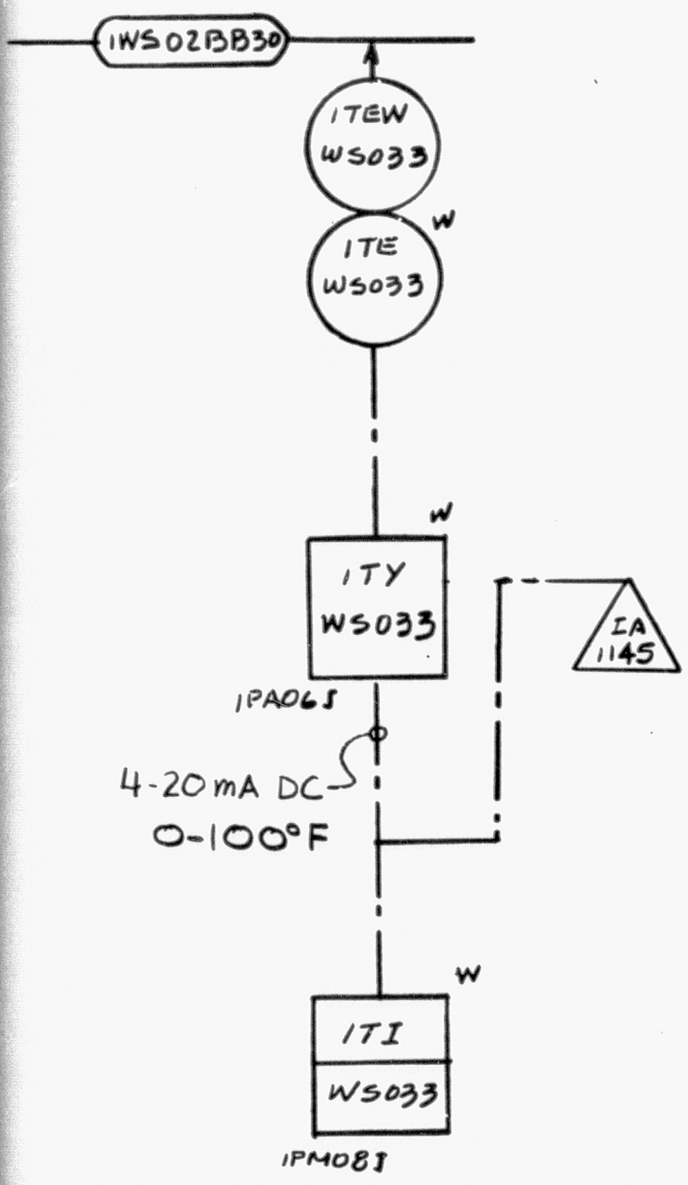


DETAIL A



DET

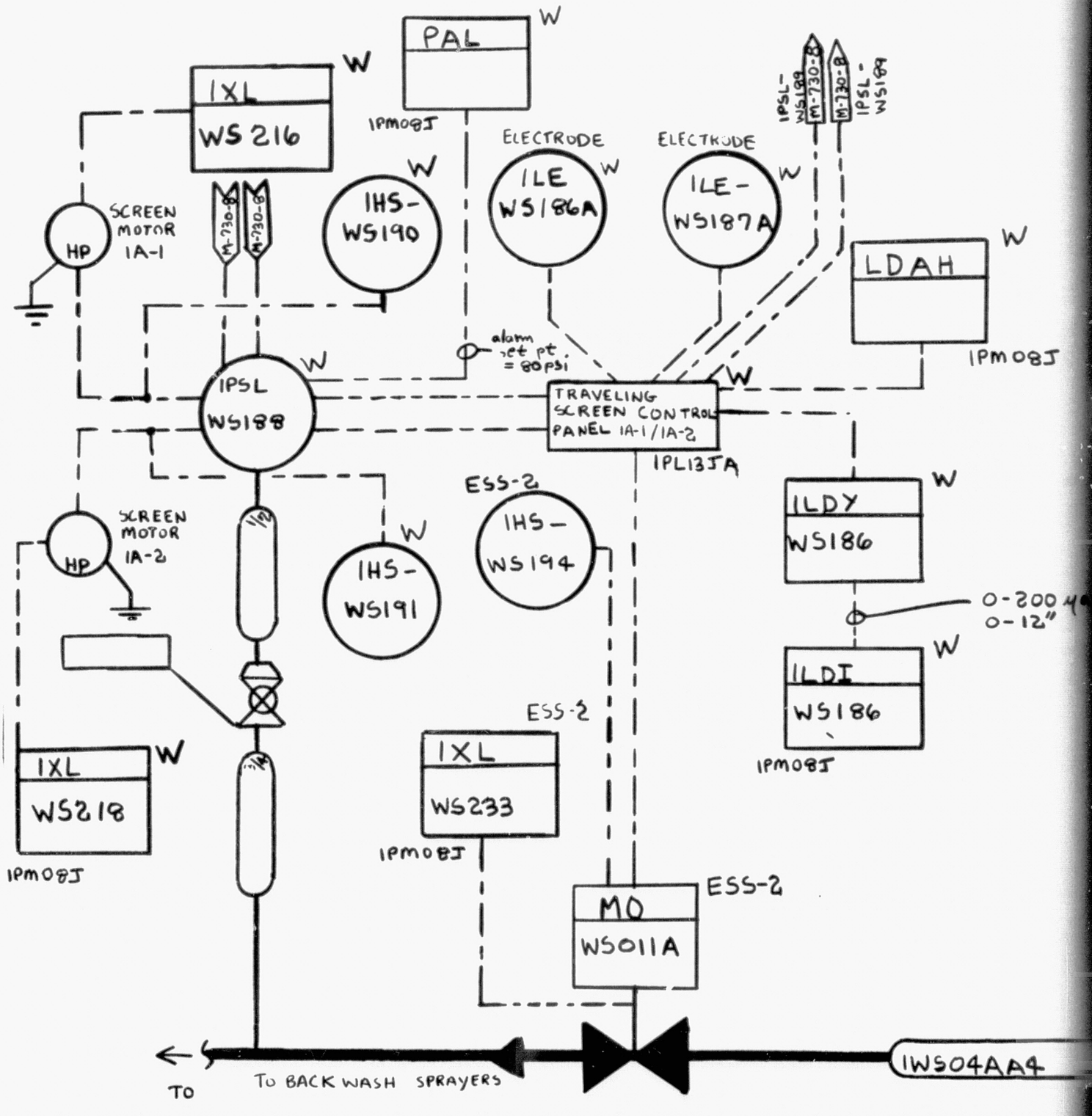
M-730-6



DETAIL B

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-33 SERVICE WATER SYSTEM C&ID (SHEET 6 of 8)



SCREEN BACKWASH & MOTOR
(M-30-1)

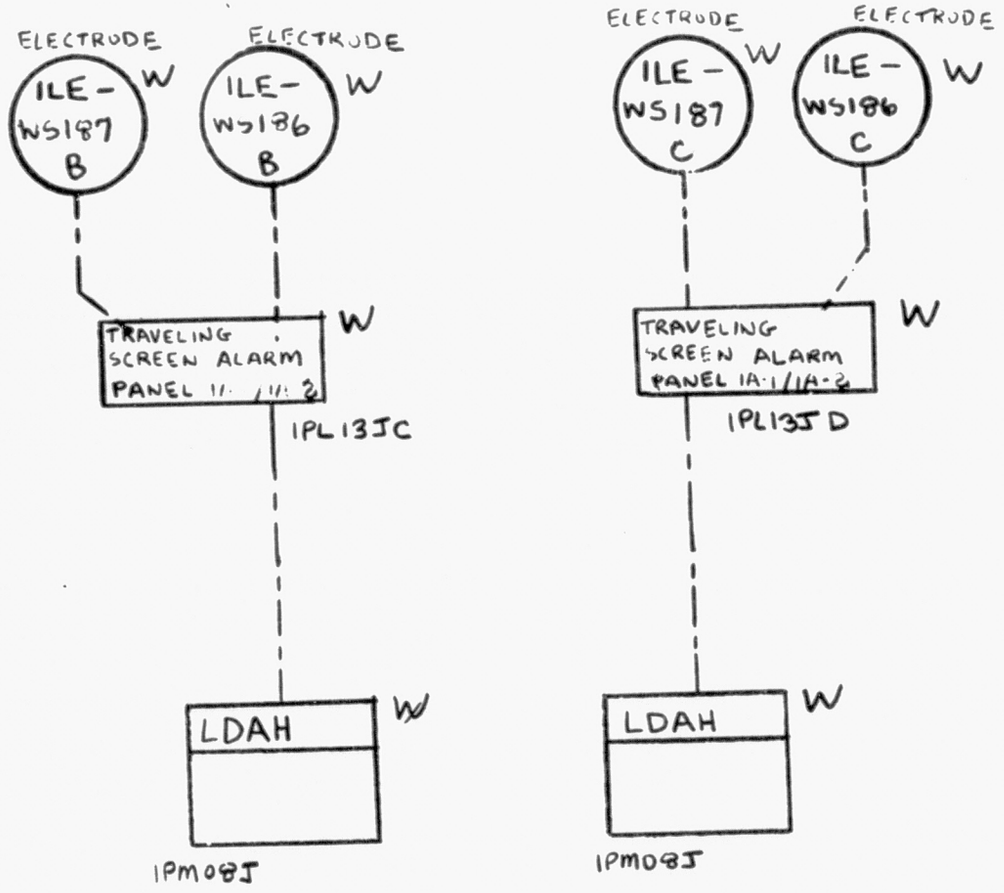
m 730-7

W

1PM08J

0-200 ψa
-12"

W



2

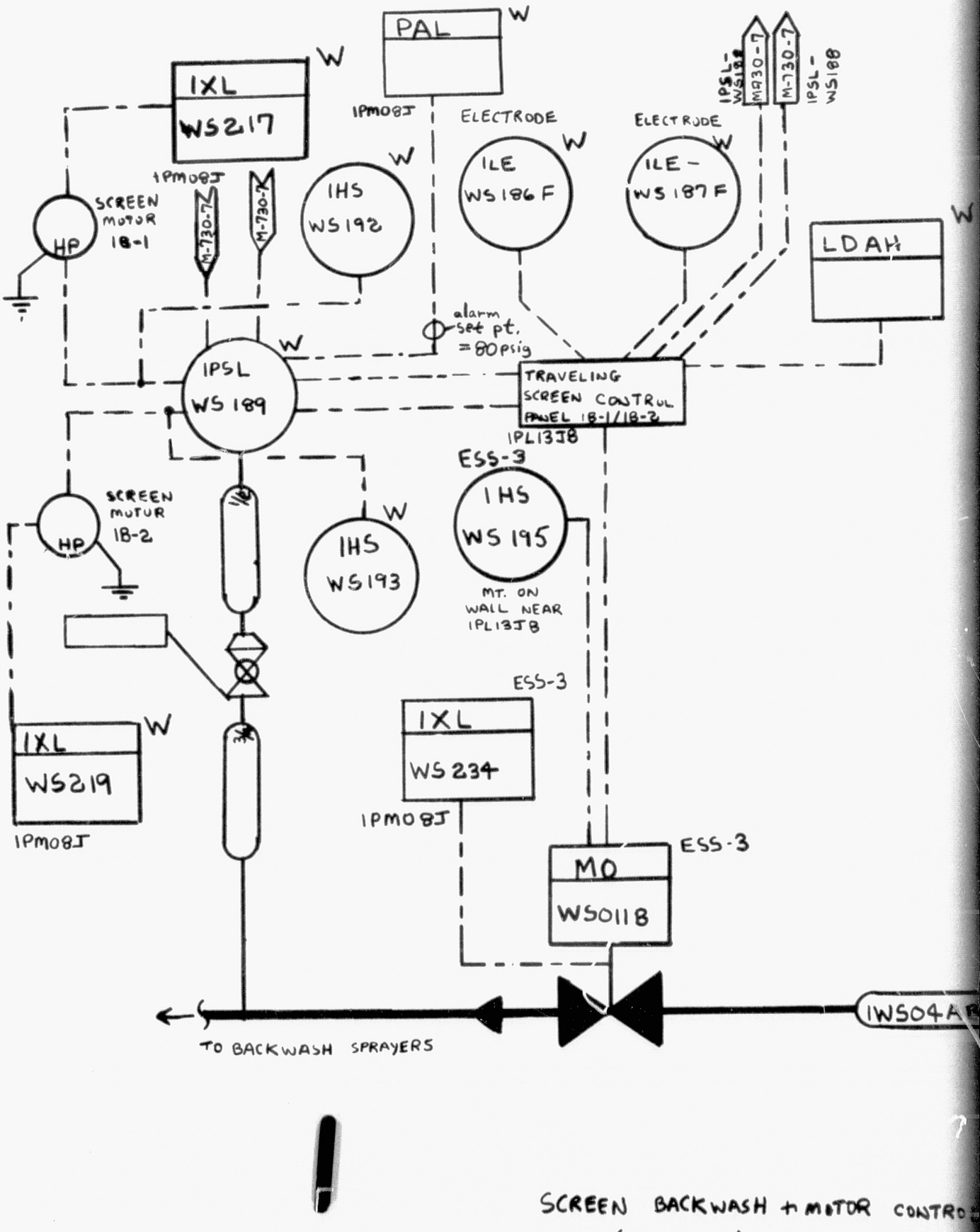
604AA4

ASH & MOTOR CONTROL

WM. H. ZIMMER NUCLEAR POWER STATION UNIT 1
FINAL SAFETY ANALYSIS REPORT

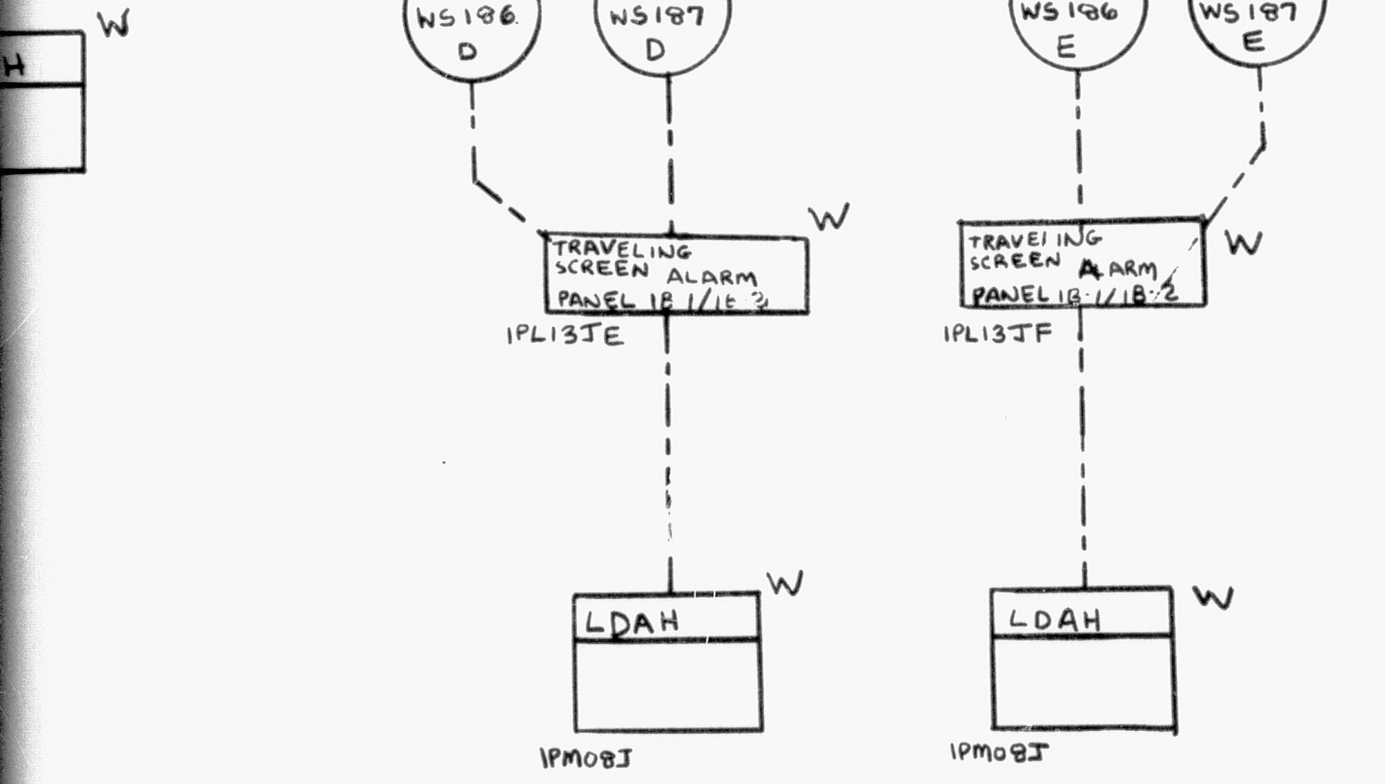
FIGURE 7.3-33

SERVICE WATER SYSTEM C&ID
(SHEET 7 of 8)



SCREEN BACKWASH + MOTOR CONTROL
(M-30-1)

M-730-C



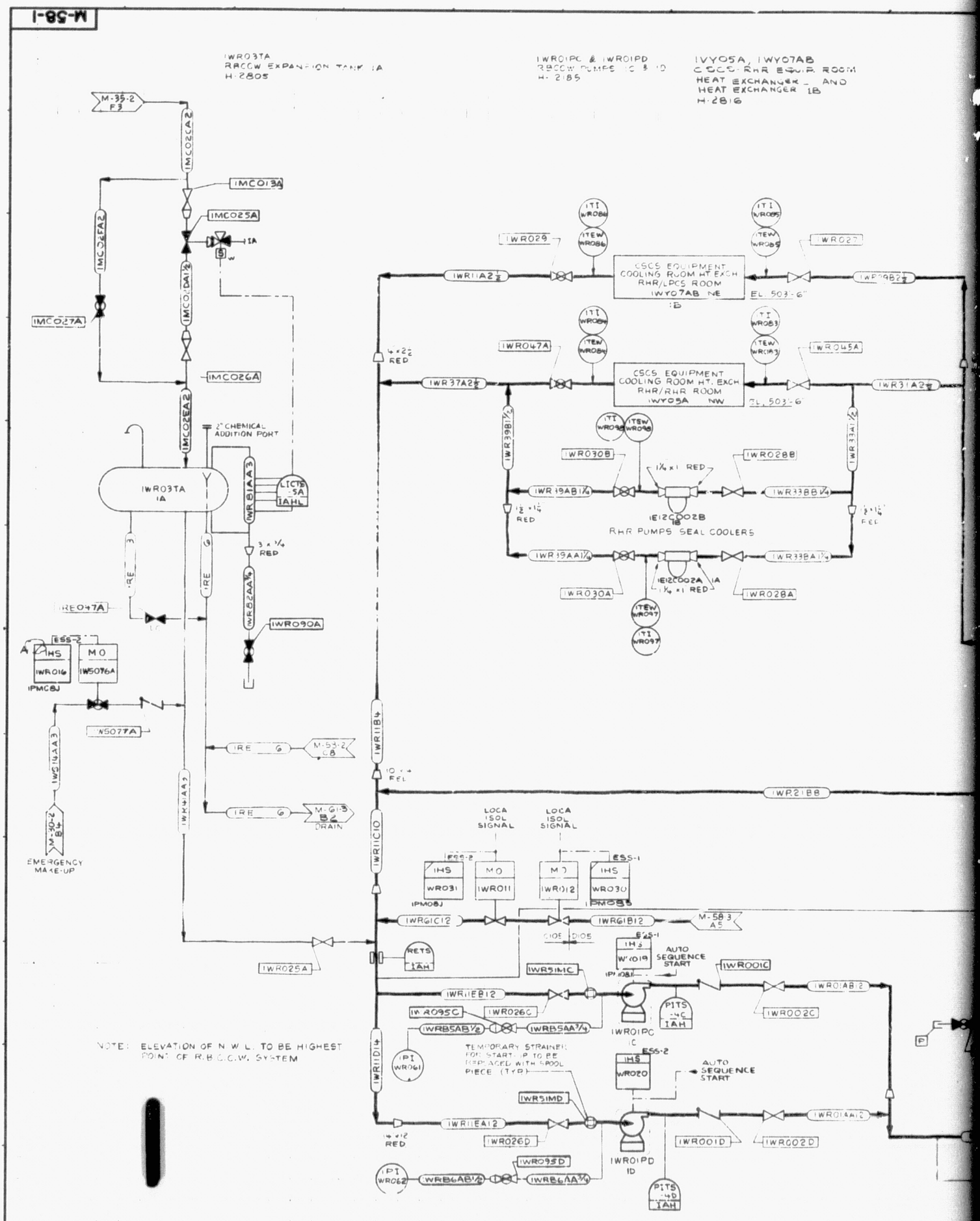
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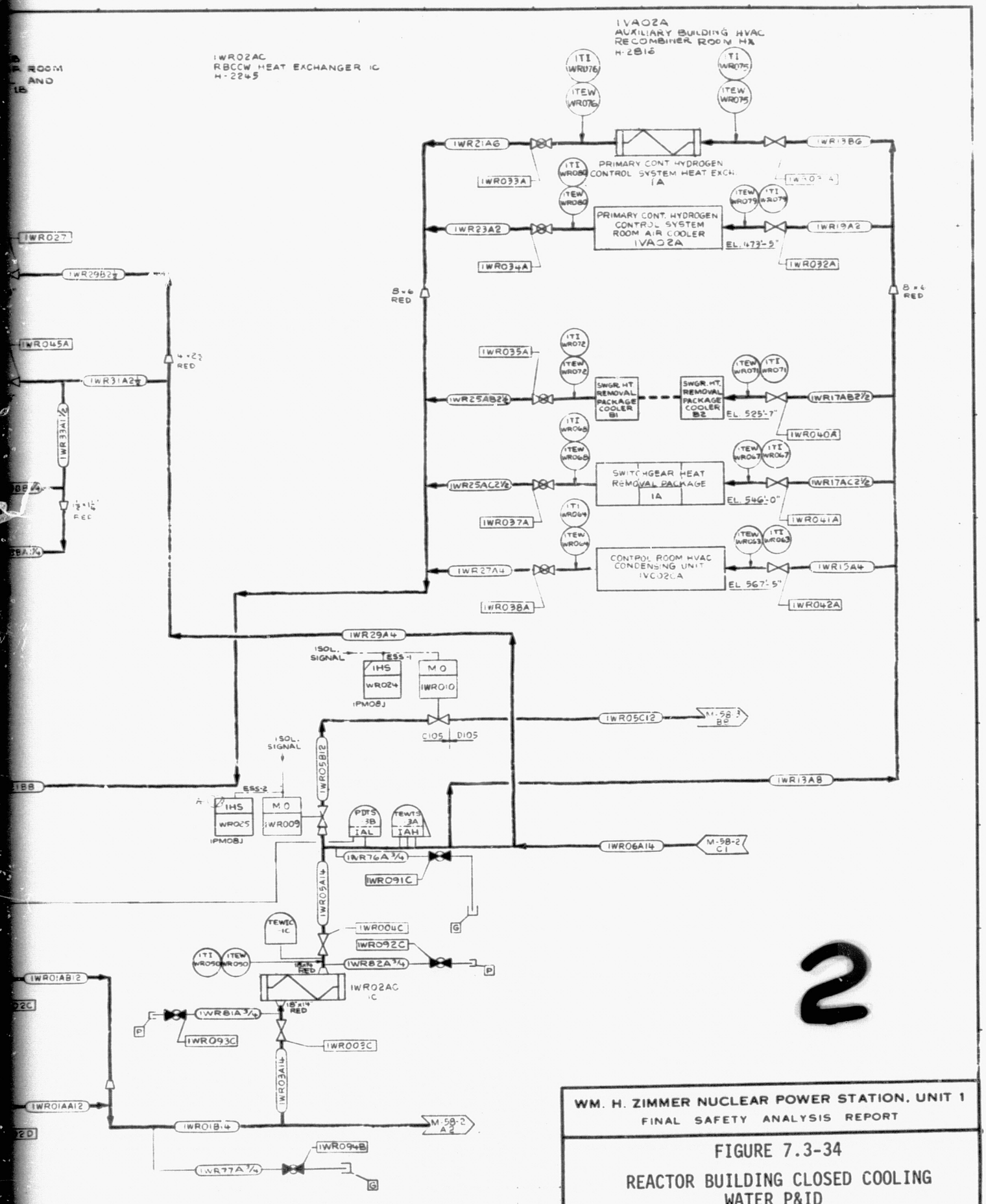
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-33

SERVICE WATER SYSTEM C&ID
(SHEET 8 of 8)

M-58-1


1WR03TA
RACCW EXPANSION TANK 1A
H-2805
1WR01PC & 1WR01PD
RACCW PUMPS 1C & 1D
H-2185
1VY05A, 1WY07AB
CSCS-RHR EQUIP. ROOM
HEAT EXCHANGER 1A AND
HEAT EXCHANGER 1B
H-2816
M-35-2 F3
1MC02CA2
1MC013A
1MC025A
1A
S
W
1MC02EA2
1MC027A
1MC01DA1½
1MC026A
1MC02EA2
2" CHEMICAL ADDITION PORT
1WR03TA
1A
1WR81AA3
LICTS -5A 1AHL
3 x ¾ RED
1RE 3
1RE 6
1RE047A
1WR82AA¾
1WR090A
ESS-2
A
IHS
1WR016
MO
1W5076A
1PM08J
1WS077A
1WS14AA3
M-30-2 B4
EMERGENCY MAKE-UP
1WK14AA2
1RE 6
M-53-2 C8
1RE 6
M-61-3 B2
DRAIN
1WR025A
1WR11B4
10 x 4 FEL
1WR11C10
1WR11D14
1WP21BB
LOCA ISOL SIGNAL
LOCA ISOL SIGNAL
ESS-2
IHS
WR031
MO
1WR011
MO
1WR012
ESS-1
IHS
WR030
1PM08J
1PM08S
1WRG1C12
1WRG1B12
M-583 A5
D105
D105
ESS-1
IHS
WR019
1PM08T
AUTO SEQUENCE START
RETS 1AH
1WR51MC
1WR01C
1WR11EB12
1WR095C
1WR026C
1WRB5AB½
1WRB5AA¾
1WR01PC 1C
PITS -4C 1AH
1WR01AB12
1WR002C
TEMPORARY STRAINER FOR START-UP TO BE REPLACED WITH SPOOL PIECE (TYP.)
1PI WR061
ESS-2
IHS
WR020
AUTO SEQUENCE START
1WR51MD
1WR11EA12
4 x 12 RED
1WR026D
1WR095D
1WRB6AB½
1WRB6AA¾
1WR01PD 1D
1WR001D
1WR002D
1WR01AA12
1PI WR062
PITS -4D 1AH
NOTE: ELEVATION OF N.W.L. TO BE HIGHEST POINT OF R.B.C.C.W. SYSTEM
1ITI WR086
1TEW WR086
1ITI WR085
1TEW WR085
1WR029
1WR027
1WR11A2½
CSCS EQUIPMENT COOLING ROOM HT. EXCH RHR/LPCS ROOM 1WY07AB NE 1B
EL. 503'-6"
1WR29B2½
1ITI WR084
1TEW WR084
1ITI WR083
1TEW WR083
1WR047A
1WR045A
4 x 2½ RED
1WR37A2½
CSCS EQUIPMENT COOLING ROOM HT. EXCH RHR/RHR ROOM 1WY05A NW
EL. 503'-6"
1WR31A2½
1WR39B1½
1ITI WR098
1TEW WR098
1WR030B
1WR028B
1¼ x 1 RED
1WR39AB1¼
1WR33BB1¼
1½ x 1¼ RED
1E12C002B 1B
RHR PUMPS SEAL COOLERS
1½ x 1¼ RED
1WR33A1½
1WR39AA1¼
1WR33BA1¼
1WR030A
1E12C002A 1A
1¼ x 1 RED
1WR028A
1TEW WR097
1TI WR097

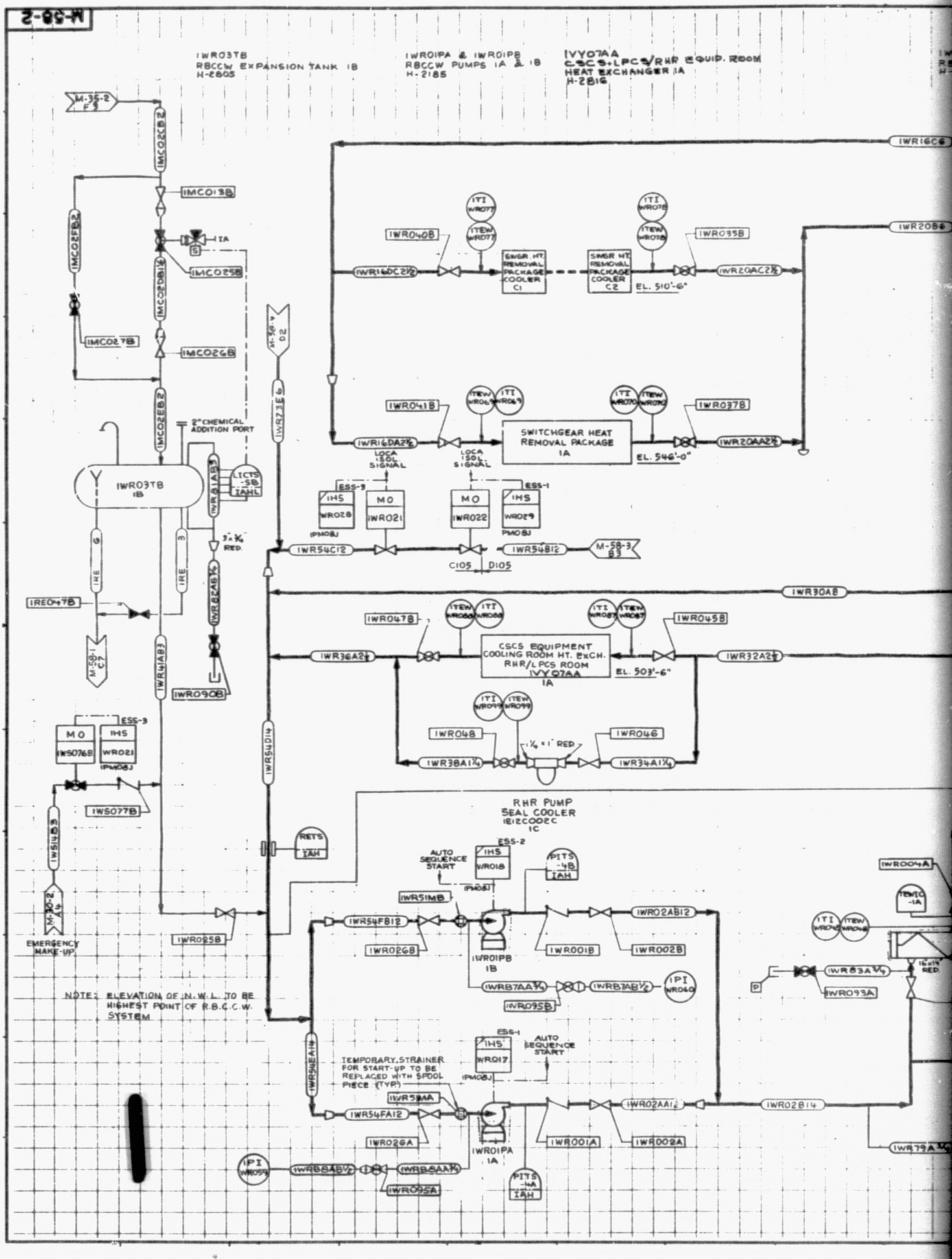


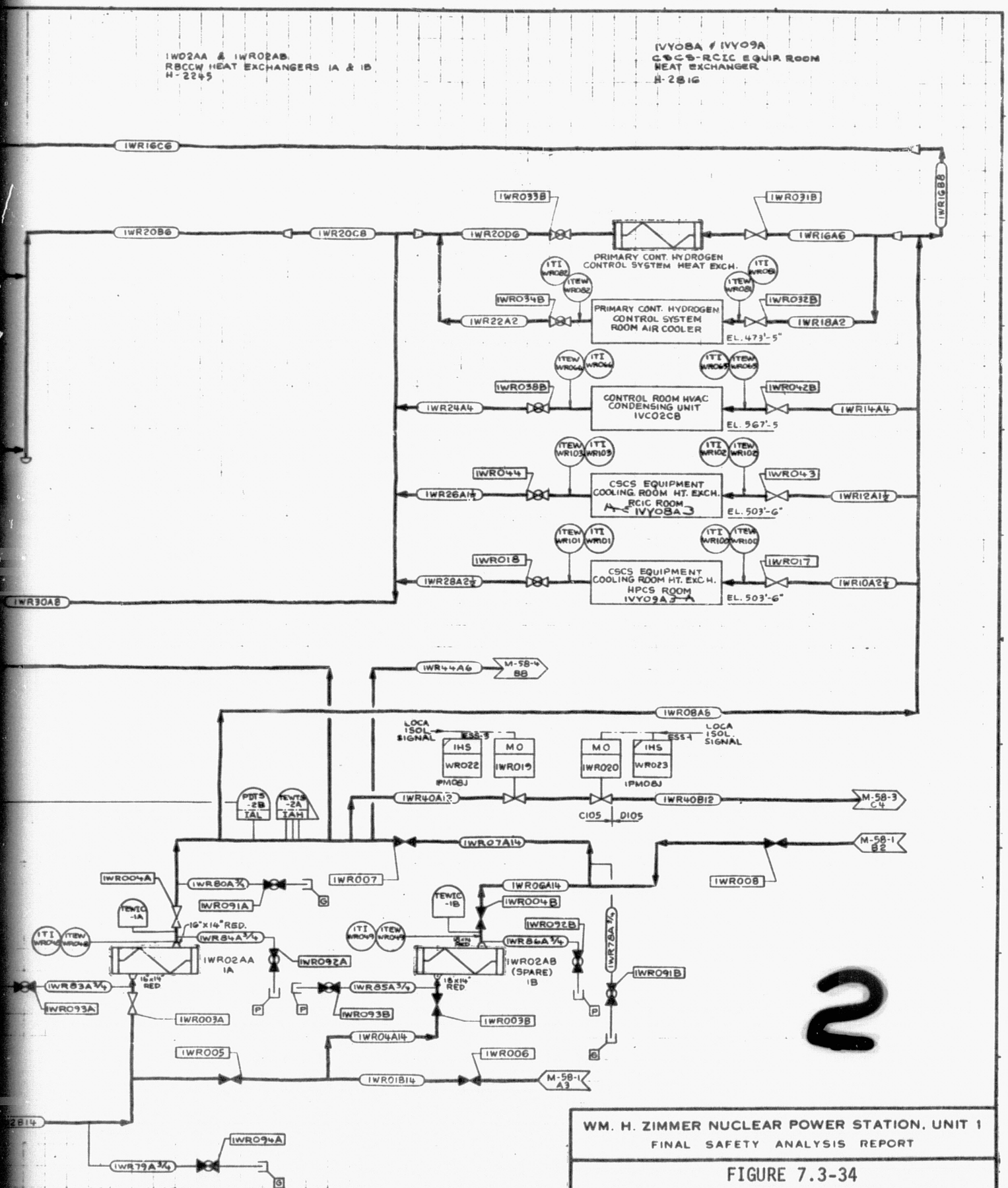
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-34

REACTOR BUILDING CLOSED COOLING WATER P&ID

(SHEET 1 of 4)


1WR03TB
RBCCW EXPANSION TANK 1B
H-2605
1WR01PA & 1WR01PB
RBCCW PUMPS 1A & 1B
H-2185
1VY07AA
CSCS-LPCS/RHR EQUIP. ROOM
HEAT EXCHANGER 1A
H-2816
M-35-2 F3
1MC02CB2
1MC013B
1MC02FB2
1MC025B
1MC027B
1MC026B
1MC02EB2
2" CHEMICAL ADDITION PORT
1WR03TB
1B
1WR23E6
M-58-4 D2
1WR16CC6
1WR040B
1WR16DC2½
SWGR. HT. REMOVAL PACKAGE COOLER C1
SWGR HT. REMOVAL PACKAGE COOLER C2
EL. 510'-6"
1WR035B
1WR20BB6
1WR041B
1WR16DA2½
LOCA ISOL SIGNAL
SWITCHGEAR HEAT REMOVAL PACKAGE 1A
EL. 546'-0"
1WR037B
1WR20AA2½
ESS-3
ESS-1
1HS WR028 (PM08J)
MO 1WR021
MO 1WR022
1HS WR029 (PM08J)
1WR54C12
1WR54B12
M-58-3 B3
C105
D105
1WR30A8
1WR047B
CSCS EQUIPMENT COOLING ROOM HT. EXCH. RHR/LPCS ROOM 1VY07AA 1A
EL. 503'-6"
1WR045B
1WR36A2½
1WR32A2½
1WR048
1¼ x 1" RED.
1WR046
1WR38A1¼
1WR34A1¼
1WR090B
1WR041A83
1WR54D14
1WR82AB¾
3/4 x 1/2 RED.
1LICTS-3B 1AHC
1RE047B
1RE
M-58-1 C7
1WS076B
1WS077B
1WS145B3
M-30-2 A4
EMERGENCY MAKE-UP
1WR025B
RHR PUMP SEAL COOLER 1E12C002C 1C
RETS 1AH
AUTO SEQUENCE START
1HS WR018 (PM08J)
PITS-4B 1AH
1WR51MB
1WR54FB12
1WR02AB12
1WR02GB
1WR001B
1WR002B
1WR01PB 1B
1WR004A
TEWIC-1A
1WR87AA¾
1WR87AB½
1PI WR040
1WR095B
1WR83AV½
1WR093A
16" x 14" RED.
NOTE: ELEVATION OF N.W.L. TO BE HIGHEST POINT OF R.B.C.C.W. SYSTEM
1WR54EA14
TEMPORARY STRAINER FOR START-UP TO BE REPLACED WITH SPOOL PIECE (TYP.)
1HS WR017 (PM08J)
AUTO SEQUENCE START
1WR51MA
1WR54FA12
1WR02AA12
1WR02B14
1WR02GA
1WR001A
1WR002A
1WR01PA 1A
1PI WR059
1WR88AB½
1WR88AA¾
1WR095A
PITS-4A 1AH
1WR79A3



2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

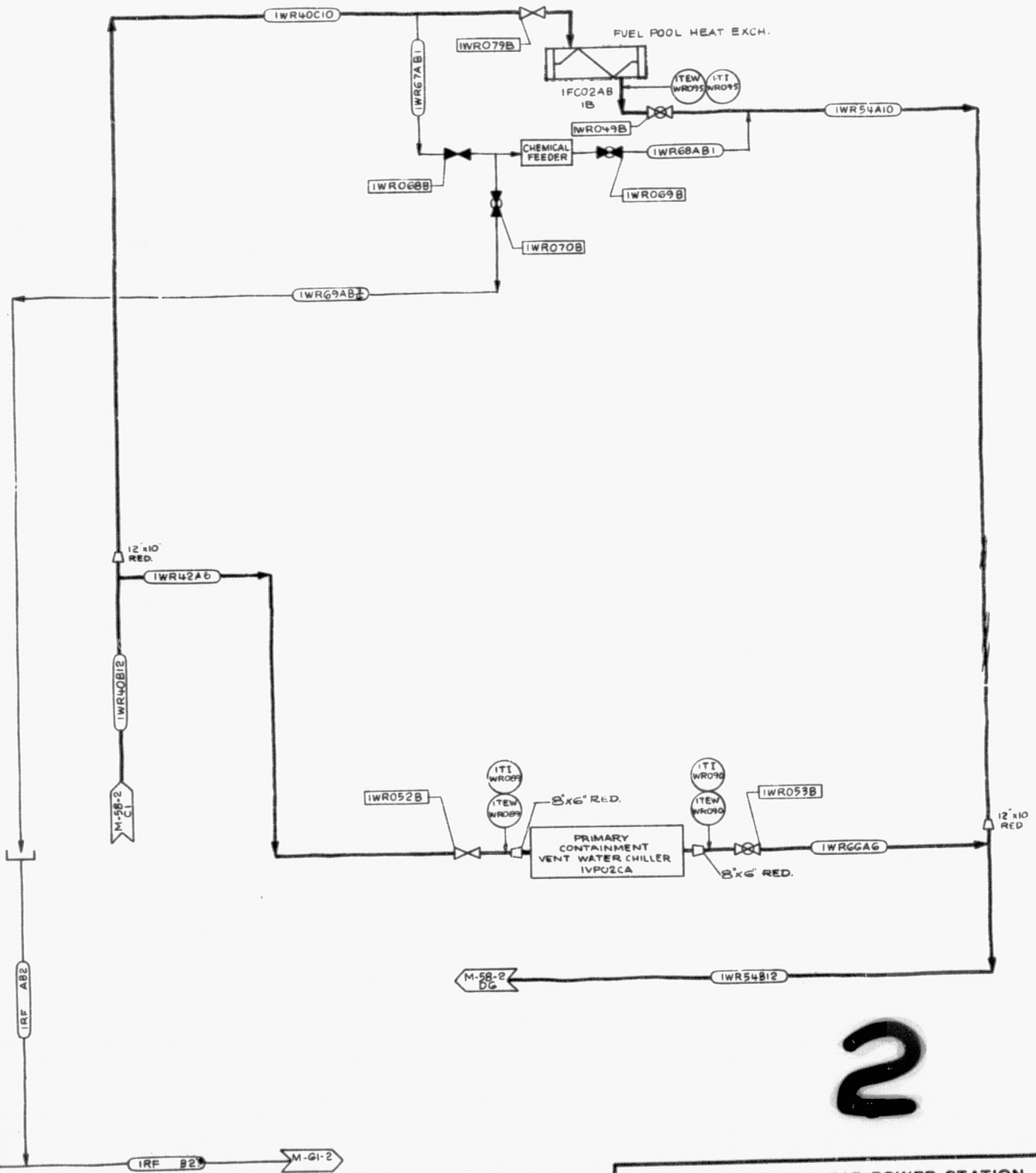
FIGURE 7.3-34

REACTOR BUILDING CLOSED COOLING WATER P&ID

(SHEET 2 of 4)

M-58-3

1TI WR091
1TEW WR091
1TI WR092
1TEW WR092
PRIMARY CONTAINMENT VENT WATER CHILLER 1VP02CB
1WR45B6
1WR052A
1WR053A
1WR53A6
10"x6" RED.
1WR087
1WR51A6
1WR87A 3/4
P
1WR060
1G33B002B
NON-REGENERATIVE HEAT EXCHANGERS
1TI WR093
1TEW WR093
1G33B002A
1WR089
1WR88A 3/4
1WR061
P
10"x6" RED.
1WR55A6
1TEWIS M-75E MAH
1WR058A
2"x1½" RED
1WR059A
1WR49BA2
1WR57AA2
1G33C001A
RWCU PUMP SEAL & BRG COOLERS
1TEWIS M-75E MAH
1WR058B
1WR059B
1WR49BB2
1WR57AB2
2½"x2" RED
2"x1½" RED
1G33C001B
2½"x2" RED
1WR45A10
1WF53B10
1TEW WR105
1TI WR105
1WR49A2
1WR57B2
1WR050B
1¼"x¾" RED
1WR051B
2"x1¼" RED
1WR47B2
1WR47CB1¼
1WR59AB1¼
2"x1¼" RED
1WR59B2
4"x2" RED
1C11C001B
CRD PUMP SEAL & BRG. COOLERS
1WR47A4
1WR59C4
1WR050A
1¼"x¾" RED
1WR051A
1WR47CA1¼
1WR59AA1¼
1C11C001A
1TEW WR104
1TI WR104
12"x10" RED.
1WR05D10
FUEL POOL HEAT EXCH.
1WR079A
1WR67AA1
1TEW WR094
1TI WR094
1FC02AA 1A
12"x10" RED.
1WR05C12
1WR061A10
1WR049A
CHEMICAL FEEDER
1WR68AA1
1WR069A
1WR069A
1WR070A
1WR69AA¾
1WR61B12
1RF AA2
1RF A82
1WR05G
REACTOR BLDG. EQUIP. DRAIN TANK
1WR057
1WR43A2
1WR63A2
1REO1T
1TEW WR096
1TI WR096
M-58-1 C2
M-58-1 C5
M-58-2 C1
12"x10" RED.
1WR40B12



2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

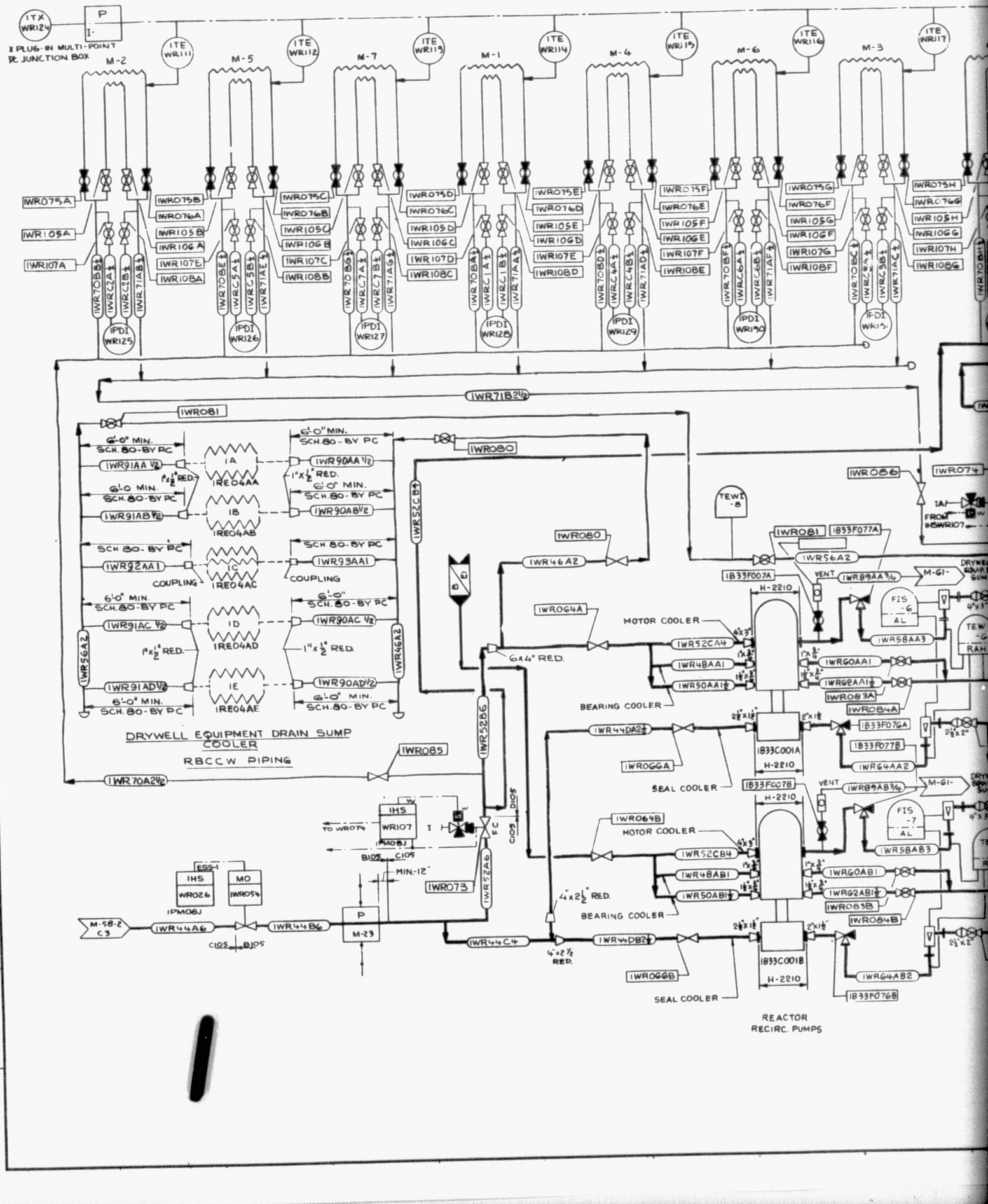
FIGURE 7.3-34

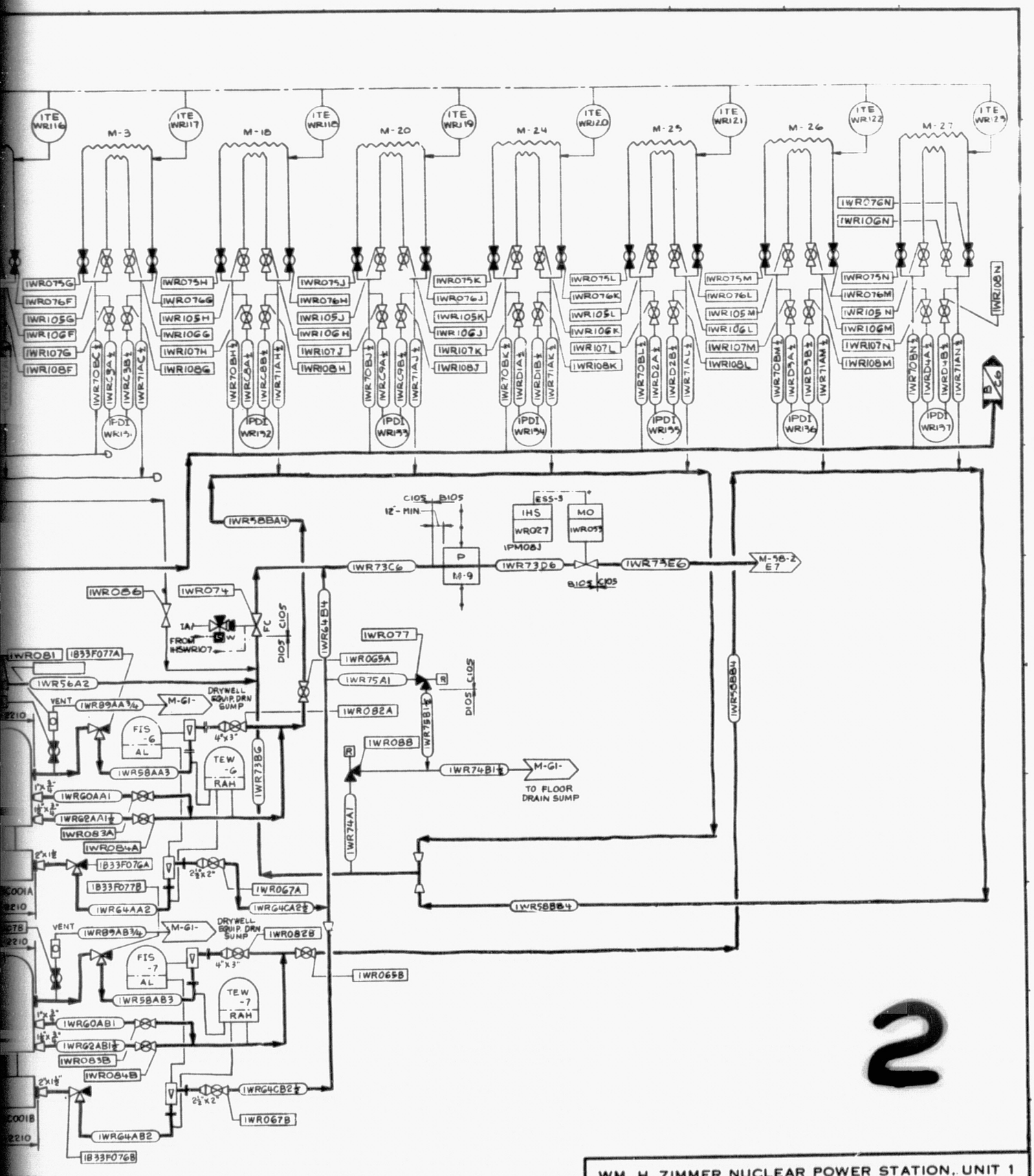
REACTOR BUILDING CLOSED COOLING WATER P&ID

(SHEET 3 of 4)

M-58-4

1RE04AA, 1RE04AB, 1RE04AC, 1RE04AD, & 1RE04AE
DRYWELL EQUIPMENT DRAIN SUMP COOLING COILS
1A, 1B, 1C, 1D, & 1E.
H-2256

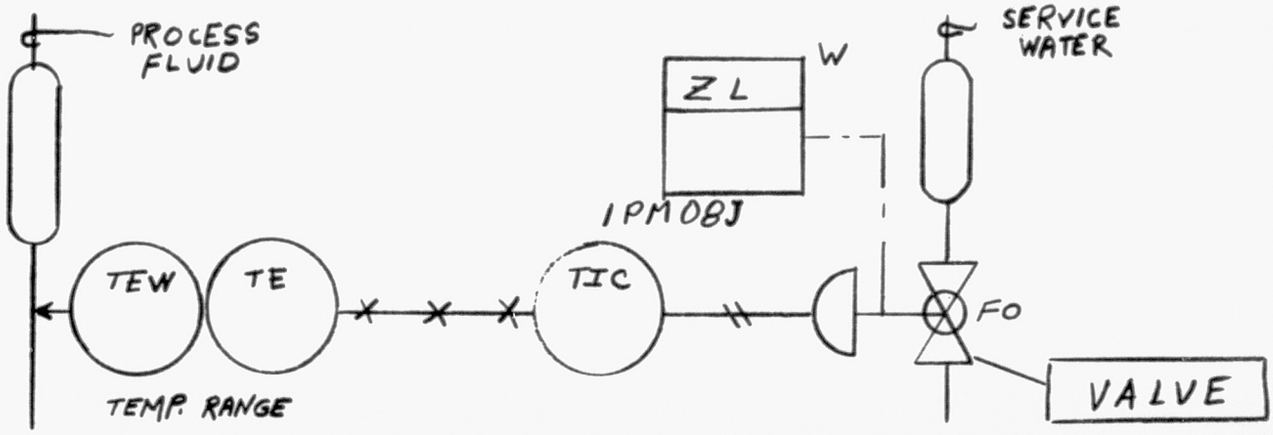




2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-34
REACTOR BUILDING CLOSED COOLING WATER P&ID
(SHEET 4 of 4)



DETAIL #	SERVICE	PROCESS LINE No.	SERV. WTR. LINE NO.	TEW TE	TIC	V
A	WR HEAT EXCHANGER 1A	1WR07A14 M-58-2	1WS16A14 M-30-2	1TEW-WR005 1TE-WR005	1TIC-WR005	V
B	WR HEAT EXCHANGER 1B	1WR06A14 M-58-2	1WS18A18 M-30-2	1TEW-WR010 1TE-WR010	1TIC-WR010	V
C	WR HEAT EXCHANGER 1C	1WR05A14 M-58-1	1WS15A18 M-30-2	1TEW-WR015 1TE-WR015	1TIC-WR015	V

VALVE

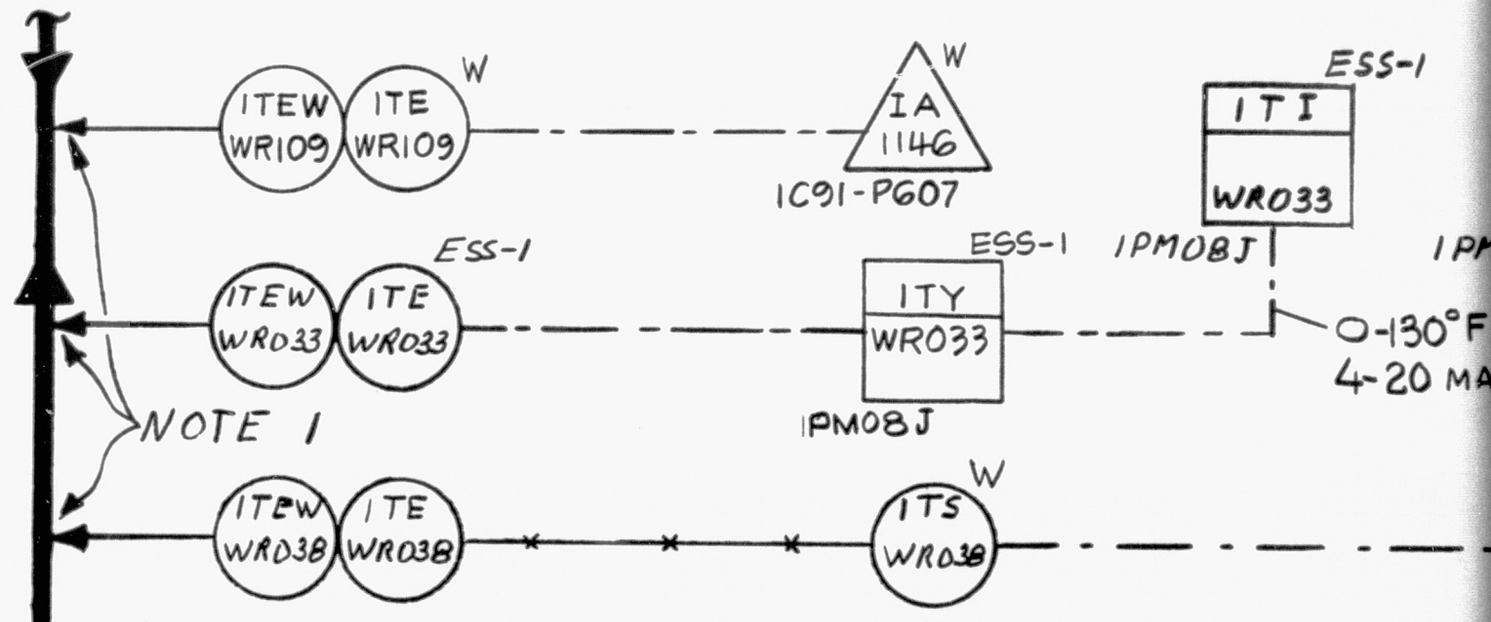
	TIC	VALVE No.	ZL OPEN + CLOSED
05 05	ITIC-WR005	VLV-1WS020	IZL- WS203
10 10	ITIC-WR010	VLV-1WS025	IZL-WS204
15 5	ITIC-WR015	VLV-1WS030	IZL-WS205

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

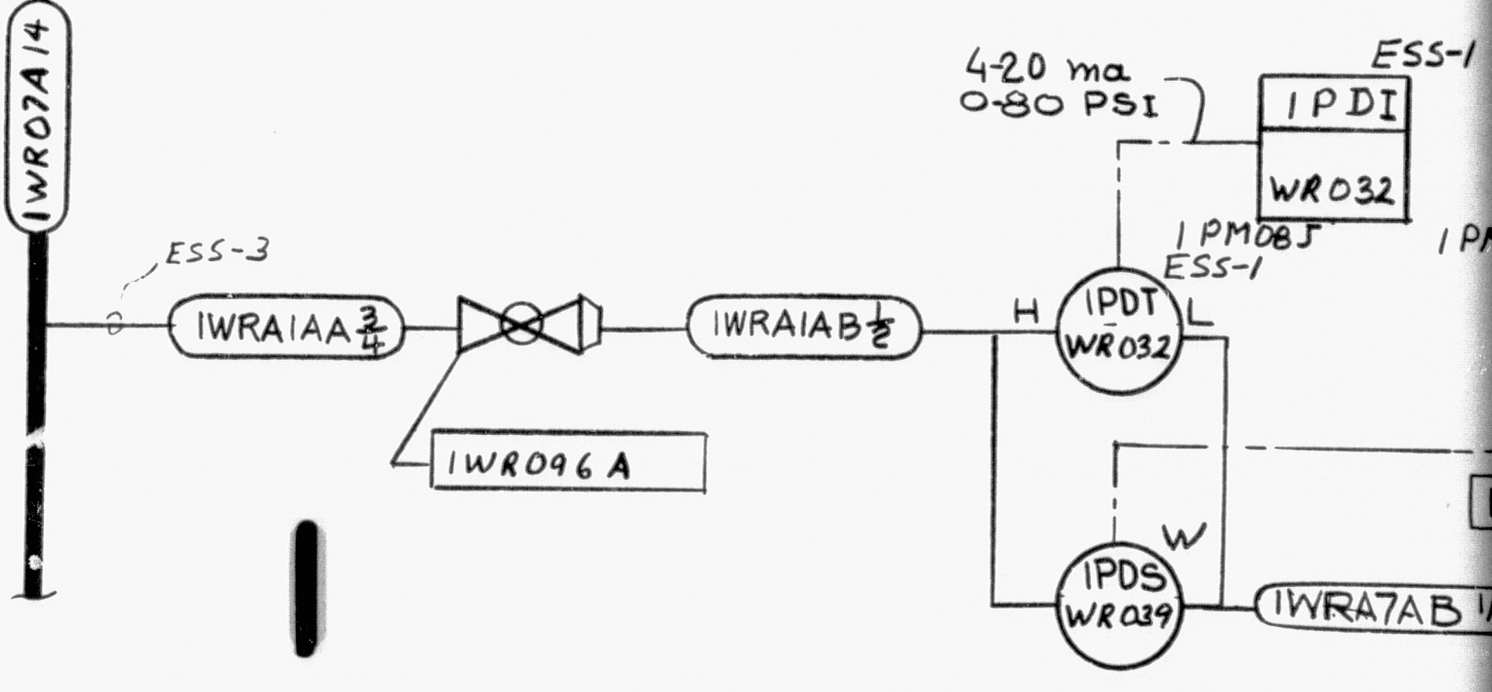
FIGURE 7.3-35

REACTOR BUILDING CLOSED COOLING WATER SYSTEM C&ID
(SHEET 1 of 8)



DETAIL A

RBCCW HE 1A & 1B DSCH HDR TEMPERATURE

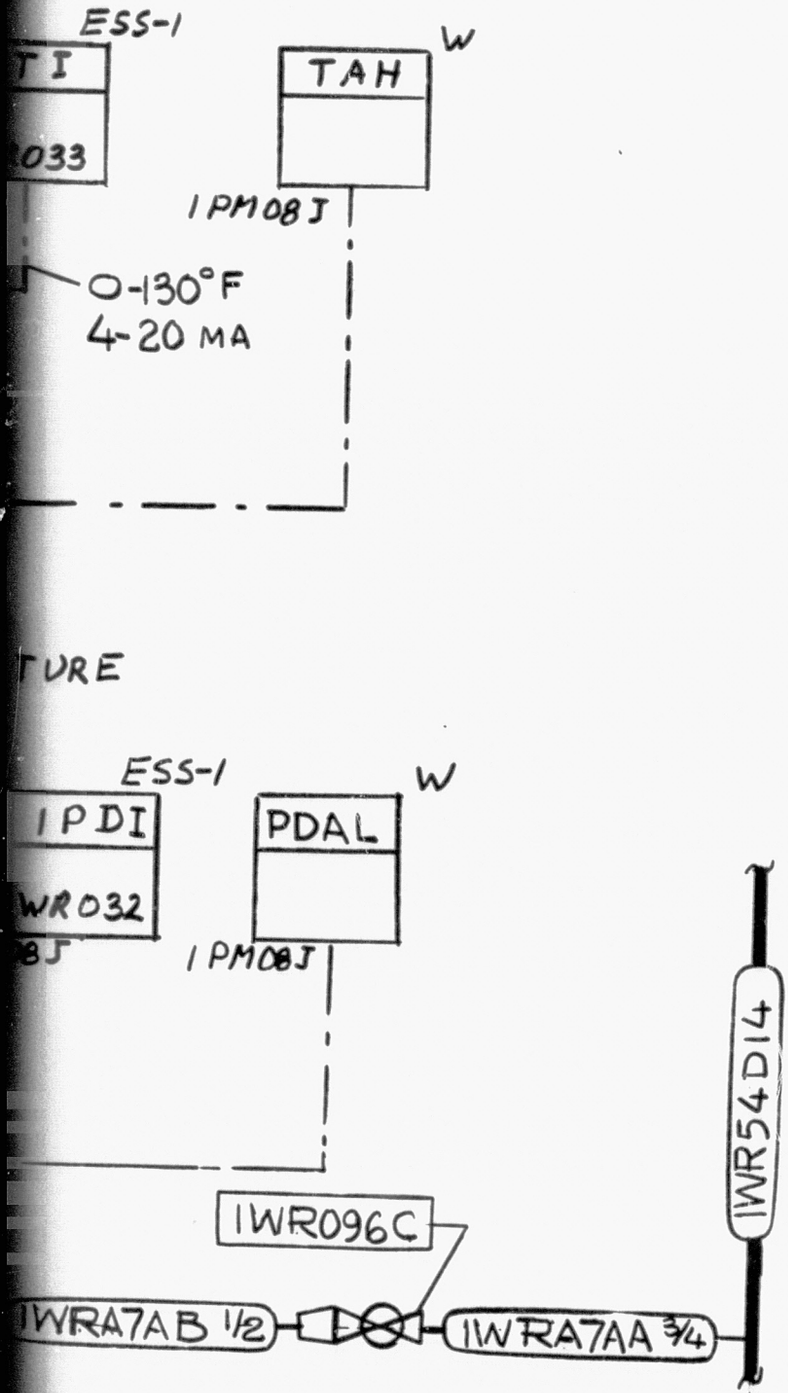


DETAIL B

RBCCW HE 1A & 1B DSCH HDR PRESSURE

NOTE 1. LOCATION ON PIPING MUST BE IN A POSITION THAT
ALWAYS HAVE FLOW WHEN EITHER HE 1A OR 1B
OPERATION OR IF NON-ESSENTIAL FLOW IS STOP

M-75B-2



TURE

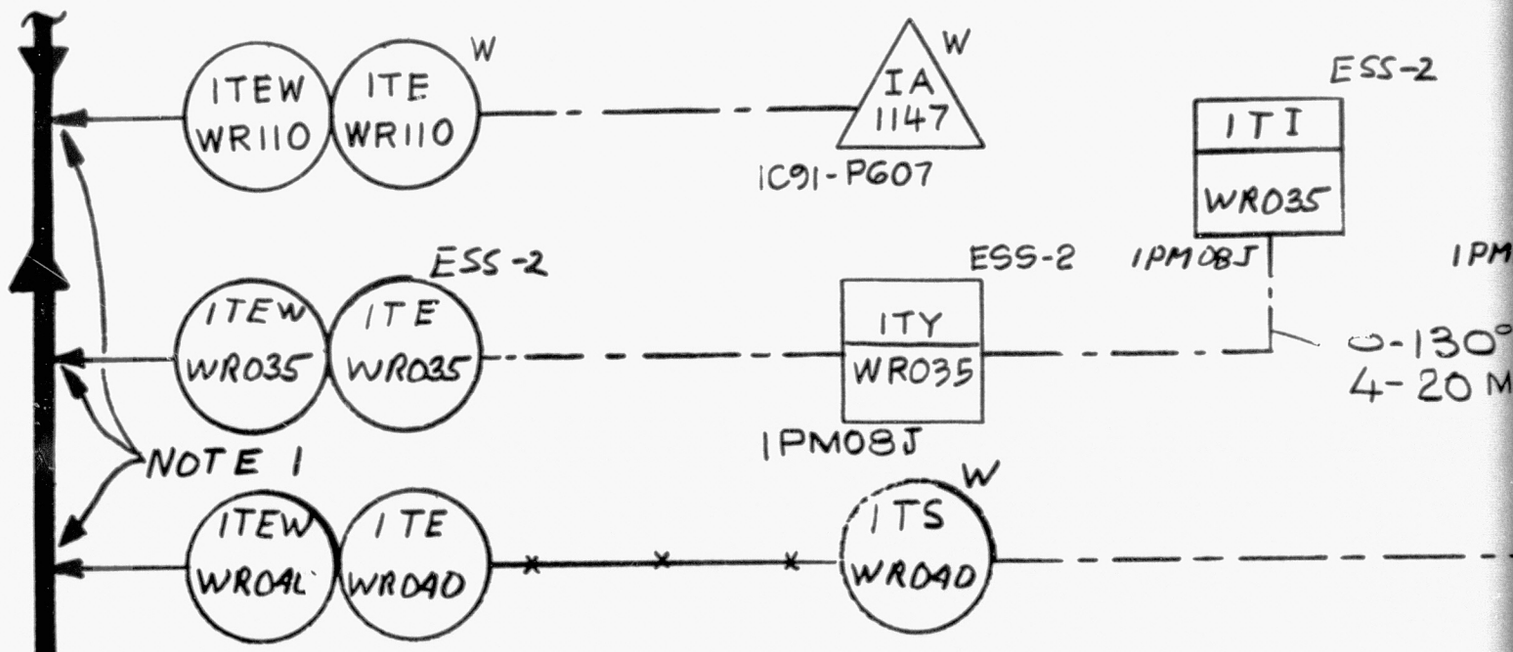
URE

TION THAT WILL
A OR 1B IS IN
V IS STOPPED.

ESSENTIAL COMPONENTS
INCLUDED

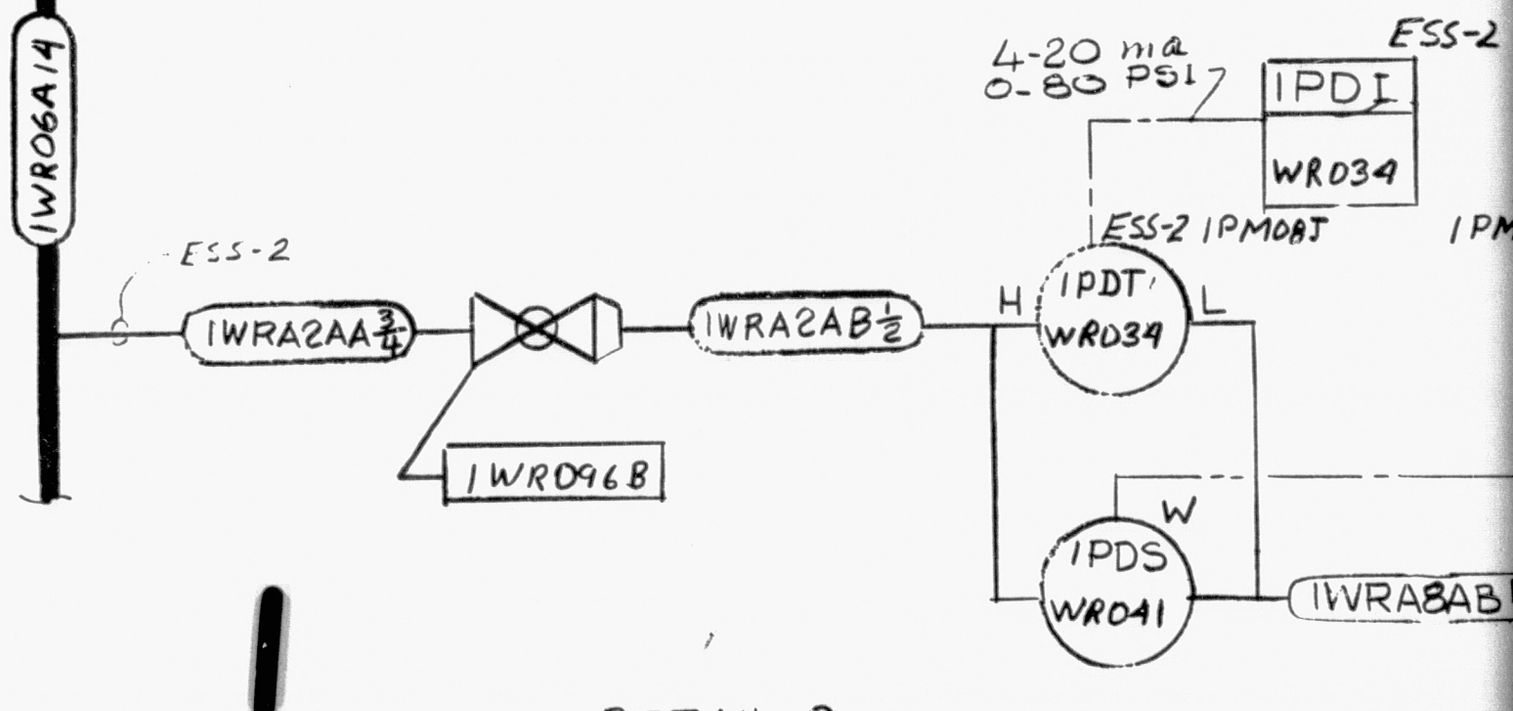
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-35 REACTOR BUILDING CLOSED COOLING WATER SYSTEM C&ID (SHEET 2 of 8)



DETAIL A

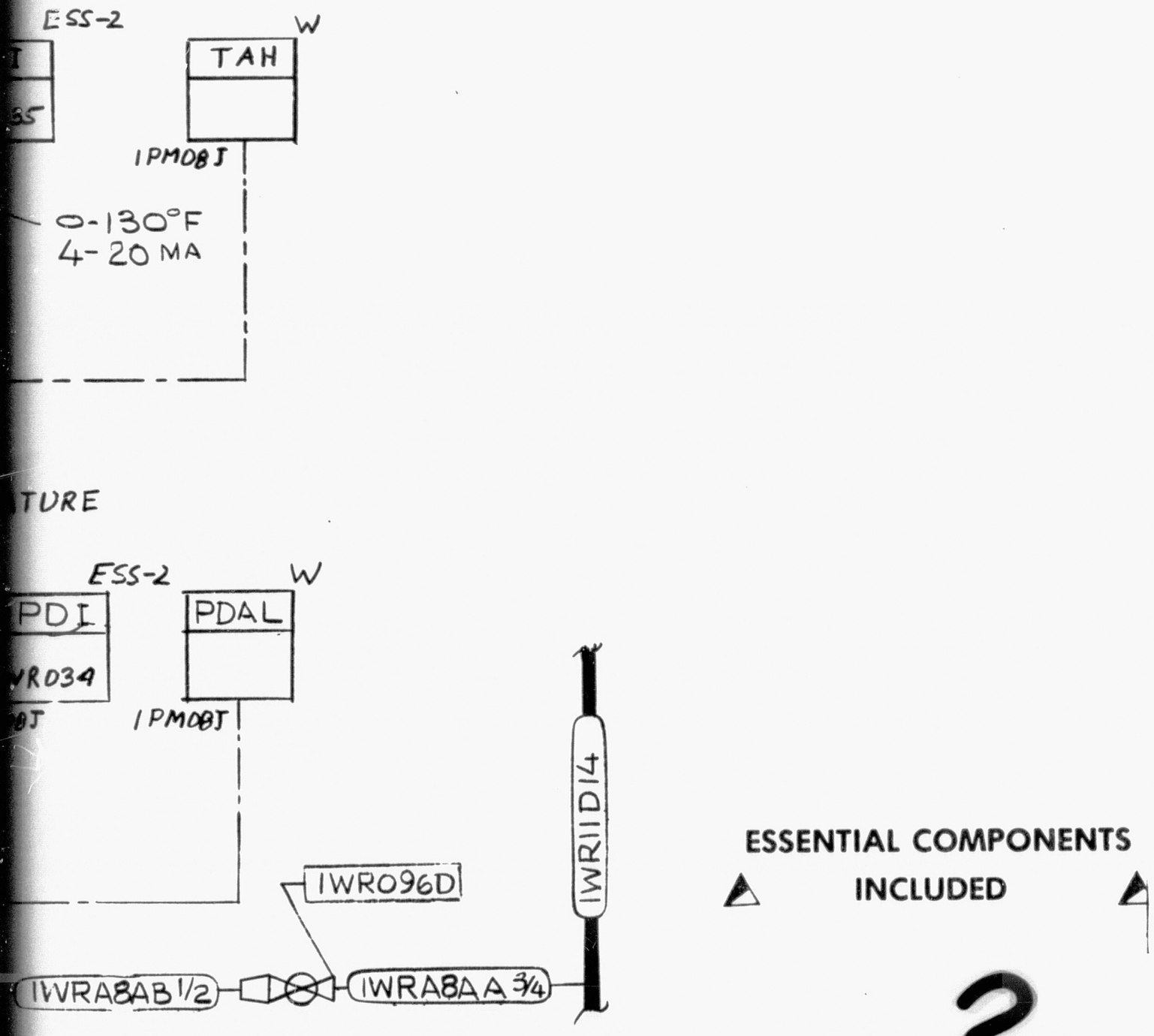
RBCCW HE 1C & 1B DSCH HDR TEMPERATURE



DETAIL B

RBCCW HE 1C & 1B DSCH HDR PRESSURE

NOTE 1 LOCATION ON PIPING MUST BE IN A POSITION THAT
ALWAYS HAVE FLOW WHEN EITHER HE 1C OR 1B
OPERATION OR IF NON-ESSENTIAL FLOW IS STOPP

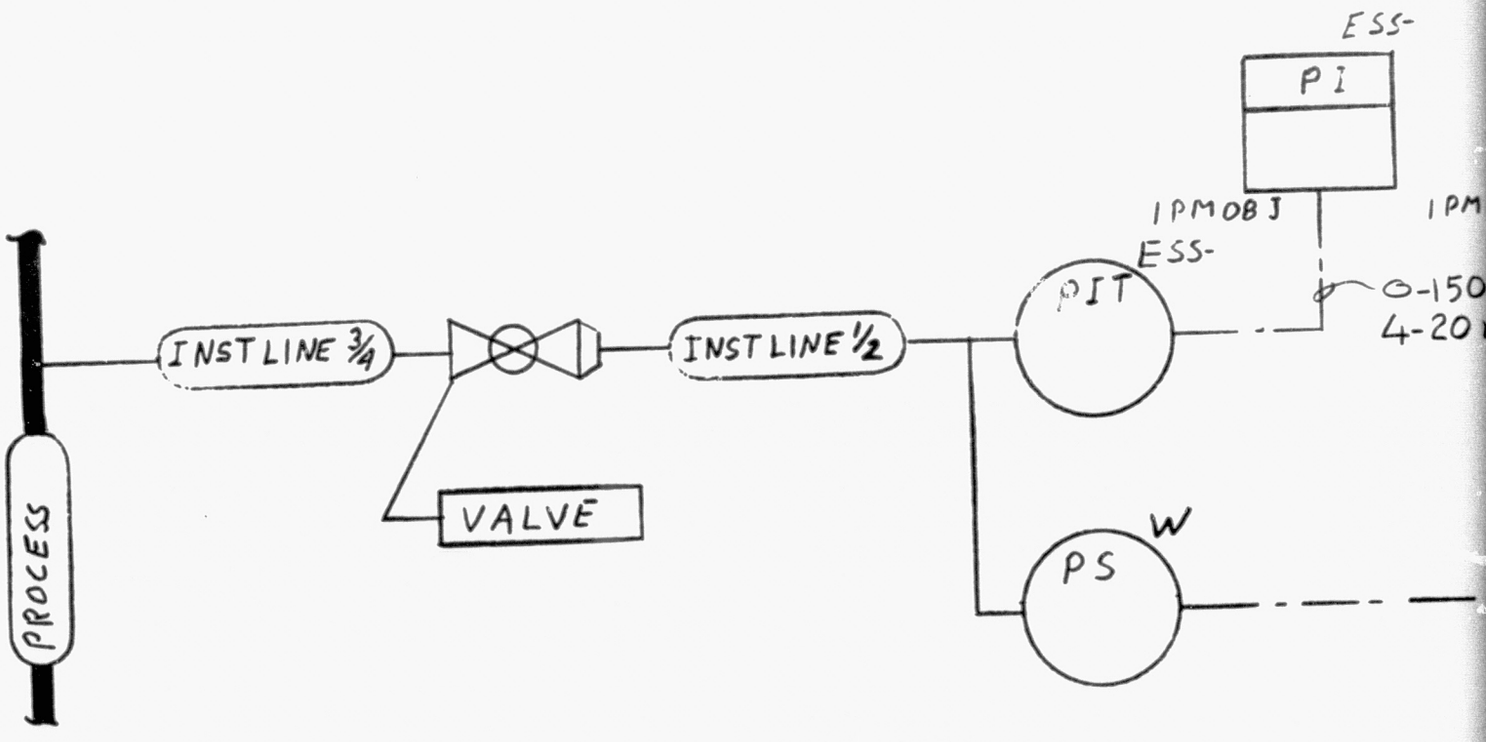


ESSENTIAL COMPONENTS

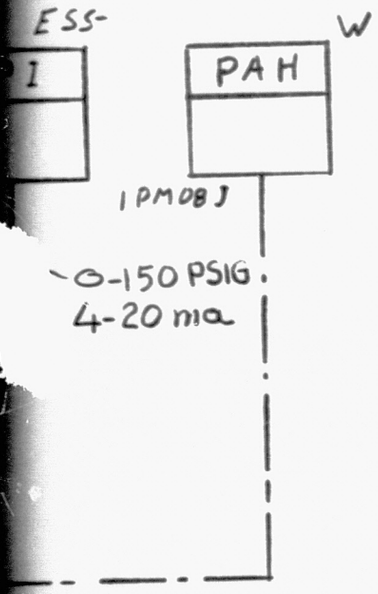
INCLUDED

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-35 REACTOR BUILDING CLOSED COOLING WATER SYSTEM C&ID (SHEET 3 of 8)



DETAIL	SERVICE	PROCESS LINE No.	PIT	PI	PS	VALVE No.	INST 3/4
A	RBCCW PUMP 1A DSCH P	1WR02AA12 M-58-2	1PIT-WR051	1PI-WR051	1PS-WR052	1WR097A	1WRA
B	RBCCW PUMP 1B DSCH P	1WR02AB12 M-58-2	1PIT-WR053	1PI-WR053	1PS-WR054	1WR097B	1WRA
C	RBCCW PUMP 1C DSCH P	1WR01AB12 M-58-1	1PIT-WR055	1PI-WR055	1PS-WR056	1WR097C	1WRA
D	RBCCW PUMP 1D DSCH P	1WR01AA12 M-58-1	1PIT-WR057	1PI-WR057	1PS-WR058	1WR097D	1WRA



	INST. LINE 3/4 No.	INST LINE 1/2 No.	ESS-
A	1WRA3AA3/4	1WRA3AB1/2	ESS-1
B	1WRA4AA3/4	1WRA4AB1/2	ESS-2
C	1WRA5AA3/4	1WRA5AB1/2	ESS-1
D	1WRA6AA3/4	1WRA6AB1/2	ESS-2

ESSENTIAL COMPONENTS

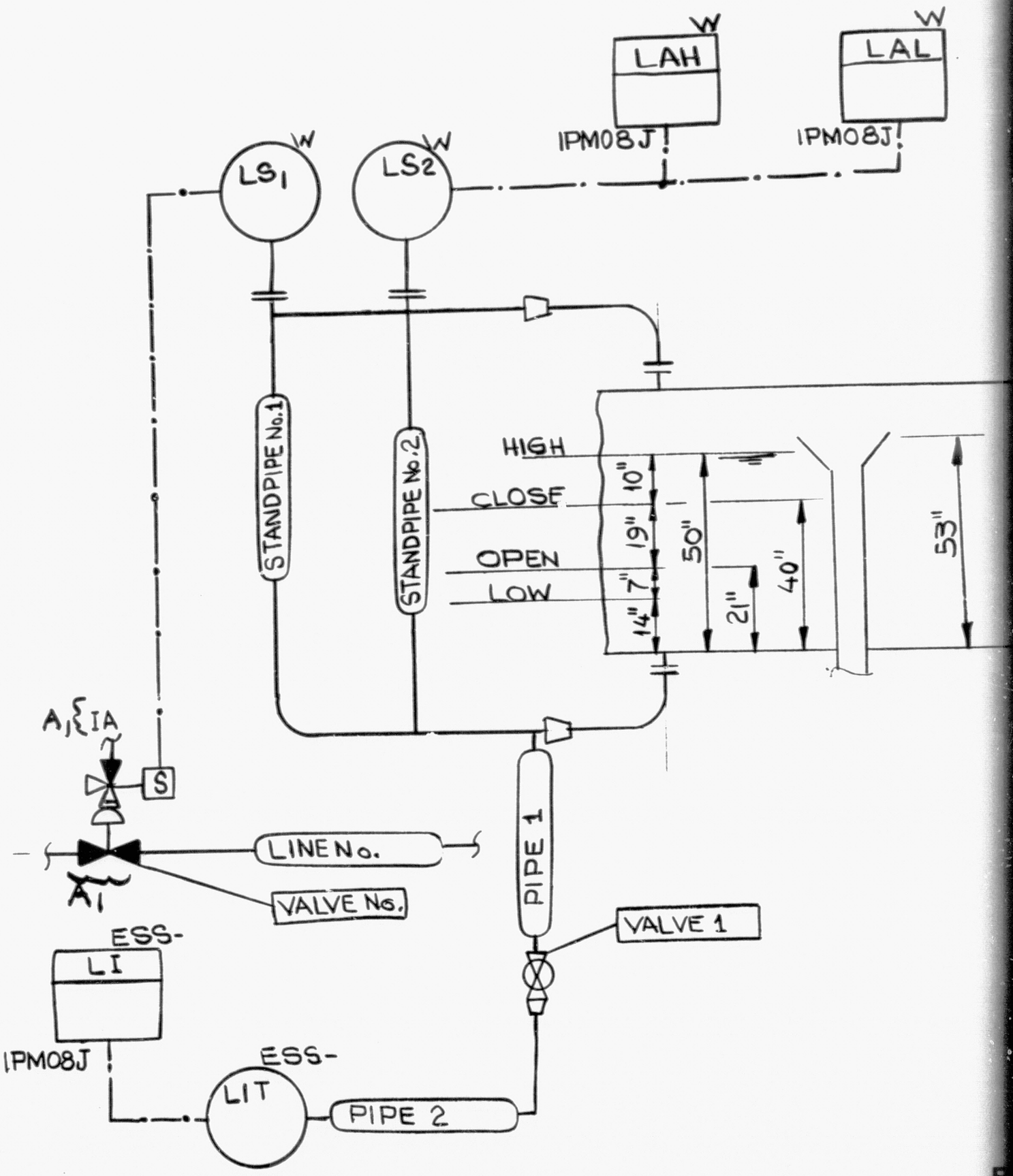
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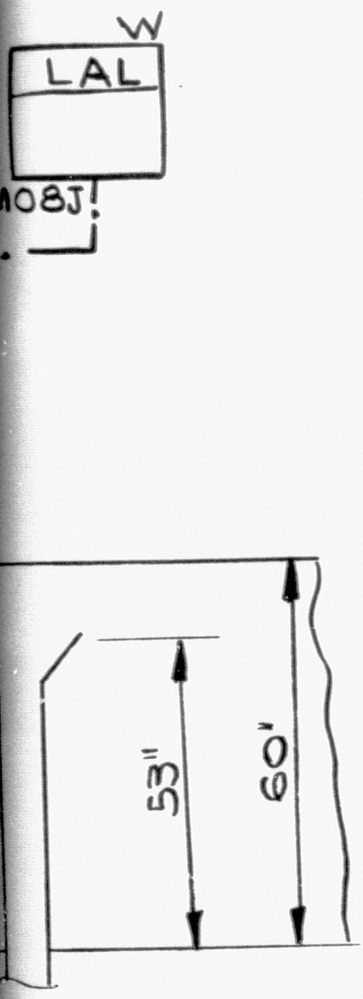
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-35

REACTOR BUILDING CLOSED COOLING WATER SYSTEM C&ID
(SHEET 4 of 8)


LAH
W
LAL
W
1PM08J
1PM08J
LS1
W
LS2
W
STANDPIPE No.1
STANDPIPE No.2
HIGH
CLOSE
OPEN
LOW
10"
19"
7"
14"
50"
21"
40"
53"
A,ξIA
S
LINE No.
VALVE No.
A1
PIPE 1
VALVE 1
ESS-
LI
1PM08J
ESS-
LIT
PIPE 2



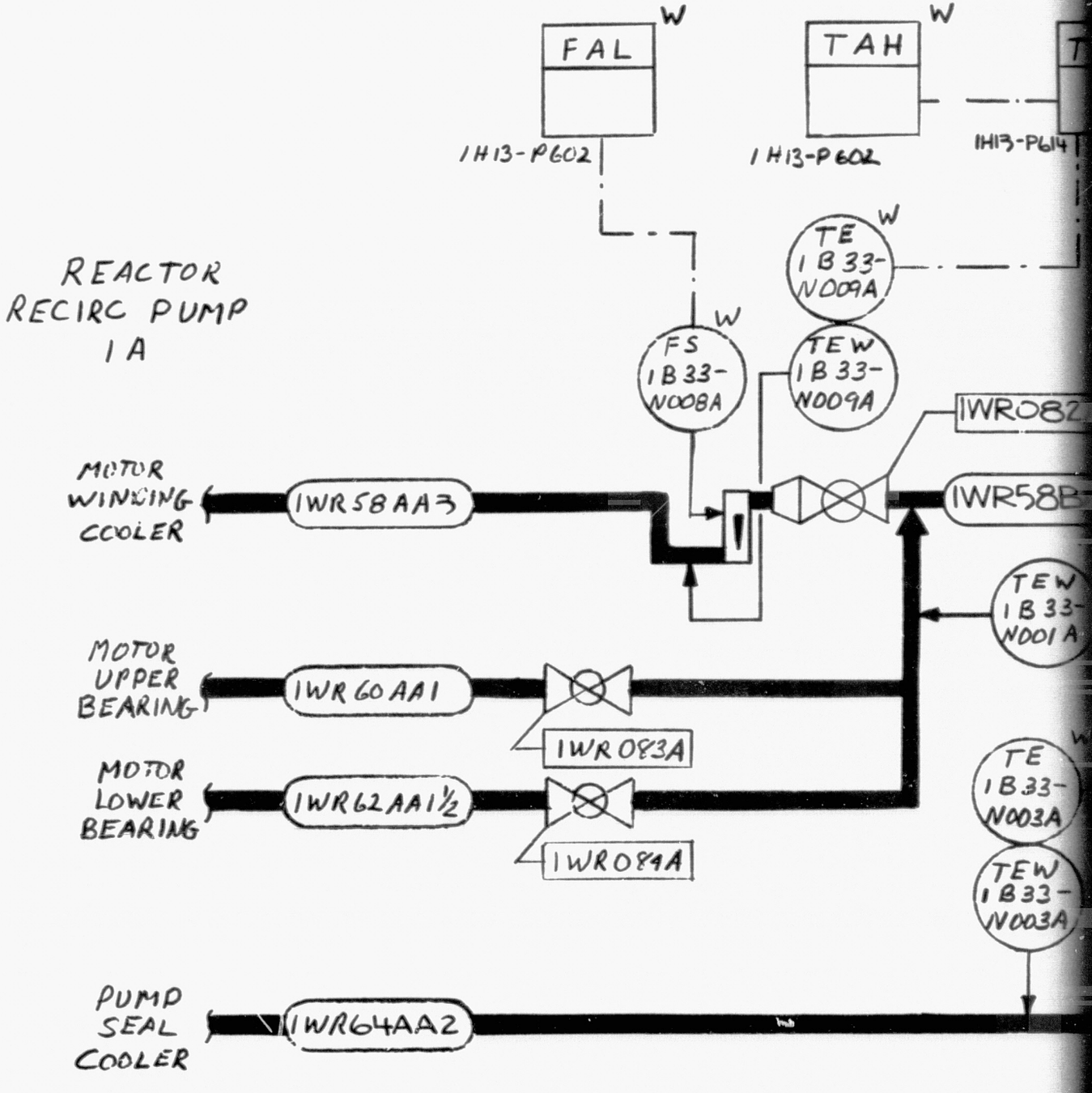
DETAIL	A	B
SERVICE	RBCCW EXP. TANK 1A	RBCCW EXP TANK 1B
LINE No.	1MC02DA1½ M-58-1	1MC02DB1½ M-58-2
VALVE No.	1MC025A	1MC025B
LS1	1LS-WR042	1LS-WR045
LS2	1LS-WR043	1LS-WR046
LIT	1LIT-WR036 ESS-2	1LIT-WR037 ESS-3
LI	1LI-WR036 ESS-2	1LI WR037 ESS-3
STAND PIPE No.1	1WR98AA4"	1WR98AB4"
STAND PIPE No.2	1WR81AA4"	1WR81AB4"
VALVE 1	1WR104A	1WR104B
PIPE 1	1WRB3AA3/4"	1WRB4AA3/4"
PIPE 2	1WRB3AB1/2"	1WRB4AB1/2"

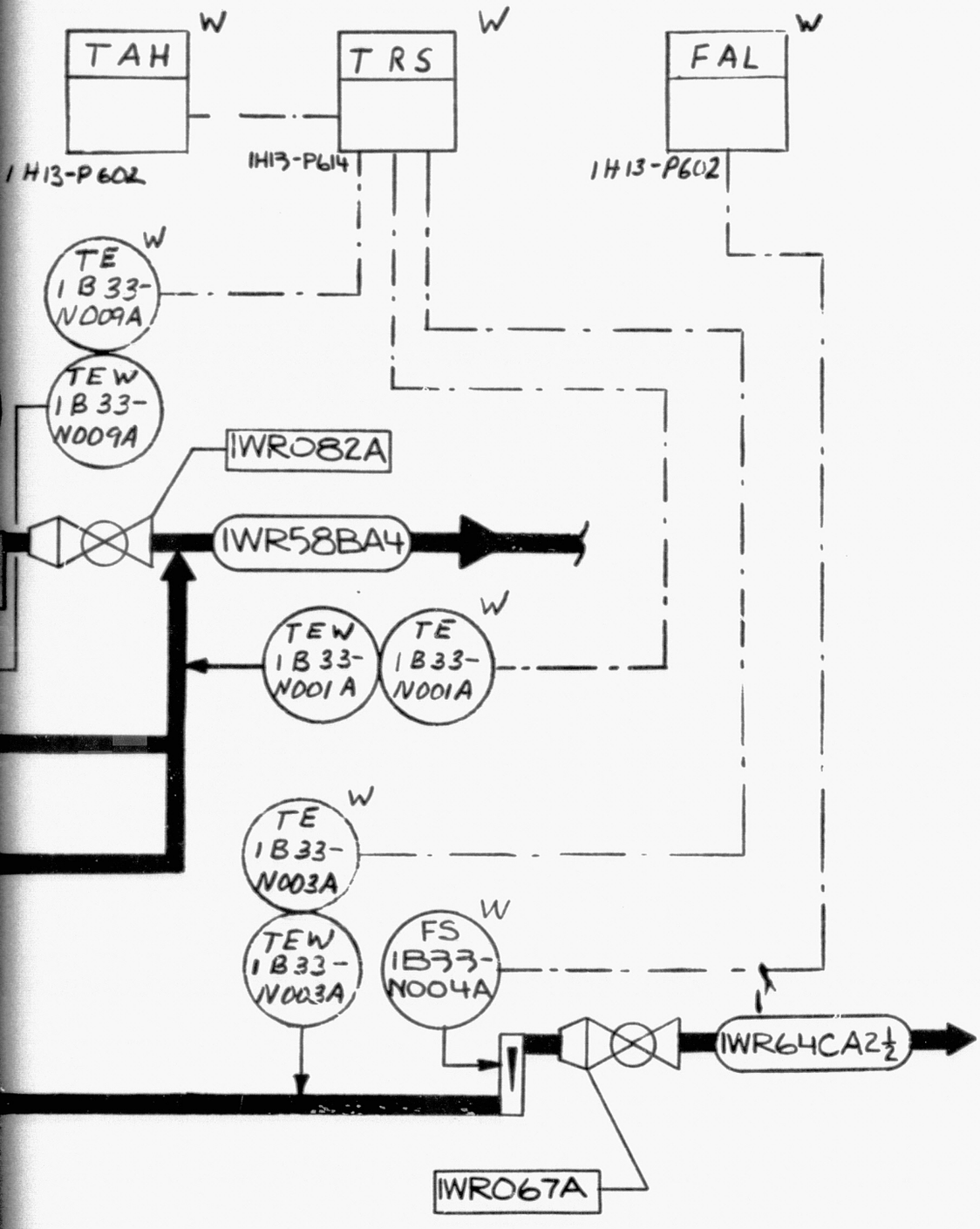
2

ESSENTIAL COMPONENTS

▲ **INCLUDED** ▲

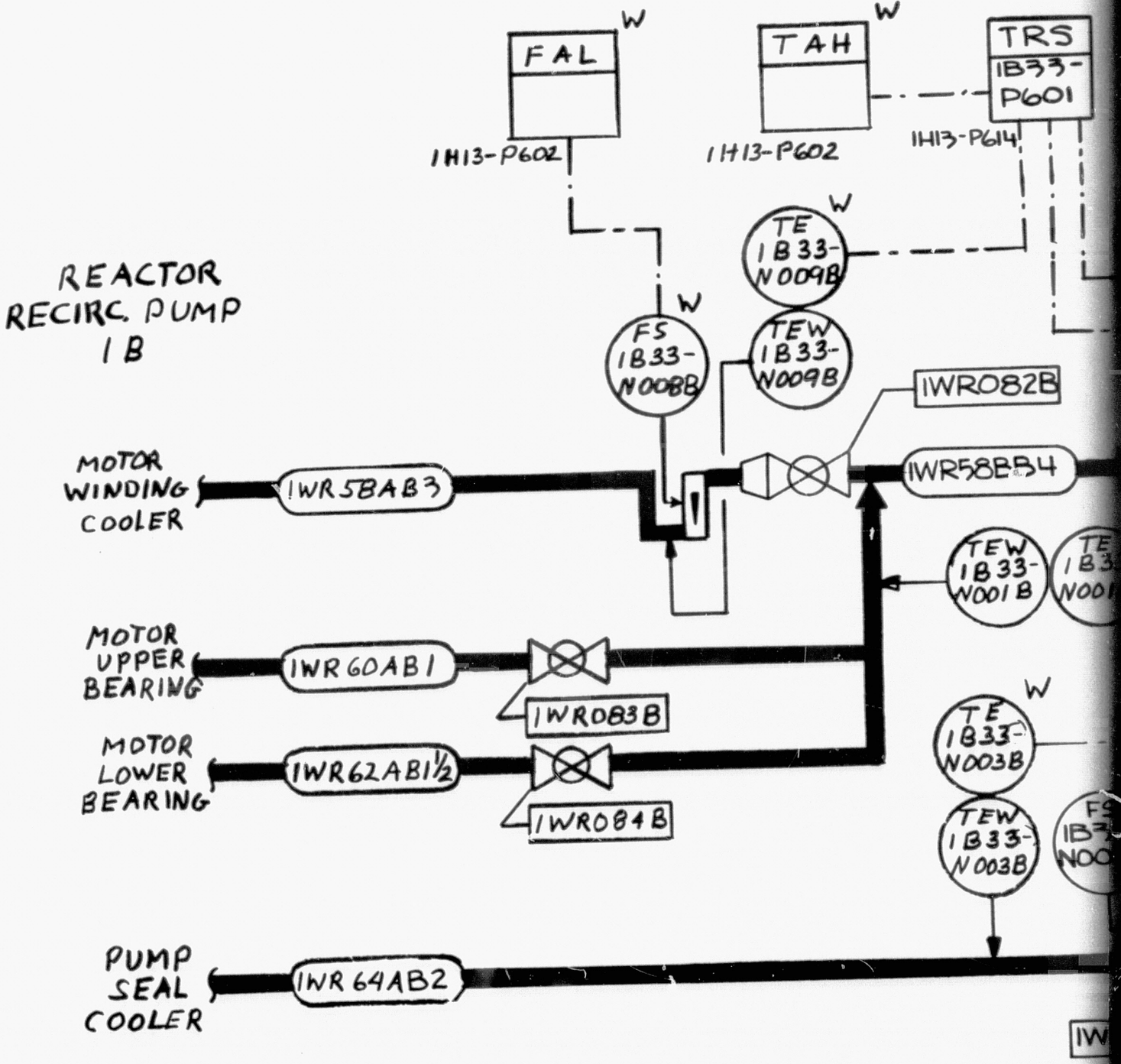
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-35 REACTOR BUILDING CLOSED COOLING WATER SYSTEM C&ID (SHEET 5 of 8)

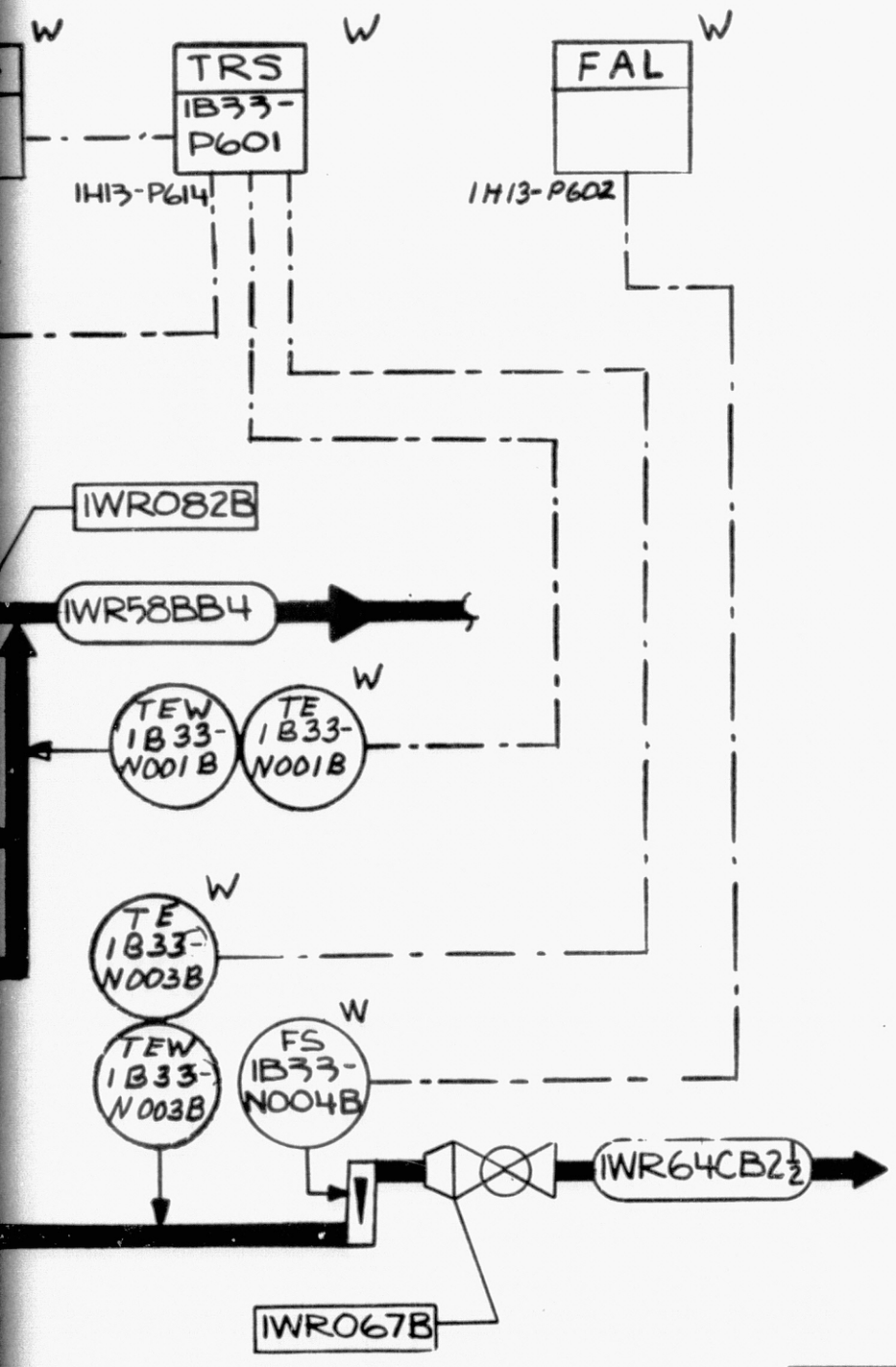

FAL
W
1H13-P602
TAH
W
1H13-P602
1H13-P614
REACTOR
RECIRC PUMP
1A
TE
1B33-
N009A
W
FS
1B33-
N008A
W
TEW
1B33-
N009A
1WR082
MOTOR
WINDING
COOLER
1WR58AA3
1WR58B
TEW
1B33-
N001A
MOTOR
UPPER
BEARING
1WR60AA1
1WR083A
MOTOR
LOWER
BEARING
1WR62AA1½
1WR084A
TE
1B33-
N003A
TEW
1B33-
N003A
PUMP
SEAL
COOLER
1WR64AA2



2

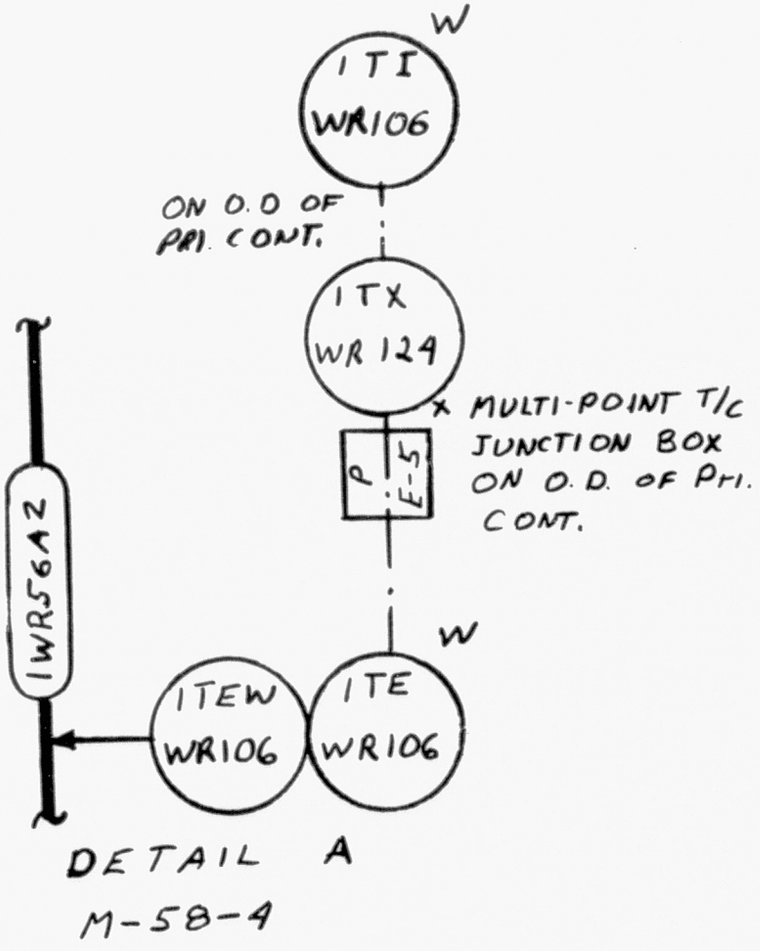
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-35 REACTOR BUILDING CLOSED COOLING WATER SYSTEM C&ID (SHEET 6 of 8)


REACTOR RECIRC. PUMP 1B
FAL
W
1H13-P602
TAH
W
1H13-P602
TRS
1B33-P601
1H13-P614
TE 1B33-N009B
W
FS 1B33-N008B
W
TEW 1B33-N009B
1WR082B
MOTOR WINDING COOLER
1WR58ABB3
1WR58BBB4
TEW 1B33-N001B
MOTOR UPPER BEARING
1WR60AB1
1WR083B
MOTOR LOWER BEARING
1WR62AB1½
1WR084B
TE 1B33-N003B
W
TEW 1B33-N003B
PUMP SEAL COOLER
1WR64AB2



2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-35 REACTOR BUILDING CLOSED COOLING WATER SYSTEM C&ID (SHEET 7 of 8)

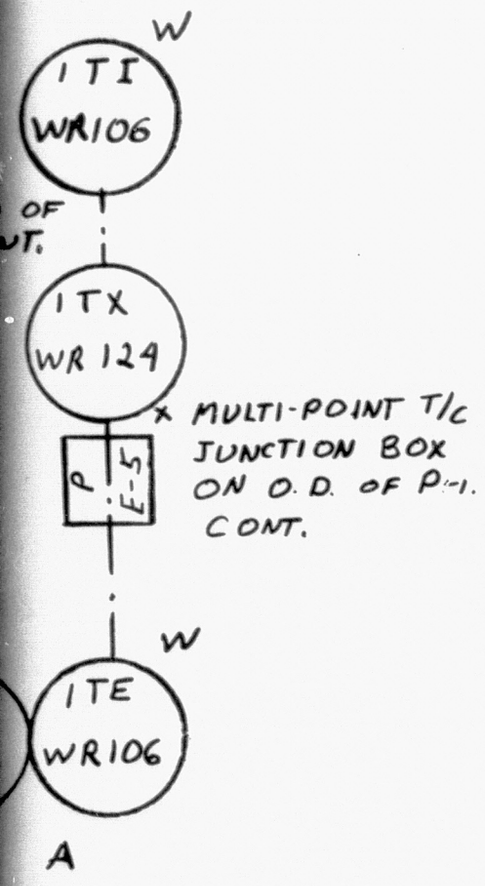


WM. H. ZIMMER NUCLE
FINAL SAFETY

FIGU

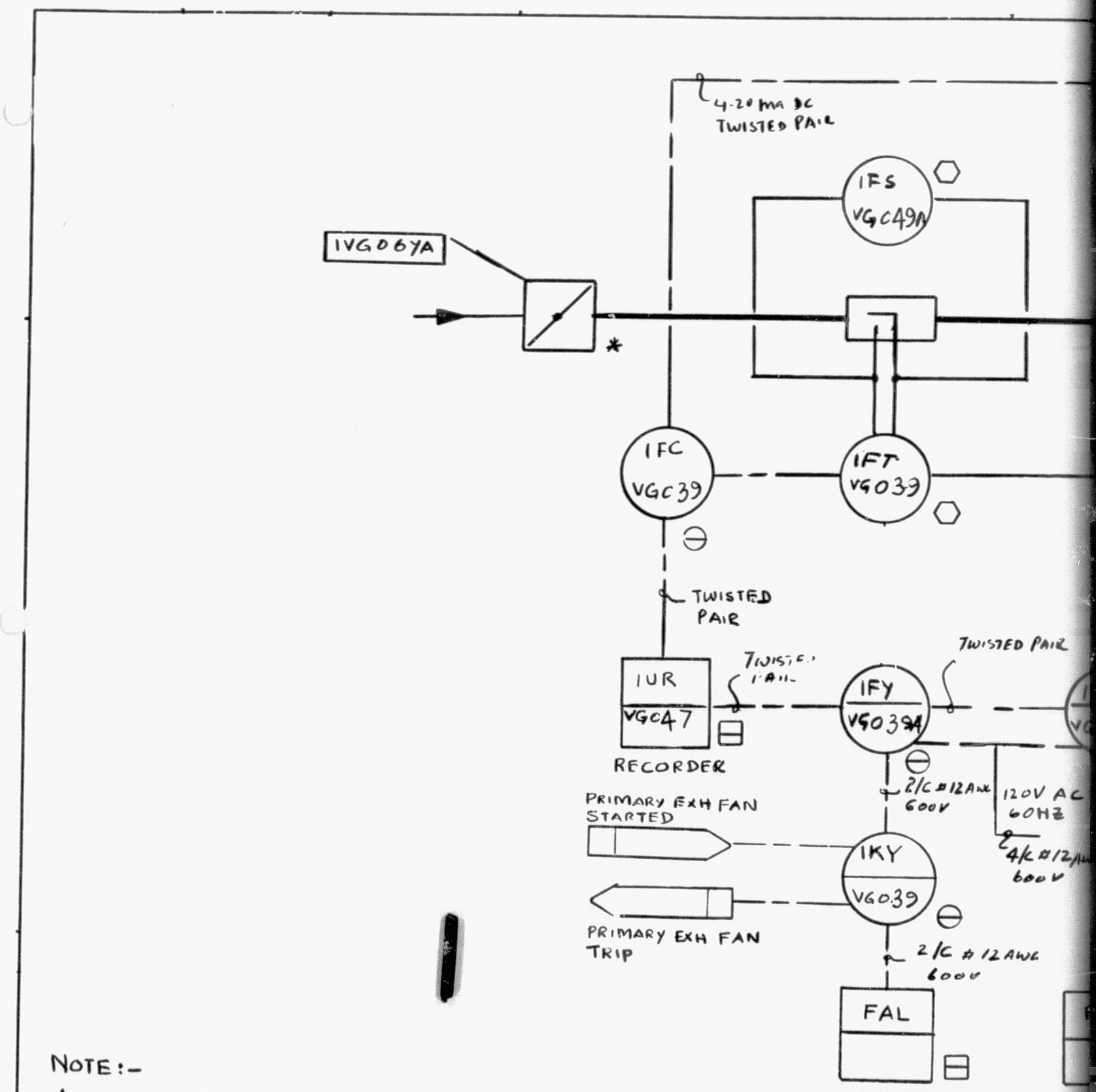
REACTOR BUILD
WATER
(SHEE

m-758-8



2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1 FINAL SAFETY ANALYSIS REPORT
FIGURE 7.3-35 REACTOR BUILDING CLOSED COOLING WATER SYSTEM C&ID (SHEET 8 of 8)



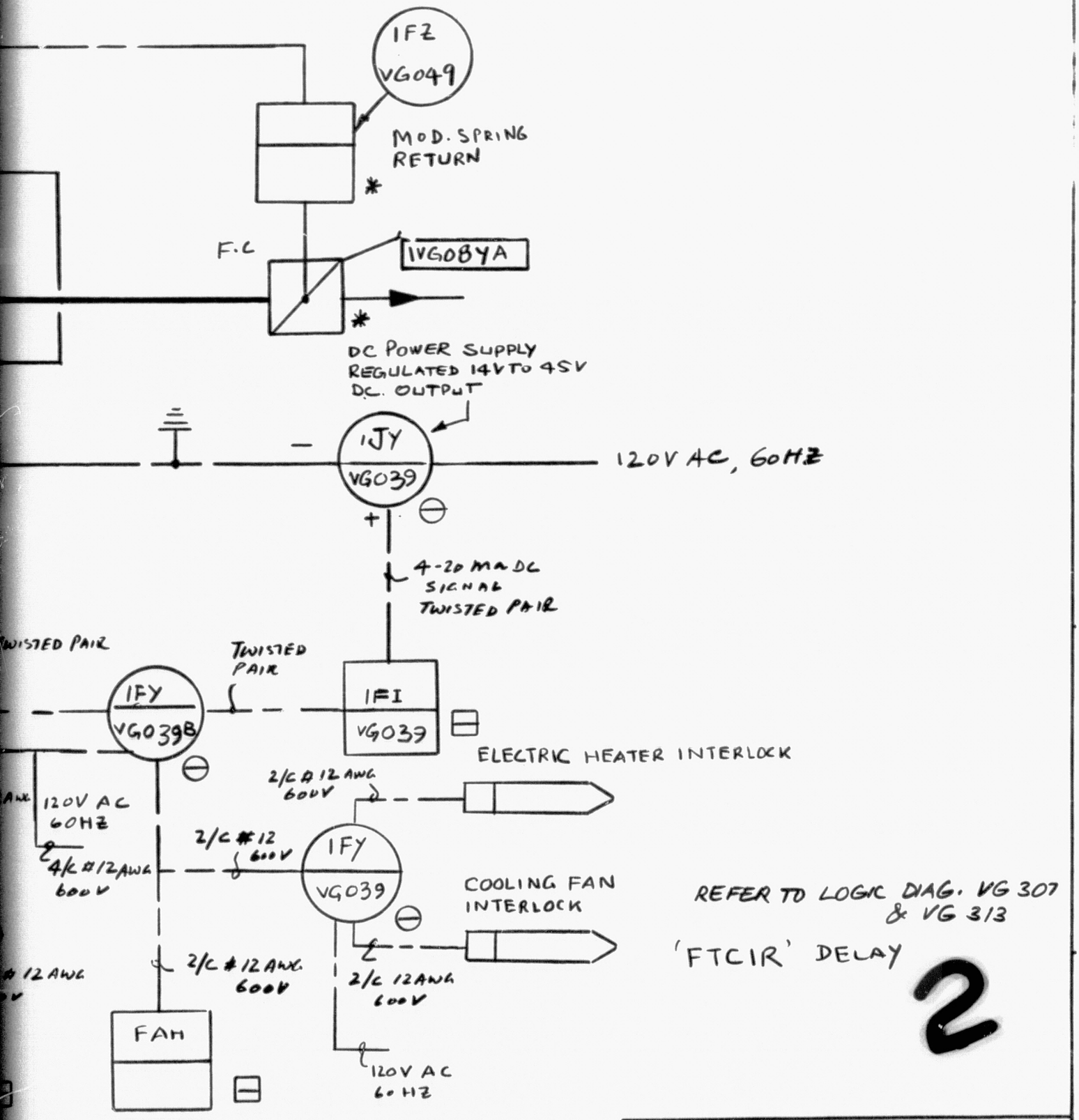
NOTE:-

1 INSTRUMENTS MARKED ⬡ ARE FURNISHED & INSTALLED UNDER SPEC. H-2299

2 INSTRUMENTS MARKED ⊖ SHALL BE FURNISHED & INSTALLED ON LOCAL CONTROL

3 " " ⊟ " " " " " MAIN "

4 INSTRUMENTS MARKED * ARE FURNISHED UNDER SPEC H-2288.



REFER TO LOGIC DIAG. VG 307 & VG 313

'FTCIR' DELAY 2

. H-2299

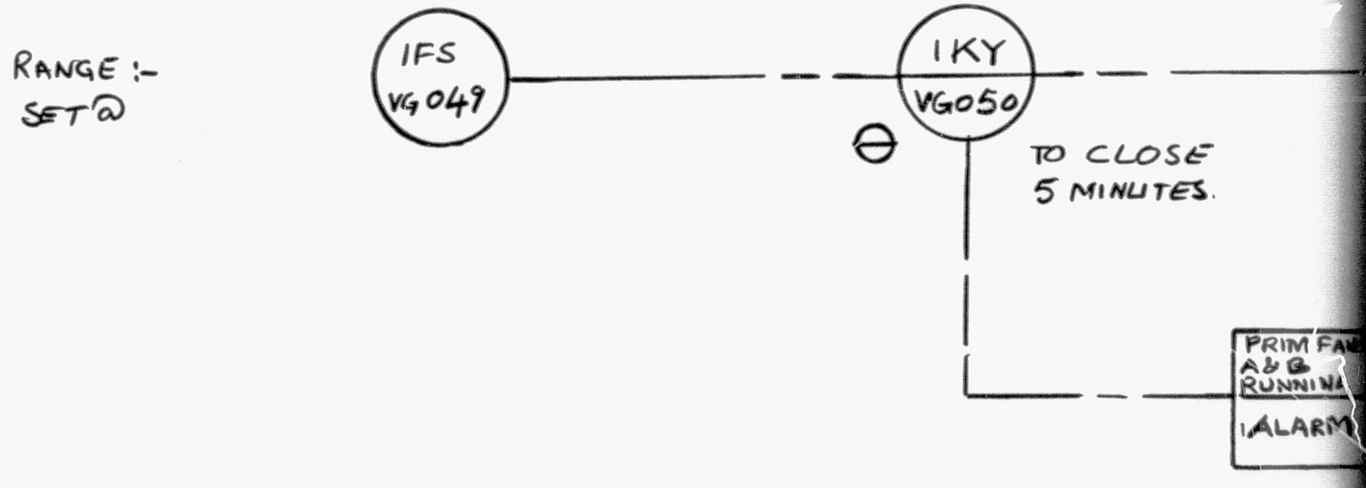
CAL CONTROL PANEL 1PL69JA UNDER SPEC H-2299

" " 1PM07J " " H-2175

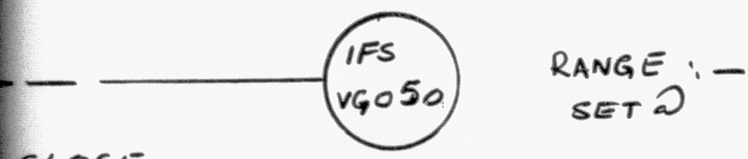
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-36

STANDBY GAS TREATMENT SYSTEM C&ID
(SHEET 1 of 14)

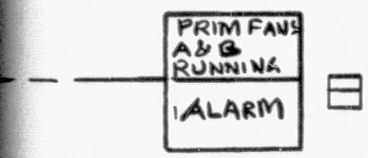


NOTE:- ALL INSTRUMENTS SHOWN ABOVE ARE FURNISHED &
" " MARKED ⊖ SHALL BE LOCATED AT
" " " ⊟ " " " "



RANGE :-
SET 2

CLOSE
MINUTES.



ANNUNCIATOR WINDOW

ANNUNCIATOR FURNISHED
UNDER SPEC H-2175

REFER TO LOGIC DIAG. VG 314
& VG 332

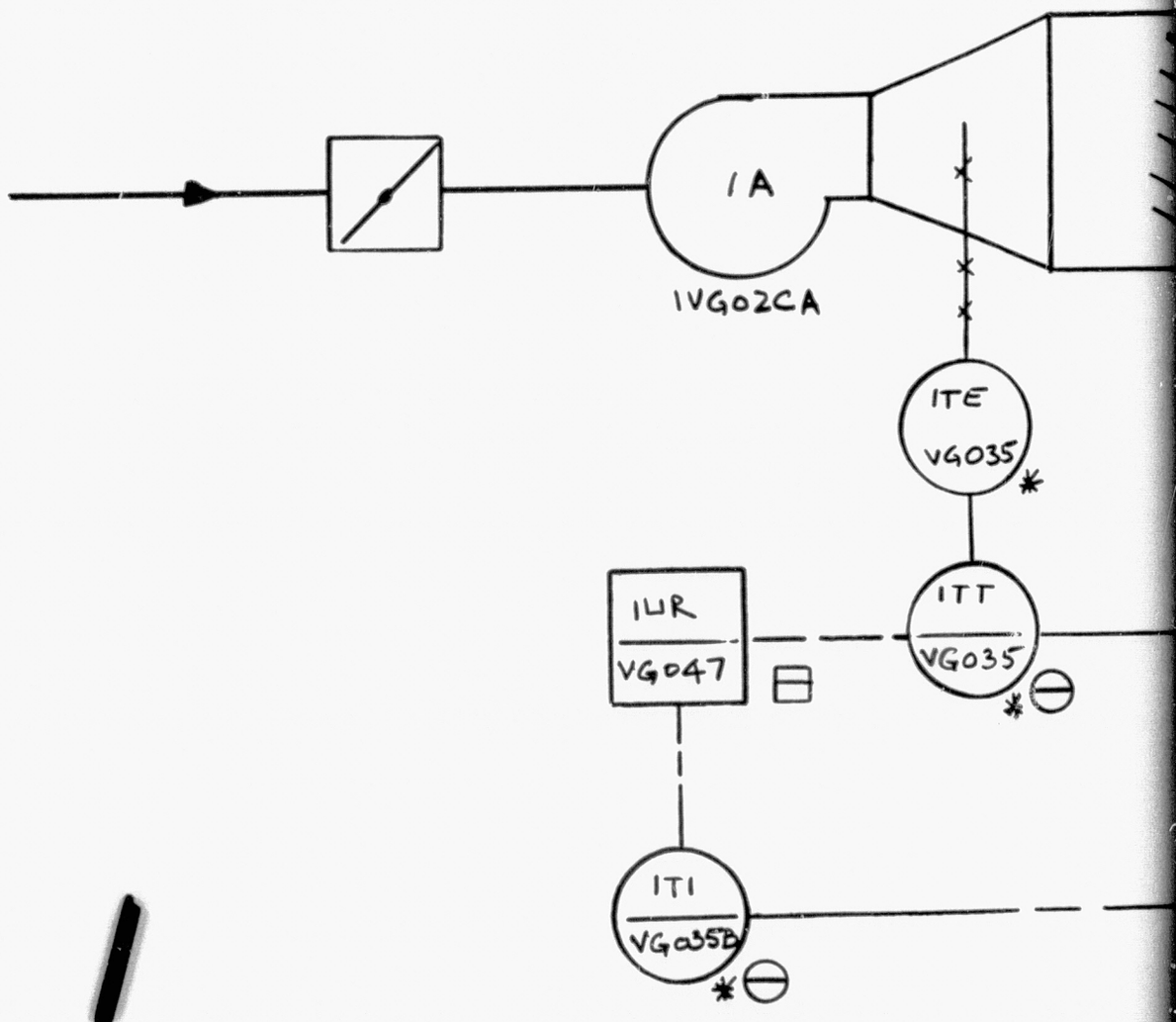
2

URNISHED & INSTALLED UNDER SPEC H-2299
LOCATED AT LOCAL CONTROL PANEL 1PL69JB
" " MAIN " " 1PM07J

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-36

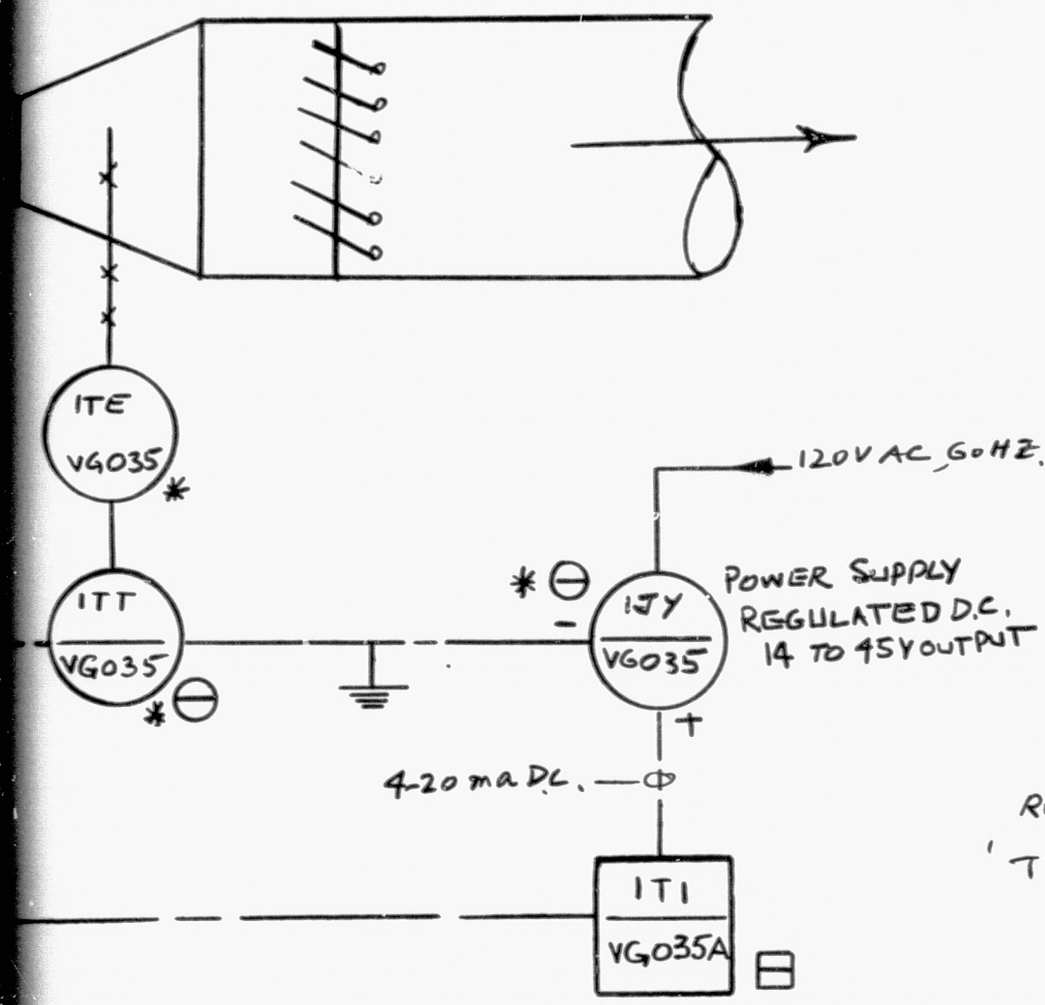
STANDBY GAS TREATMENT SYSTEM C&ID
(SHEET 2 of 14)



NOTE:- 1. INSTRUMENTS MARKED * ARE FURNISHED & INSTALLED UNDER SPEC H-2288

2. " " *⊖ ARE FURNISHED UNDER SPEC H-2288 AND INSTALLED ON LOCAL PANEL 1PL69JA

3. INSTRUMENTS MARKED ⊟ ARE FURNISHED & INSTALLED ON MAIN CONTROL PANEL 1PM07J UNDER SPEC H-2



REFER TO LOGIC DIAG. VG 318
'TTI' DETAIL

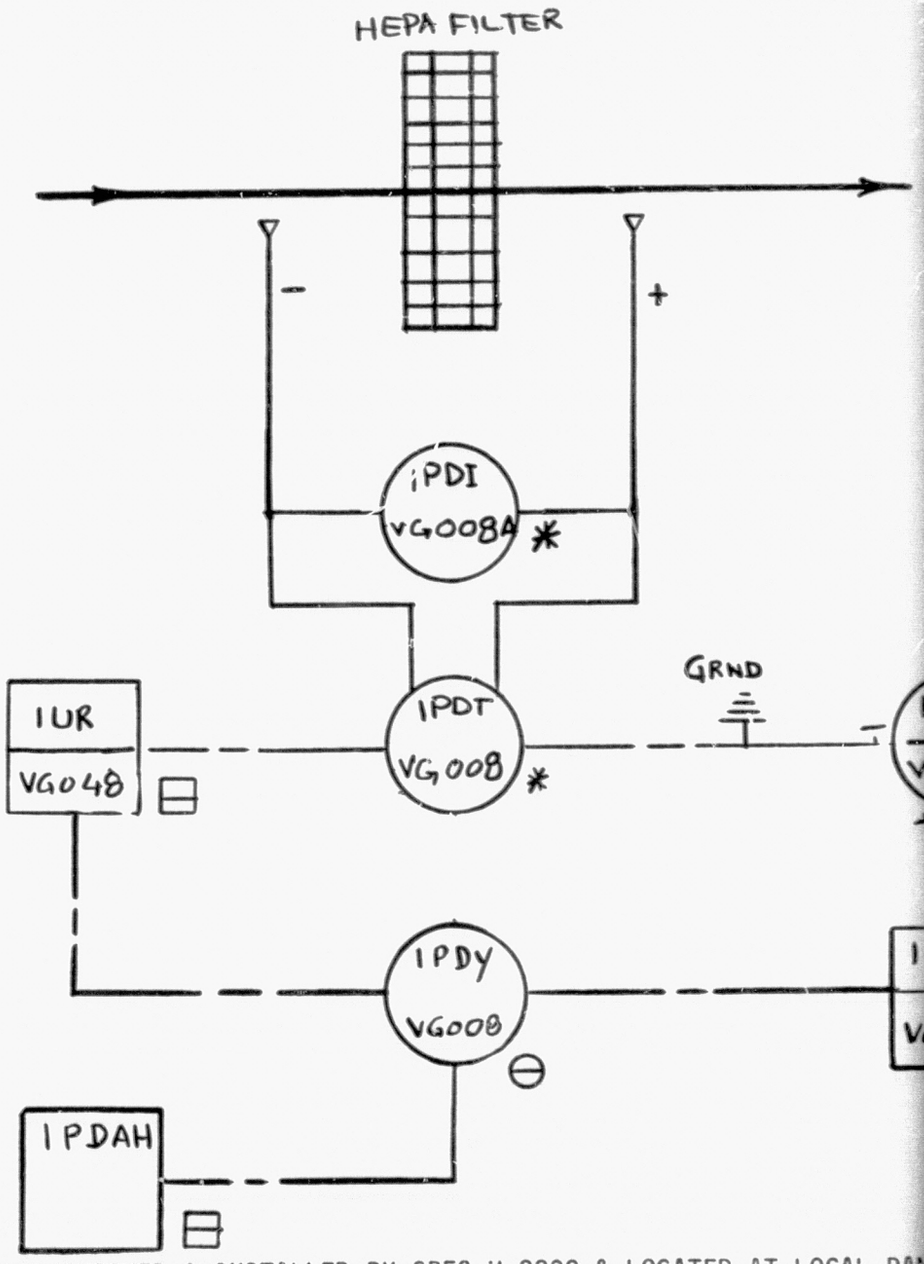
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LOCAL PANEL 1PL69JA UNDER SPEC H-2299
1H07J UNDER SPEC H-2175

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

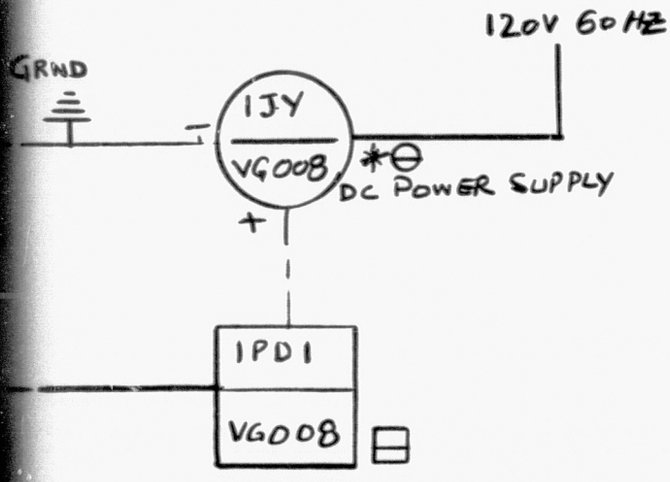
FIGURE 7.3-36

STANDBY GAS TREATMENT SYSTEM C&ID
(SHEET 3 of 14)



NOTE: -

1. INSTRUMENTS MARKED *⊖ ARE FURNISHED UNDER SPEC H-2288 AND INSTALLED ON LOCAL PANEL UNDER H-2299
2. INSTRUMENTS MARKED WITH '⊖' ARE FURNISHED & INSTALLED BY SPEC H-2299 & LOCATED AT LOCAL PANE
3. " " " '⊟' " " " " " " H-2175 " " " MAIN PANEL
4. " " " '*' " " " " UNDER SPEC H-2288



REFER TO LOGIC DIAG. VG-317

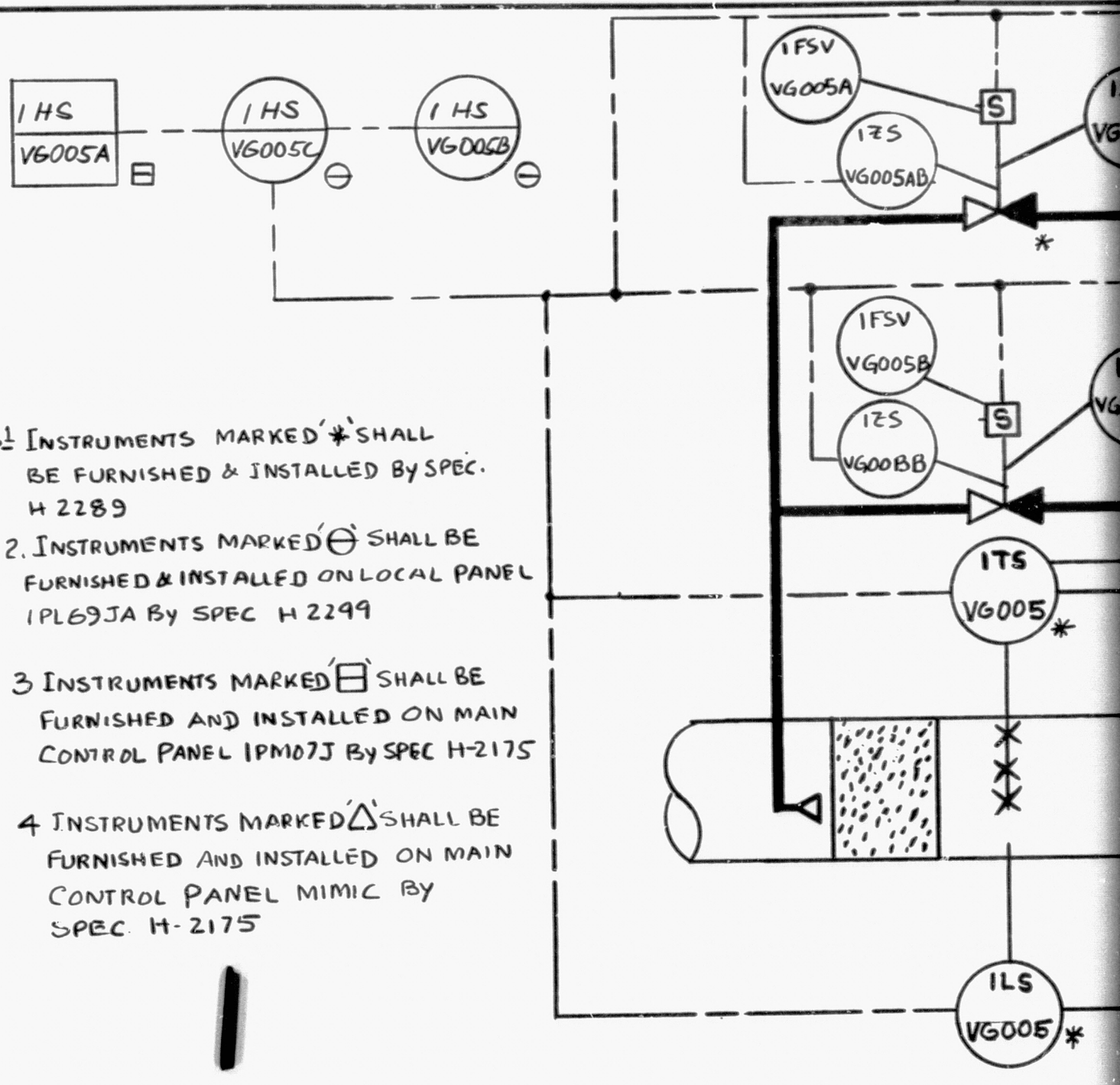
2

TED AT LOCAL PANEL 1PL69JA
" MAIN PANEL 1PM07J

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-36

STANDBY GAS TREATMENT SYSTEM C&ID
(SHEET 4 of 14)



NOTE :- 1. INSTRUMENTS MARKED '*' SHALL BE FURNISHED & INSTALLED BY SPEC. H 2289

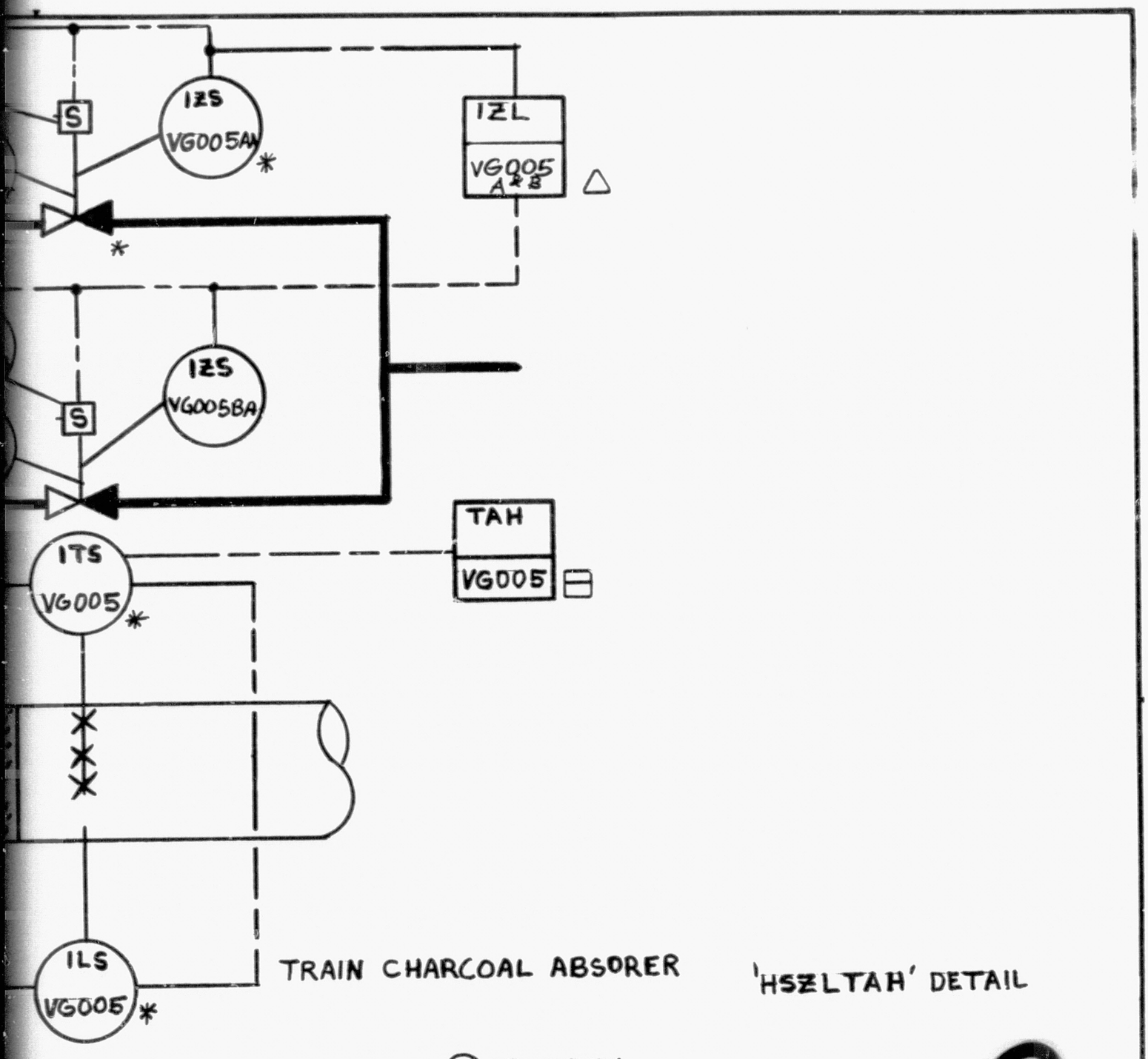
2. INSTRUMENTS MARKED '⊖' SHALL BE FURNISHED & INSTALLED ON LOCAL PANEL 1PL69JA BY SPEC H 2299

3 INSTRUMENTS MARKED '⊟' SHALL BE FURNISHED AND INSTALLED ON MAIN CONTROL PANEL 1PM07J BY SPEC H-2175

4 INSTRUMENTS MARKED '△' SHALL BE FURNISHED AND INSTALLED ON MAIN CONTROL PANEL MIMIC BY SPEC H-2175

REFER TO LOGIC DIAG. VG 309, 310, 311, 312

DETAIL NO.	CHARCOAL ABSORER	DELUGE VALVE 1FSVG-	POS. SW NO. 1ZS-	DELUGE VALVE 1FSV-	POS. SW. NO 1ZS-	POS. IND. LIGHT NO. 1ZL-	MAIN TROL HD. SW 1HS-
A	UP-STREAM	VG005A	VG005AA 〃 AB	VG005B	VG005BA 〃 BB	VG005A 〃 B	VG0
B	DN-STREAM	VG003A	VG003AA 〃 AB	VG003B	VG003BA 〃 BB	VG003A 〃 B	VG0



TRAIN CHARCOAL ABSORER

'HSZLTAH' DETAIL

2

IPL69JA

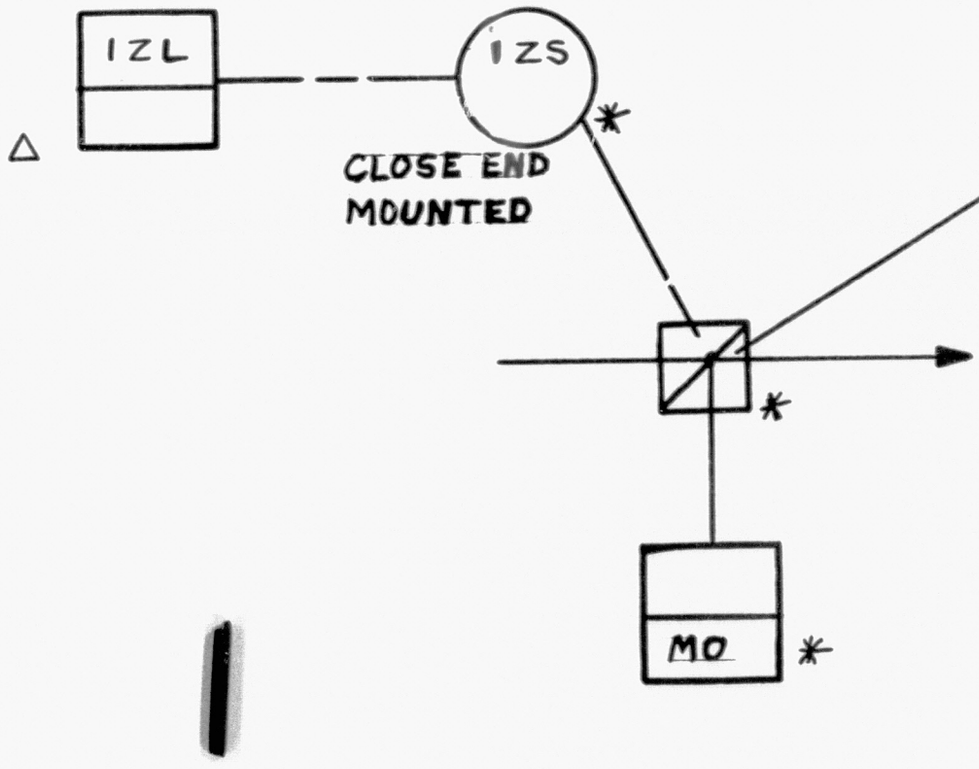
311, 312

POS. IND. LIGHT NO. ZL-	MAIN CONTROL PANEL HD. SW. NO IHS-	LOCAL HAND SW. NO. THS-	TEMP. SW NO. ITS-	LEVEL SW. NO. ILS-
G005 A B	VG005A	VG005B	VG005	VG005
G003 A B	VG003A	VG003B	VG003	VG003

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-36

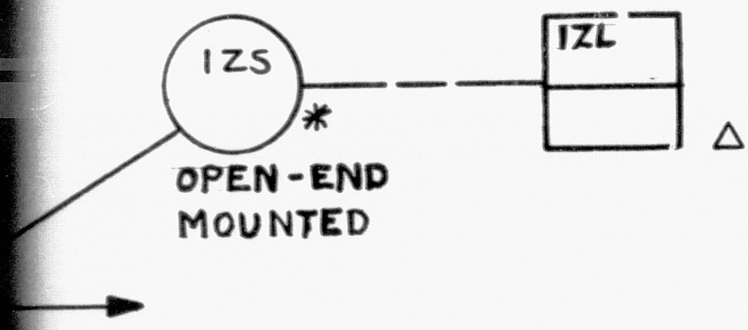
STANDBY GAS TREATMENT SYSTEM C&ID
(SHEET 5 of 14)



REFER TO LOGIC DIAG. VG 304, 306, 308, 315, ...

DETAIL DIAGRAM	DAMPER NO.	DAMPER MOTOR NO.	OPEN-END MOUNTED	
			POS. SW. NO.	IND. LIGH
A	IVG06YA	IFZ-VG007A	IZS-VG007AA	IZL-VG00
B	IVG08YA	IFZ-VG049	IZS-VG049A	IZL-VG04
C	IVG09YA	IFZ-VG007B	IZS-VG007BA	IZL-VG00
D	IVG010YA	IFZ-VG007C	IZS-VG007CA	IZL-VG00
E	IVG07YA	IFZ-VG014	IZS-VG014A	IZL-VG01
F	IVG03YA	IFZ-VG043A	IZS-VG043AA	IZL-VG0
G	IVG03YB	IFZ-VG044A	IZS-VG044AA	IZL-VG0
H	IVG05YA	IFZ-VG031	IZS-VG031A	IZL-VG0

NOTE:- INSTRUMENTS MARKED * ARE FURNISHED & INSTALLED
" " △ " " " "
CONT PANEL IPM07J MIMIC



308, 315, 316, 338

MOUNTED		CLOSE-END MOUNTED	
	IND. LIGHT NO.	POS. SW. NO.	IND. LIGHT NO.
	1ZL-VG007AB	1ZS-VG007AB	1ZL-VG007AB
A	1ZL-VG049B	1ZS-VG049B	1ZL-VG049B
3A	1ZL-VG007BB	1ZS-VG007BB	1ZL-VG007BB
A	1ZL-VG007CA	1ZS-VG007CB	1ZL-VG007CB
A	1ZL-VG014A	1ZS-VG014B	1ZL-VG014B
AA	1ZL-VG043AA	1ZS-VG043AB	1ZL-VG043AB
A	1ZL-VG044AA	1ZS-VG044AB	1ZL-VG044AB
	1ZL-VG031A	1ZS-VG031B	1ZL-VG031B

STALLED BY SPEC. H-2288
" " " H-2175 ON MAIN

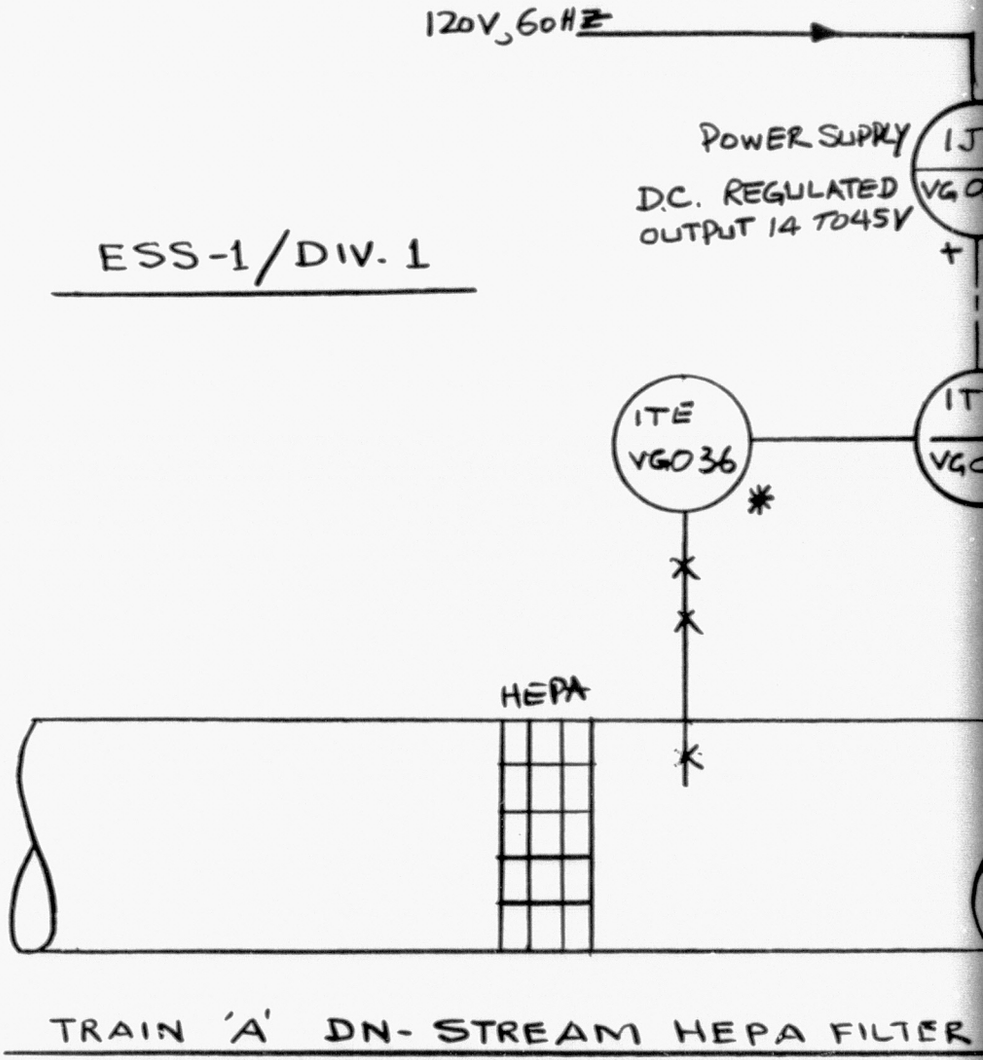
ZSL DETAIL

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-36

STANDBY GAS TREATMENT SYSTEM C&ID
(SHEET 6 of 14)

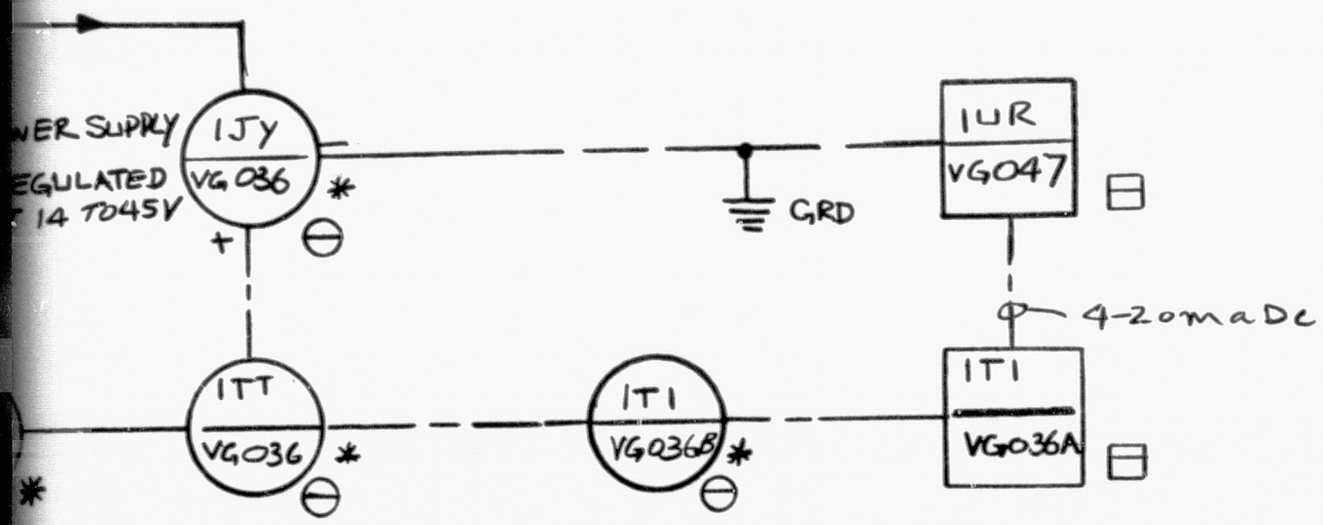


TRAIN 'A' DN-STREAM HEPA FILTER

NOTE :-1 INSTRUMENTS MARKED * ARE FURNISHED & INSTALLED

2 " " ⊖ " " UNDER SPEC H-2288 &
PANEL NO IPL69JA UNDER SPEC. H2299

3. INSTRUMENTS MARKED ⊟ ARE FURNISHED AND INSTALL
ON MAIN CONTROL PANEL IPM07J



PA FILTER

REFER TO LOGIC DIAG. VG 319

2

INSTALLED UNDER SPEC. H-2288

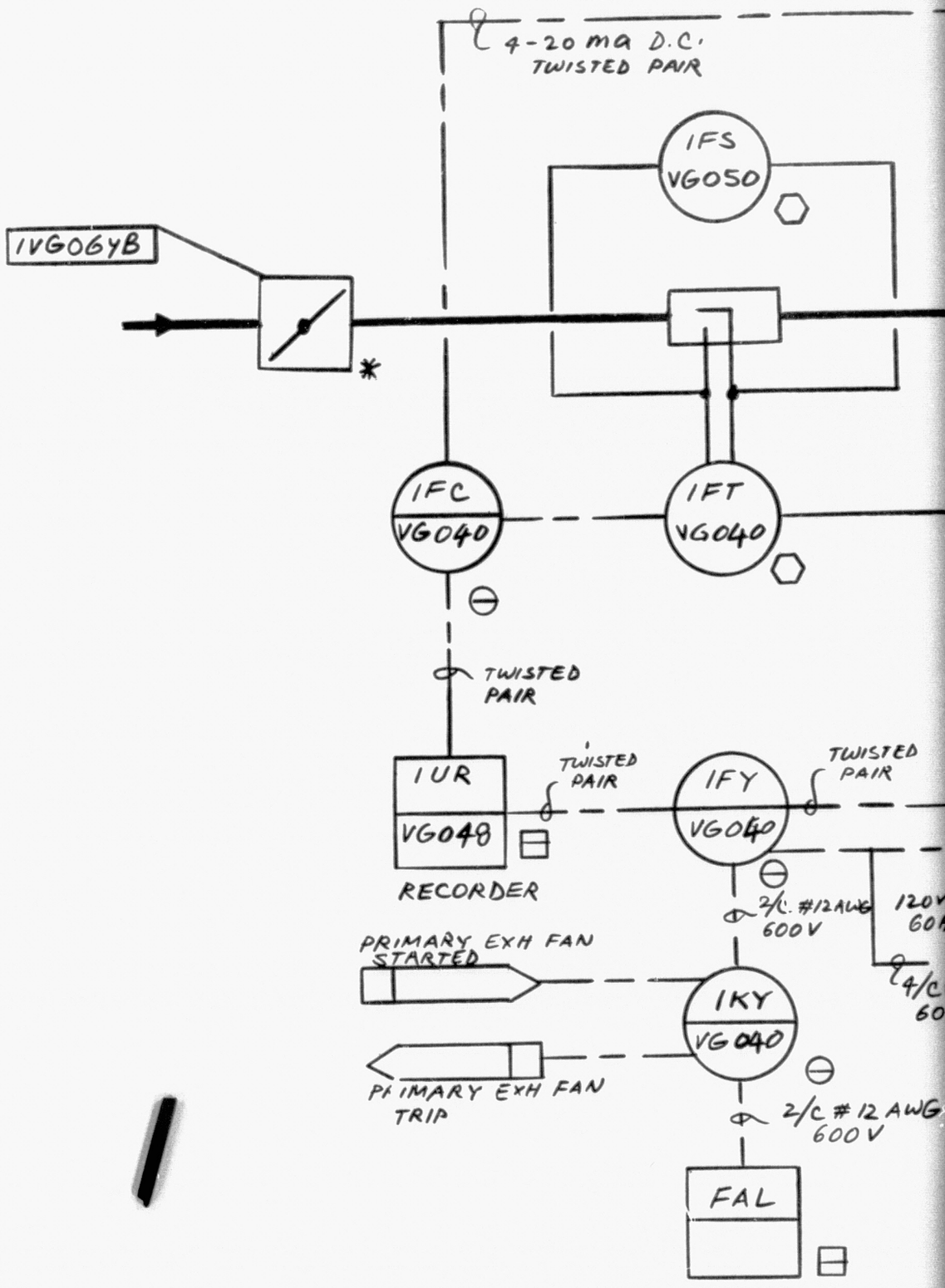
EC H-2288 & INSTALLED ON LOCAL CONTROL

ND INSTALLED UNDER SPEC H-2175

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-36

STANDBY GAS TREATMENT SYSTEM C&ID
(SHEET 7 of 14)

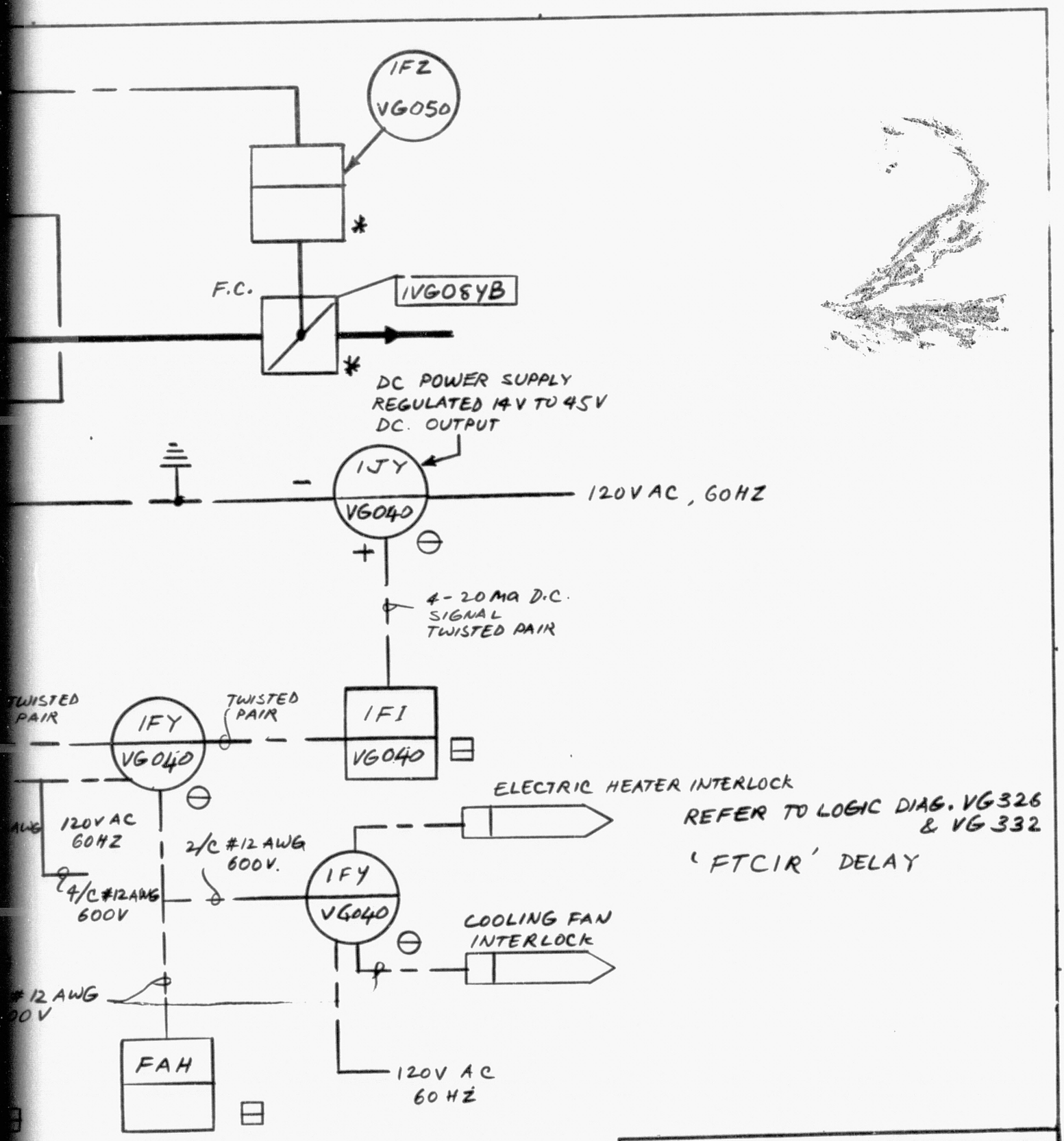


INSTRUMENTS MARKED * ARE FURNISHED & INSTALLED UNDER SPEC H-2288

" " ⬡ " " " " " " H-2299

INSTRUMENTS MARKED ⊖ ARE FURNISHED & INSTALLED ON LOCAL CONTROL PANEL 1PL69JB UNDER SPEC H-

" " ⊟ " " " " " MAIN CONTROL PANEL 1PM07J " " H-

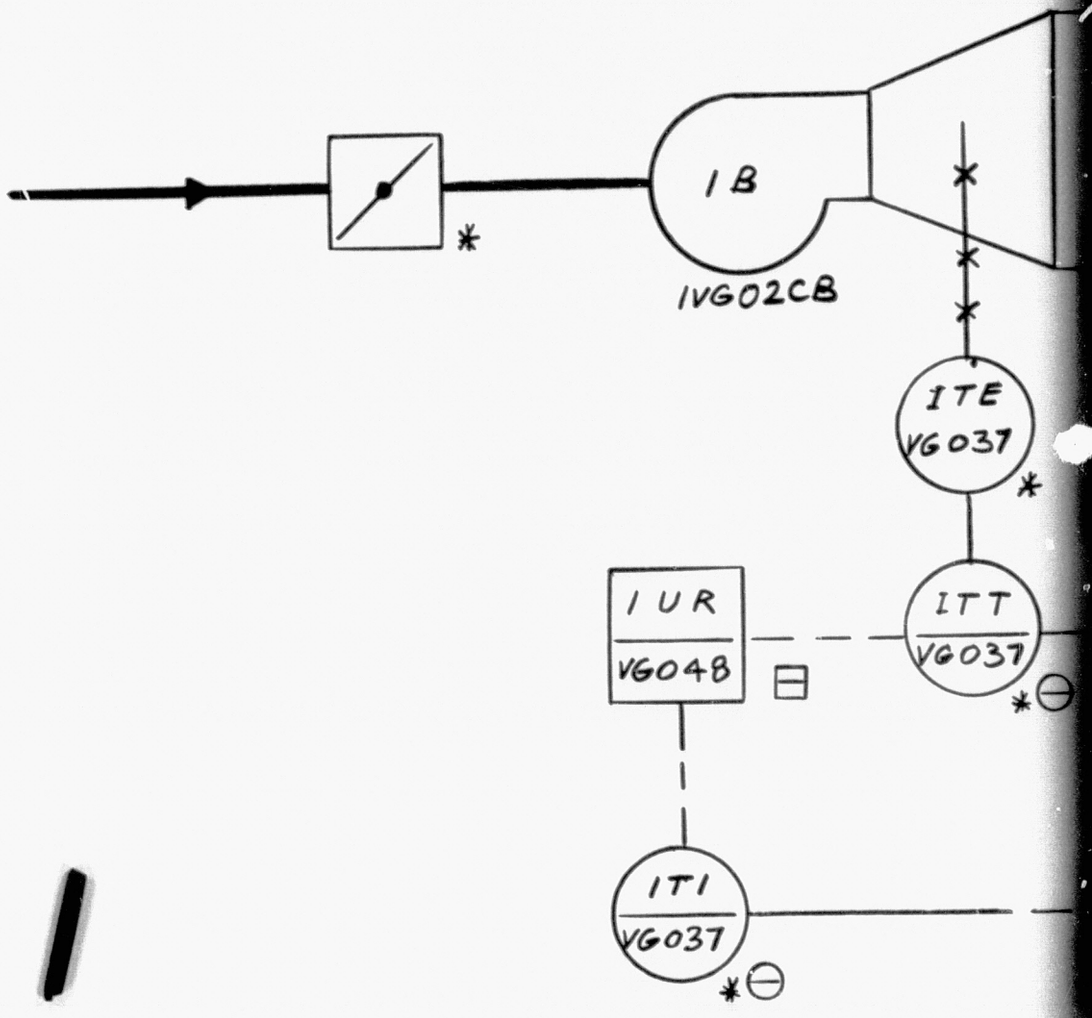


SPEC H-2299
" H-2175

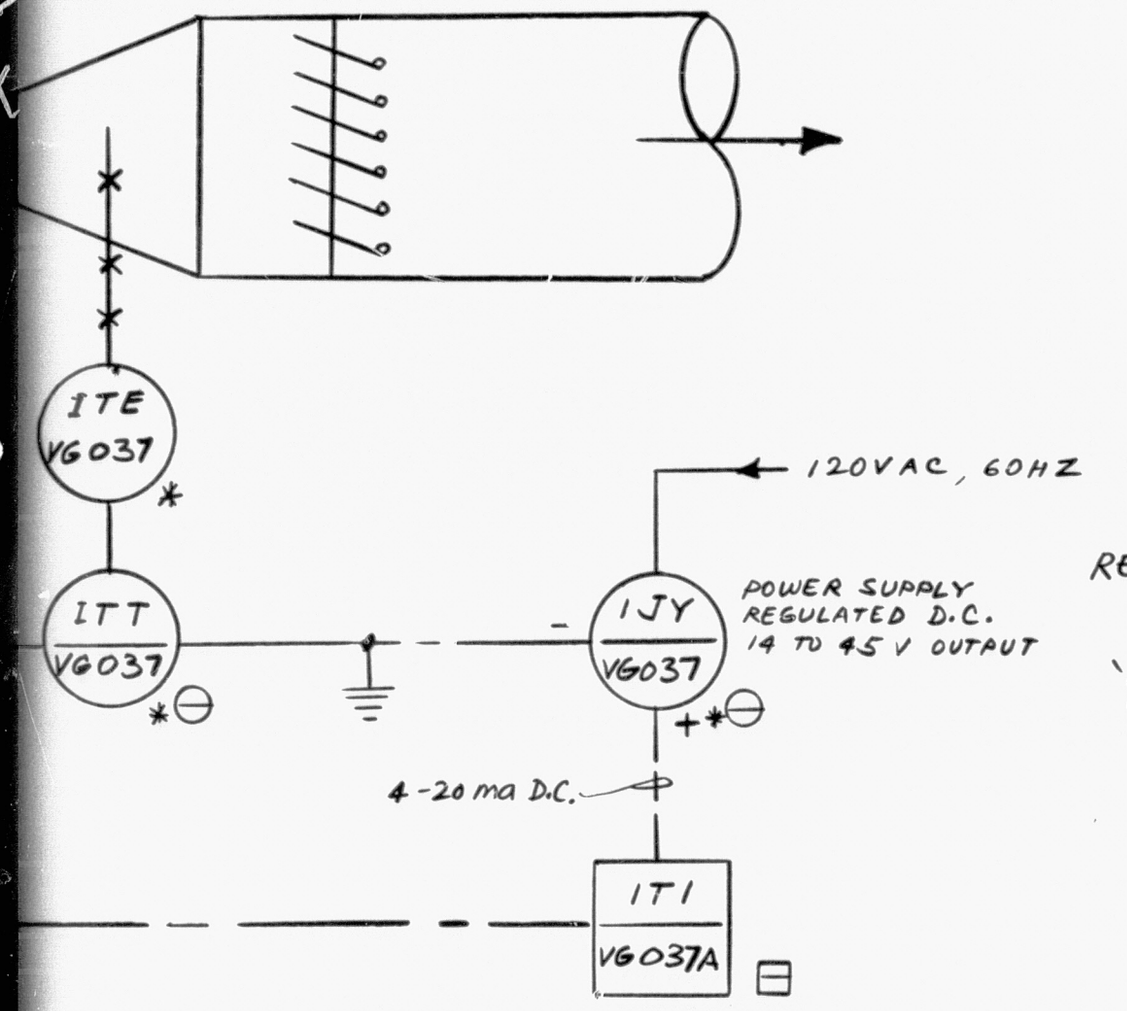
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-36

STANDBY GAS TREATMENT SYSTEM C&ID
(SHEET 8 of 14)



NOTE: INSTRUMENTS MARKED WITH * ⊖ ARE FURNISHED UNDER SPEC H-2288 & INSTALLED ON LOCAL PANE
" " " ⊟ " " AND INSTALLED ON MAIN CONTROL PANEL #1PM07J
" " " * ARE FURNISHED & INSTALLED UNDER SPEC H-2288

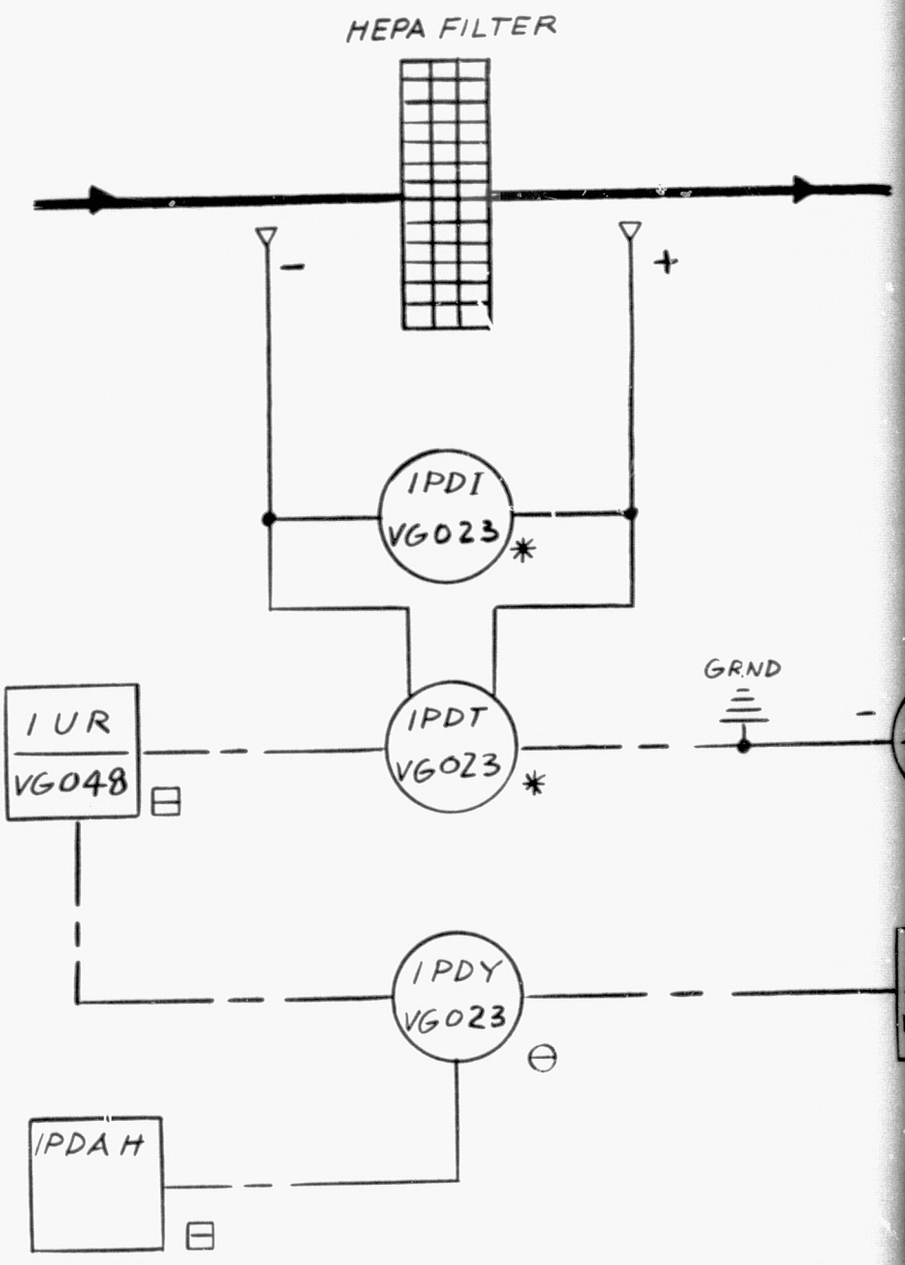


N LOCAL PANEL 1PL69JB UNDER SPEC H-2299
ANEL #1PM07J UNDER SPEC H-2175

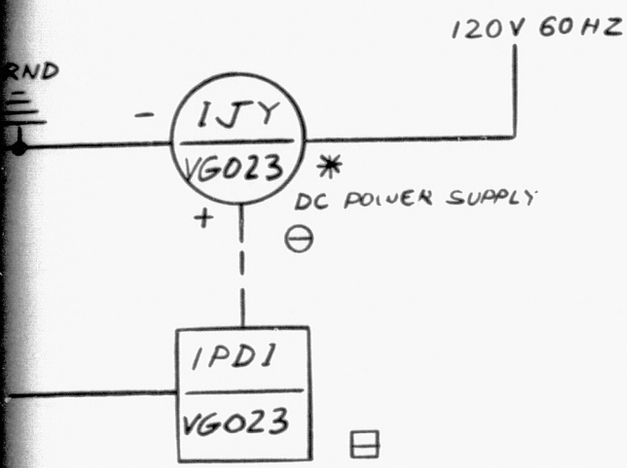
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-36

STANDBY GAS TREATMENT SYSTEM C&ID
(SHEET 9 of 14)



NOTE: 1. INSTRUMENTS MARKED WITH '⊖' ARE FURNISHED & INSTALLED BY SPEC H-2299 & LOCATED AT LOCA
2. " " " '⊟' " " " " " " H-2175 " " " MAIN
3. " " " '*' " " & INSTALLED UNDER SPEC H-2288



REFER TO LOGIC DIAG. VG335

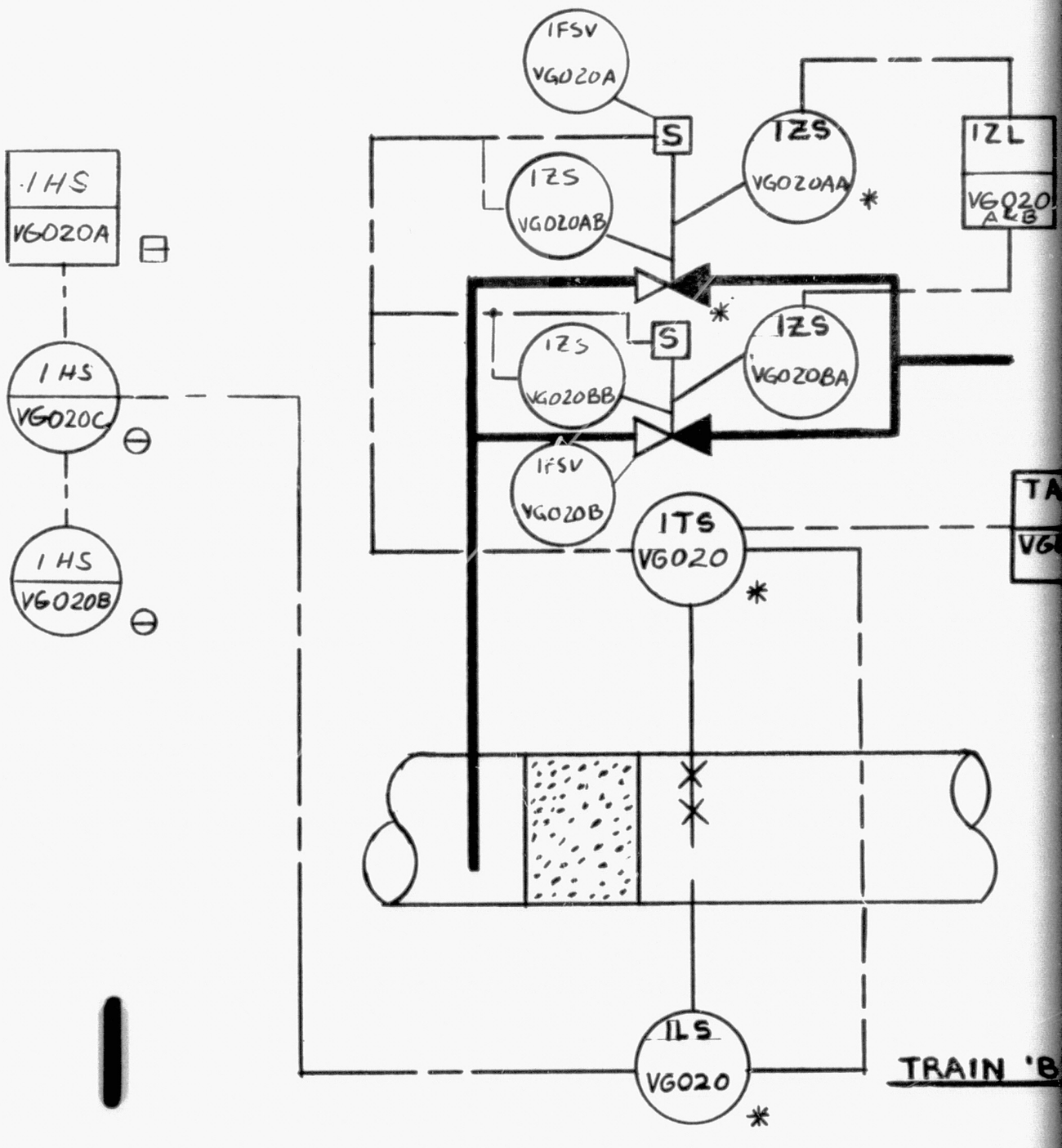
2

TED AT LOCAL PANEL 1PL69JB
" MAIN PANEL 1PM07J

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

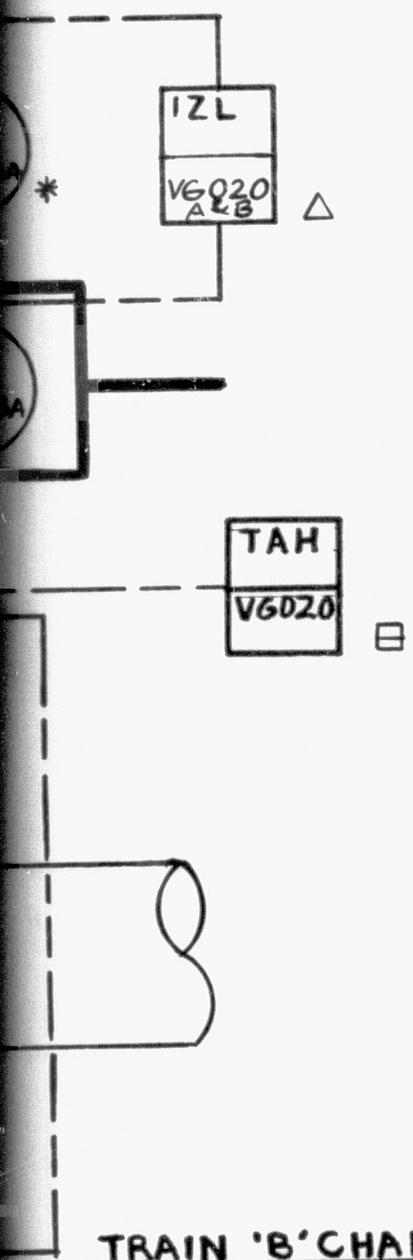
FIGURE 7.3-36

STANDBY GAS TREATMENT SYSTEM C&ID
(SHEET 10 of 14)



REFER TO LOGIC DIAG. VG 328, 329, 330, 331

DETAIL NO.	CHARCOAL ABSORBER	DELUGE VALVE 1FSV-	POS. SW. NO. 1ZS-	DELUGE VALVE 1ZSV-	POS. SW NO. 1ZS	POS. IND. LIGHT NO. 1ZL	MAIN CONTROL SW. PANEL HD. NO. INS
A	UPSTEAM	VG020A	VG020AA AB	VG020B	VG020BA BB	VG020A B	VG020A
B	DNSTEAM	VG028A	VG028AA AB	VG028B	VG028BA BB	VG028A B	VG028A



NOTES

1. INSTRUMENTS MARKED '*' SHALL BE FURNISHED AND INSTALLED BY SPEC. H-2289
2. INSTRUMENTS MARKED '⊖' SHALL BE FURNISHED AND INSTALLED ON LOCAL PANEL PANEL 1PL69JA BY SPEC. H-2299
3. INSTRUMENTS MARKED '⊟' SHALL BE FURNISHED AND INSTALLED ON MAIN CONTROL PANEL 1PM07J BY SPEC H-2175
4. INSTRUMENTS MARKED '△' SHALL BE FURNISHED AND INSTALLED ON MAIN CONTROL PANEL MIMIC BY SPEC. H-2175

TRAIN 'B' CHARCOAL ABSORBER

'HSZLTAH' DETAIL

2

0, 331

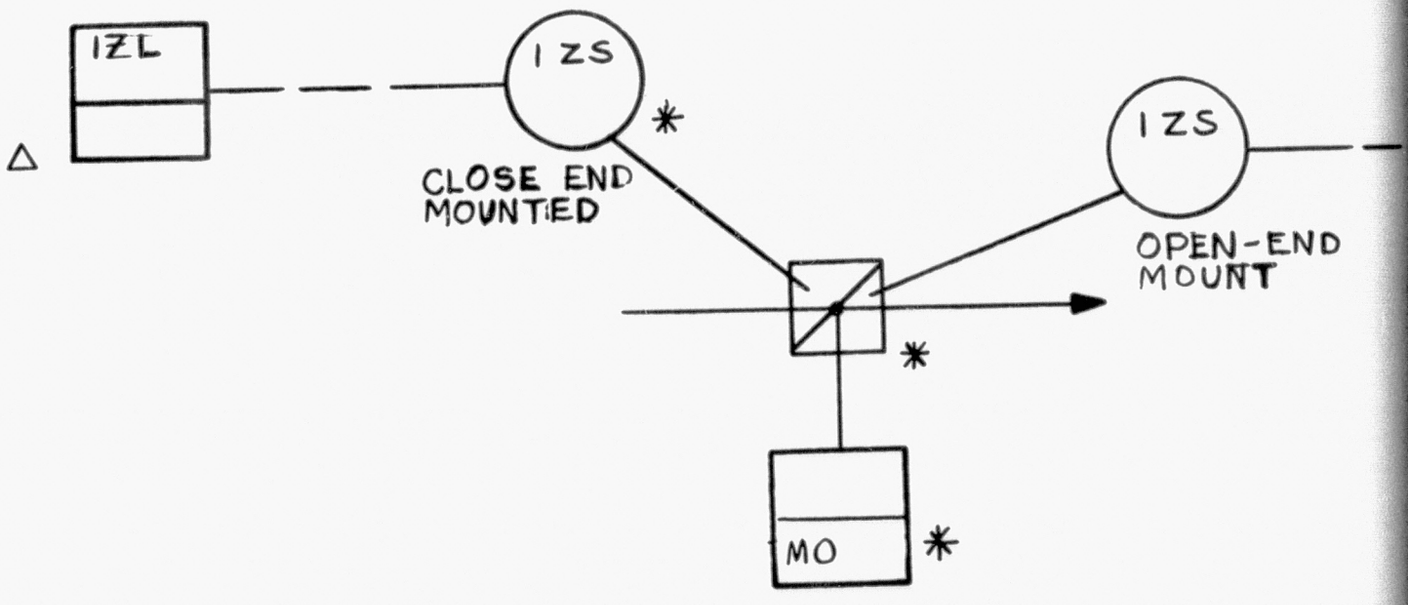
⊖ 1PL69JB

IND. HT ZL	MAIN CON-TROL SW. PANEL HD. NO. 1HS	LOCAL HAND SW. NO. 1HS	TEMP. SW. NO. 1TS-	LEVEL SW. NO. 1LS-
020 A B	V6020A	V6020B	V6020	V6020
028 A B	V6028A	V6028B	V6028	V6028

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-36

STANDBY GAS TREATMENT SYSTEM C&ID
(SHEET 11 of 14)

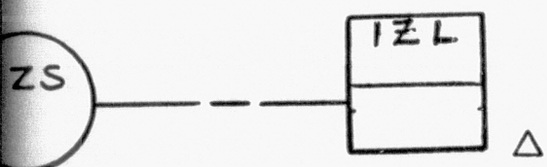


REFER TO LOGIC DIAG. VG 323, 325, 327, 333, 334,

DETAL DIAG.	DAMPER NO.	DAMPER MOTOR NO.	OPEN-END MOUNTED		CLOS
			POS. SW. NO.	IND. LIGHT NO.	POS. SW
A	IVG06YB	IFZ-VG022A	IZS-VG022AA	IZL-VG022AA	IZS-VG
B	IVG08YB	IFZ-VG050	IZS-VG050A	IZL-VG050A	IZS-VG
C	IVG09YB	IFZ-VG022B	IZS-VG022BA	IZL-VG022BA	IZS-VG
D	IVG010YB	IFZ-VG022C	IZS-VG022CA	IZL-VG022CA	IZS-VG
E	IVG07YB	IFZ-VG029	IZS-VG029A	IZL-VG029A	IZS-VG
F	IVG04YA	IFZ-VG043B	IZS-VG043BA	IZL-VG043BA	IZS-VG
G	IVG04YB	IFZ-VG044B	IZS-VG044B	IZL-VG044B	IZS-VG
H	IVG05YB	IFZ-VG032	IZS-VG032A	IZL-VG032A	IZS-VG

NOTE: 1. INSTRUMENTS MARKED '*' ARE FURNISHED AND INSTALLED BY SPEC. H-2288

2. " " '△' ARE FURNISHED AND INSTALLED BY SPEC. H-2175 ON MAIN CONTROL



PEN-END
OUNT

, 333, 334, 339

NTED	CLOSE END MOUNTED	
IGHT NO.	POS. SW. NO.	IND. LIGHT NO.
G022AA	IZS-VG022AB	IZL-VG022AB
G050A	IZS-VG050B	IZL-VG050B
G022BA	IZS-VG022BB	IZL-VG022BB
G022CA	IZS-VG022CB	IZL-VG022CB
G029A	IZS-VG029B	IZL-VG029B
G043BA	IZS-VG043BB	IZL-VG043BB
G044B	IZS-VG044B	IZL-VG044B
G032A	IZS-VG032B	IZL-VG032B

ON MAIN CONTROL PANEL 1PM07J MIMIC

ZSL DETAIL

2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

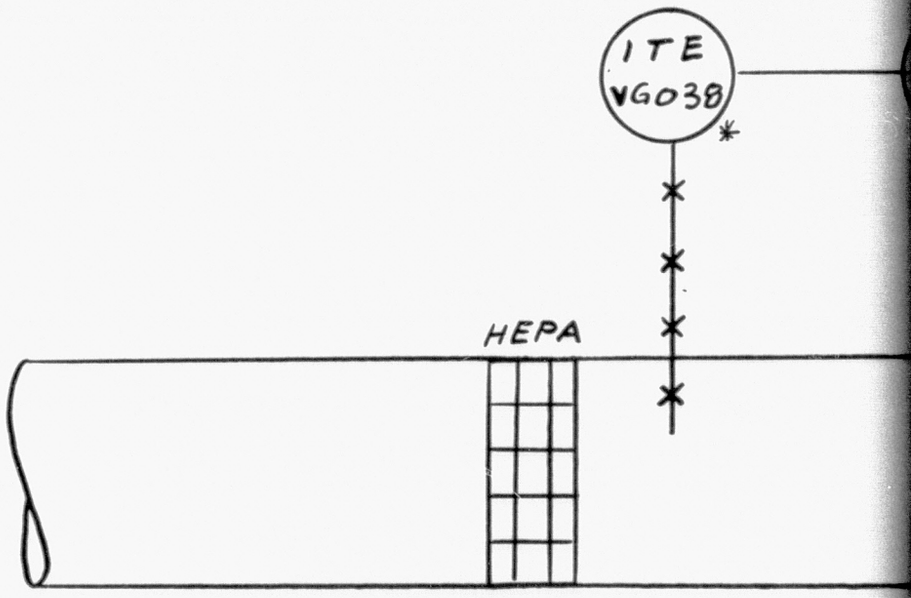
FIGURE 7.3-36

STANDBY GAS TREATMENT SYSTEM C&ID
(SHEET 12 of 14)

120V, 60HZ

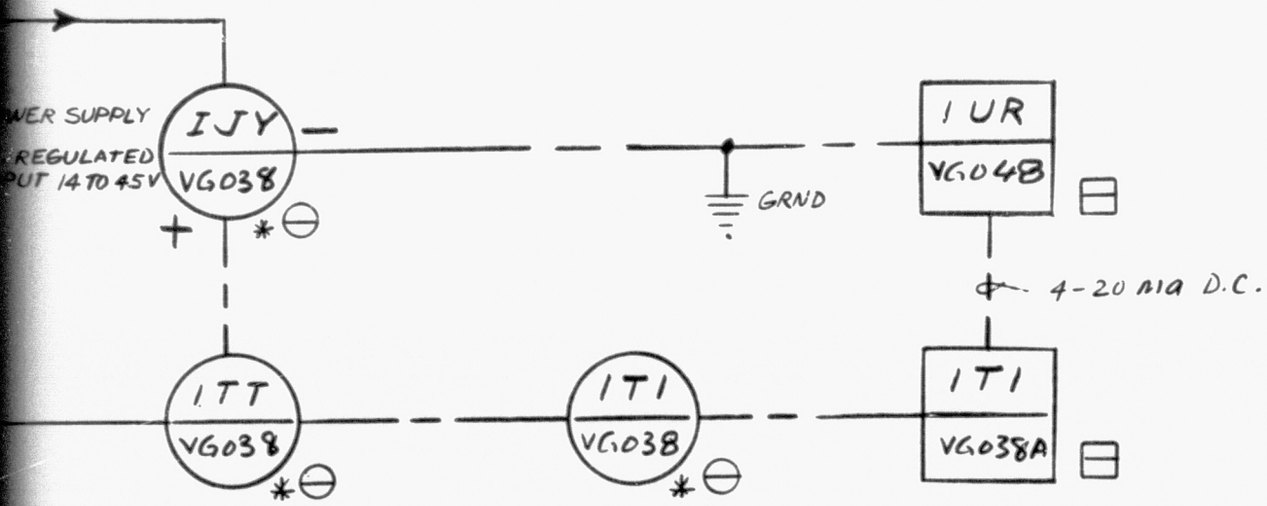
ESS-2 / DIV-2

POWER SUPPLY
D.C. REGULATED
OUTPUT 14 TO 45V



TRAIN 'B' DN-STREAM HEPA

NOTE :- 1 INSTRUMENTS MARKED * ARE FURNISHED & INSTALLED UNDER S
2 " " ⊟ " " " " "
3 " " *⊖ " " UNDER SPEC H-2288 AND
UNDER SPEC H-2299



EPA

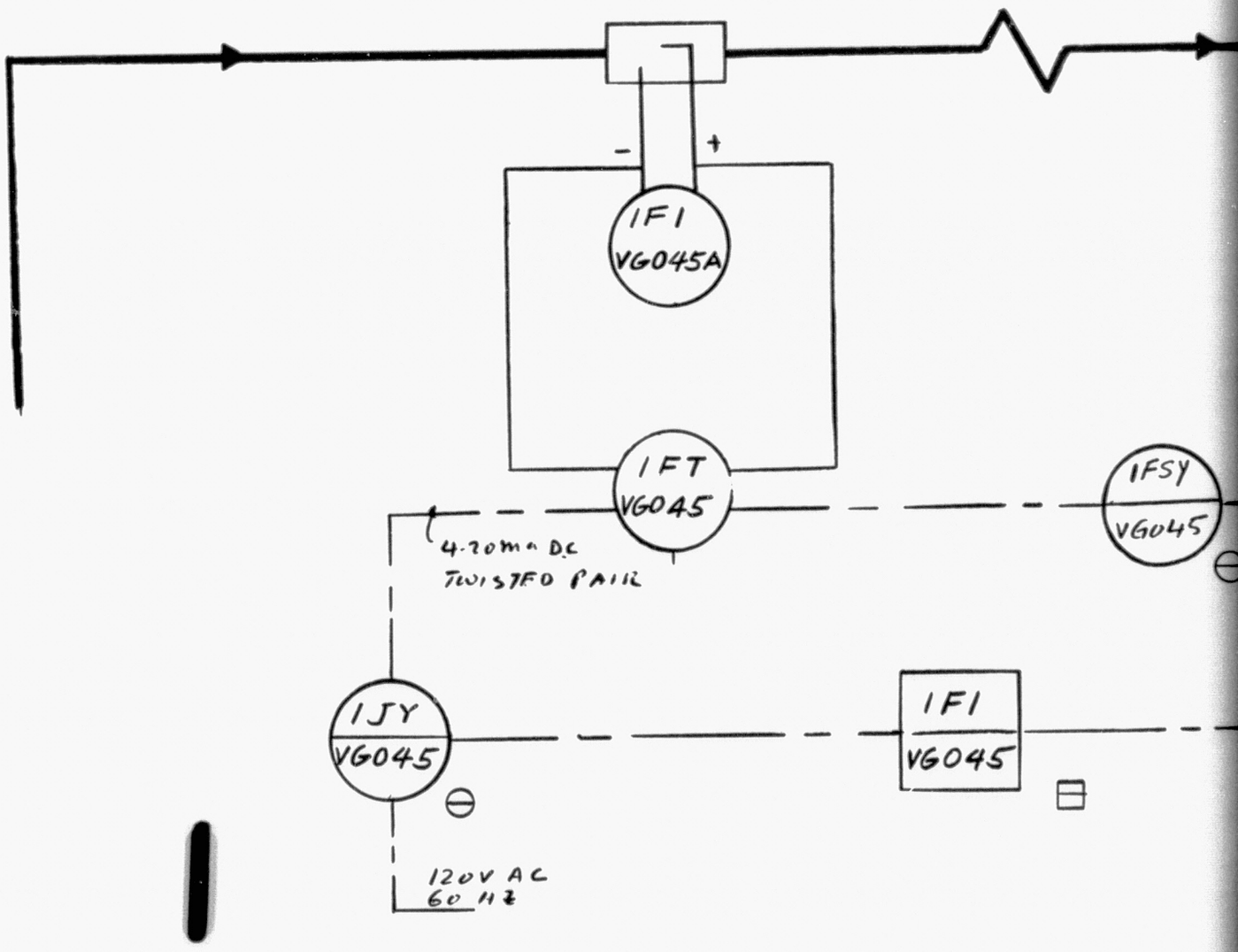
REFER TO LOGIC DIAG. VG 337

NDER SPEC. H 2288 ON
" " H-2175 ON MAIN PANEL 1PM07J
288 AND INSTALLED ON LOCAL PANEL 1PL69JB

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-36

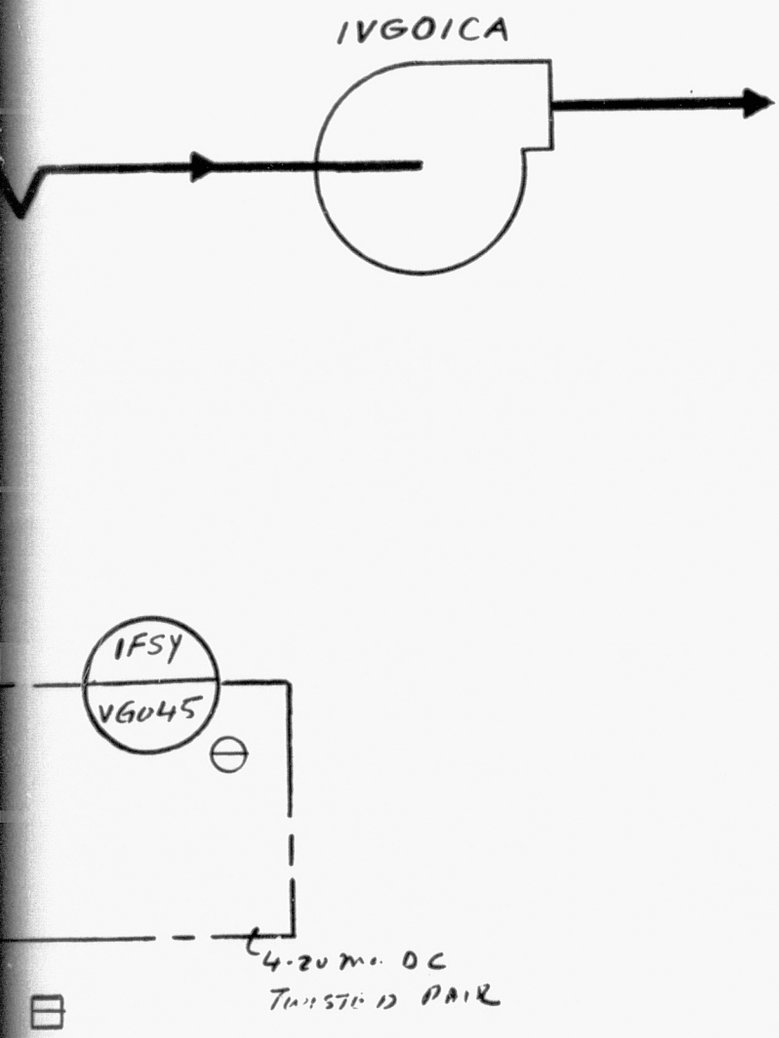
STANDBY GAS TREATMENT SYSTEM C&ID
(SHEET 13 of 14)



DETAIL NO.	FAN EQUIP. NO.	LOCAL FLOW IND. NO.	FLOW X-MITTER NO.	REMOTE FLOW INDICATOR NO.	POWER SUPPLY NO.	F A
A	1VG01CA	1F1-VG045A	1FT-VG045	1FI-VG045	1JY-VG045	1
B	1VG01CB	1F1-VG046A	1FT-VG046	1FI-VG046	1JY-VG046	1

NOTE: - INSTRUMENTS MARKED ⊖ SHALL BE LOCATED ON LOCAL PANEL 1PL69JA FOR DETAIL A
" " ⊖ " " " " " " 1PL69JB " " B
" " ⊟ " " " " MAIN " 1PM07J FOR DETAIL A

ALL INSTRUMENTS EXCEPT 1F1-VG045 & 46 ON THIS DRWG. ARE FURNISHED & INSTAL



REFER TO LOGIC DIAG. VG 340 & 341

POWER SUPPLY NO.	FLOW PROOF AUX RELAY	ESSENTIAL CLASS
JY-VG045	1FSY-VG045	ESS - 1
JY-VG046	1FSY VG046	ESS - 2

JA FOR DETAIL A
JB " " B
J FOR DETAIL A & B
NISHED & INSTALLED BY SPEC H-2299

2

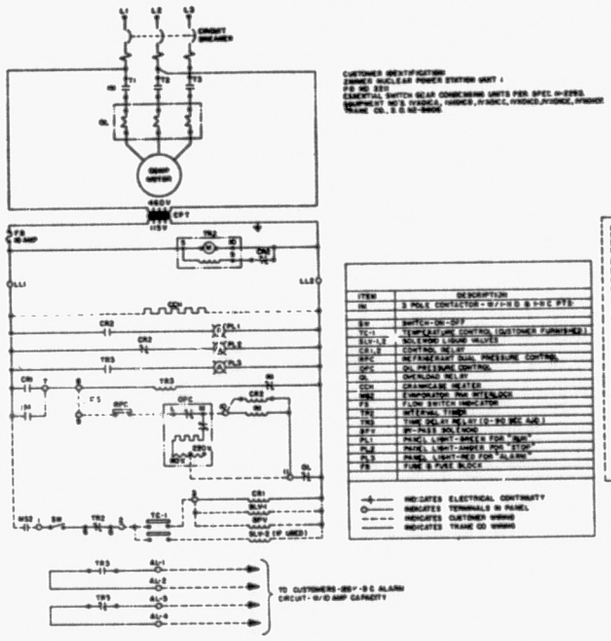
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-36

STANDBY GAS TREATMENT SYSTEM C&ID
(SHEET 14 of 14)

SHEET OF

(S-157)



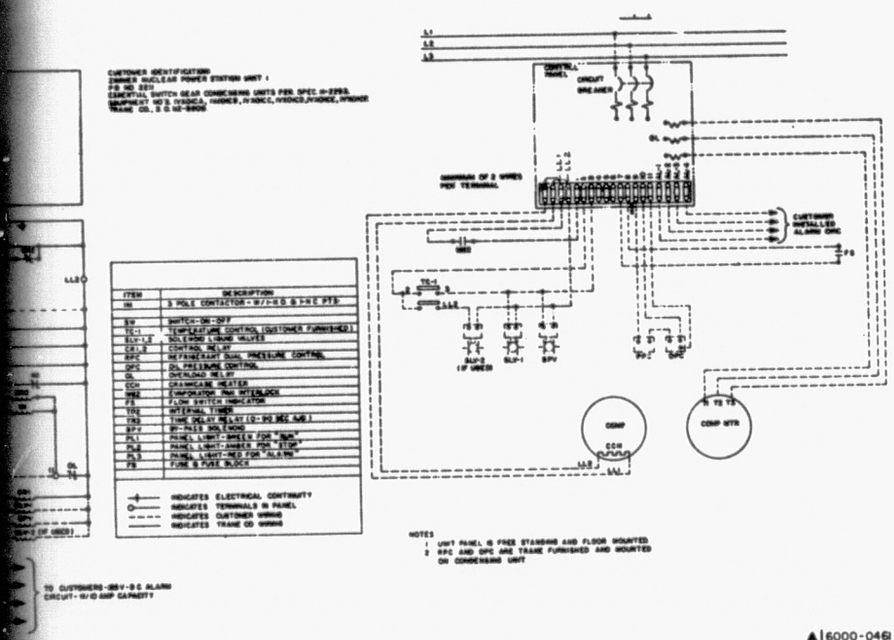
CUSTOMER IDENTIFICATION
ZIMMER NUCLEAR POWER STATION UNIT 1
P.O. NO. 3311
(GENERAL) SWITCH GEAR CONDENSING UNITS PER SPEC. M-2293.
EQUIPMENT NO'S. 1V30CC-A, 1A30CC-B, 1V30CC-C, 1V30CC-D, 1V30CC-E, 1V30CC-F
TRANE CO. S.O. NO. 84606

ITEM	DESCRIPTION
1M	3 POLE CONTACTOR - W/1-N.O. & 1-N.C. PTS.
S1	SWITCH-ON-OFF
TC1	TEMPERATURE CONTROL (CUSTOMER FURNISHED)
SLV-1,2	SOLENOID LIQUID VALVES
CR1,2	CONTROL RELAY
SPC	REFRIGERANT DUAL PRESSURE CONTROL
OPC	OIL PRESSURE CONTROL
OL	OVERLOAD RELAY
CCH	CRANKCASE HEATER
MR2	EVAPORATOR FAN INTERLOCK
FS	FLOW SWITCH INDICATOR
TR1	INTERVAL TIMER
TR2	TIME DELAY RELAY (0-30 SEC RAD.)
SV1	3P-THRU SOLENOID
PL1	PANEL LIGHT-AMBER FOR "RUN"
PL2	PANEL LIGHT-AMBER FOR "STOP"
PL3	PANEL LIGHT-RED FOR "ALARM"
FB	FUSE & FUSE BLOCK

INDICATES ELECTRICAL CONTINUITY
INDICATES TERMINALS IN PANEL
INDICATES CUSTOMER WIRING
INDICATES TRANE CO. WIRING

NOTES
1. UNIT PANEL IS FREE STANDING AND
2. SPC AND OPC ARE TRANE FURNISH
ON CONDENSING UNIT

DO NOT USE 1 0 0 OR 1 FOR REVISION



▲|6000-046|

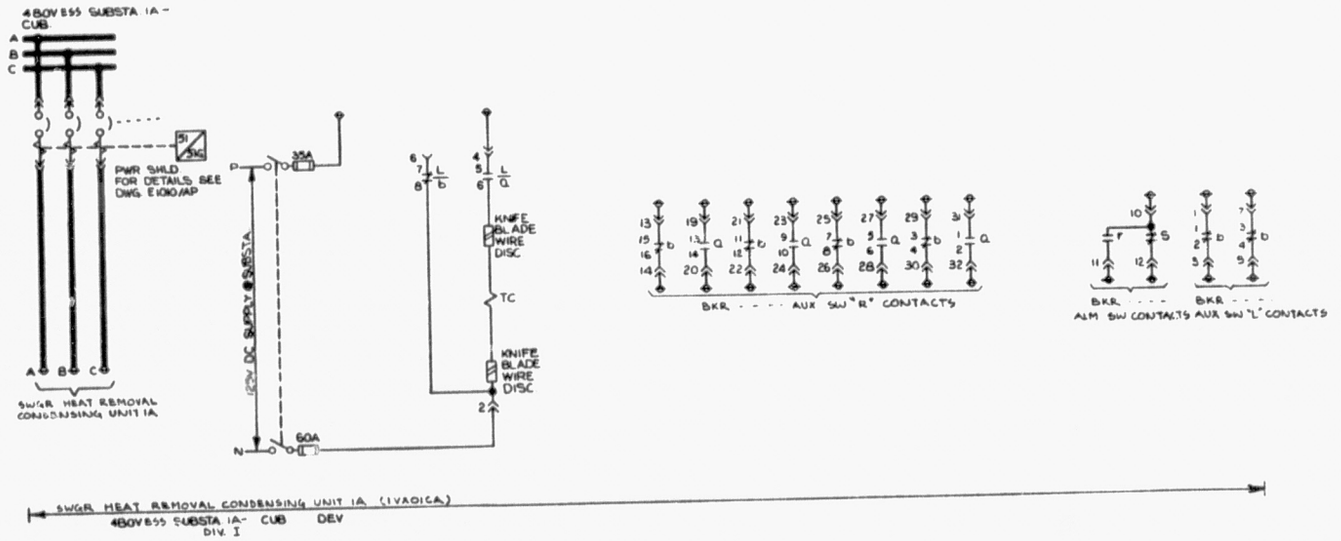
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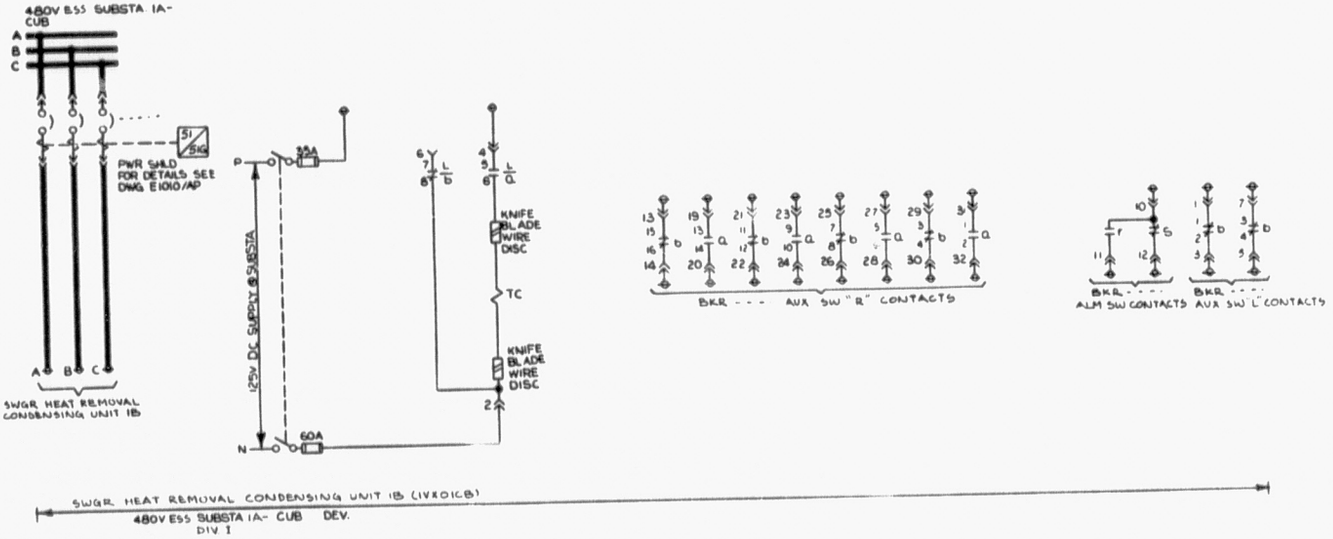
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

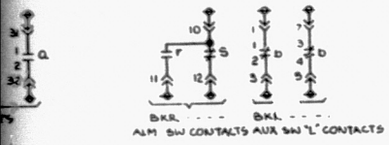
FIGURE 7.3-37

ECCS SUPPORT SYSTEMS ESD

(SHEET 1 OF 11)


480V BSS SUBSTA 1A-CUB
A
B
C
51
51G
PWR SHLD FOR DETAILS SEE DWG E1010/AP
A B C
SWGR HEAT REMOVAL CONDENSING UNIT 1A
P
N
35A
60A
125V DC SUPPLY @ SUBSTA
KNIFE BLADE WIRE DISC
TC
KNIFE BLADE WIRE DISC
2
BKR - - - - AUX SW "R" CONTACTS
BKR - - - ALM SW CONTACTS
BKR - - - AUX SW "L" CONTACTS
SWGR HEAT REMOVAL CONDENSING UNIT 1A (1VA01CA)
480V BSS SUBSTA 1A- CUB DEV
DIV. I


480V BSS SUBSTA 1A-CUB
A
B
C
51
51G
PWR SHLD FOR DETAILS SEE DWG E1010/AP
A B C
SWGR HEAT REMOVAL CONDENSING UNIT 1B
P
N
35A
60A
125V DC SUPPLY @ SUBSTA
KNIFE BLADE WIRE DISC
TC
KNIFE BLADE WIRE DISC
2
BKR - - - AUX SW "R" CONTACTS
BKR - - - ALM SW CONTACTS
BKR - - - AUX SW "L" CONTACTS
SWGR. HEAT REMOVAL CONDENSING UNIT 1B (1VA01CB)
480V ESS SUBSTA 1A- CUB DEV.
DIV. I





2

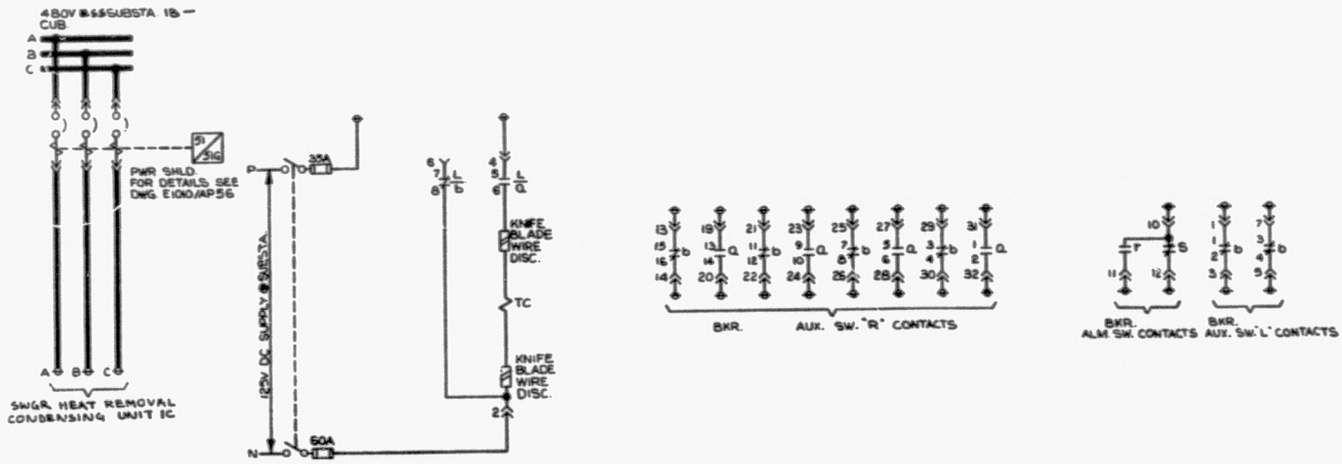
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

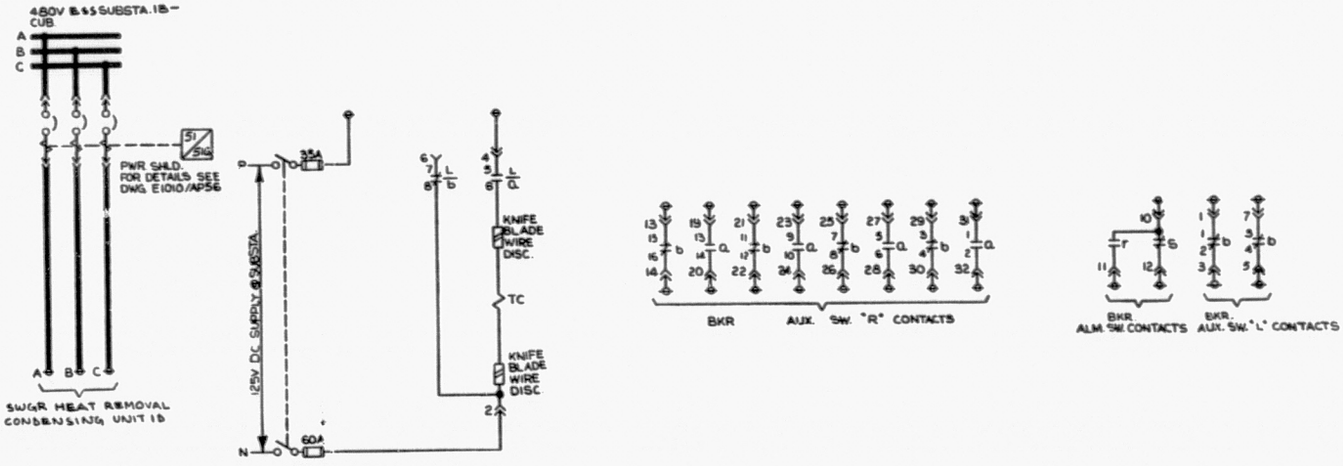
FIGURE 7.3-37

ECCS SUPPORT SYSTEMS ESD

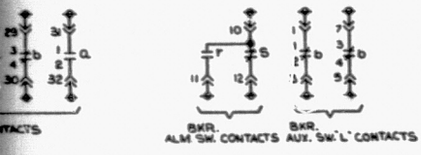
(SHEET 2 OF 11)

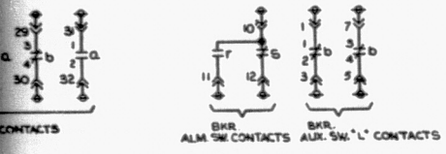


SWGR HEAT REMOVAL CONDENSING UNIT 1C (1VX01CC)
480V ESS SUBSTA. 1B- CUB. DEV.
DIV. II



SWGR HEAT REMOVAL CONDENSING UNIT 1D (1VX01CD)
480V ESS SUBSTA. 1B- CUB. DEV.
DIV. II



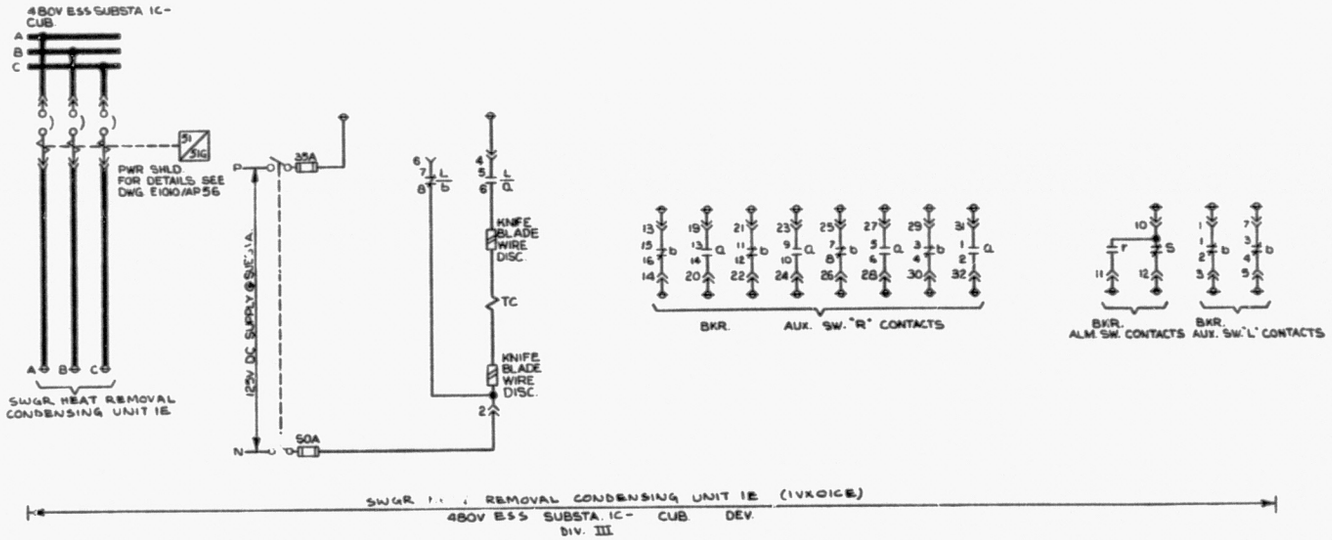


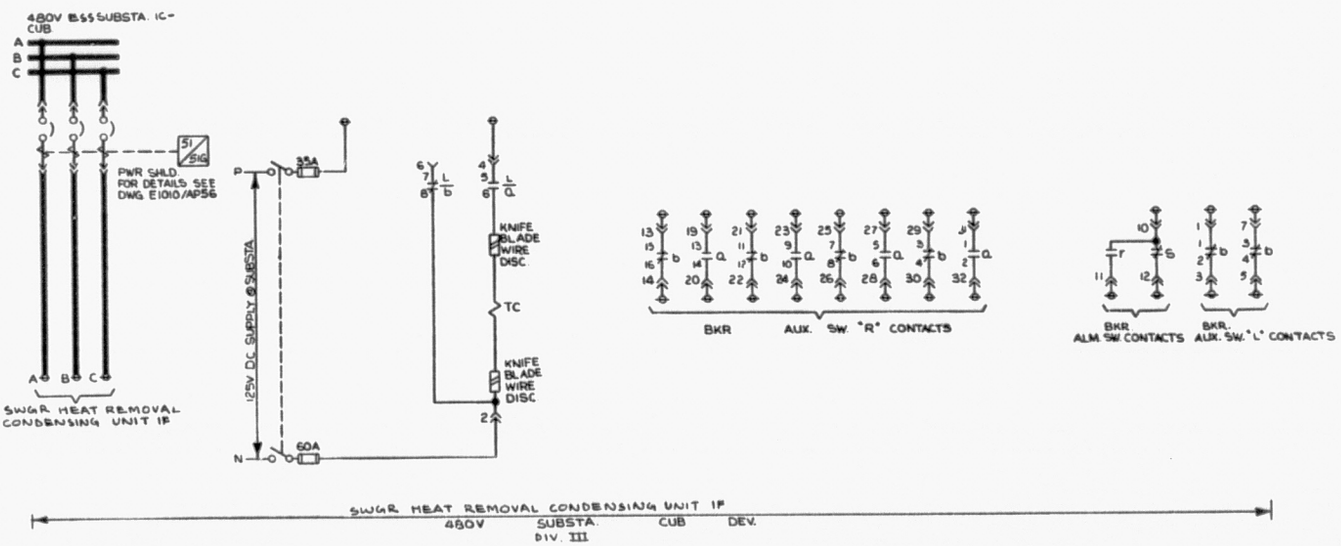
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ESSENTIAL COMPONENTS
△ INCLUDED △

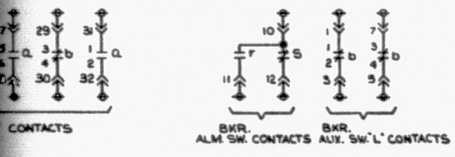
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

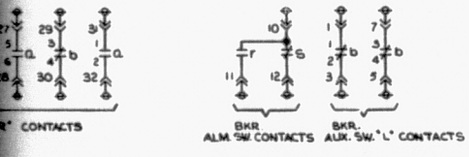
FIGURE 7.3-37
ECCS SUPPORT SYSTEMS ESD
(SHEET 3 OF 11)





DO NOT USE FOR REVISION





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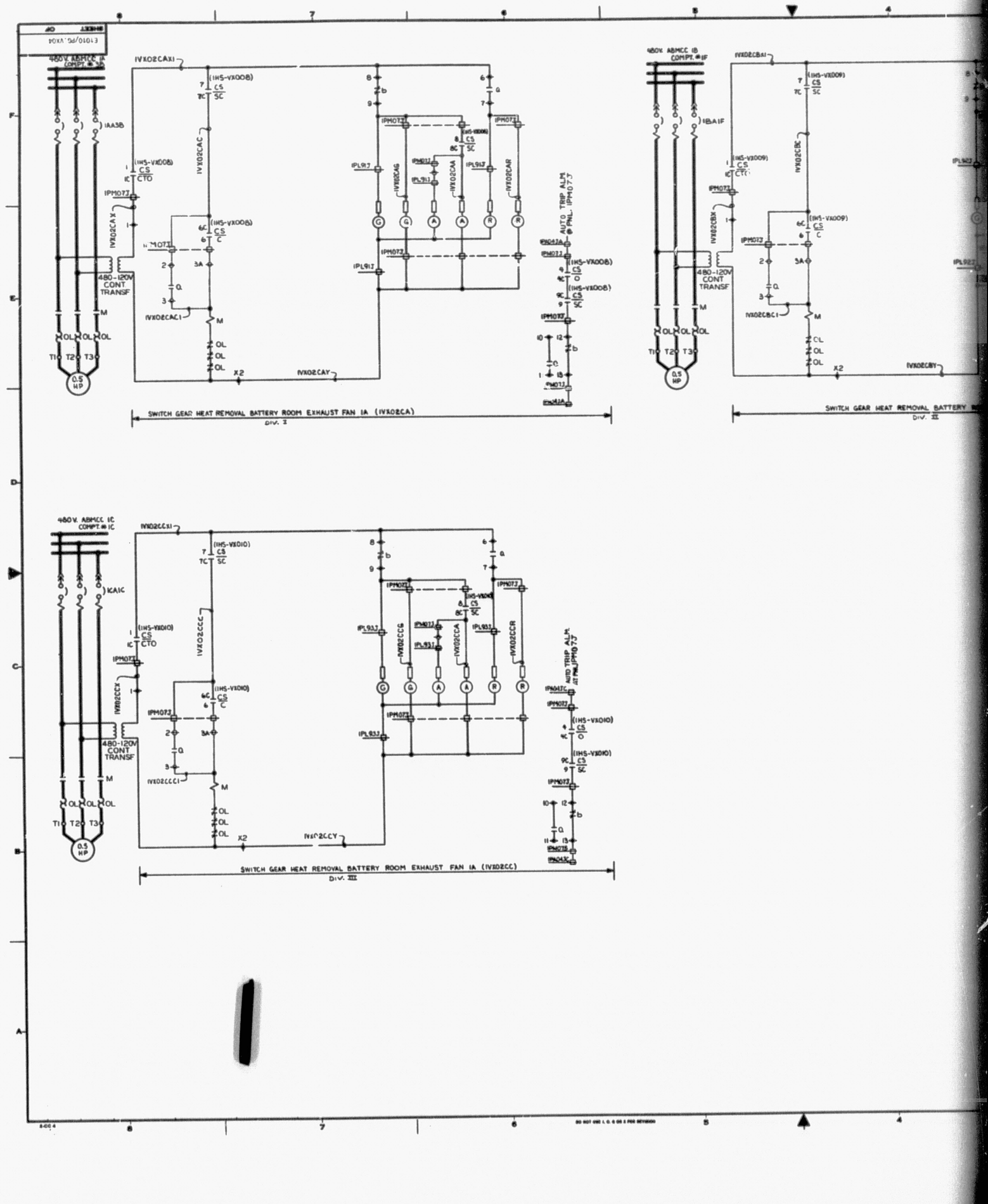
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

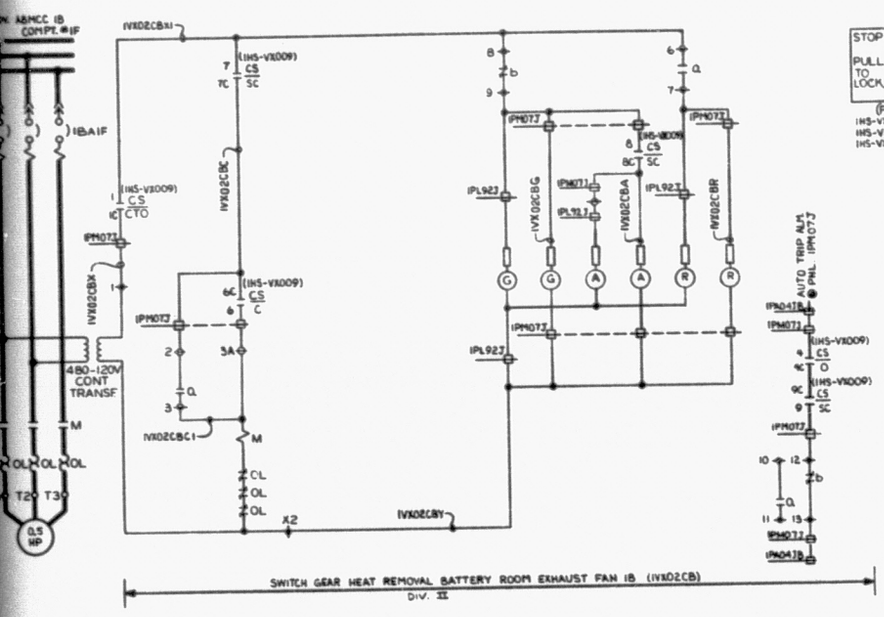
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

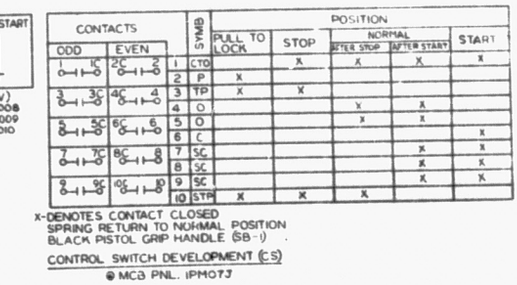
FIGURE 7.3-37

ECCS SUPPORT SYSTEMS ESD

(SHEET 4 OF 11)


480V ABMCC 1A COMPT. # 3A
1AA3B
480-120V CONT TRANSF
0.5 HP
SWITCH GEAR HEAT REMOVAL BATTERY ROOM EXHAUST FAN 1A (IVX02CA)
DIV. I
480V ABMCC 1B COMPT. # 1F
1BA1F
480-120V CONT TRANSF
SWITCH GEAR HEAT REMOVAL BATTERY
DIV. II
480V ABMCC 1C COMPT. # 1C
1CA1C
480-120V CONT TRANSF
SWITCH GEAR HEAT REMOVAL BATTERY ROOM EXHAUST FAN 1A (IVX02CC)
DIV. III
AUTO TRIP ALM. @ PNL. IPM07J





CONTACTS ODD	CONTACTS EVEN	SYMB	POSITION: PULL TO LOCK	STOP	NORMAL: AFTER STOP	NORMAL: AFTER START	START
1C	2C	CTO		X	X	X	X
		P	X				
3C	4C	TP	X	X			
		O			X	X	
5C	6C	O			X	X	
		C					X
7C	8C	SC				X	X
		SC				X	X
9C	10C	SC				X	X
		STP	X	X	X		

X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK PISTOL GRIP HANDLE (SB-1)

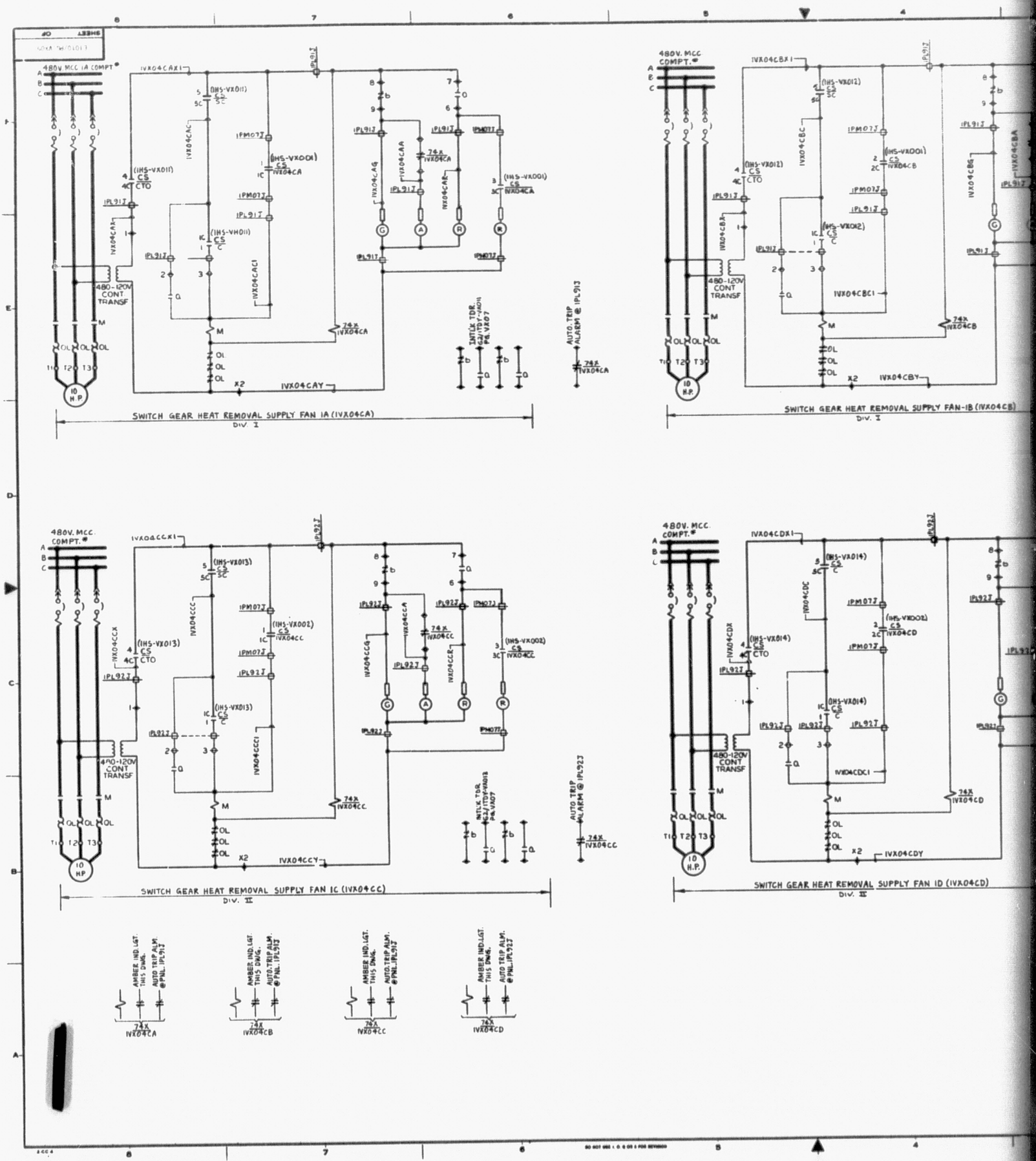
CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL. IPM073

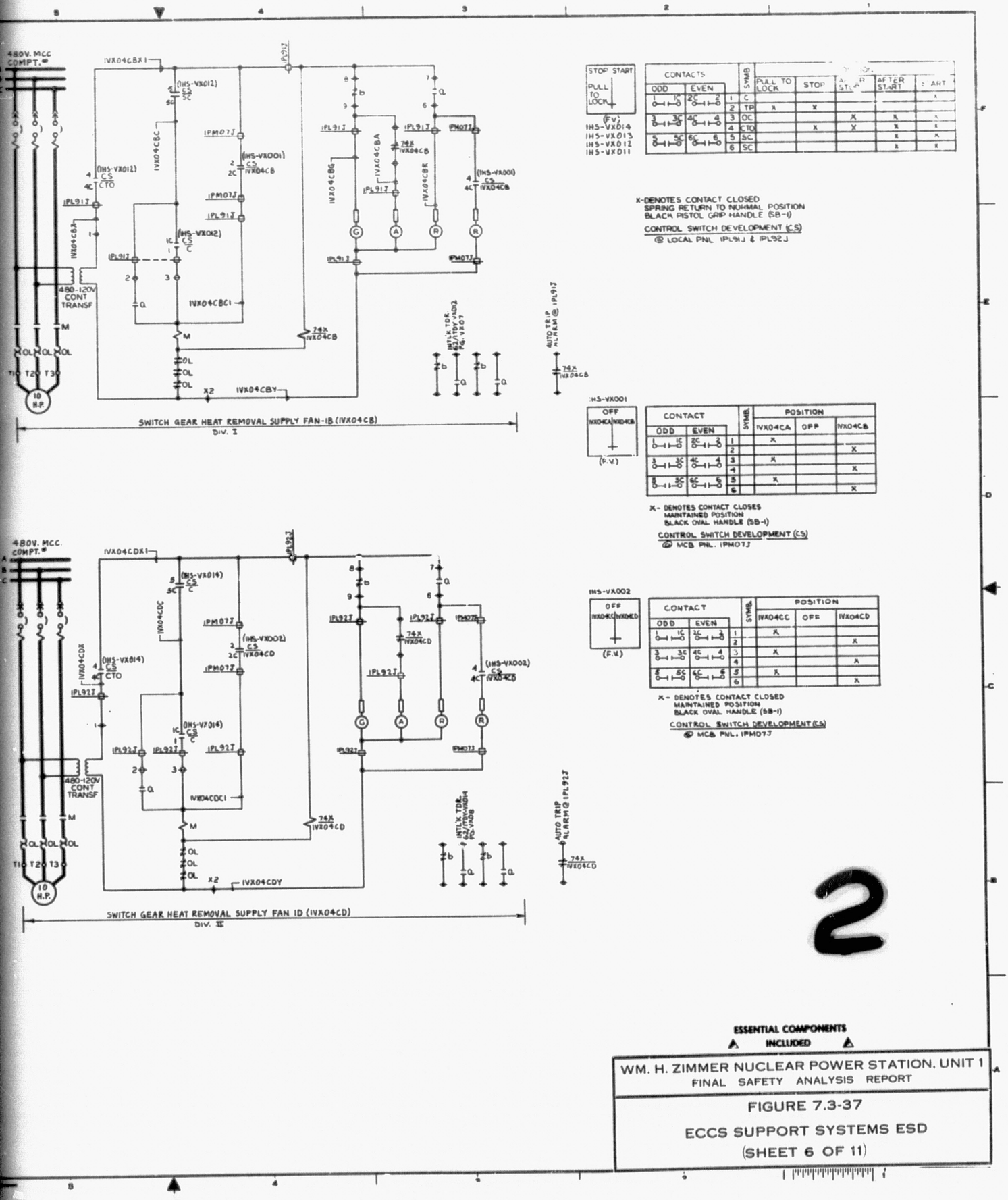
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ESSENTIAL COMPONENTS
△ INCLUDED △

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-37
ECCS SUPPORT SYSTEMS ESD
(SHEET 5 OF 11)


480V. MCC 1A COMPT.*
IVX04CAX1
(IHS-VX011)
IVX04CAC
(IHS-VX001)
IVX04CA
(IHS-VH011)
IVX04CAC1
480-120V CONT TRANSF
10 H.P.
IVX04CAA
74X IVX04CA
IVX04CAR
IVX04CAG
IVX04CAB
IVX04CAY
AUTO. TRIP ALARM @ IPL913
SWITCH GEAR HEAT REMOVAL SUPPLY FAN 1A (IVX04CA)
DIV. I
480V. MCC COMPT.*
IVX04CBX1
(IHS-VX012)
IVX04CBC
(IHS-VX001)
IVX04CB
(IHS-VH012)
IVX04CBC1
480-120V CONT TRANSF
10 H.P.
IVX04CBA
IVX04CBG
IVX04CBY
74X IVX04CB
SWITCH GEAR HEAT REMOVAL SUPPLY FAN-1B (IVX04CB)
DIV. I
480V. MCC. COMPT.*
IVX04CCX1
(IHS-VX013)
IVX04CCC
(IHS-VX002)
IVX04CC
(IHS-VH013)
IVX04CCC1
480-120V CONT TRANSF
10 H.P.
IVX04CCA
74X IVX04CC
IVX04CCR
IVX04CCG
IVX04CCY
AUTO. TRIP ALARM @ IPL923
SWITCH GEAR HEAT REMOVAL SUPPLY FAN 1C (IVX04CC)
DIV. II
480V. MCC. COMPT.*
IVX04CDX1
(IHS-VX014)
IVX04CDC
(IHS-VX002)
IVX04CD
(IHS-VH014)
IVX04CDC1
480-120V CONT TRANSF
10 H.P.
IVX04CDA
IVX04CDG
IVX04CDY
74X IVX04CD
SWITCH GEAR HEAT REMOVAL SUPPLY FAN 1D (IVX04CD)
DIV. II
AMBER IND. LGT. THIS DWG.
AUTO. TRIP ALM. @ PNL. IPL913
74X IVX04CA
AMBER IND. LGT. THIS DWG.
AUTO. TRIP ALM. @ PNL. IPL913
74X IVX04CB
AMBER IND. LGT. THIS DWG.
AUTO. TRIP ALM. @ PNL. IPL923
74X IVX04CC
AMBER IND. LGT. THIS DWG.
AUTO. TRIP ALM. @ PNL. IPL923
74X IVX04CD



2

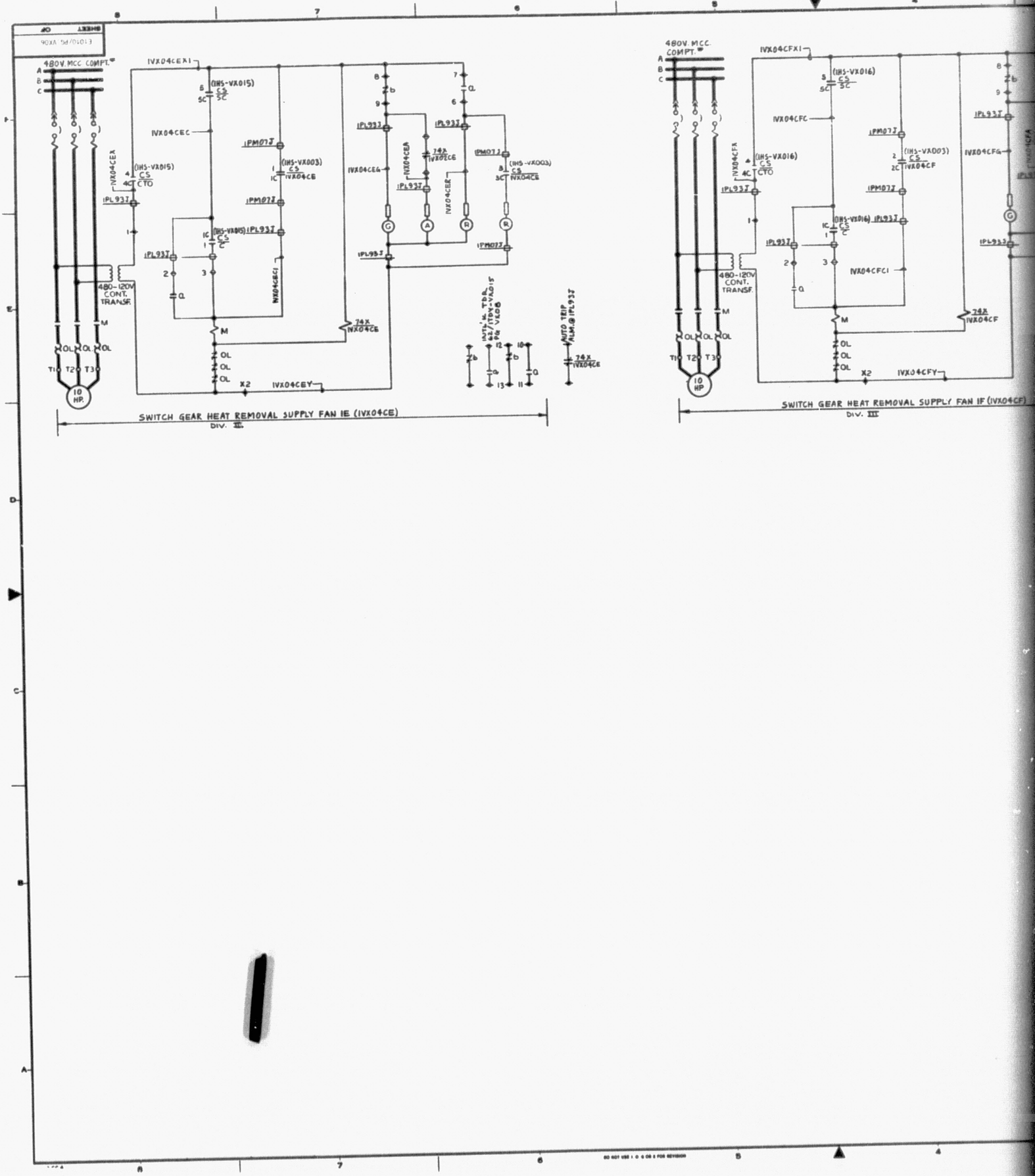
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

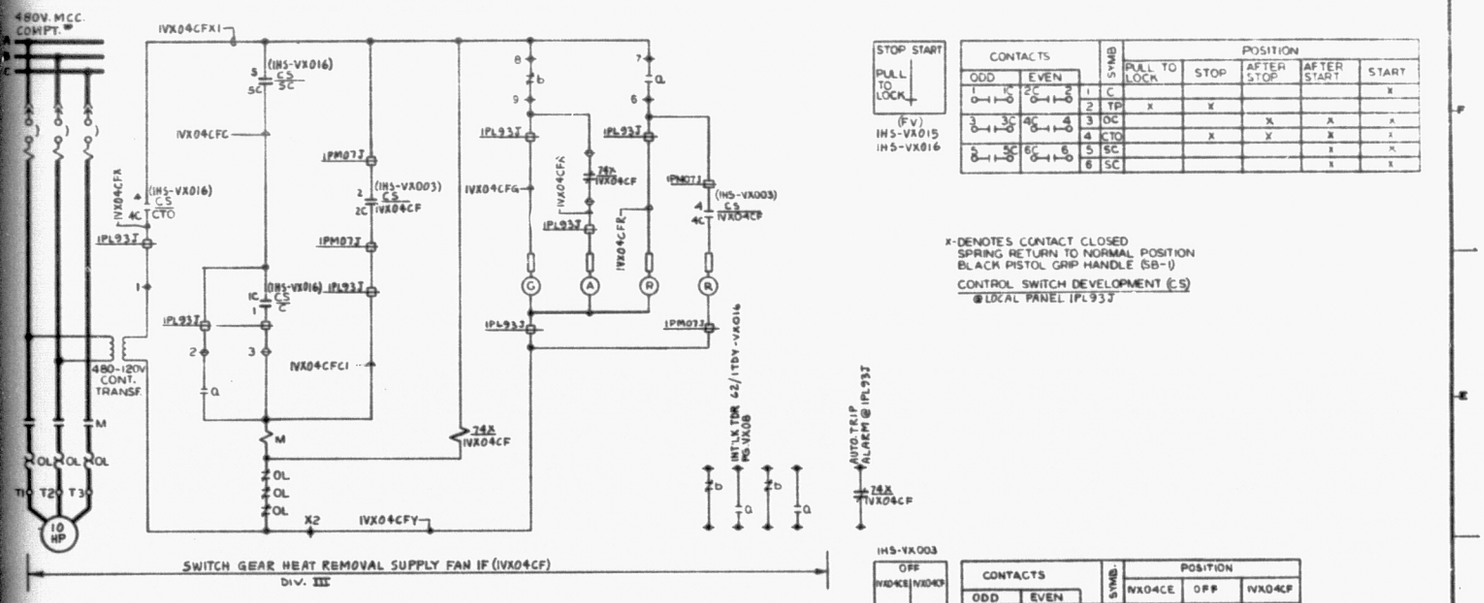
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-37

ECCS SUPPORT SYSTEMS ESD

(SHEET 6 OF 11)


480V MCC COMPT.
IVX04CEX1
(IHS-VX015)
IVX04CEC
IVX04CEX
IPM07J
(IHS-VX003)
IVX04CE
IPL93J
480-120V CONT. TRANSF.
OL
T1 T2 T3
10 HP.
IVX04CEG
IVX04CEA
IVX04CER
74X IVX04CE
INT'L. TDR. 62/TDN-VA015 OR VA06
AUTO TRIP ALM. @ IPL93J
IVX04CEY
X2
SWITCH GEAR HEAT REMOVAL SUPPLY FAN IE (IVX04CE)
DIV. III
480V MCC COMPT.
IVX04CFX1
(IHS-VX016)
IVX04CFC
IVX04CFA
(IHS-VA003)
IVX04CF
IVX04CFG
IVX04CFC1
IVX04CFY
SWITCH GEAR HEAT REMOVAL SUPPLY FAN IF (IVX04CF)
DIV. III



STOP START

PULL TO LOCK

(F.V.)
IHS-VX015
IHS-VX016

CONTACTS ODD	CONTACTS EVEN		SYMB	POSITION: PULL TO LOCK	STOP	AFTER STOP	AFTER START	START
1 1C	2 2C	1	C					X
		2	TP	X	X			
3 3C	4 4C	3	OC			X	X	X
		4	CTO		X	X	X	X
5 5C	6 6C	5	EC				X	X
		6	SC				X	X

X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK PISTOL GRIP HANDLE (SB-1)

CONTROL SWITCH DEVELOPMENT (C.S)
@LOCAL PANEL 1PL93J

IHS-VX003

OFF
IVX04CE | IVX04CF

(F.V.)

CONTACTS ODD	CONTACTS EVEN		SYMB.	POSITION: IVX04CE	OFF	IVX04CF
1 1C	2 2C	1		X		
		2				X
3 3C	4 4C	3		X		
		4				X
5 5C	6 6C	5		X		
		6				X

X- DENOTES CONTACT CLOSED
MAINTAINED POSITION
BLACK OVAL HANDLE (SB-1)

CONTROL SWITCH DEVELOPMENT (C.S)
AT MCB PNL. 1PM07J

2

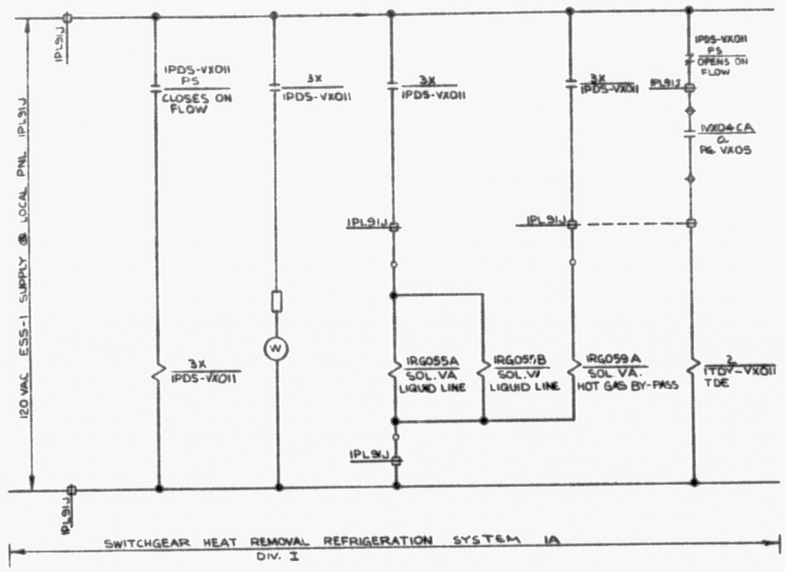
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

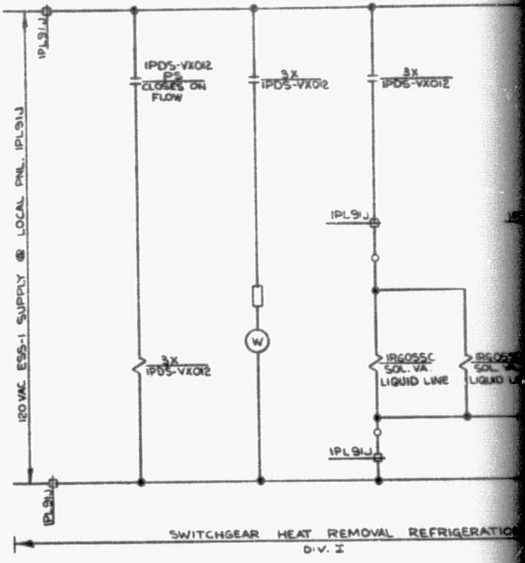
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

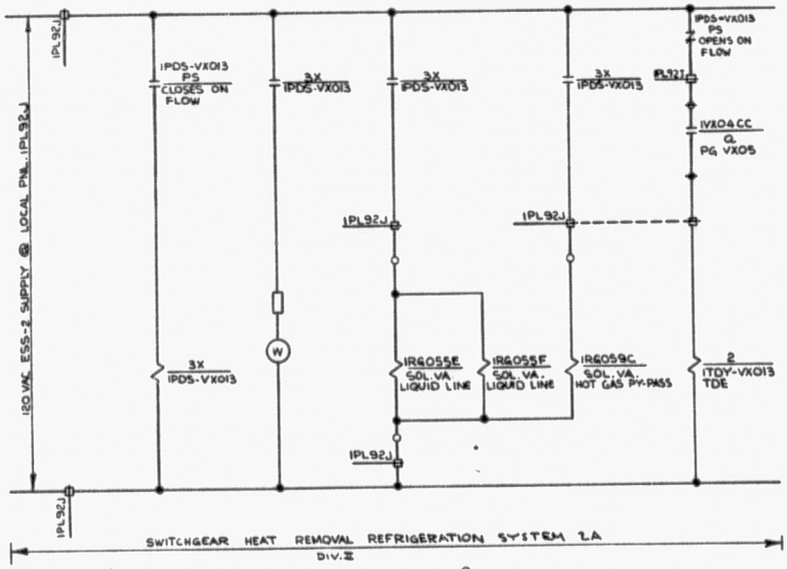
FIGURE 7.3-37

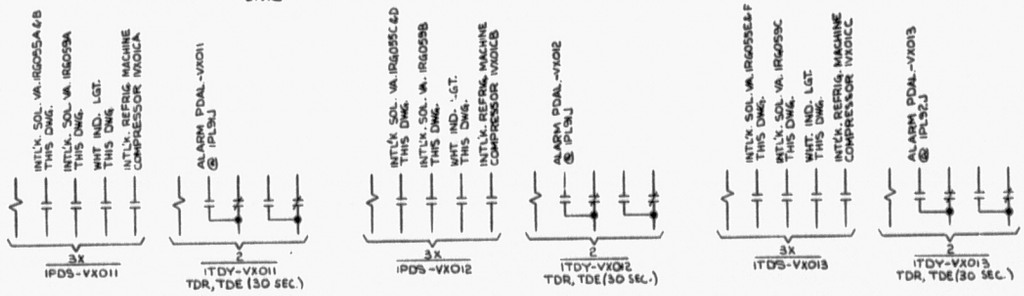
ECCS SUPPORT SYSTEMS ESD

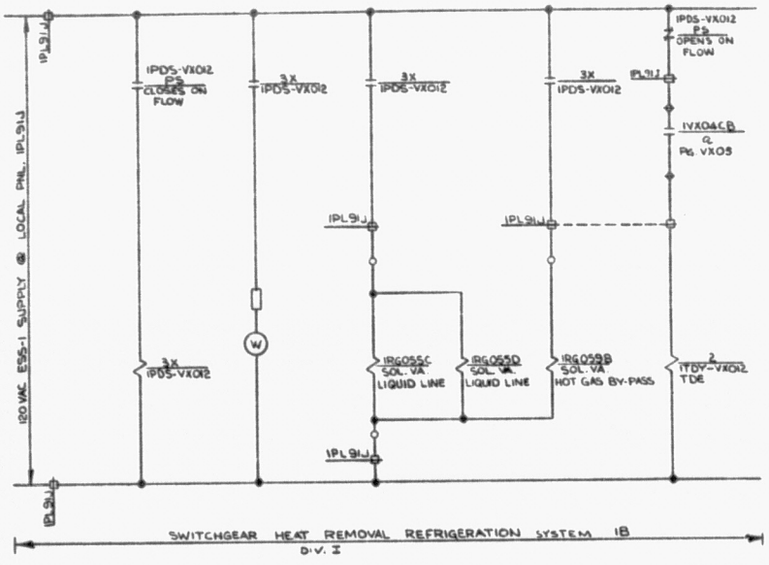
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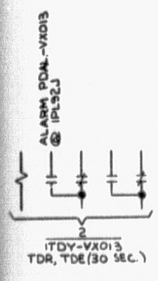

120 VAC ESS-1 SUPPLY @ LOCAL PNL. IPL91J
IPL91J
IPDS-VX011 PS CLOSES ON FLOW
3X IPDS-VX011
IPDS-VX011 PS OPENS ON FLOW
IVX04CA @ PG VX05
IRG055A SOL. VA. LIQUID LINE
IRG057B SOL. VA. LIQUID LINE
IRG059A SOL. VA. HOT GAS BY-PASS
2 ITDY-VX011 TDE
SWITCHGEAR HEAT REMOVAL REFRIGERATION SYSTEM 1A
DIV. 1


120 VAC ESS-1 SUPPLY @ LOCAL PNL. IPL91J
IPDS-VX012 PS CLOSES ON FLOW
3X IPDS-VX012
IRG055C SOL. VA. LIQUID LINE
SWITCHGEAR HEAT REMOVAL REFRIGERATION
DIV. 2


120 VAC ESS-2 SUPPLY @ LOCAL PNL. IPL92J
IPL92J
IPDS-VX013 PS CLOSES ON FLOW
3X IPDS-VX013
IPDS-VX013 PS OPENS ON FLOW
IVX04CC @ PG VX05
IRG055E SOL. VA. LIQUID LINE
IRG055F SOL. VA. LIQUID LINE
IRG059C SOL. VA. HOT GAS BY-PASS
2 ITDY-VX013 TDE
SWITCHGEAR HEAT REMOVAL REFRIGERATION SYSTEM 2A
DIV. 2


INTLK. SOL. VA. IRG055A&B THIS DWG.
INTLK. SOL. VA. IRG059A THIS DWG.
WHT. IND. LGT. THIS DWG.
INTLK. REFRIG. MACHINE COMPRESSOR IVX04CA
3X IPDS-VX011
ALARM PDAL-VX011 @ IPL91J
2 ITDY-VX011 TDR, TDE (30 SEC.)
INTLK. SOL. VA. IRG055C&D THIS DWG.
INTLK. SOL. VA. IRG059B THIS DWG.
WHT. IND. LGT. THIS DWG.
INTLK. REFRIG. MACHINE COMPRESSOR IVX04CB
3X IPDS-VX012
ALARM PDAL-VX012 @ IPL91J
2 ITDY-VX012 TDR, TDE (30 SEC.)
INTLK. SOL. VA. IRG055E&F THIS DWG.
INTLK. SOL. VA. IRG059C THIS DWG.
WHT. IND. LGT. THIS DWG.
INTLK. REFRIG. MACHINE COMPRESSOR IVX04CC
3X ITDS-VX013
ALARM PDAL-VX013 @ IPL92J
2 ITDY-VX013 TDR, TDE (30 SEC.)



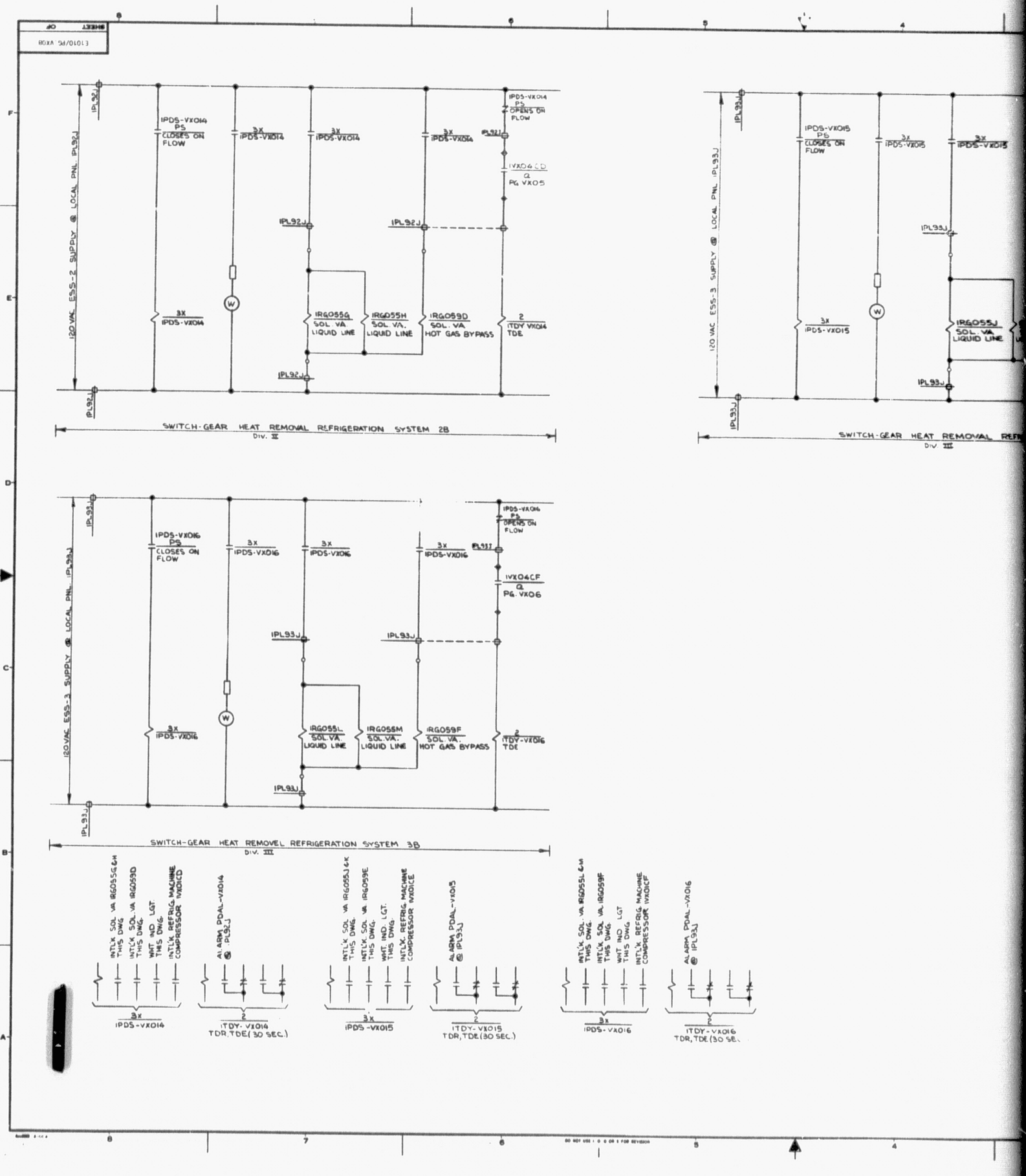


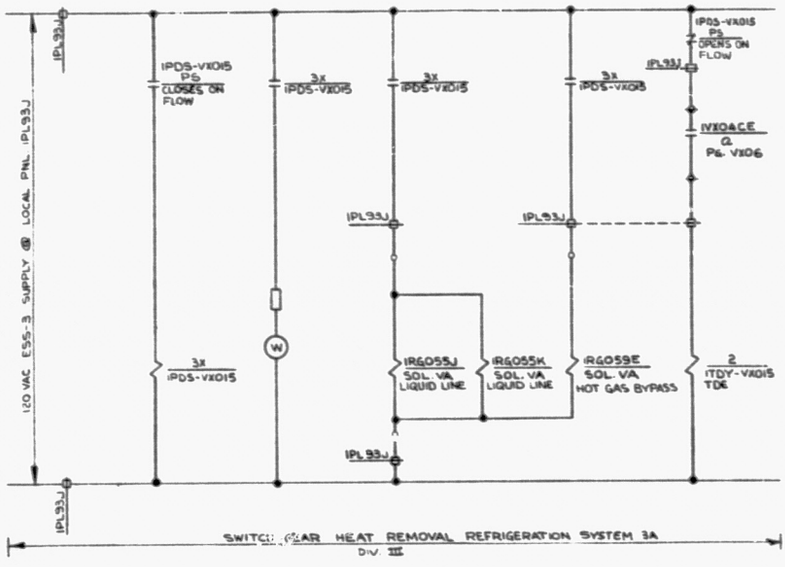
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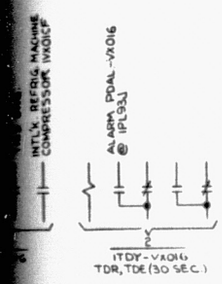
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-37
ECCS SUPPORT SYSTEMS ESD
(SHEET 8 OF 11)


120 VAC ESS-2 SUPPLY @ LOCAL PNL. IPL92J
IPL92J
IPDS-VX014 PS CLOSES ON FLOW
3X IPDS-VX014
IPDS-VX014 PS OPENS ON FLOW
IVX04CD
PG. VX05
IRG055G SOL. VA LIQUID LINE
IRG055H SOL. VA. LIQUID LINE
IRG059D SOL. VA HOT GAS BYPASS
2 ITDY VX014 TDE
SWITCH-GEAR HEAT REMOVAL REFRIGERATION SYSTEM 2B
Div. II
120 VAC ESS-3 SUPPLY @ LOCAL PNL. IPL93J
IPL93J
IPDS-VX015 PS CLOSES ON FLOW
3X IPDS-VX015
IRG055J SOL. VA LIQUID LINE
SWITCH-GEAR HEAT REMOVAL REFR
DIV. III
120 VAC ESS-3 SUPPLY @ LOCAL PNL. IPL93J
IPL93J
IPDS-VX016 PS CLOSES ON FLOW
3X IPDS-VX016
IPDS-VX016 PS OPENS ON FLOW
IVX04CF
PG. VX06
IRG055L SOL VA LIQUID LINE
IRG055M SOL. VA. LIQUID LINE
IRG059F SOL. VA HOT GAS BYPASS
2 ITDY-VX016 TDE
SWITCH-GEAR HEAT REMOVEL REFRIGERATION SYSTEM 3B
DIV. III
INTLK SOL VA IRG055G&H
INTLK SOL VA IRG059D
WHT IND LGT THIS DWG
INTLK. REFRIG MACHINE COMPRESSOR IVXO1CD
3X IPDS-VX014
ALARM PDAL-VX014 @ IPL92J
2 ITDY-VX014 TDR, TDE (30 SEC.)
INTLK SOL VA IRG055J&K
INTLK SOL VA IRG059E
WHT IND. LGT. THIS DWG.
INTLK. REFRIG MACHINE COMPRESSOR IVXO1CE
3X IPDS-VX015
ALARM PDAL-VX015 @ IPL93J
2 ITDY-VX015 TDR, TDE (30 SEC.)
INTLK SOL VA IRG055L&M
INTLK SOL VA IRG059F
WHT IND LGT THIS DWG
INTLK. REFRIG MACHINE COMPRESSOR IVXO1CF
3X IPDS-VX016
ALARM PDAL-VX016 @ IPL93J
2 ITDY-VX016 TDR, TDE (30 SE



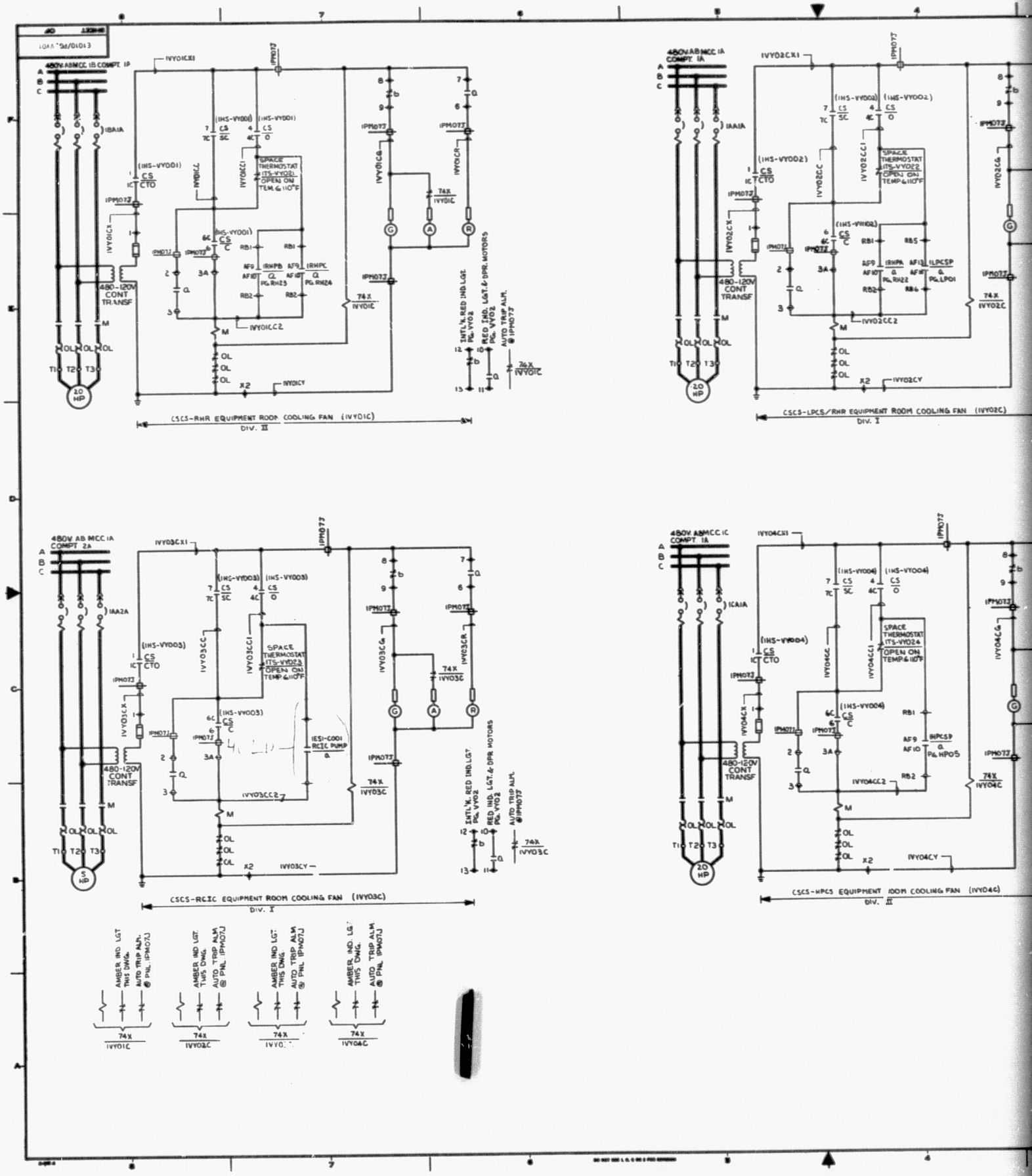


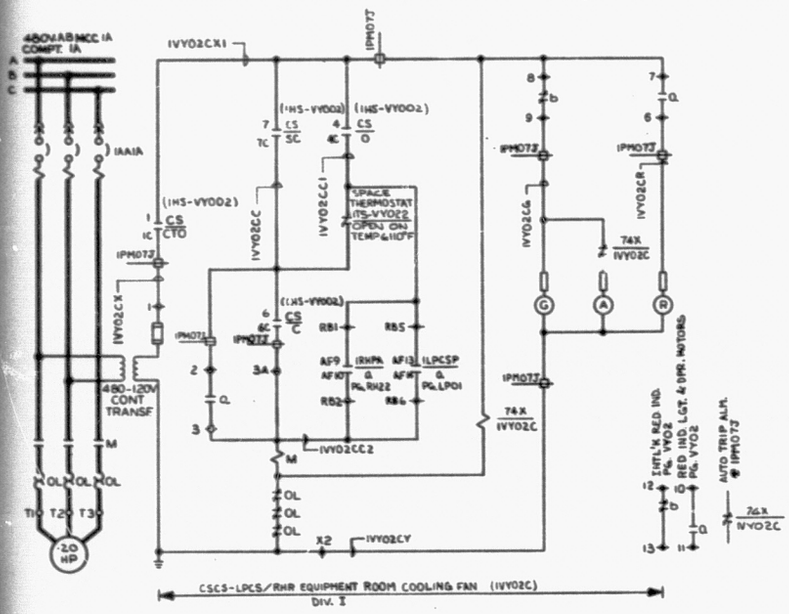
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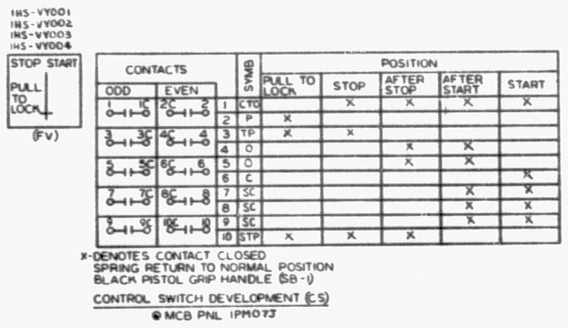
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

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FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-37
ECCS SUPPORT SYSTEMS ESD
(SHEET 9 OF 11)


480V ABMCC 1B COMPT 1P
IBA1A
480-120V CONT TRANSF
20 HP
IVY01CX1
IPM07J
(IHS-VY001)
SPACE THERMOSTAT ITS-VY001 OPEN ON TEMP @ 110°F
IVY01CC1
IVY01CC2
IVY01CY
IVY01CR
IVY01CG
74X IVY01C
INTLK. RED IND LGT. PG. VY02
RED IND. LGT. & DPR. MOTORS PG. VY02
AUTO TRIP ALM. @ IPM07J
CSCS-RHR EQUIPMENT ROOM COOLING FAN (IVY01C)
DIV. II
480V ABMCC 1A COMPT 1A
IAA1A
IVY02CX1
(IHS-VY002)
SPACE THERMOSTAT ITS-VY002 OPEN ON TEMP @ 110°F
IVY02CC1
IVY02CC2
IVY02CY
IVY02CG
IVY02CR
74X IVY02C
CSCS-LPCS/RHR EQUIPMENT ROOM COOLING FAN (IVY02C)
DIV. I
480V AB MCC 1A COMPT 2A
IAA2A
IVY03CX1
(IHS-VY003)
SPACE THERMOSTAT ITS-VY003 OPEN ON TEMP @ 110°F
IVY03CC1
IVY03CC2
IVY03CY
IVY03CG
IVY03CR
74X IVY03C
IESI-C001 RCIC PUMP
CSCS-RCIC EQUIPMENT ROOM COOLING FAN (IVY03C)
DIV. I
480V ABMCC 1C COMPT 1A
ICA1A
IVY04CX1
(IHS-VY004)
SPACE THERMOSTAT ITS-VY024 OPEN ON TEMP @ 110°F
IVY04CC1
IVY04CC2
IVY04CY
IVY04CG
74X IVY04C
CSCS-HPCS EQUIPMENT ROOM COOLING FAN (IVY04C)
DIV. II
AMBER IND LGT THIS DWG.
AUTO TRIP ALM @ PNL IPM07J
74X IVY01C
74X IVY02C
74X IVY03C
74X IVY04C

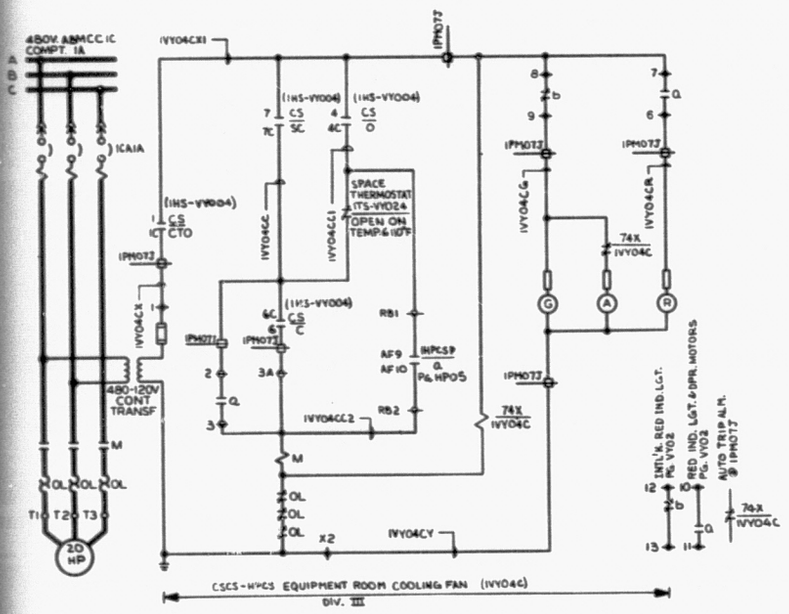




CONTACTS ODD	CONTACTS EVEN		SYMB	POSITION: PULL TO LOCK	STOP	AFTER STOP	AFTER START	START
1C	2C 2	1	CTO		X	X	X	X
		2	P	X				
3C	4C 4	3	TP	X	X			
		4	O			X	X	
5C	6C 6	5	O			X	X	
		6	C					X
7C	8C 8	7	SC				X	X
		8	SC				X	X
9C	10C 10	9	SC				X	X
		10	STP	X	X	X		

X-DENOTES CONTACT CLOSED
SPRING RETURN TO NORMAL POSITION
BLACK PISTOL GRIP HANDLE (SB-1)

CONTROL SWITCH DEVELOPMENT (CS)
@ MCB PNL 1PM07J

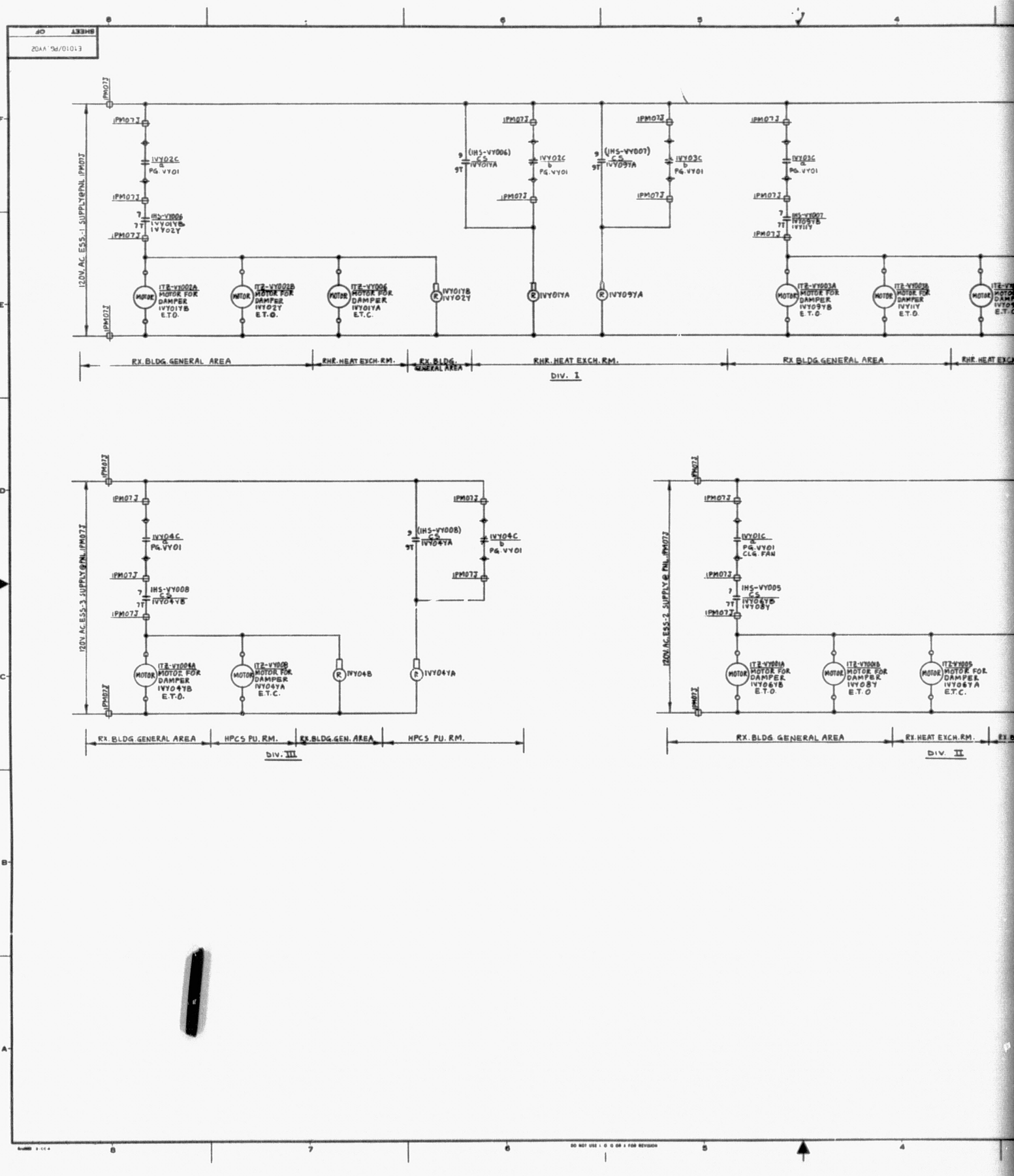


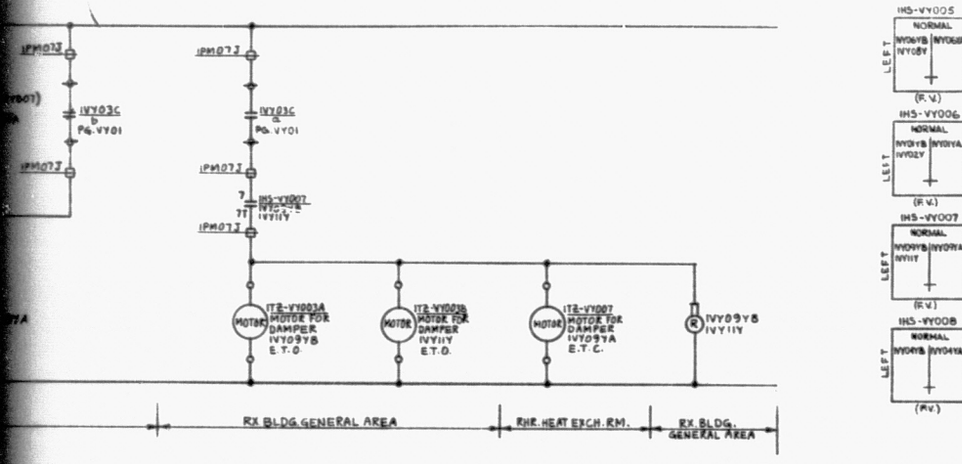
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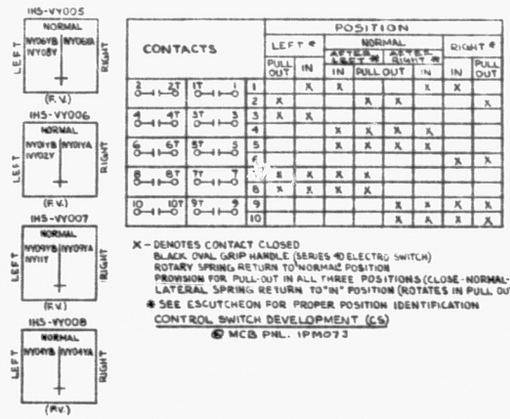
ESSENTIAL COMPONENTS
▲ INCLUDED ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-37
ECCS SUPPORT SYSTEMS ESD
(SHEET 10 OF 11)


120V. AC. ESS-1 SUPPLY@PNL. 1PM07J
1PM07J
1VY02C
PG. VY01
IHS-VY006
1VY01YB
1VY02Y
ITE-VY002A
MOTOR FOR
DAMPER
1VY01YB
E.T.O.
ITE-VY002B
MOTOR FOR
DAMPER
1VY02Y
E.T.O.
ITE-VY006
MOTOR FOR
DAMPER
1VY01YA
E.T.C.
1VY01YB
1VY02Y
1VY01YA
(IHS-VY006)
1VY01YA
1VY03C
PG. VY01
(IHS-VY007)
1VY09YA
1VY09YA
IHS-VY007
1VY09YB
1VY11Y
ITE-VY003A
MOTOR FOR
DAMPER
1VY09YB
E.T.O.
ITE-VY003B
MOTOR FOR
DAMPER
1VY11Y
E.T.O.
RX. BLDG. GENERAL AREA
RHR. HEAT EXCH. RM.
RX. BLDG. GENERAL AREA
RHR. HEAT EXCH. RM.
RX BLDG GENERAL AREA
DIV. I
120V. AC. ESS-3 SUPPLY@PNL. 1PM07J
1VY04C
PG. VY01
IHS-VY008
1VY04YB
ITE-VY004A
MOTOR FOR
DAMPER
1VY04YB
E.T.O.
ITE-VY004B
MOTOR FOR
DAMPER
1VY04YA
E.T.C.
1VY04B
1VY04YA
(IHS-VY008)
1VY04YA
RX. BLDG. GENERAL AREA
HPCS PU. RM.
RX. BLDG. GEN. AREA
HPCS PU. RM.
DIV. III
120V. AC. ESS-2 SUPPLY @ PNL. 1PM07J
1VY01C
PG. VY01
CLG. FAN
IHS-VY005
1VY06YB
1VY08Y
ITE-VY001A
MOTOR FOR
DAMPER
1VY06YB
E.T.O.
ITE-VY001B
MOTOR FOR
DAMPER
1VY08Y
E.T.O
ITE-VY005
MOTOR FOR
DAMPER
1VY06YA
E.T.C.
RX. BLDG. GENERAL AREA
RX. HEAT EXCH. RM.
DIV. II

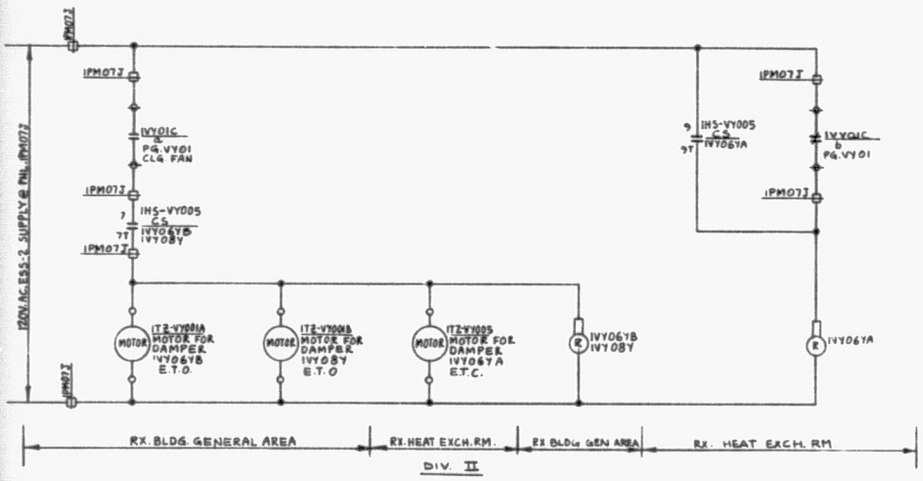




CONTACTS			POSITION							
			LEFT *		NORMAL				RIGHT *	
					AFTER LEFT *		AFTER RIGHT *			
			PULL OUT	IN	IN	PULL OUT		IN	IN	PULL OUT
2T	1T	1	X	X	X			X	X	
4T	3T	3	X	X		X	X			X
6T	5T	5			X	X	X	X		
8T	7T	7	X	X	X	X			X	X
		8	X	X	X	X				
10T	9T	9					X	X	X	X
		10					X	X	X	X

X – DENOTES CONTACT CLOSED
BLACK OVAL GRIP HANDLE (SERIES 40 ELECTRO SWITCH)
ROTARY SPRING RETURN TO NORMAL POSITION
PROVISION FOR PULL-OUT IN ALL THREE POSITIONS (CLOSE-NORMAL-OPEN)
LATERAL SPRING RETURN TO "IN" POSITION (ROTATES IN PULL OUT POSITION)
* SEE ESCUTCHEON FOR PROPER POSITION IDENTIFICATION

CONTROL SWITCH DEVELOPMENT (CS)
Ⓜ MCB PNL. 1PM07J



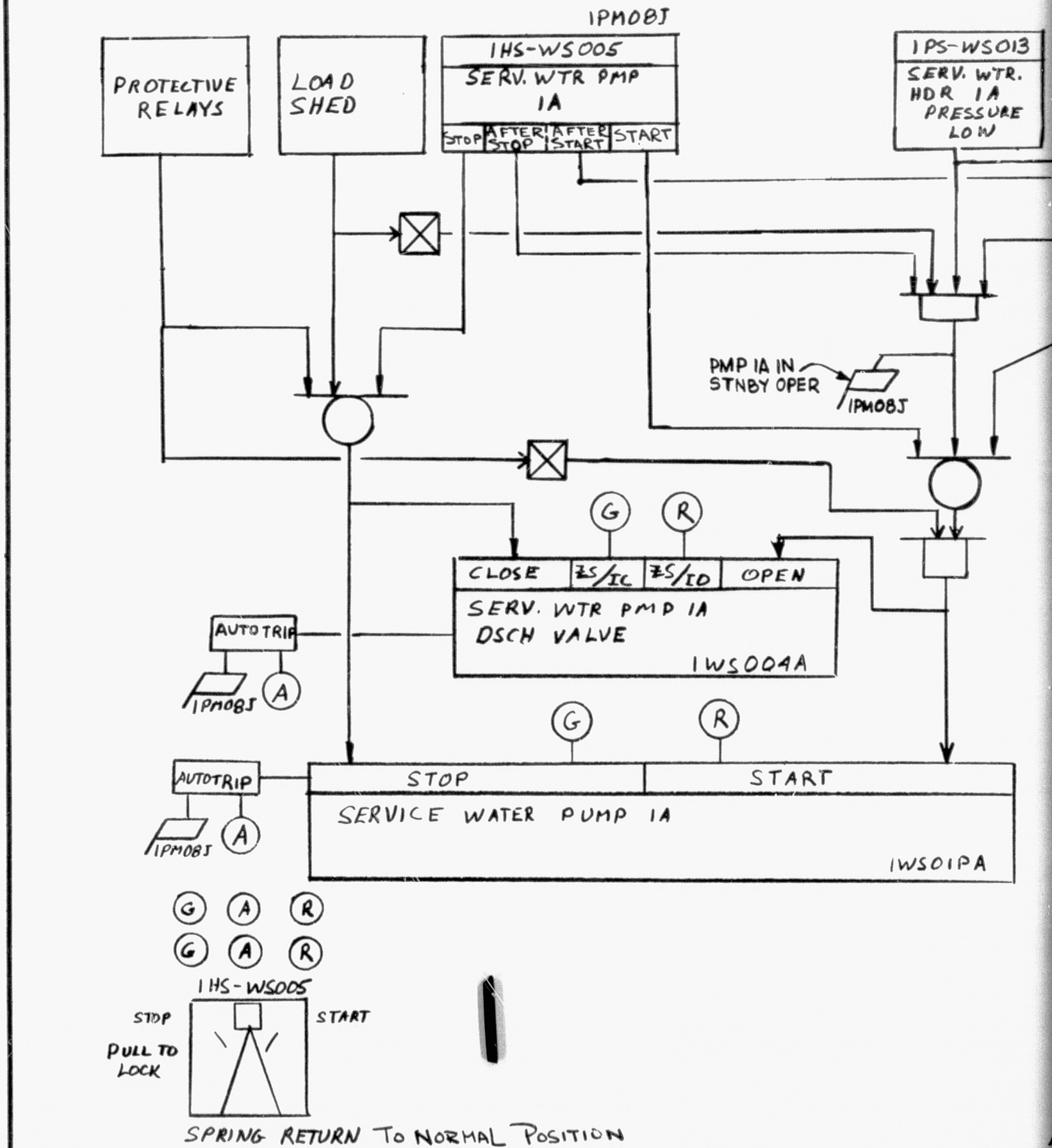
DIV. II

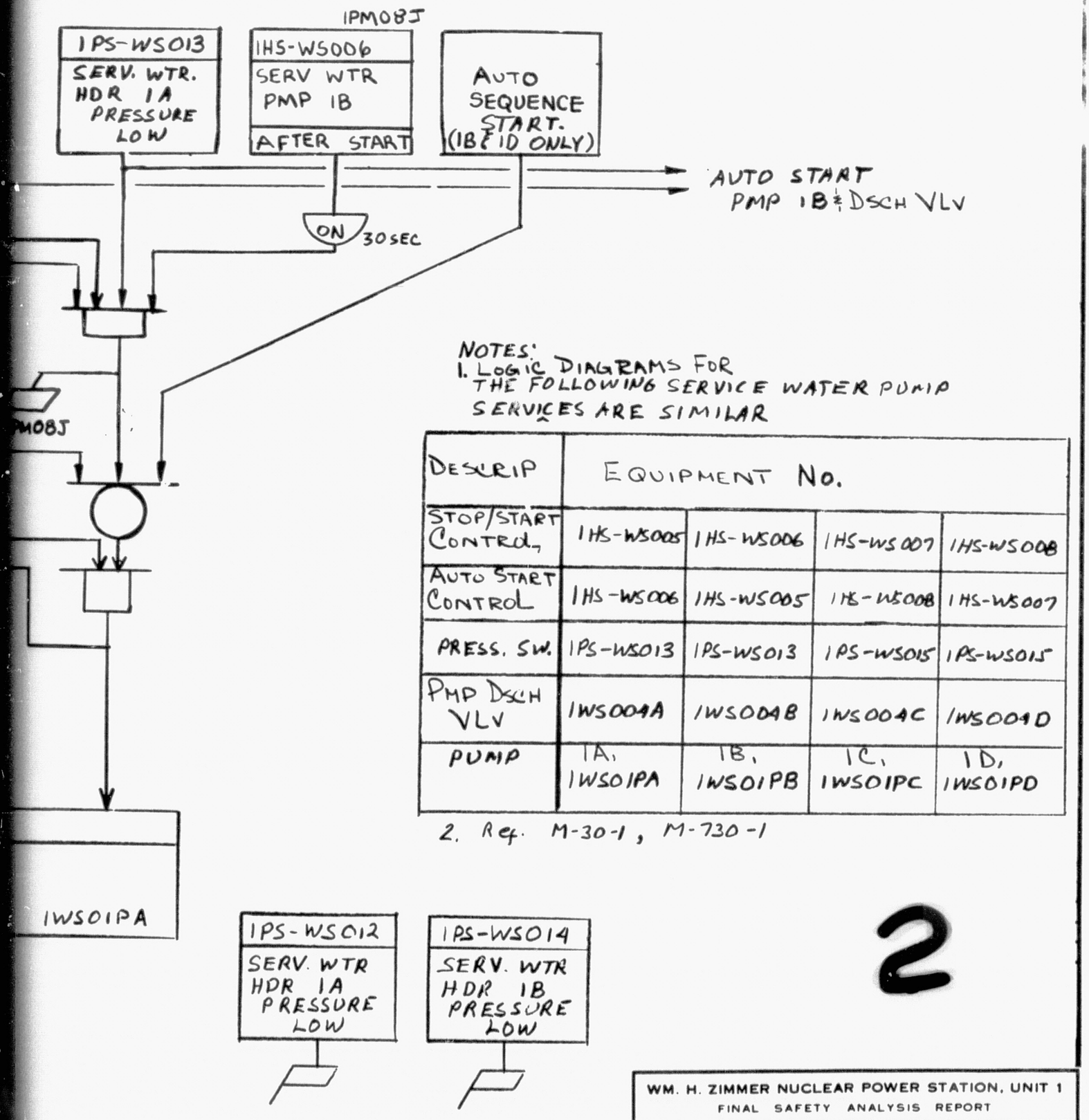
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ESSENTIAL COMPONENTS
▲ INCLUDED ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-37
ECCS SUPPORT SYSTEMS ESD
(SHEET 11 OF 11)


1PM08J
PROTECTIVE RELAYS
LOAD SHED
1HS-WS005
SERV. WTR PMP 1A
STOP
AFTER STOP
AFTER START
START
1PS-WS013
SERV. WTR. HDR 1A PRESSURE LOW
PMP 1A IN STNBY OPER
1PM08J
G
R
CLOSE
ZS/IC
ZS/IO
OPEN
SERV. WTR PMP 1A DSCH VALVE
1WS004A
AUTO TRIP
1PM08J
A
G
R
AUTOTRIP
STOP
START
SERVICE WATER PUMP 1A
1WS01PA
1PM08J
A
G A R
G A R
1HS-WS005
STOP
START
PULL TO LOCK
SPRING RETURN TO NORMAL POSITION



NOTES:
1. LOGIC DIAGRAMS FOR THE FOLLOWING SERVICE WATER PUMP SERVICES ARE SIMILAR

DESCRIP	EQUIPMENT No.			
STOP/START CONTROL	1HS-WS005	1HS-WS006	1HS-WS007	1HS-WS008
AUTO START CONTROL	1HS-WS006	1HS-WS005	1HS-WS008	1HS-WS007
PRESS. SW.	1PS-WS013	1PS-WS013	1PS-WS015	1PS-WS015
PMP DSCH VLV	1WS004A	1WS004B	1WS004C	1WS004D
PUMP	1A, 1WS01PA	1B, 1WS01PB	1C, 1WS01PC	1D, 1WS01PD

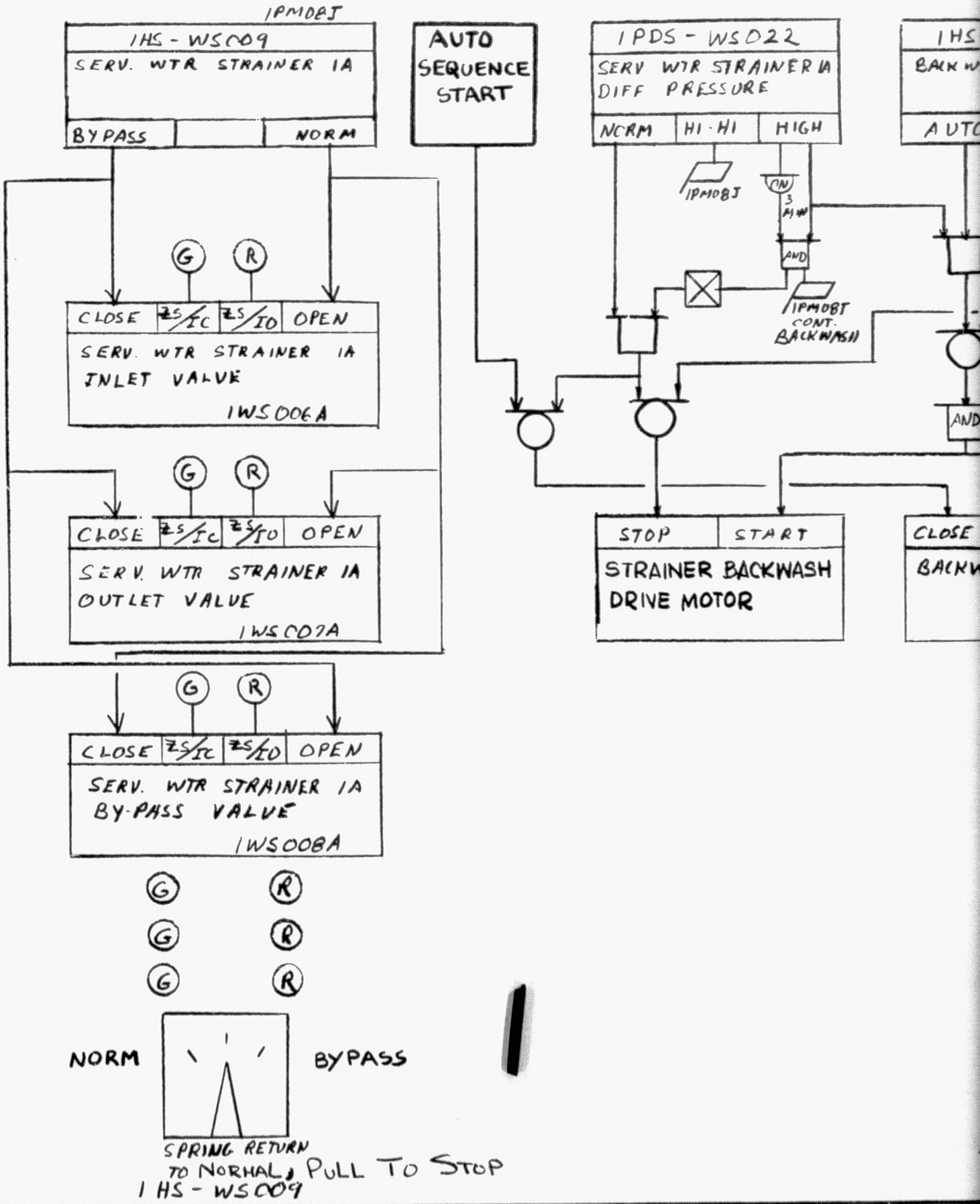
2. Ref. M-30-1, M-730-1

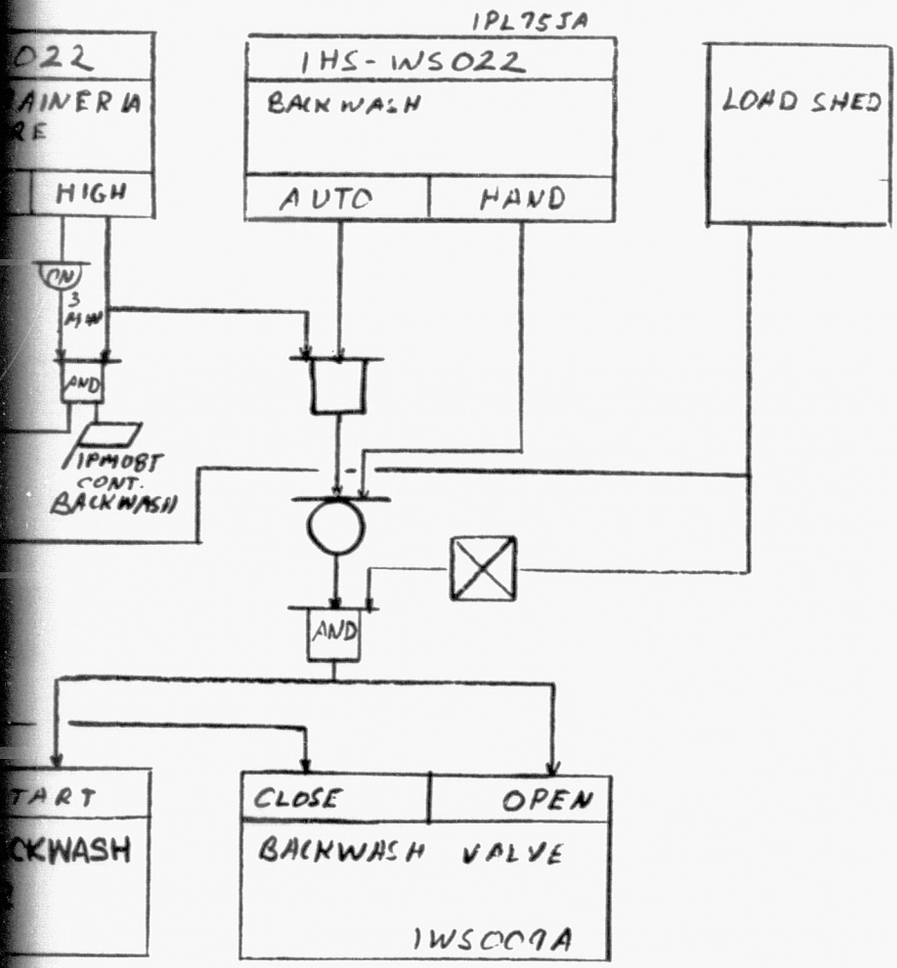
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▲ ESSENTIAL COMPONENTS INCLUDED ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-38
ESSENTIAL SERVICE WATER SYSTEM
CONTROL LOGIC DIAGRAM
(SHEET 1 OF 10)


1PMOBJ
1HS - WS009
SERV. WTR STRAINER 1A
BYPASS
NORM
AUTO SEQUENCE START
1PDS - WS022
SERV WTR STRAINER 1A DIFF PRESSURE
NORM
HI-HI
HIGH
1PMOBJ
ON
3 MIN
AND
1PMOBT CONT. BACKWASH
G
R
CLOSE
ZS/1C
ZS/1O
OPEN
SERV. WTR STRAINER 1A INLET VALVE
1WS006A
SERV. WTR STRAINER 1A OUTLET VALVE
1WS007A
SERV. WTR STRAINER 1A BY-PASS VALVE
1WS008A
STOP
START
STRAINER BACKWASH DRIVE MOTOR
NORM
BYPASS
SPRING RETURN TO NORMAL, PULL TO STOP
1 HS - WS009



DESCRIPT	EQUIPMENT No.	
STRAINER	1A	1B
STRAINER CONTROL SW	1HS-WS009	1HS-WS010
DIFF PRESS SW	1PDS-WS022	1PDS-WS023
INLET VALVE	1WS006A	1WS006B
OUTLET VALVE	1WS007A	1WS007B
BY-PASS VALVE	1WS008A	1WS008B
BACKWASH VALVE	1WS009A	1WS009B

ESSENTIAL COMPONENTS

INCLUDED

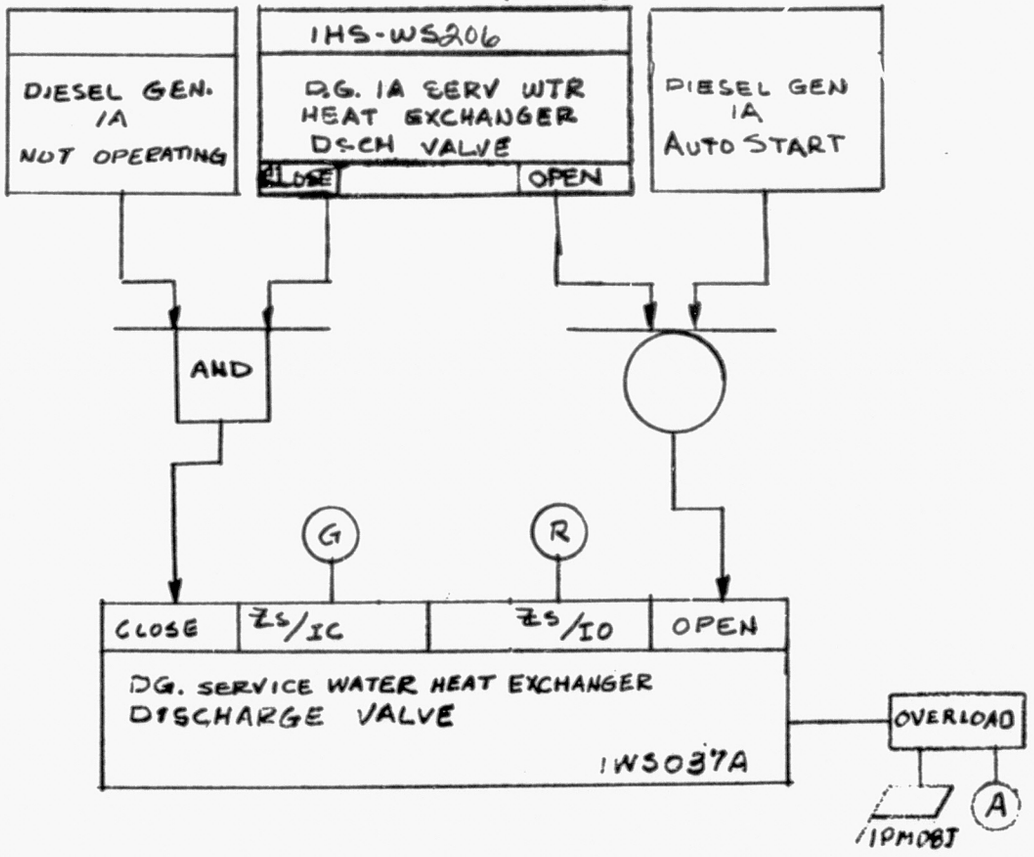
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-38

ESSENTIAL SERVICE WATER SYSTEM
CONTROL LOGIC DIAGRAM
(SHEET 2 OF 10)

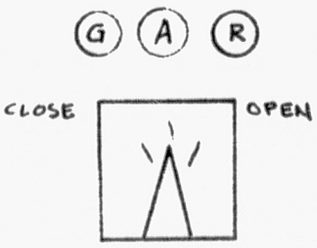
1PM08J



NOTES

1. LOGIC DIAG
DIESEL GENE
HEAT EXCHA

DESCRIPTION	
D-C HEAT EXCHANGER	1A
CONTROL SW	1
DIESEL GEN	
HEAT EXCHANGER DISCH VALVE	1



SPRING RETURN TO NORMAL. PULL TO STOP
1HS-WS206

ES

IC DIAGRAMS FOR THE FOLLOWING
EL GENERATOR SERVICE WATER
EXCHANGERS ARE SIMILIAR.

GIN	EQUIPMENT No.			
CHANGER	1A-1 & 1B-1	1C-1 & 1D-1	1A-2 & 1B-2	1A-3 & 1B-3
SW	1HS-WS206	1HS-WS207	1HS-WS208	1HS-WS209
N	1A	1A	1B	1C
NGER VE	1WS037A	1WS037B	1WS037C	1WS037D

2

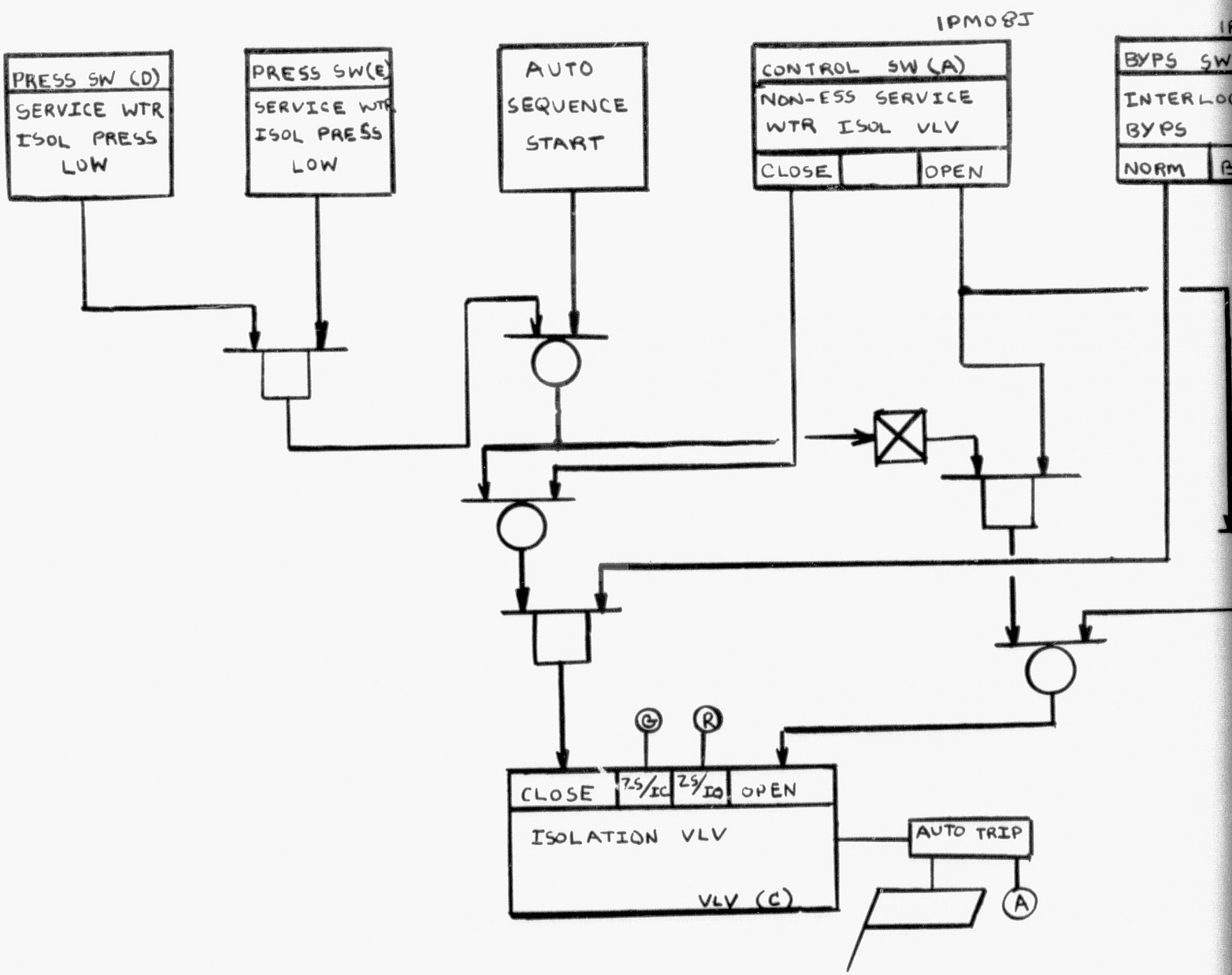
ESSENTIAL COMPONENTS

INCLUDED

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-38

ESSENTIAL SERVICE WATER SYSTEM
CONTROL LOGIC DIAGRAM
(SHEET 3 OF 10)

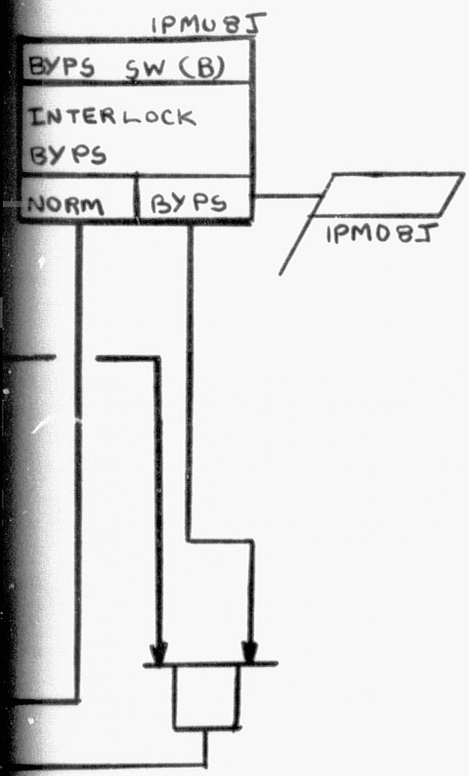


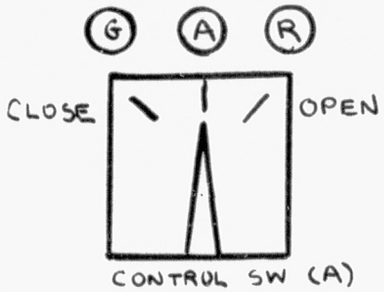
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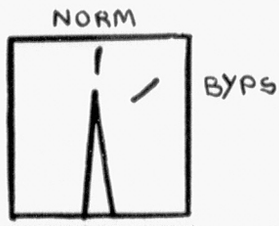
NOTE: LOGIC DIAGRAMS FOR THE FOLLOWING TURBINE BUILDING SERVICE WATER ISOLATION VALVES ARE SIMILAR.

DESCRIPTION	EQUIPMENT NUMBER			
CONTROL SW (A)	1HS-WS115	1HS-WS116	1HS-WS112	1HS-WS113
INTERLOCK BYPS SW (B)	1HS-WS210	1HS-WS211	1HS-WS212	1HS-WS213
ISOL VLV (C)	1WS033B	1WS034B	1WS033A	1WS034A
PRESS SW (D)	1PS-WS255	1PS-WS253	1PS-WS251	1PS-WS249
PRESS SW (E)	1PS-WS256	1PS-WS254	1PS-WS252	1PS-WS250





SPRING RETURN TO NORMAL POSITION, PULL TO STOP.



BYPS SW (B) KEY LOCK.

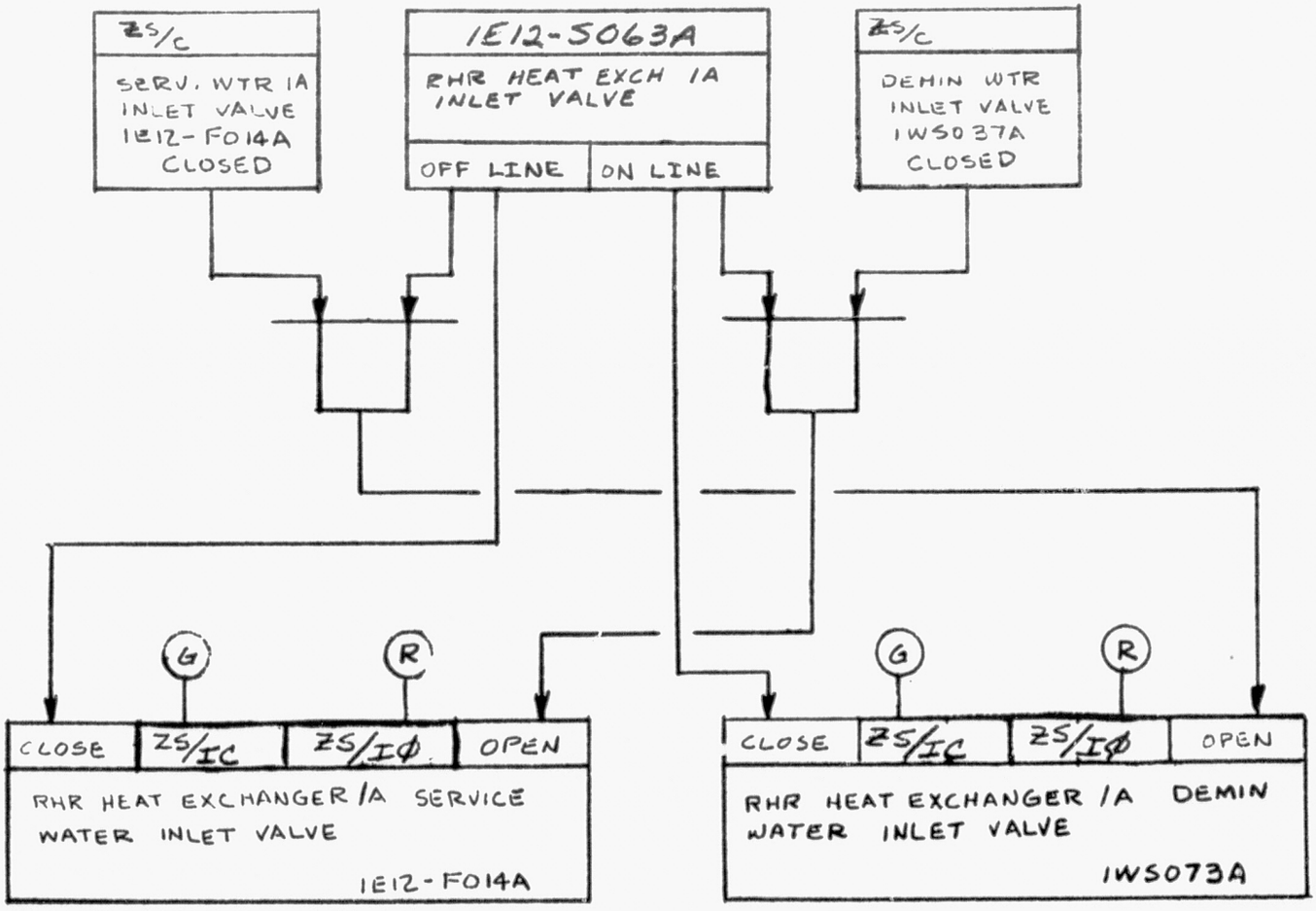
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ESSENTIAL COMPONENTS INCLUDED

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-38
ESSENTIAL SERVICE WATER SYSTEM
CONTROL LOGIC DIAGRAM
(SHEET 4 OF 10)

1H13-P601



G R

G R

OFF LINE ON LINE

MAINTAINED,

1E12-5063A

NOTE

1. LOGIC DIAGRAM FOR FOLLOWING RHR HEAT EXCHANGER INLET VALVES ARE SIMILAR

DESCRIPTION	EQPT No.	
HEAT EXCHNGR	1A	1B
CONT. SW	1E12-S063A	1E12-S063B
SERV WTR. INLT VALVE	1E12-F014A	1E12-F014B
DEMIN WTR INLT VALVE	1WS073A	1WS073B

OPEN
EMIN
73A

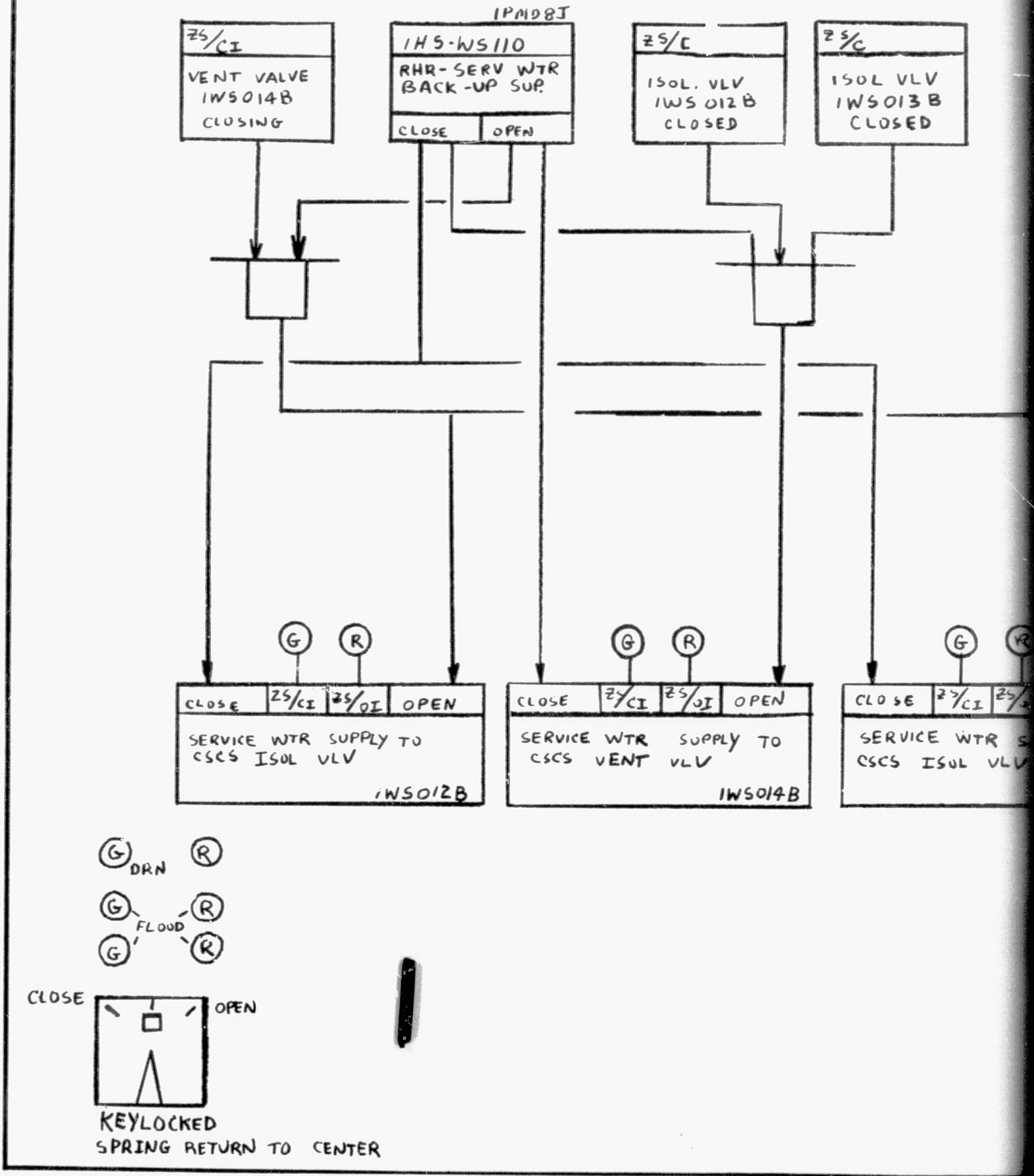
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ESSENTIAL COMPONENTS

▲ INCLUDED ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-38
ESSENTIAL SERVICE WATER SYSTEM
CONTROL LOGIC DIAGRAM
(SHEET 5 OF 10)

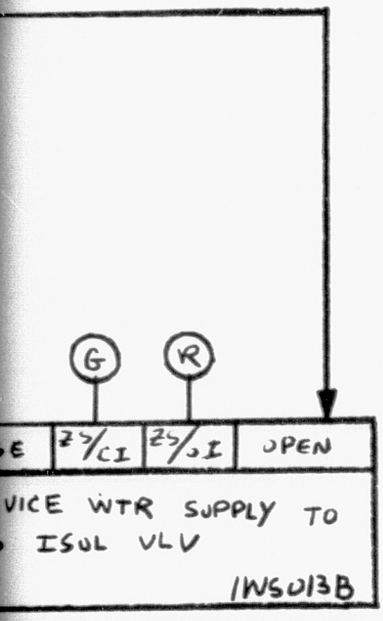

1PM08J
ZS/CI
VENT VALVE
1WS014B
CLOSING
1HS-WS110
RHR-SERV WTR
BACK-UP SUP.
CLOSE
OPEN
ZS/C
ISOL. VLV
1WS012B
CLOSED
ZS/C
ISOL VLV
1WS013B
CLOSED
G
R
CLOSE
ZS/CI
ZS/OI
OPEN
SERVICE WTR SUPPLY TO
CSCS ISOL VLV
1WS012B
SERVICE WTR SUPPLY TO
CSCS VENT VLV
1WS014B
SERVICE WTR S
CSCS ISOL VLV
DRN
FLOOD
CLOSE
OPEN
KEYLOCKED
SPRING RETURN TO CENTER

LV
3 B
ED

NOTE

1. LOGIC DIAGRAMS FOR FOLLOWING ARE SIMILAR

DESCRIPTION	EQPT No.	
CONTROL SW	1HS-WS110	1HS-WS111
ISOL VLV	1WS012B	1WS012A
ISOL VLV	1WS013B	1WS013A
VENT VLV	1WS014B	1WS014A



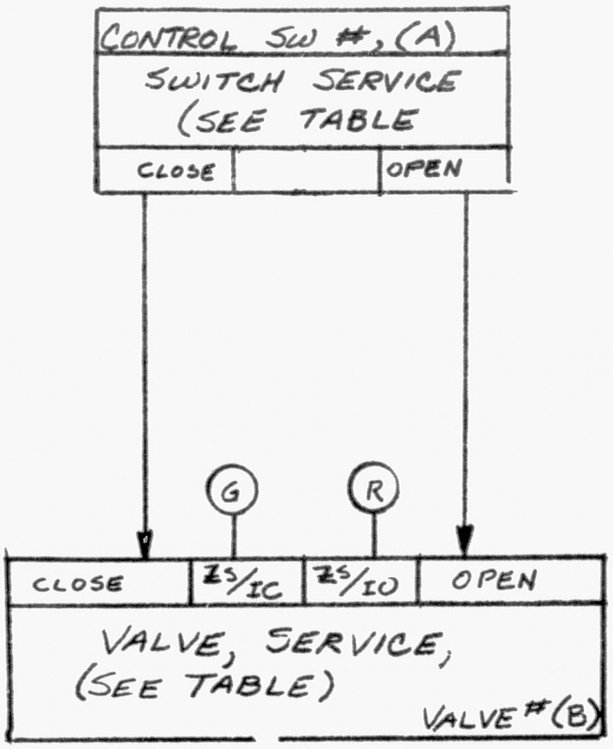
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ESSENTIAL COMPONENTS

▲ **INCLUDED** ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

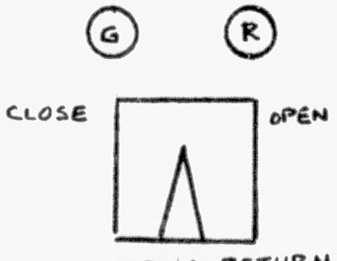
FIGURE 7.3-38
ESSENTIAL SERVICE WATER SYSTEM
CONTROL LOGIC DIAGRAM
(SHEET 6 OF 10)



NOTE:

1. THE FOLLOWING SERVICES A

SERVICE	CONTROL SW (A)
TURB. OIL COOLER 1A INLET VALVE	1HS-WS1 1PMO
TURB. OIL COOLER 1B INLET VALVE	1HS-WS12 1PMO
TBCCW HEAT EXCHANGER 1A INLET VALVE	1HS-WS13 1PMO
TBCCW HEAT EXCHANGER 1B INLET VALVE	1HS-WS13 1PM
RADWASTE EVAPORATOR 1A HT. EXCH. INLET VLV	1HS-WS14 1PL4
RADWASTE EVAPORATOR 1B HT. EXCH. INLET VLV	1HS-WS14 1PL4
DILUTION VALVE 1A	1HS-WS11 1PMO
DILUTION VALVE 1B	1HS-WS11B 1PM
TURB. BLDG SERV. WTR. ISOL. BYPASS VLV	1HS-WS11 1PM
TRAVELLING SCREEN BY PASS	1HS-WS,23 1PM
SERVICE WATER INTAKE DEICING	1HS-WS23 1PM
RBCCW EXPANSION TANK 1A EMERGENCY MAKE-UP	1HS-WS2 1PM
RBCCW EXPANSION TANK 1B EMERGENCY MAKE-UP	1HS-WS2 1PM



SPRING RETURN TO NORMAL POSITION, PULL TO STOP.

SERVICES ARE SIMILAR

CONTROL SW# (A)	VALVE# (B)
1HS-WS122 1PM08J	1WS042A
1HS-WS123 1PM08J	1WS042B
1HS-WS132 1PM08J	1WS048A
1HS-WS137 1PM08J	1WS048B
1HS-WS142 1PL43	1WS053
1HS-WS147 1PL43	1WS058
1HS-WS117 1PM08J	1WS069A
1HS-WS118 1PM08J	1WS069B
1HS-WS114 1PM08J	1WS035
1HS-WS230 1PM08J	1WS080
1HS-WS231 1PM08J	1WS081
1HS-WS239 1PM08J	1WS076A
1HS-WS240 1PM08J	1WS076B

2

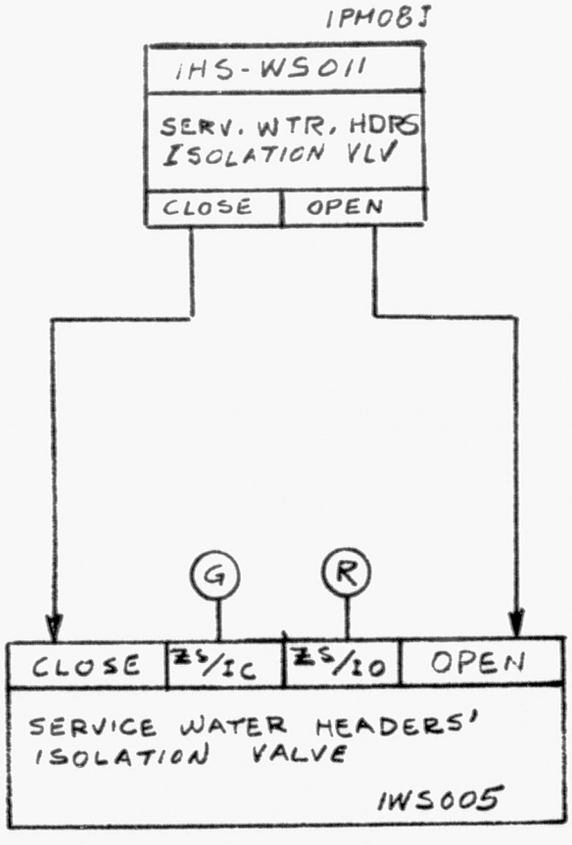
ESSENTIAL COMPONENTS

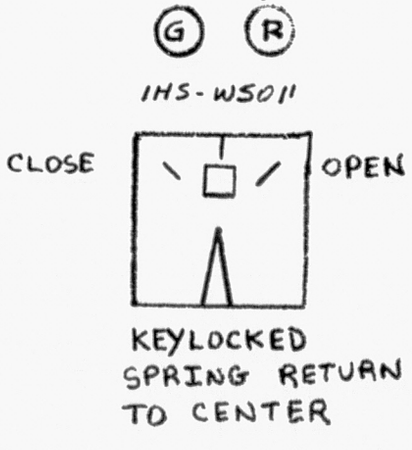
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-38

ESSENTIAL SERVICE WATER SYSTEM
CONTROL LOGIC DIAGRAM
(SHEET 7 OF 10)


1PM08J
1HS-WS011
SERV. WTR. HDRS ISOLATION VLV
CLOSE
OPEN
G
R
CLOSE
ZS/1C
ZS/1O
OPEN
SERVICE WATER HEADERS' ISOLATION VALVE
1WS005


G
R
1HS-WS011
CLOSE
OPEN
KEYLOCKED
SPRING RETURN
TO CENTER

2

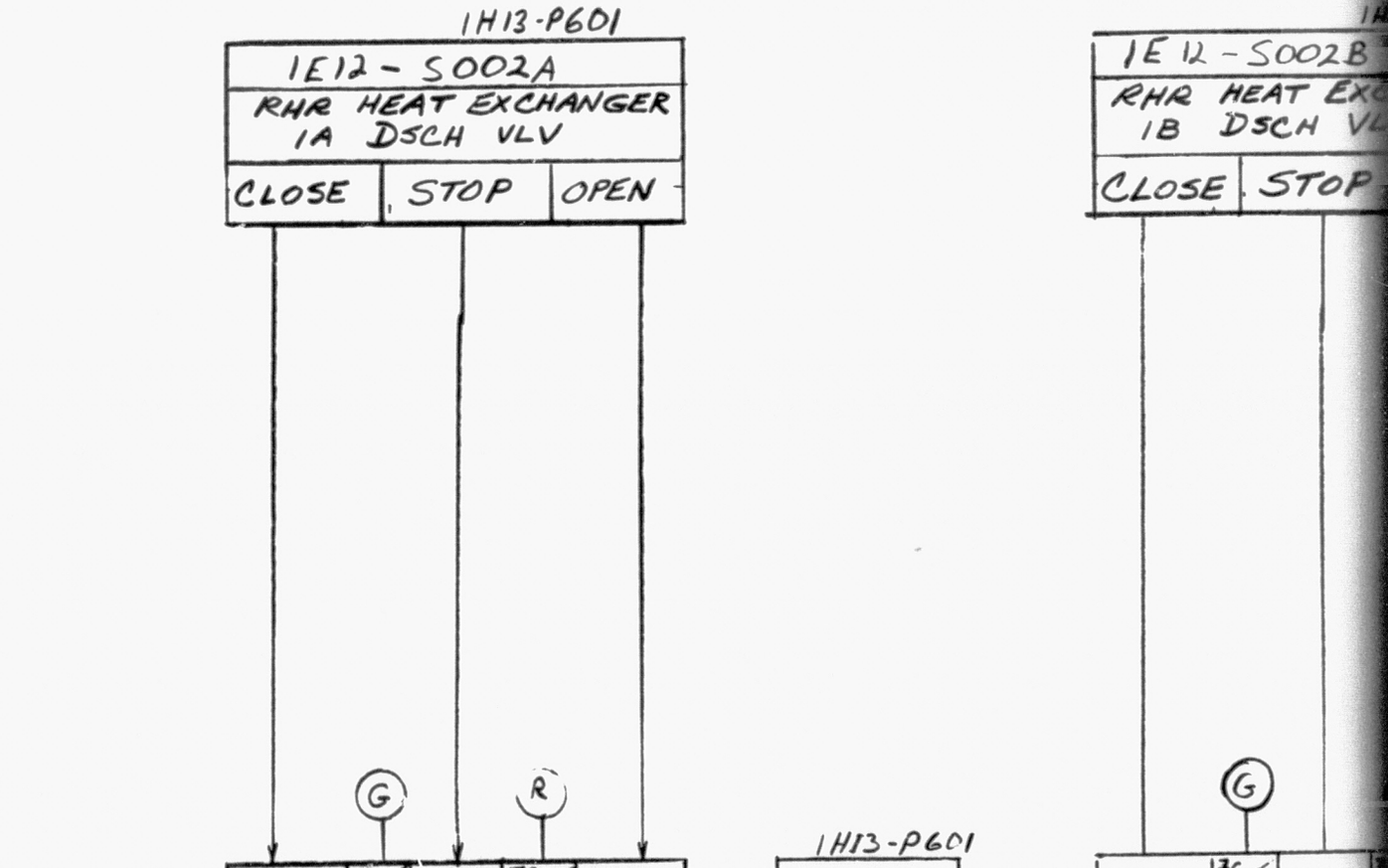
ESSENTIAL COMPONENTS

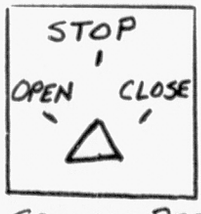
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

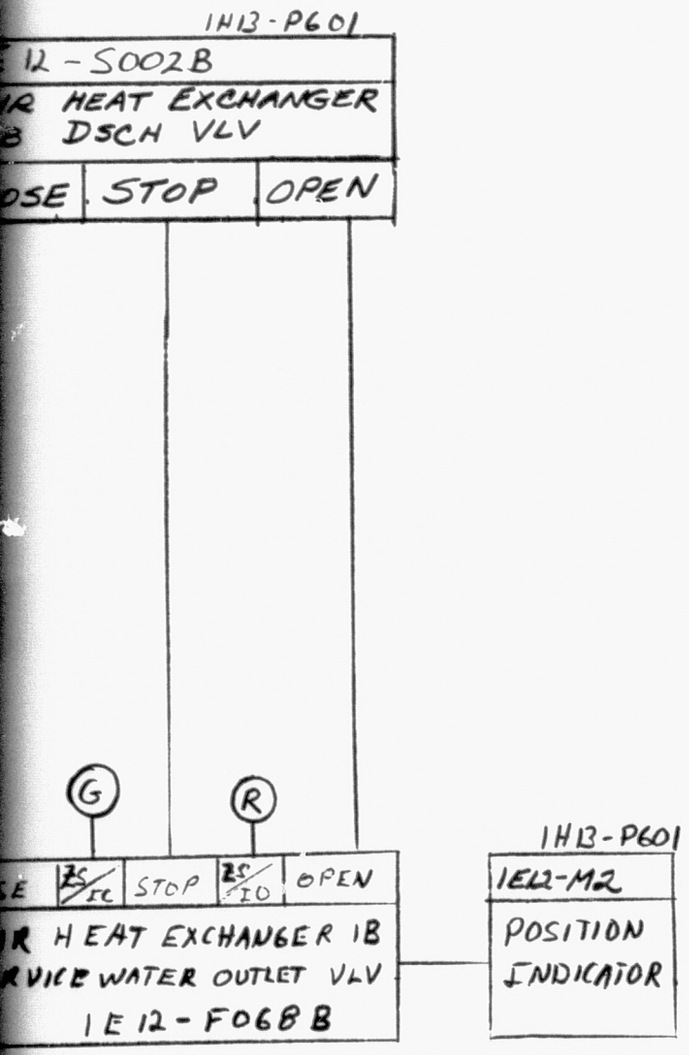
FIGURE 7.3-38

ESSENTIAL SERVICE WATER SYSTEM
CONTROL LOGIC DIAGRAM
(SHEET 8 OF 10)





SPRING RETURN
TO STOP POSITION



2

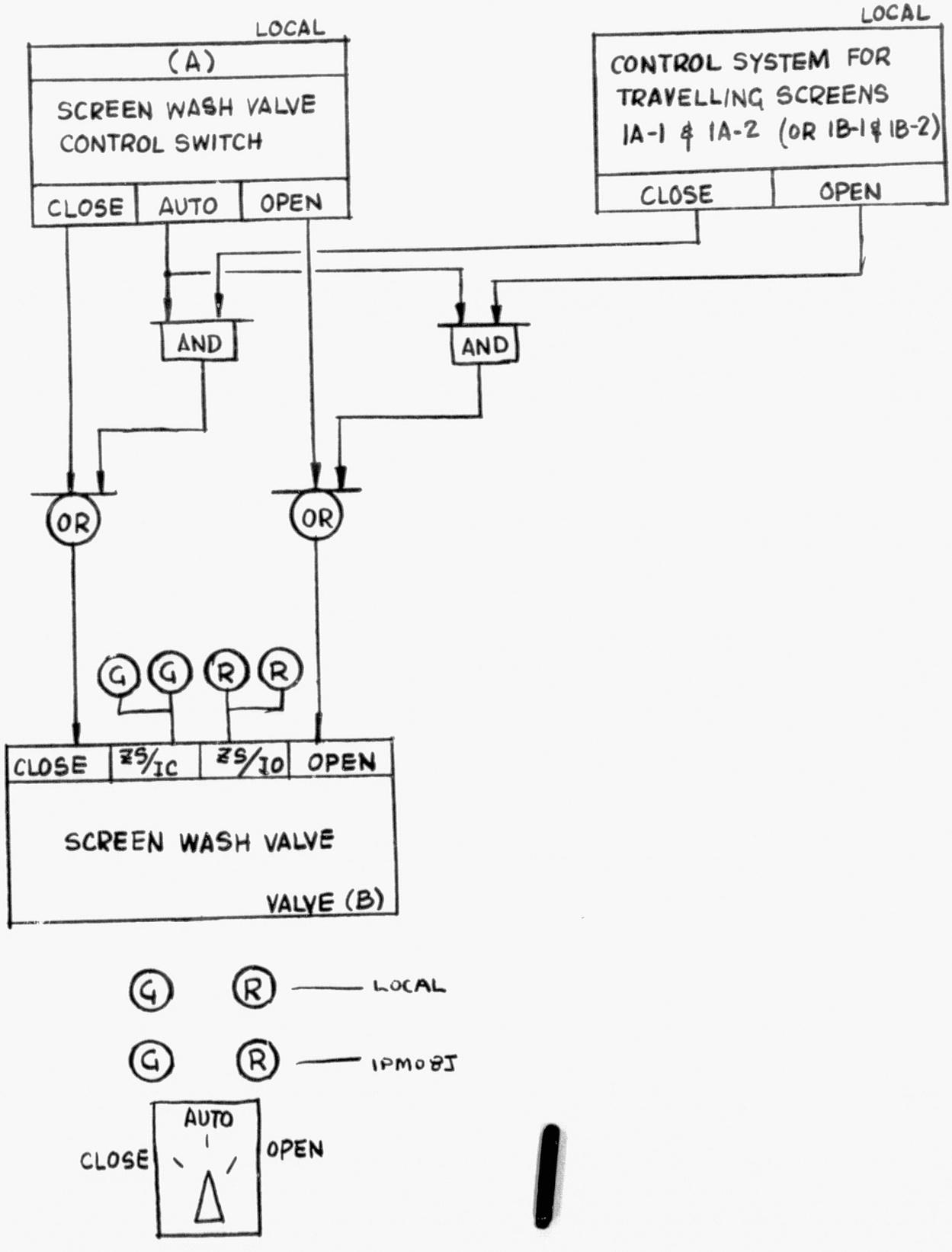
ESSENTIAL COMPONENTS

▲ **INCLUDED** ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-38

ESSENTIAL SERVICE WATER SYSTEM
CONTROL LOGIC DIAGRAM
(SHEET 9 OF 10)



MAINTAINED POSITIONS

LOCAL

FOR
ENS
-1 & 1B-2)

EN

SERVICE	EQUIPMENT No.	
TRAVELLING SCREENS	1A-1 & 1A-2	1B-1 & 1B-2
CONTROL SWITCH (A)	1HS-WS194	1HS-WS195
WASH VALVE (B)	1WS011A	1WS011B

REF: C&ID M-730-7, 8.

2

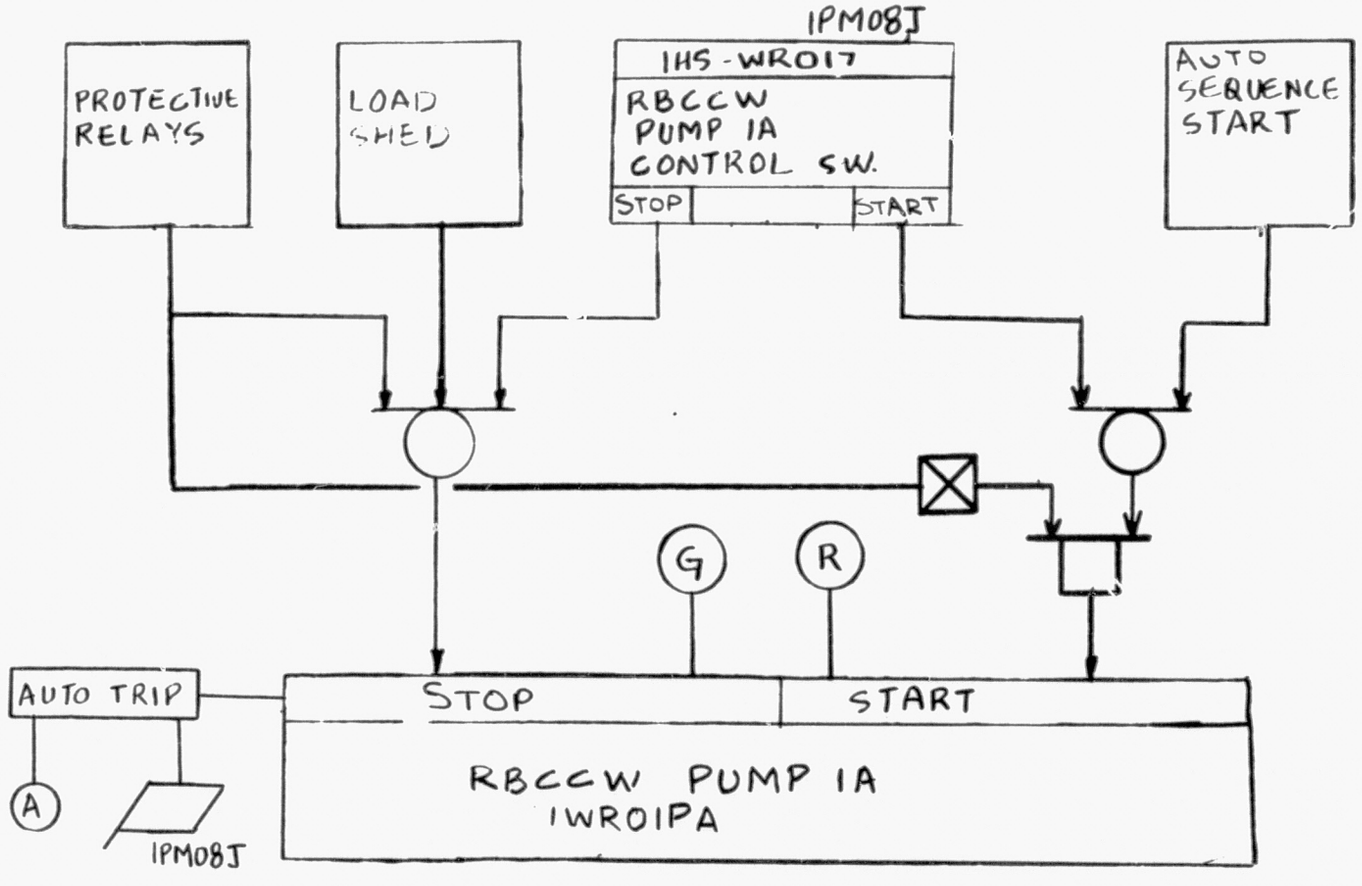
ESSENTIAL COMPONENTS

▲ **INCLUDED** ▲

WM. H. ZIMMER NUCLEAR POWER STATION UNIT 1
FINAL SAFETY ANALYSIS REPORT

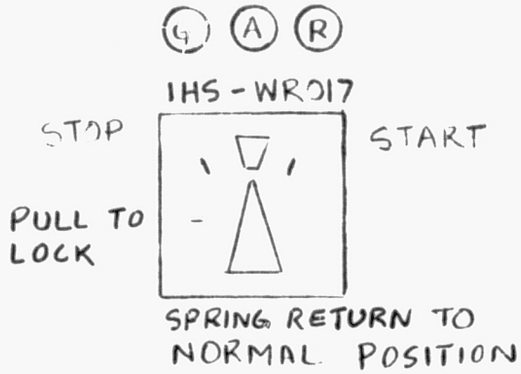
FIGURE 7.3-38

ESSENTIAL SERVICE WATER SYSTEM
CONTROL LOGIC DIAGRAM
(SHEET 10 OF 10)



THE SAME LOGIC DIAGRAM APPLIES TO THE FOLLOWING:

SERVICE	EQUIP. #	CONT. SW
RBCCW PUMP 1A	1WR01PA	1HS-WR017
RBCCW PUMP 1B	1WR01PB	1HS-WR01B
RBCCW PUMP 1C	1WR01PC	1HS-WR019
RBCCW PUMP 1D	1WR01PD	1HS-WR020



REF. P&ID M-58-1,2
DATA SHT CS 50

2

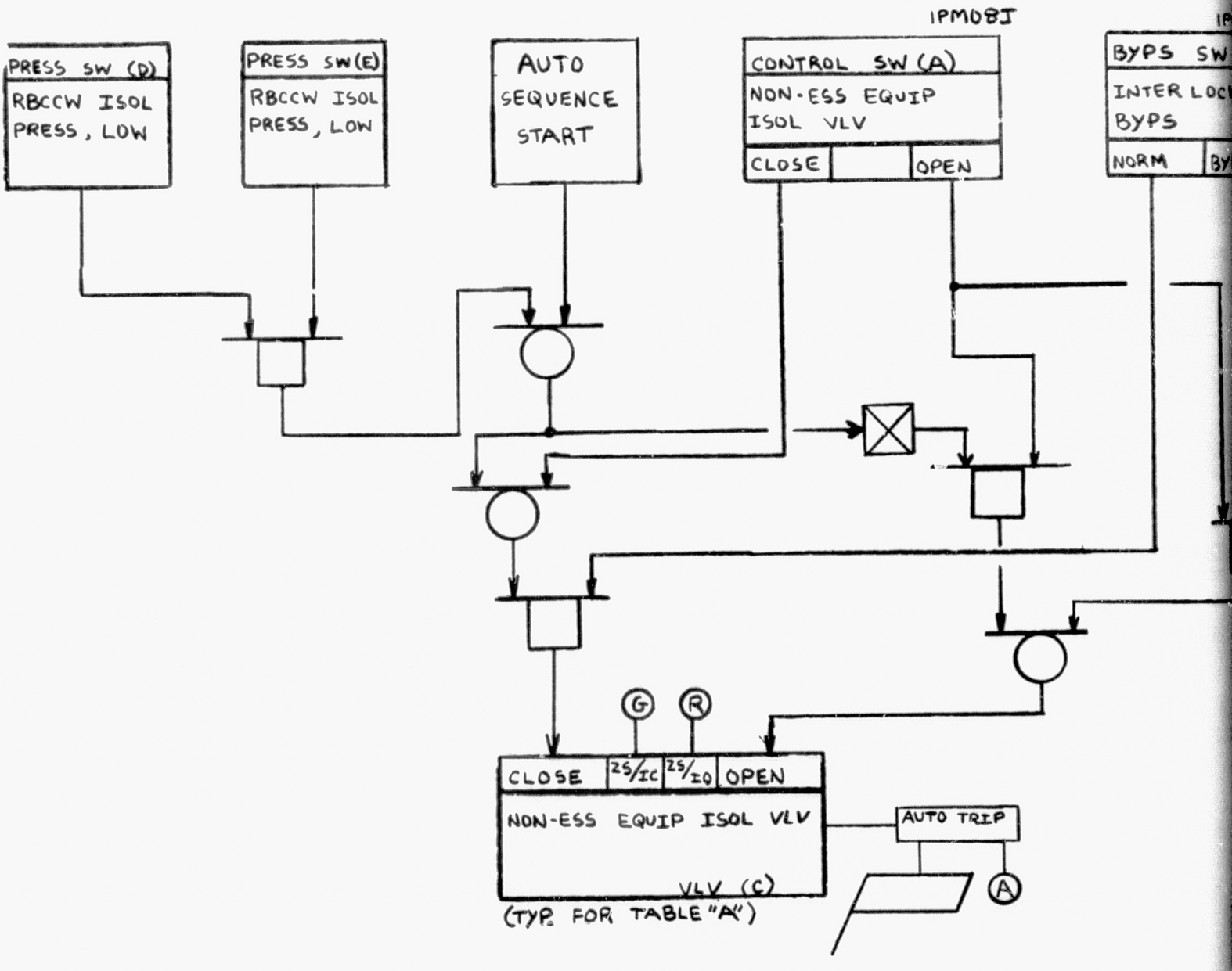
ESSENTIAL COMPONENTS

INCLUDED

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-39

REACTOR BUILDING CLOSED COOLING WATER SYSTEM - CONTROL LOGIC DIAGRAM (SHEET 1 OF 3)



REFERENCE:
C+ID M-758-9 #10

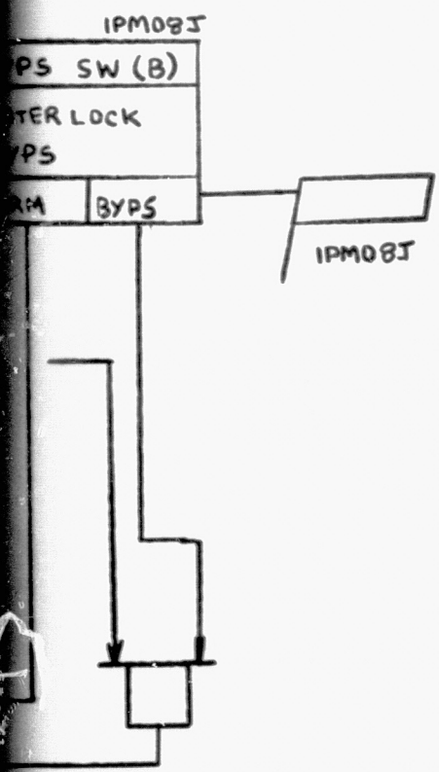
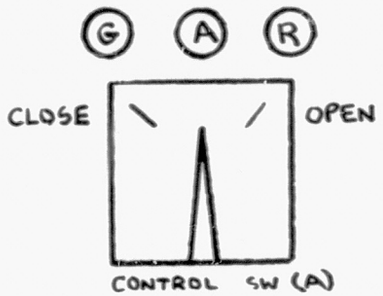


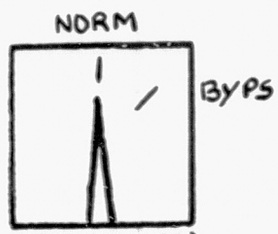
TABLE "A"

THE SAME LOGIC DIAGRAM APPLIES TO THE FOLLOWING:

SERVICE	VALVE (C)	CONTROL SW (A)	INTERLOCK BYPS (B)	PRESS SW (D)	PRESS SW (E)
NON-ESS EQUIP OUTBD ISOL VLVS	1WR019 1WR021	1HS-WR022 1HS-WR028	1HS-WR150	1PS-WR147	1PS-WR148
NON-ESS EQUIP INBRD ISOL VLVS	1WR020 1WR022	1HS-WR023 1HS-WR029	1HS-WR149	1PS-WR145	1PS-WR146
NON-ESS EQUIP OUTBD ISOL VLVS	1WR009 1WR011	1HS-WR025 1HS-WR031	1HS-WR152	1PS-WR143	1PS-WR144
NON-ESS EQUIP INBRD ISOL VLVS	1WR010 1WR012	1HS-WR024 1HS-WR030	1HS-WR151	1PS-WR141	1PS-WR142



SPRING RETURN TO NORMAL POSITION,
PULL TO STOP.



KEYLOCK.

2

ESSENTIAL COMPONENTS

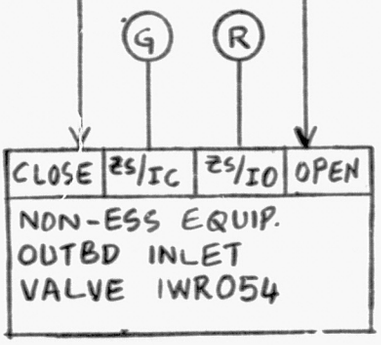
INCLUDED

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-39
REACTOR BUILDING CLOSED COOLING WATER SYSTEM - CONTROL LOGIC DIAGRAM
(SHEET 2 OF 3)

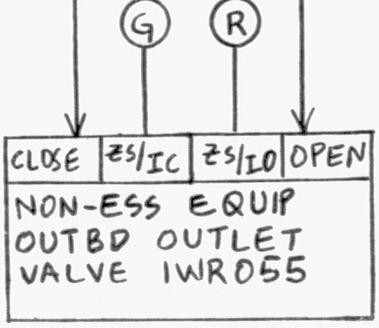
1PM08J

1HS-WR026	
VALVE 1WR054 CONT. SWITCH	
CLOSE	OPEN



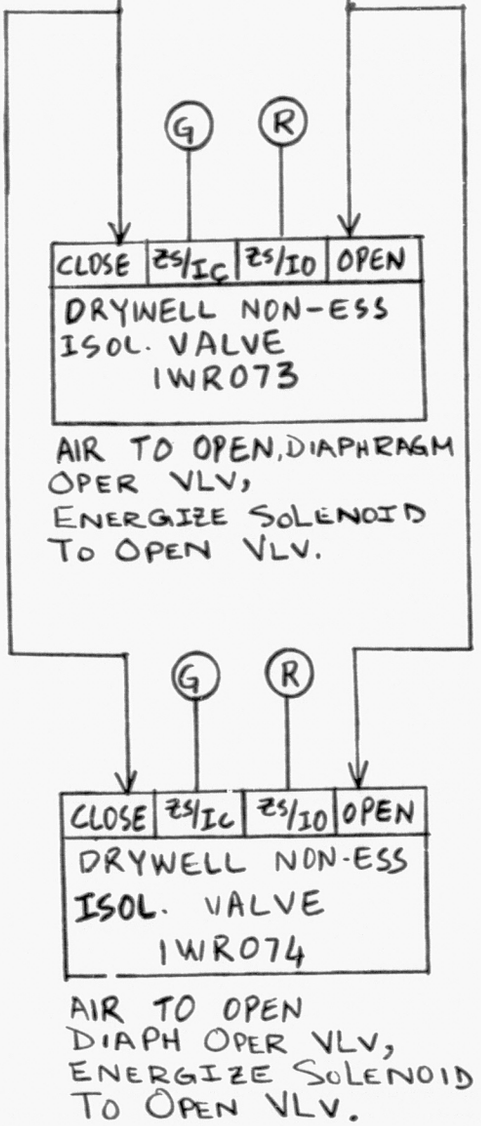
1PM08J

1HS-WR027	
VALVE 1WR055 CONT. SWITCH	
CLOSE	OPEN

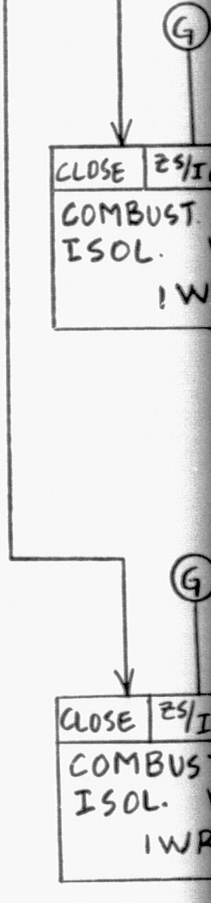


1PM08J

1HS-WR107	
VALVES 1WR073 & 1WR074 CONT. SW.	
CLOSE	OPEN

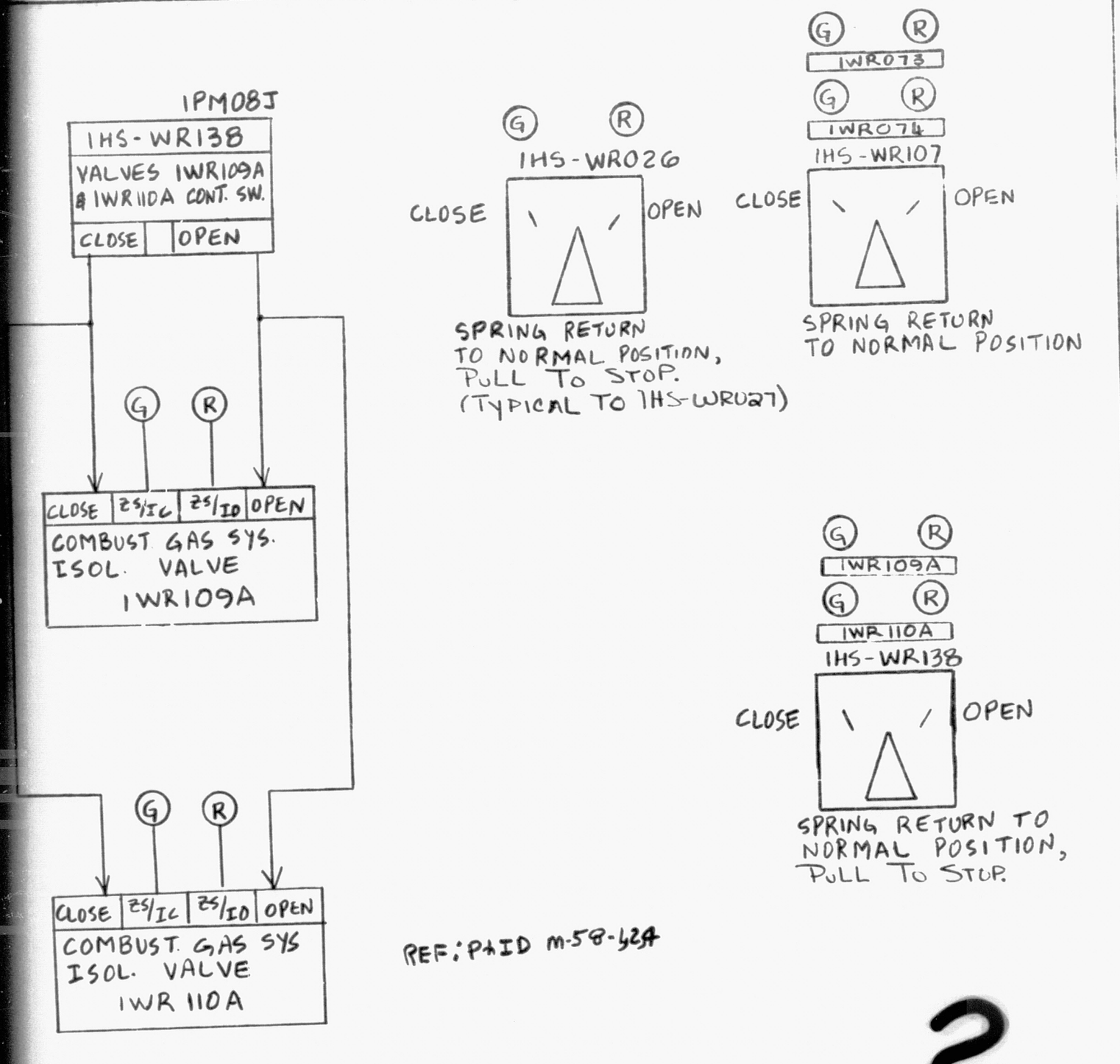


1HS-
VALVES
& 1WR11D
CLOSE



THE SAME L

SERVICE
COMBUST. GAS
11 11



REF: P&ID M-58-62A

2

THE SAME LOGIC APPLIES TO FOLLOWING:

SERVICE	ISOL. VLV #	ISOL. VLV. #	CONT SW
COMBUST. GAS SYS.	1WR109A	1WR110A	1HS-WR138
" " "	1WR109B	1WR110B	1HS-WR139

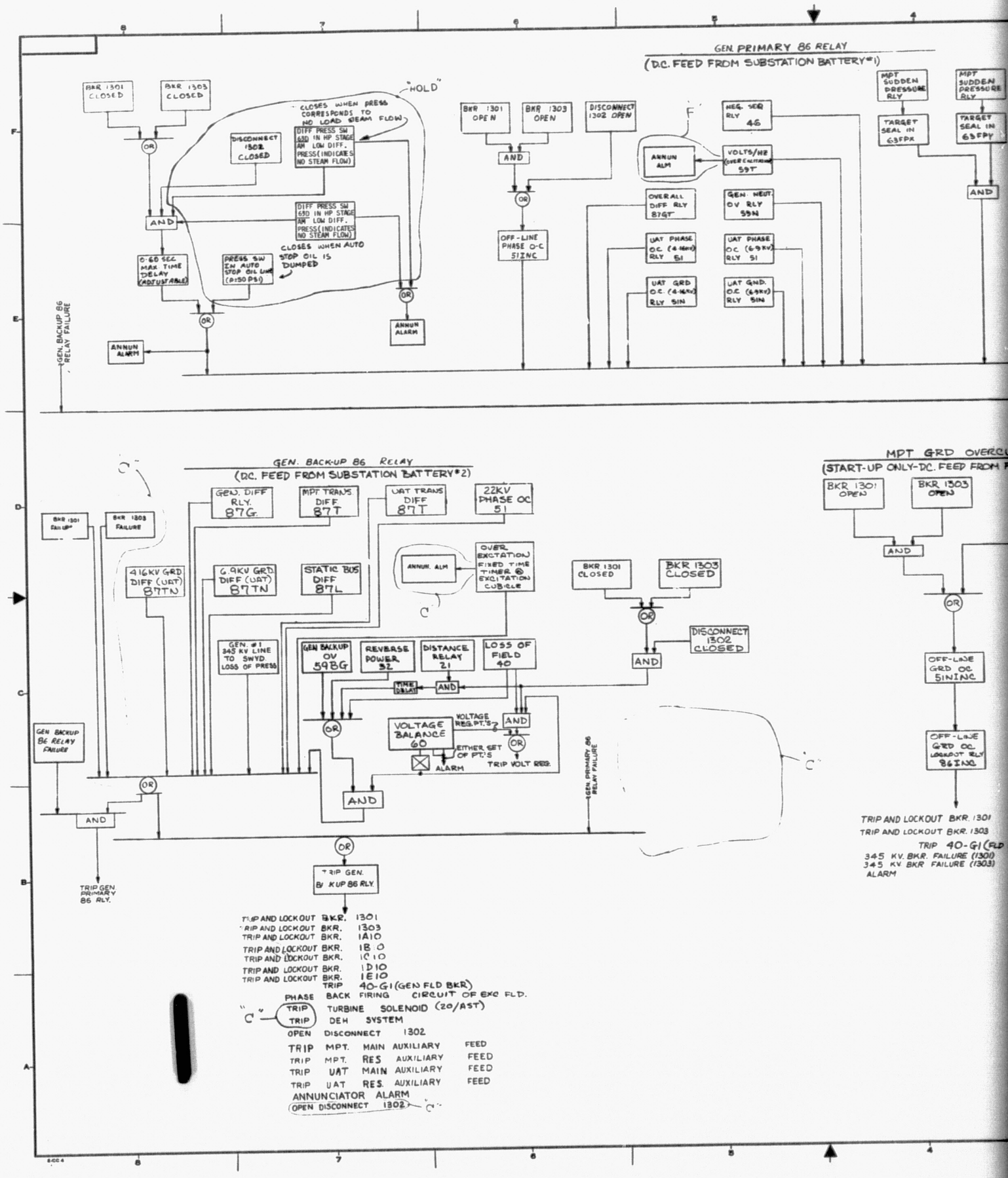
ESSENTIAL COMPONENTS

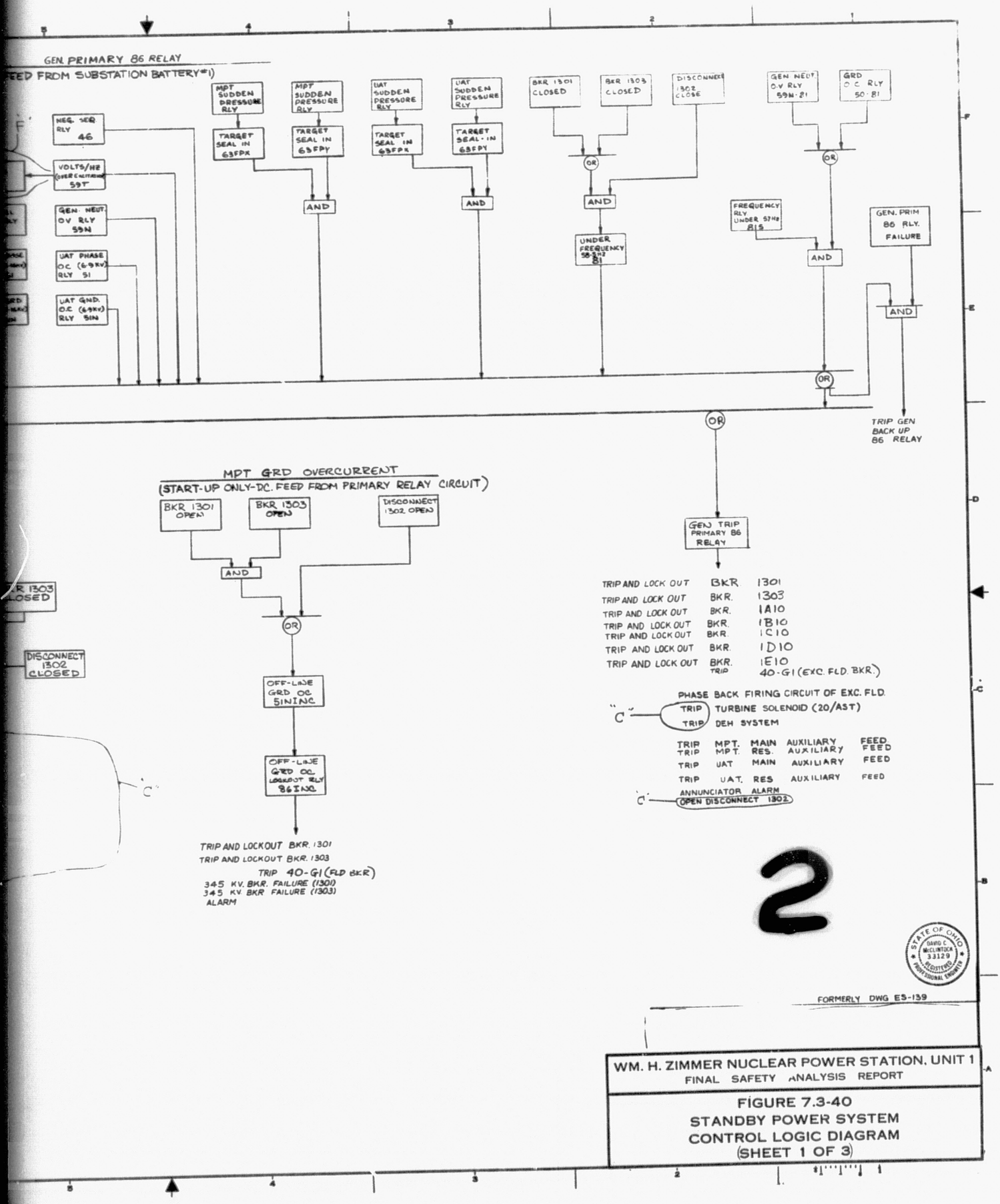
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WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-39

REACTOR BUILDING CLOSED COOLING WATER SYSTEM - CONTROL LOGIC DIAGRAM (SHEET 3 OF 3)


GEN. PRIMARY 86 RELAY
(D.C. FEED FROM SUBSTATION BATTERY #1)
BKR 1301 CLOSED
BKR 1303 CLOSED
"HOLD"
CLOSES WHEN PRESS CORRESPONDS TO NO LOAD STEAM FLOW
DISCONNECT 1302 CLOSED
DIFF PRESS SW 63D IN HP STAGE AM LOW DIFF. PRESS (INDICATES NO STEAM FLOW)
DIFF PRESS SW 63D IN HP STAGE AM LOW DIFF. PRESS (INDICATES NO STEAM FLOW)
AND
0-60 SEC. MAX. TIME DELAY (ADJUSTABLE)
PRESS SW IN AUTO STOP OIL LINE (@ 50 PSI)
CLOSES WHEN AUTO STOP OIL IS DUMPED
OR
ANNUN ALARM
GEN. BACKUP 86 RELAY FAILURE
BKR 1301 OPEN
BKR 1303 OPEN
DISCONNECT 1302 OPEN
AND
OFF-LINE PHASE O-C 51INC
ANNUN ALM
NEG. SEQ RLY 46
VOLTS/HZ (OVEREXCITATION) 59T
OVER ALL DIFF RLY 87GT
GEN. NEUT. OV RLY 59N
UAT PHASE O.C. (4.16KV) RLY 51
UAT PHASE O.C. (6.9KV) RLY 51
UAT GRD O.C. (4.16KV) RLY 51N
UAT GND. O.C. (6.9KV) RLY 51N
MPT SUDDEN PRESSURE RLY
TARGET SEAL IN 63FPX
TARGET SEAL IN 63FPY
GEN. BACK-UP 86 RELAY
(D.C. FEED FROM SUBSTATION BATTERY #2)
GEN. DIFF RLY. 87G
MPT TRANS DIFF 87T
UAT TRANS DIFF 87T
22KV PHASE OC 51
BKR 1301 FAILURE
BKR 1303 FAILURE
OVER EXCITATION FIXED TIME TIMER & EXCITATION CUBICLE
ANNUN. ALM
BKR 1301 CLOSED
BKR 1303 CLOSED
DISCONNECT 1302 CLOSED
4.16KV GRD DIFF (UAT) 87TN
6.9KV GRD DIFF (UAT) 87TN
STATIC BUS DIFF 87L
GEN. #1 345 KV LINE TO SWYD. LOSS OF PRESS
GEN BACKUP OV 59BG
REVERSE POWER 32
DISTANCE RELAY 21
LOSS OF FIELD 40
TIME DELAY
VOLTAGE BALANCE 60
VOLTAGE REG. PT'S
EITHER SET OF PT'S
ALARM
TRIP VOLT REG.
GEN BACKUP 86 RELAY FAILURE
GEN. PRIMARY 86 RELAY FAILURE
TRIP GEN. BY KUP 86 RLY.
TRIP GEN PRIMARY 86 RLY.
TRIP AND LOCKOUT BKR. 1301
TRIP AND LOCKOUT BKR. 1303
TRIP AND LOCKOUT BKR. 1A10
TRIP AND LOCKOUT BKR. 1B10
TRIP AND LOCKOUT BKR. 1C10
TRIP AND LOCKOUT BKR. 1D10
TRIP AND LOCKOUT BKR. 1E10
TRIP 40-G1 (GEN FLD BKR)
PHASE BACK FIRING CIRCUIT OF EXC FLD.
TRIP TURBINE SOLENOID (20/AST)
TRIP DEH SYSTEM
OPEN DISCONNECT 1302
TRIP MPT. MAIN AUXILIARY FEED
TRIP MPT. RES AUXILIARY FEED
TRIP UAT MAIN AUXILIARY FEED
TRIP UAT RES. AUXILIARY FEED
ANNUNCIATOR ALARM
OPEN DISCONNECT 1302
MPT GRD OVERCU
(START-UP ONLY-D.C. FEED FROM
BKR 1301 OPEN
BKR 1303 OPEN
OFF-LINE GRD OC 51INC
OFF-LINE GRD OC LOCKOUT RLY 86INC
TRIP AND LOCKOUT BKR. 1301
TRIP AND LOCKOUT BKR. 1303
TRIP 40-G1 (FLD
345 KV. BKR. FAILURE (1301)
345 KV. BKR. FAILURE (1303)
ALARM



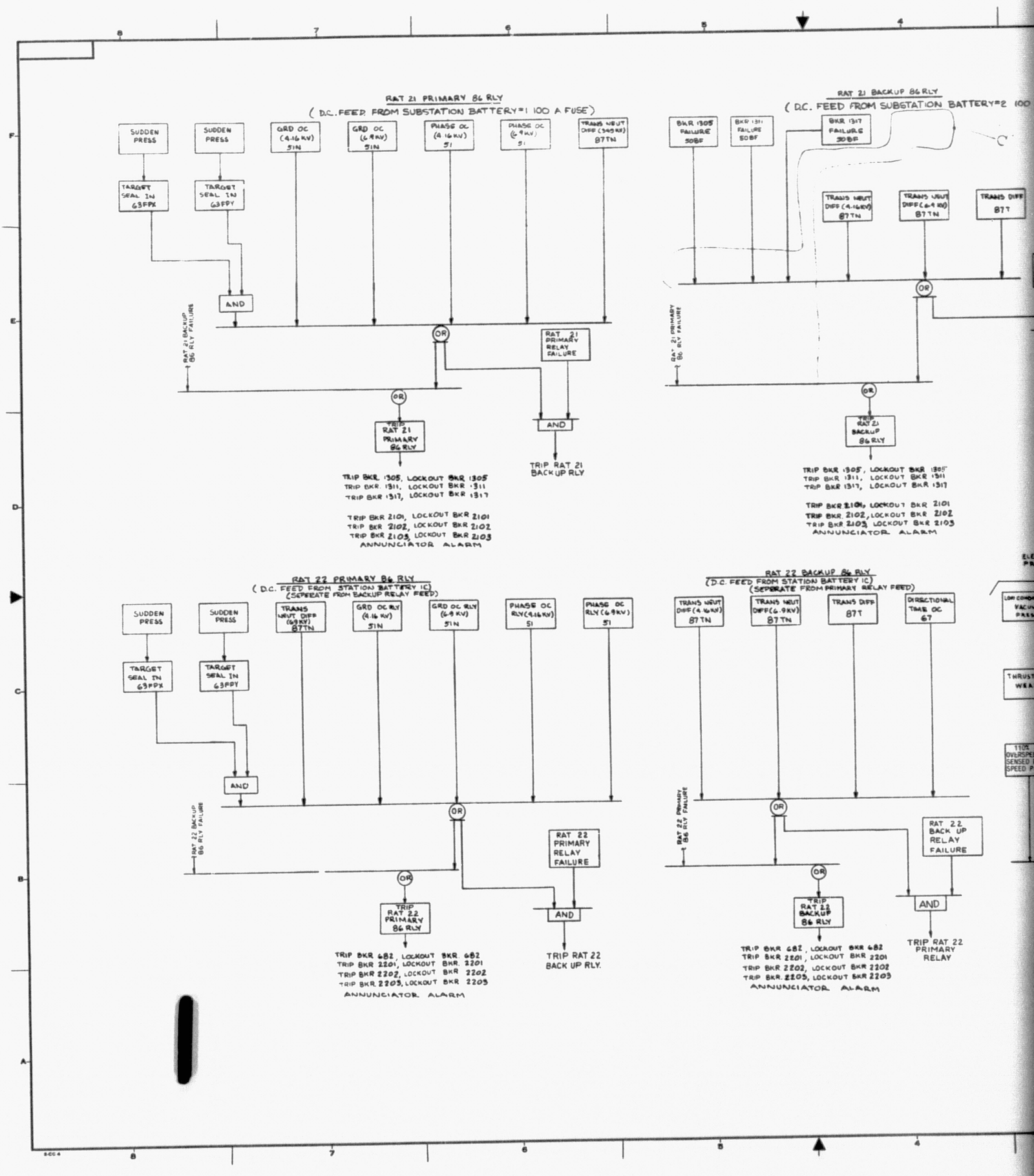
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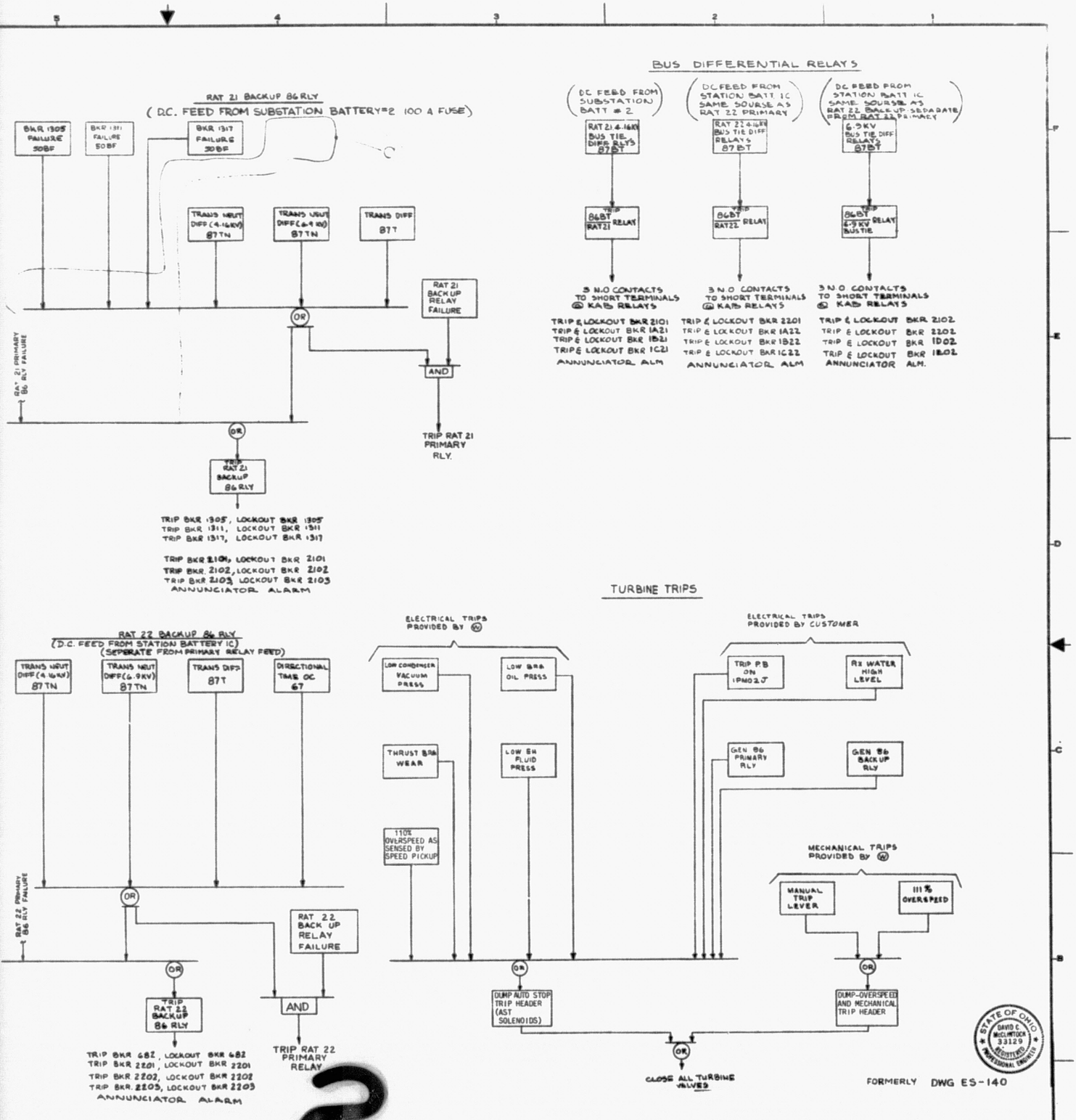
STATE OF OHIO DAVID C. McCLINTOCK 33129 REGISTERED PROFESSIONAL ENGINEER

FORMERLY DWG E5-139

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-40
STANDBY POWER SYSTEM
CONTROL LOGIC DIAGRAM
(SHEET 1 OF 3)

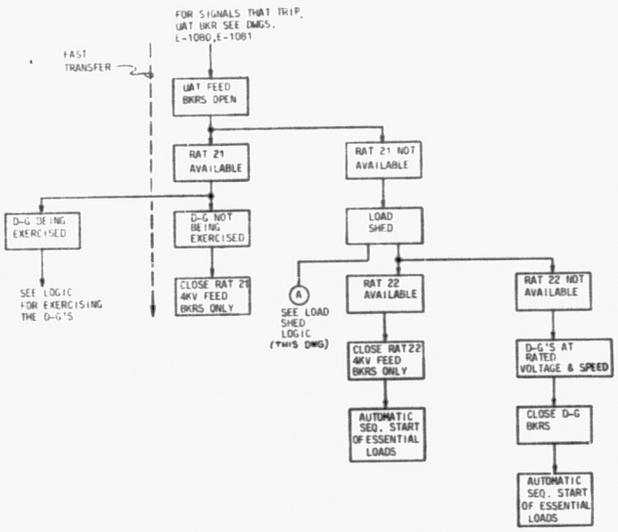

RAT 21 PRIMARY 86 RLY
(D.C. FEED FROM SUBSTATION BATTERY=1 100 A FUSE)
SUDDEN PRESS
SUDDEN PRESS
GRD OC (4.16 KV) 51N
GRD OC (6.9 KV) 51N
PHASE OC (4.16 KV) 51
PHASE OC (6.9 KV) 51
TRANS NEUT DIFF (345 KV) 87TN
TARGET SEAL IN 63FPX
TARGET SEAL IN 63FPY
AND
OR
RAT 21 BACKUP 86 RLY FAILURE
RAT 21 PRIMARY RELAY FAILURE
OR
TRIP RAT 21 PRIMARY 86 RLY
AND
TRIP RAT 21 BACKUP RLY
TRIP BKR. 1305, LOCKOUT BKR 1305
TRIP BKR. 1311, LOCKOUT BKR 1311
TRIP BKR 1317, LOCKOUT BKR 1317
TRIP BKR 2101, LOCKOUT BKR 2101
TRIP BKR 2102, LOCKOUT BKR 2102
TRIP BKR 2103, LOCKOUT BKR 2103
ANNUNCIATOR ALARM
RAT 21 BACKUP 86 RLY
(D.C. FEED FROM SUBSTATION BATTERY=2 100
BKR 1305 FAILURE 50BF
BKR 1311 FAILURE 50BF
BKR 1317 FAILURE 50BF
TRANS NEUT DIFF (4.16KV) 87TN
TRANS NEUT DIFF (6.9 KV) 87TN
TRANS DIFF 87T
OR
RAT 21 PRIMARY 86 RLY FAILURE
OR
TRIP RAT 21 BACKUP 86 RLY
TRIP BKR 1305, LOCKOUT BKR 1305
TRIP BKR 1311, LOCKOUT BKR 1311
TRIP BKR 1317, LOCKOUT BKR 1317
TRIP BKR 2101, LOCKOUT BKR 2101
TRIP BKR 2102, LOCKOUT BKR 2102
TRIP BKR 2103, LOCKOUT BKR 2103
ANNUNCIATOR ALARM
RAT 22 PRIMARY 86 RLY
(D.C. FEED FROM STATION BATTERY IC)
(SEPERATE FROM BACKUP RELAY FEED)
SUDDEN PRESS
SUDDEN PRESS
TRANS NEUT DIFF (69 KV) 87TN
GRD OC RLY (4.16 KV) 51N
GRD OC RLY (6.9 KV) 51N
PHASE OC RLY (4.16 KV) 51
PHASE OC RLY (6.9 KV) 51
TARGET SEAL IN 63FPX
TARGET SEAL IN 63FPY
AND
OR
RAT 22 BACKUP 86 RLY FAILURE
RAT 22 PRIMARY RELAY FAILURE
OR
TRIP RAT 22 PRIMARY 86 RLY
AND
TRIP RAT 22 BACK UP RLY.
TRIP BKR 682, LOCKOUT BKR 682
TRIP BKR 2201, LOCKOUT BKR 2201
TRIP BKR 2202, LOCKOUT BKR 2202
TRIP BKR 2203, LOCKOUT BKR 2203
ANNUNCIATOR ALARM
RAT 22 BACKUP 86 RLY
(D.C. FEED FROM STATION BATTERY IC)
(SEPERATE FROM PRIMARY RELAY FEED)
TRANS NEUT DIFF (4.16KV) 87TN
TRANS NEUT DIFF (6.9KV) 87TN
TRANS DIFF 87T
DIRECTIONAL TIME OC 67
RAT 22 PRIMARY 86 RLY FAILURE
OR
RAT 22 BACK UP RELAY FAILURE
OR
TRIP RAT 22 BACKUP 86 RLY
AND
TRIP RAT 22 PRIMARY RELAY
TRIP BKR 682, LOCKOUT BKR 682
TRIP BKR 2201, LOCKOUT BKR 2201
TRIP BKR 2202, LOCKOUT BKR 2202
TRIP BKR 2203, LOCKOUT BKR 2203
ANNUNCIATOR ALARM



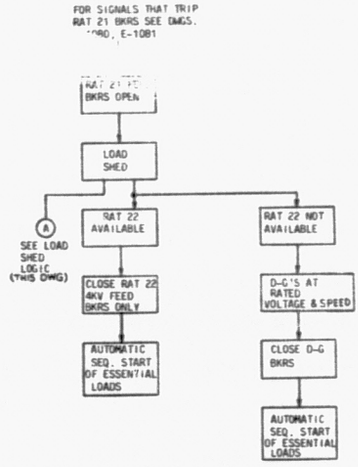
WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-40
STANDBY POWER SYSTEM
CONTROL LOGIC DIAGRAM
(SHEET 2 OF 3)

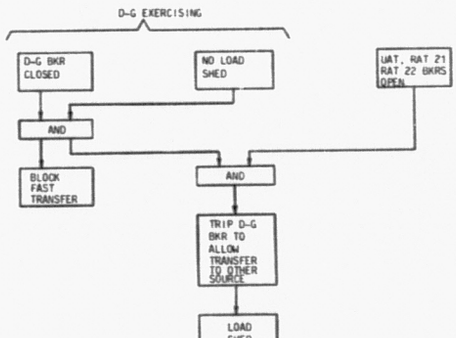
AUTOMATIC TRANSFER AND LOAD SHED BLOCK DIAGRAM



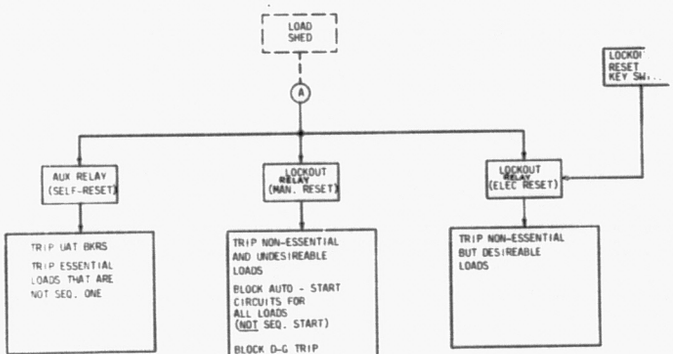
BUSES BEING FED FROM UAT BKRS - AUTOMATIC TRANSFER



BUSES BEING FED FROM RAT 21 BKRS - AUTOMATIC TRANSFER

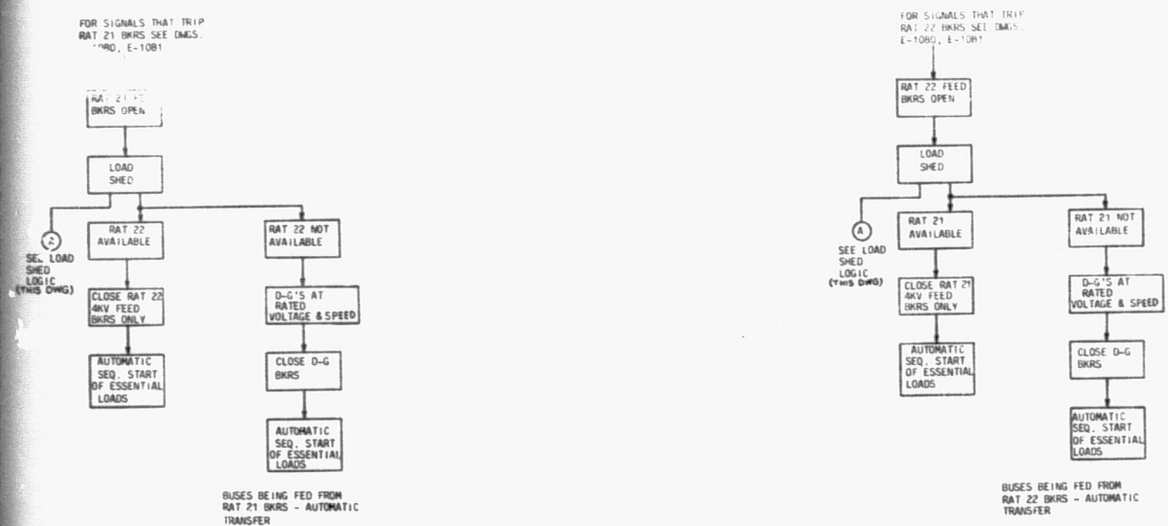


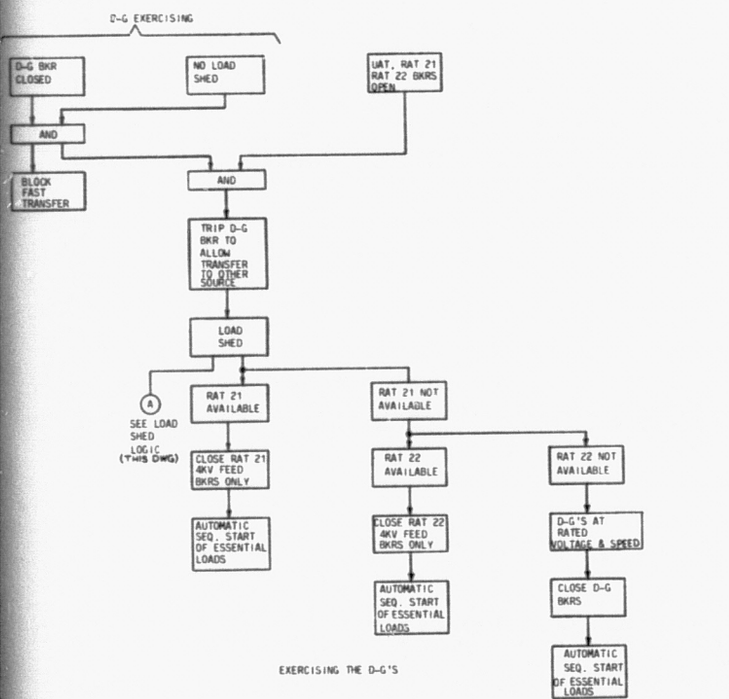
EXERCISING THE D-G'S



LOAD SHED

AUTOMATIC TRANSFER AND LOAD SHED
BLOCK DIAGRAM





2

ESSENTIAL COMPONENTS
▲ INCLUDED ▲

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 7.3-40
STANDBY POWER SYSTEM
CONTROL LOGIC DIAGRAM
(SHEET 3 OF 3)

QUESTION 222.8 (7.3.1.2)

"Section 7.3.1.2 'Design Basis Information' is missing. Submit this information specified in the corresponding section of the Standard Format."

ANSWER

Refer to Subsection 7.2.1.2 for "Design Basis Information."

QUESTION 222.9 (7.3.2)

"Your discussion of the HPCS conformance to the requirements of IEEE Std 279-1971 is missing. Provide this information in Section 7.3.2."

ANSWER

Information on HPCS conformance to these requirements is on pp. 7.3-72ff.

QUESTION 222.10 (7.4, 7.5 & 7.6)

"The design basis information for the systems discussed in Sections:

(a) 7.4
(b) 7.5
(c) 7.6

is missing. Provide this information."

ANSWER

The design basis information for the systems of Sections 7.4, 7.5, and 7.6 is provided in Section 7.1.

QUESTION 222.11 (8.1)

"Your discussion of the design bases, criteria, regulatory guides, and standards is missing for Section 8.1. Provide this information as specified in the Standard Format."

ANSWER

Compliance with 10 CFR 50 Appendix A, General Design Criterion 17 is discussed in Subsection 8.2.2.1 for Offsite Power Systems, and Subsections 8.3.1.2.1 and 8.3.2.2 for Class IE systems (both a-c and d-c).

Compliance with 10 CFR 50 Appendix A, General Design Criterion 18 is discussed in Subsections 8.3.1.2.2 and 8.3.2.2 for Class IE systems (both a-c and d-c).

Conformance with Regulatory Guide 1.6 is discussed in detail for each regulatory position of Paragraph D in Subsections 8.3.1.2.3 and 8.3.2.2.1.

Conformance with Regulatory Guide 1.9 is discussed in detail for each regulatory position of Paragraph C in Subsection 8.3.1.2.4.

Conformance with Regulatory Guide 1.32 is discussed for each regulatory position of Paragraph C in Subsections 8.3.1.2.5 and 8.3.2.2.2.

AEC Regulatory Guides 1.1 through 1.93 are also discussed in Appendix C.

The protection systems are designed to meet the general functional requirements, single failure criterion, etc. as described in IEEE Standard 279. This is also discussed in Subsection 8.3.1.4.1.3.

The Class IE power systems are designed to assure that no design-basis event will cause a loss of electric power to a number of engineered safety features, surveillance devices, or protection system devices sufficient to jeopardize the safety of the station, or to equipment that could result in a reactor power transient capable of causing significant damage to the fuel or to the reactor coolant system. A detailed discussion of conformance to IEEE 308 is given in Subsections 8.3.1.2.6 and 8.3.2.2.3.

All electrical penetration assemblies in containment structures are designed, constructed, installed, and tested in accordance with IEEE 317. Electrical penetration assemblies are described in detail in Subsection 8.3.1.4.2.4.

All electrical equipment for safety-related Class IE Systems is installed, inspected, tested, and stored during construction of ZPS-1 in conformance with IEEE 336. This is also discussed in Subsection 8.3.1.3.

All Class I electrical equipment is seismically qualified by testing and/or analysis per IEEE 344. All Class IE equipment is located in

Seismic Category I structures as stated in Subsection 8.3.1.2.6.

From the preceding it is evident that the design bases, criteria, safety guides, and standards that are implemented in the design of the safety-related electric systems are presented and discussed.

QUESTION 222.12 (8.2.1 & 8.2.2)

"(a) The information submitted in Section 8.2.1 'Offsite Power Systems' is inadequate. Submit the information specified in the corresponding section of the Standard Format. In particular, show compliance to GDC-17 by describing the physical layout and routing of the offsite transmission lines and submit appropriate figures showing the physical location and interconnections of the grid and the ZPS-1 switchyards. Describe your design features for fault clearing.

(b) Your discussion on grid stability is based on conditions in 1980 and, therefore, is irrelevant for ZPS-1 which is scheduled for operation in 1977. Submit the grid stability discussion specified in the Standard Format. Submit the information specified in Section 8.2.2 of the Standard Format."

ANSWER

(a) The physical layout routing of offsite transmission lines and interconnection of the grid are shown in Figures M.12-1 and M.12-2.

Fault protection is provided as follows:

345-kV Fault Protection

Each 345-kV transmission line is protected by primary and backup relays. Primary relays are directional comparison carrier relays and will provide two three-cycle clearing times for all internal faults on transmission lines. Backup relays are directional comparison carrier relays with step distance backup. These relays will also provide two three-cycle clearing times for internal faults. Primary and backup relays are independent and supplied from separate batteries. A ground directional time overcurrent relay provides additional backup protection.

Each 345-kV circuit breaker at ZPS-1 is provided with local backup protection (breaker failure). In case a circuit breaker fails to clear a fault in normal clearing times, adjacent breakers and the remote ends of adjacent lines will be cleared in 9 cycles or less.

The 345-kV bus is protected by high-speed static bus differential relays. Additional protection is provided by a ground differential scheme which includes the 345-kV windings of RAT 21 in its zone of protection. RAT 21 is also protected by differential current relays, fault pressure relays and lowside overcurrent and ground differential relays.

Further bus protection is provided by a differential current relay which has as its zone of protection the bus between the incoming line and the circuit breakers on that line. Faults in this area will be cleared in two to three cycles and the remote end tripped and locked out to prevent reclosing.

The main power transformer is protected by two sets of differential current relays and fault pressure relays. The zone of protection of one set of these differential relays includes the 345-kV generator circuit breakers. The area between the main power transformer and the 345-kV generator breaker is also protected by a static bus differential relay.

Sufficient fault protection is provided to assure clearing of a phase-to-ground or multiphase fault in a transmission line, bus, or transformer in two to three cycles. In the event of a breaker failure, adjacent breakers and/or circuit breakers at the remote ends of transmission lines will be cleared in less than 9 cycles.

69-kV Fault Protection

The 69-kV transmission line serving RAT 22 is protected by primary and backup relays. Primary relays are directional comparison carrier relays that will provide high speed clearing for all faults on the 69-kV line. Backup relays are directional time overcurrent.

RAT 22 is protected by differential current relays and fault pressure relays. A high side ground differential current relay is provided which includes the 69-kV circuit breaker in its zone of protection. Backup protection is provided by relays at the remote ends of the 69-kV line. The low side windings of RAT 22 are protected by phase and ground overcurrent relays and ground differential current relays.

(b) ZPS-1 is scheduled for operation in 1979. Load flow and stability studies for 1979 were run as follows:

A three-phase fault was placed on the ZPS-1 to Silver Grove 345-kV circuit at ZPS-1. The fault was cleared in 3 cycles (considered normal clearing time) by tripping out the circuit. ZPS-1 was stable for this fault. The ZPS-1 to Silver Grove 345-kV circuit was chosen because it is the strongest source for a fault at ZImmer.

A double phase-to-ground fault was placed on the ZPS-1 to Silver Grove 345-kV circuit resulting in a breaker failure. A double phase-to-ground fault was simulated on the ZPS-1 bus. At 3 cycles, one phase of the independent pole circuit breaker on the ZPS-1 to Silver Grove 345-kV circuit failed to clear, resulting in a phase-to-ground fault. The phase-to-ground fault was cleared in 10.5 cycles after time equals zero (considered normal clearing time for breaker failure) by clearing all the circuit breakers on the ZPS-1 Number 2 bus. ZPS-1 was stable.

A phase-to-ground fault occurred simultaneously on the same phase of each circuit on a double-circuit tower. The ZPS-1 to Port Union and the ZPS-1 to Stuart double-circuit 345-kV lines out of ZPS-1 were used for this case. This double circuit is for 0.8 mile. The fault on the double circuit was cleared in 3 cycles by opening the ZPS-1 to Port Union and the ZPS-1 to Stuart 345-kV circuits. ZPS-1 was stable.

The anticipated frequency of faults for the 345-kV transmission system connected to the ZPS-1 switchyard is one per year.


FOR ARRGT AT
PUR PLT SEE
DWG E2-SH 2
NORTH SOUTH BASE LINE
POWER PLT
SAND TRAP



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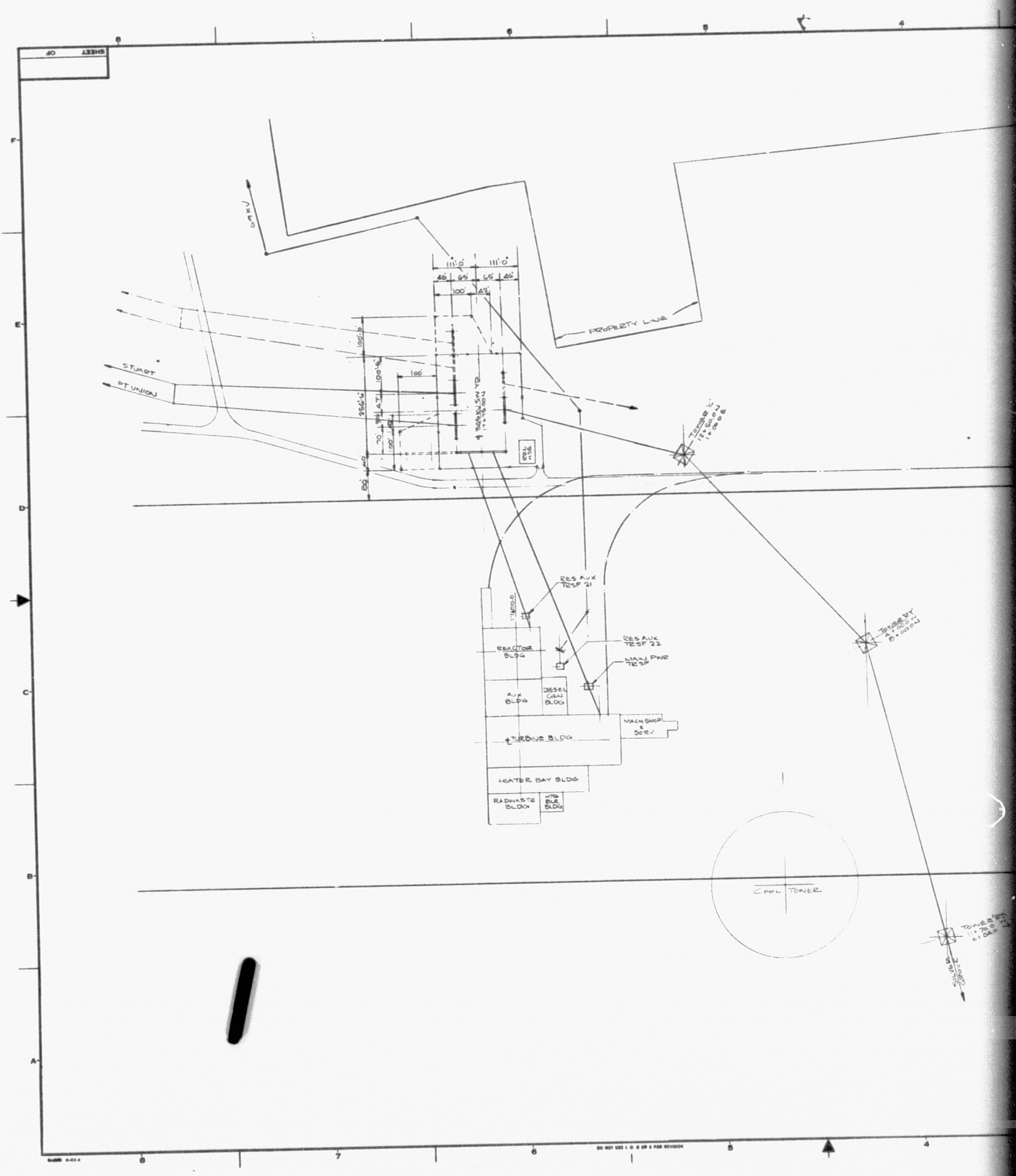


2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 8.2-3

345-KV SWITCHYARD AND TRANSMISSION LINES


SHEET OF
PROPERTY LINE
STUART
PT UNION
111'-0"
111'-0"
46'
65'
65'
46'
100'
100'
100



2

WM. H. ZIMMER NUCLEAR POWER STATION, UNIT 1
FINAL SAFETY ANALYSIS REPORT

FIGURE 8.2-4

PLANT SWITCHYARD

QUESTION 222.13 (8.3)

"Discuss compliance of your onsite power system design to Regulatory Guide 1.75. Identify and justify any exemptions you may propose to take."

ANSWER

The Safety Evaluation Report for the construction permit of ZPS-1 was issued on February 18, 1972. Since this regulatory guide applies to those plants whose Safety Evaluation Reports for construction permit were issued after February 1, 1974, this guide does not apply to ZPS-1.

QUESTION 222.14 (15.0)

"For each accident analyzed in Chapter 15.0, provide a list of the systems and components that are assumed to be functional and required to prevent or mitigate the consequences of the accident analyzed."

ANSWER

Appendix B, "Plant Nuclear Safety Operational Analysis" provides a list of systems and components that are required to prevent or mitigate the consequences of the accidents analyzed in Chapter 15.0.

QUESTION 000.1

"The following categories of information required by 10 CFR 50.33 (Contents of Application; general information) have not been provided and should be included in the application to be submitted for docketing:

50.33d(3) (i) The state where the applicants are incorporated or organized. (The principal location where they do business has been provided).

50.33(f) Information sufficient to demonstrate the financial qualifications. (See Section I.B. of Appendix C to 10 CFR Part 50 for details).

50.33(i) A list of all regulatory agencies as may have jurisdiction over the rates and services and a list of news publications which circulate in the areas to be served by the facility. Addresses of the agencies and news publications are also needed. (This information should also involve the bordering states, Kentucky and Indiana)."

ANSWER

This information is contained in the Application for License.

QUESTION 000.2

"10 CFR 50.30(d) authorizes the applicant to amend its CP application when submitting the OL application. However, it would be helpful if the applicant would use the next sequential CP application Amendment No. for record purposes."

ANSWER

This information is contained in the Application for License.

QUESTION 000.3

"The application should reflect that the license should be issued to the Cincinnati Gas and Electric Company, acting on behalf of itself and as agent for the Columbus and Southern Ohio Electric Company, and the Dayton Power and Light Company."

ANSWER

The Application for License has been written to reflect this request.

QUESTIONS 241.1 (4.2.1 & 4.3)

"Our review of Sections 4.2.1 and 4.3 could be expedited if parts of these sections can reference GESSAR or the 8 x 8 Topical Reload Report."

ANSWER

All sections of Chapter 4.0 are ZPS-1 unique as are all chapters of the FSAR. Subsection 4.2.1 contains ZPS-1 fuel design characteristics that are different from those presented in GESSAR which addresses a reference design. Even though there are several subsections in 4.2.1 which, if examined, might reference GESSAR, it is believed they are sufficiently few to have minimal effect on review. Section 4.3 contains peaking factors, reactivity control, RSCS rod patterns, and over 20 figures and figure references throughout the section that are ZPS-1 unique. It is, therefore, not recommended that any subsection of these two sections reference GESSAR.

The 8 x 8 Topical Reload Report (TRR) describes reload fuel designs which have gap sizes that differ from ZPS-1 design. The same comments apply for the TRR as for GESSAR, that is the number of paragraphs that might reference GESSAR are sufficiently few to have minimal effect on review. It is, therefore, not recommended that any subsections reference the 8 x 8 Topical Reload Report.

QUESTION 421.1 (13.7)

"Provide your Industrial Security Plan pursuant to 10 CFR 50.34(c)."

ANSWER

The required Industrial Security Plan is submitted along with the accepted FSAR.