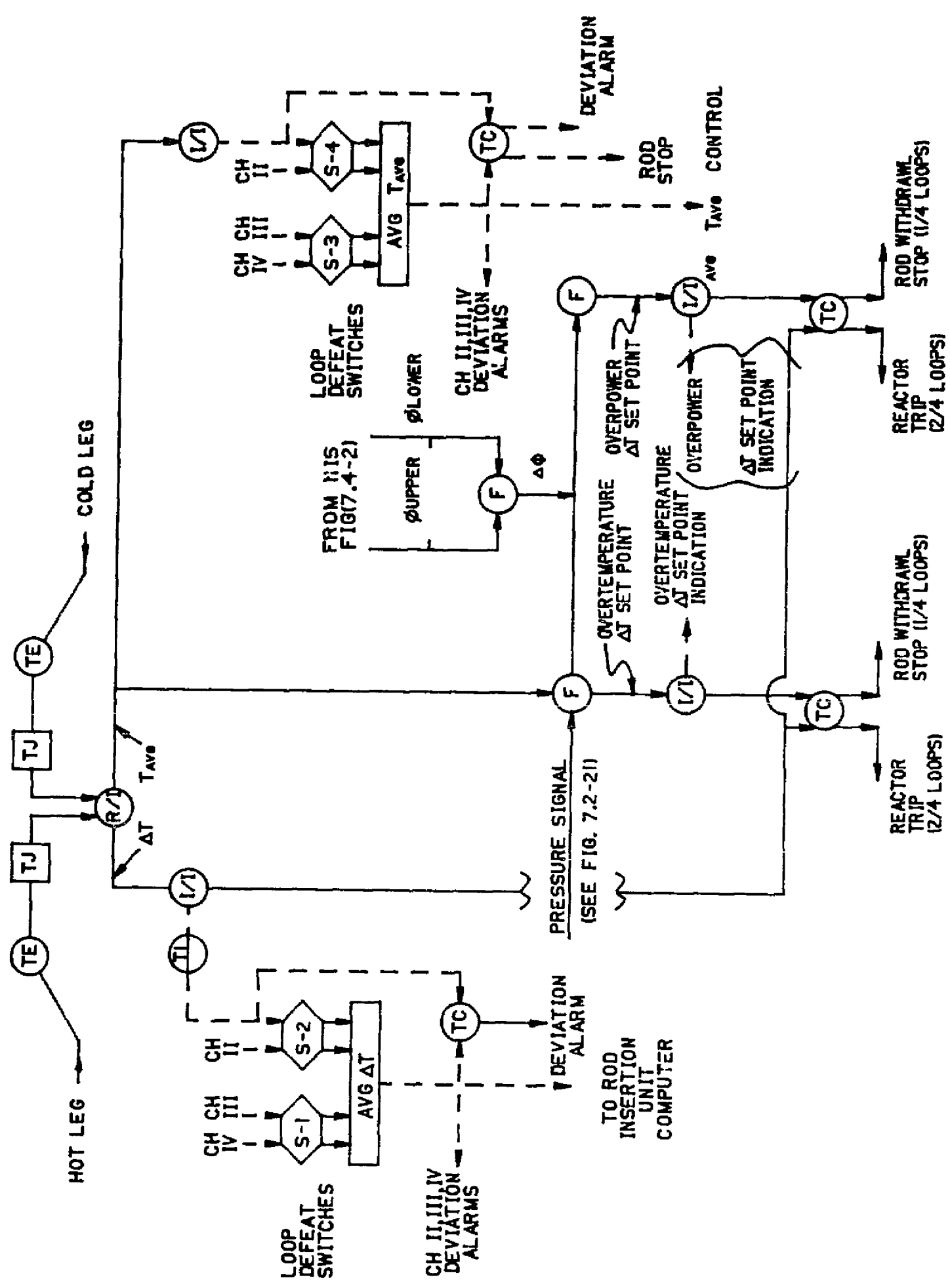


REVISIONS

THIS REV.
IS NON-
CLASS.
AS PER
CI-240-1
RELEASED
FOR INFO
ONLY
PN 32357
4-24-85

V.I.
4/18/99 01
THIS REVISION
IS NON-CLASS
PER CI-240-1
UPDATED DWG.
TO INCLUDE
UFSAR FIG. NO.
IN TITLE
P/N 69911-NP
RELEASED
FOR RECORD
DLA
4/18/99
STRATUS
ENGINEERING



T_{AVG}/ΔT CONTROL AND PROTECTION SYSTEM
(SINGLE CHANNEL)

STATION- INDIAN POINT 2
UFSAR FIGURE NO. 7.2-34
DRAWN BY KCP/KU CHECKED
SCALE NONE J.O. 32357-00

APPROVALS
CHIEF DESIGN ENG. 2/14/89
DE ENG. 8. Helfant 9/9/85
ENG. 6. 11/10/85

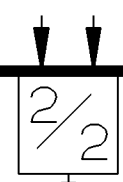
CONSOLIDATED EDISON CO. OF N.Y., INC.
DWG. NO. E 243330-01
RECORDED

57952

LOGIC SYMBOLS

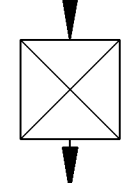
(REF: NEMA STANDARD ICI-OCT. 1961)

SYMBOL LOGIC FUNCTION



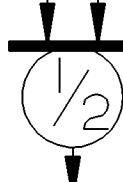
AND

A DEVICE WHICH PRODUCES AN OUTPUT ONLY WHEN EVERY INPUT IS ENERGIZED.



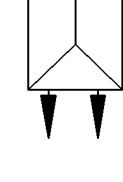
NOT

A DEVICE WHICH PRODUCES AN OUTPUT ONLY WHEN THE INPUT IS NOT ENERGIZED.



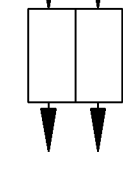
OR

A DEVICE WHICH PRODUCES AN OUTPUT WHEN ONE INPUT (OR MORE) IS ENERGIZED.



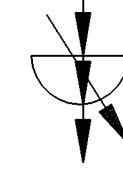
OFF-RETURN
MEMORY

A DEVICE WHICH RETAINS THE CONDITION OF OUTPUT CORRESPONDING TO THE INPUT LAST ENERGIZED EXCEPT UPON INTERRUPTION OF POWER IT RETURNS TO THE OFF CONDITION.



RETENTIVE
MEMORY

A DEVICE WHICH RETAINS THE CONDITIONS OF OUTPUT CORRESPONDING TO THE INPUT LAST ENERGIZED.



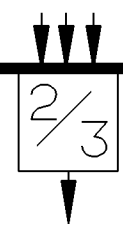
ADJUSTABLE
TIME DELAY
ENERGIZING

A DEVICE WHICH PRODUCES AN OUTPUT FOLLOWING DEFINITE INTENTIONAL TIME DELAY AFTER ITS INPUT IS ENERGIZED.



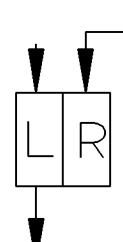
DE-ENERGIZING

A DEVICE WHICH PRODUCES AN OUTPUT FOLLOWING A DEFINITE INTENTIONAL TIME DELAY AFTER ITS INPUT IS DE-ENERGIZED.



COINCIDENCE
(2 OUT OF 3 SHOWN)

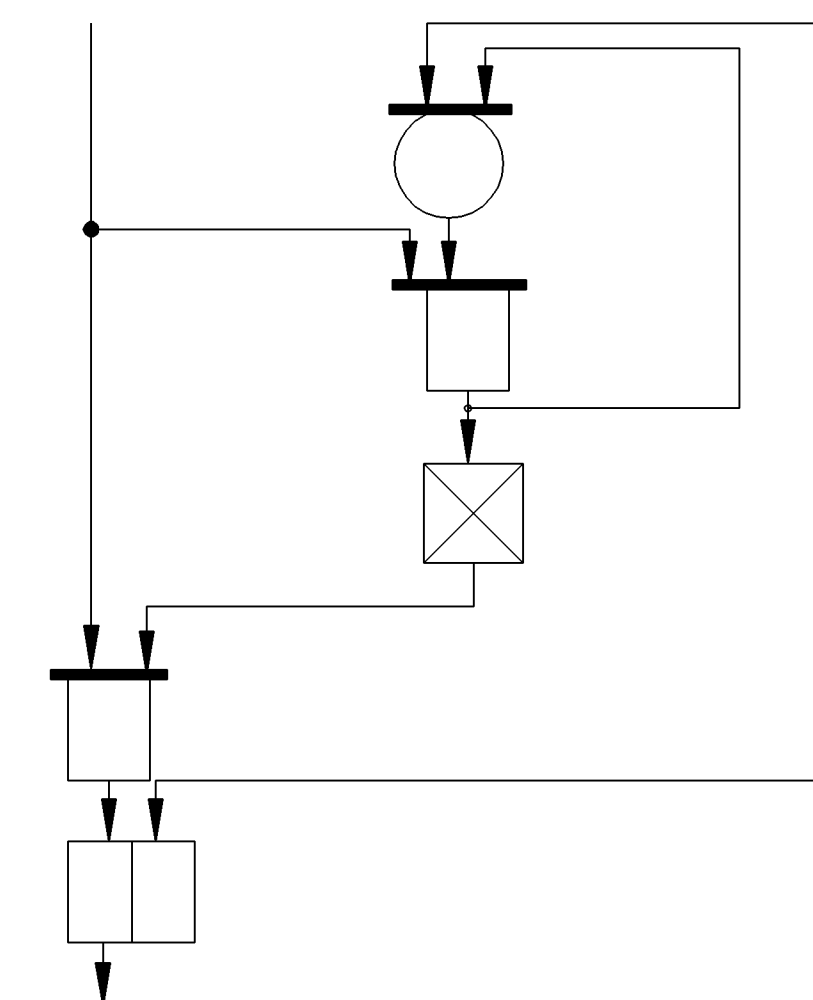
A DEVICE WHICH PRODUCES AN OUTPUT WHEN THE PRESCRIBED NUMBER OF INPUTS EXIST (EXAMPLE 2 INPUTS MUST EXIST FOR AN OUTPUT)



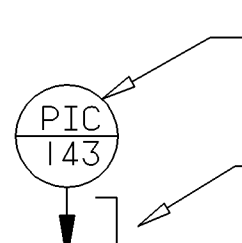
M.R. RETENTIVE
MEMORY
WITH MANUAL
RESET

A DEVICE HAVING THE LOGICAL FUNCTION. AS INDICATED BY THE DIAGRAM BELOW:

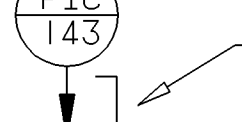
ACTUATING SIGNAL MANUAL RESET (MOMENTARY)



ADDITIONAL SYMBOLS



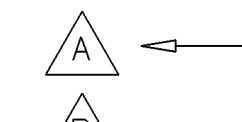
INSTRUMENT CHANNEL
(SEE E-SPEC G765164 FOR CODE LETTER EXPLANATION)



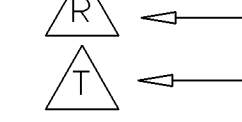
INDICATES THAT THE DEVICE OR INSTRUMENT CHANNEL HAS A BISTABLE LOGIC OUTPUT WHEN:
┌ -PARAMETER MEASURED IS GREATER THAN A PRESET VALUE
└ -PARAMETER MEASURED IS LESS THAN A PRESET VALUE



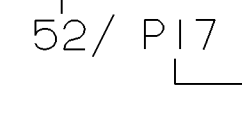
SAME AS ABOVE EXCEPT WITH AN AUTOMATICALLY SET VARIABLE VALUE.



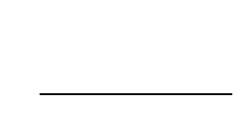
ALARM ANNUNCIATOR ALARMS ON THE SAME SHEET WITH THE SAME SUBSCRIPT SHARE A COMMON ANNUNCIATOR WINDOW



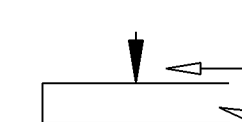
REACTOR TRIP "FIRST OUT" ANNUNCIATOR



TURBINE TRIP "FIRST OUT" ANNUNCIATOR



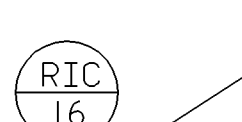
52/ P17 CONTROL CIRCUIT CHANNEL OR COMPONENT ITEM NUMBER



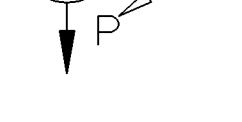
LOGIC INFORMATION TRANSMISSION



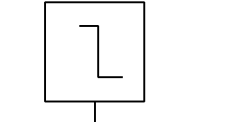
ACTION CALLED FOR BY LOGIC INPUT



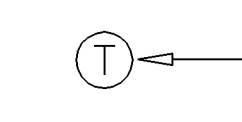
COMPONENT CONTROL CIRCUIT



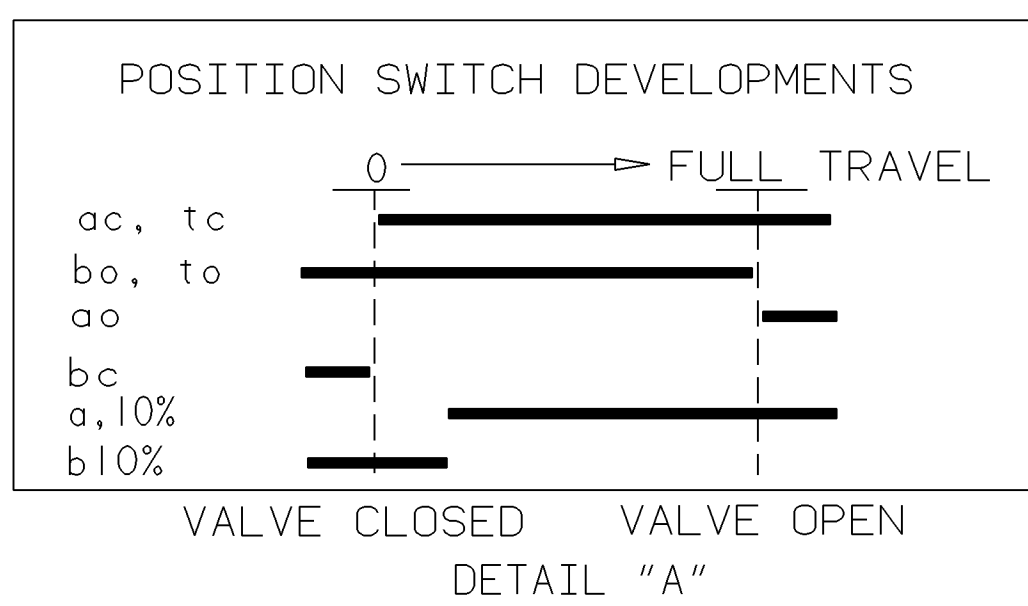
INDICATES THAT THE INSTRUMENT CHANNEL HAS AN OUTPUT AS FOLLOWS
P-PROPORTIONAL TO THE PARAMETER MEASURED
R-PROPORTIONAL TO THE RATE OF CHANGE OF THE PARAMETER MEASURED



BISTABLE DEVICE ┌ ┐ ┌ ┐ OR ┌ ┐ INDICATE SAME AS EXPLAINED ABOVE



INDICATOR LAMP
T TRIP STATUS LIGHTS
P PERMISSIVE STATUS LIGHTS
B BYPASS STATUS LIGHTS



DEVICE FUNCTION NUMBERS AND LETTERS

(Ref: ASA Standard 37.2-1956 and Nema Standard S G 5-1959)

1-MASTER ELEMENT (CONTROL SWITCH)
20-ELECTRIC OPERATED VALVE
27-UNDERVOLTAGE RELAY
33-POSITION SWITCH

SUFFIX LETTER:
ac, ao, bc, bo-LIMIT SWITCH SEE DETAIL "A"
to, tc TORQUE SWITCH FOR OPERATION
43-MANUAL SELECTOR SWITCH

52-AC CIRCUIT BREAKER OR CONTACTOR
SUFFIX LETTER:

a-AUXILIARY CONTACT-OPEN WHEN MAIN CONTACTS ARE OPEN
b-AUXILIARY CONTACT-CLOSED WHEN MAIN CONTACTS ARE OPEN
(C)-REVERSING CONTACTOR OPERATING COIL-ENERGIZE TO CLOSE VALVE
(O)-REVERSING CONTACTOR OPERATING COIL-ENERGIZE TO OPEN VALVE
(CC)-BREAKER CLOSING COIL
(TC)-BREAKER TRIP COIL
(UV)-BREAKER UNDER VOLTAGE TRIP COIL

63-LIQUID OR GAS PRESSURE LEVEL, OR FLOW RELAY

69-PERMISSIVE SWITCH

72-DC CIRCUIT BREAKER OR CONTACTOR

SUFFIX LETTER:
a-AUXILIARY CONTACT-OPEN WHEN MAIN CONTACTS ARE OPEN
b-AUXILIARY CONTACT-CLOSED WHEN MAIN CONTACTS ARE OPEN
(C)-REVERSING CONTACTOR OPERATING COIL-ENERGIZE TO CLOSE VALVE
(O)-REVERSING CONTACTOR OPERATING COIL-ENERGIZE TO OPEN VALVE
(CC)-BREAKER CLOSING COIL
(TC)-BREAKER TRIP COIL
(UV)-BREAKER UNDER VOLTAGE TRIP COIL

SUFFIX LETTER
P-PRIMARY
BU-BACK-UP

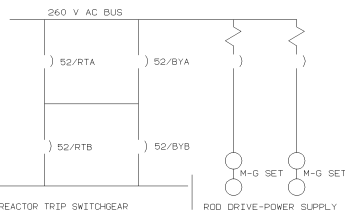
REFERENCES:

TITLE	SHEET	DRAWING
REACTOR TRIP SIGNALS	2	A225095
TURBINE TRIP SIGNALS	3	A225096
6900V BUS AUTOTRANSFER	4	A225097
NUCLEAR INSTRUMENTATION TRIP SIGNALS	5	A225098
NUCLEAR INSTR. PERMISSIVES & BLOCKS	6	A225099
EMERGENCY GENERATOR STARTING	7	A225100
SAFEGUARDS SEQUENCE	8	A225101
PRESSURIZER TRIP SIGNALS	9	A225102
STEAM GENERATOR TRIP SIGNALS	10	A225103
REACTOR COOLANT SYSTEM TRIP SIGNALS & MANUAL TRIP	11	A225104
SAFEGUARDS/ACTUATION SIGNALS	12	A225105
FEEDWATER ISOLATION	13	A225106
ROD STOPS & TURBINE LOAD CUTBACK	14	A225107

NOTES:

1. ALL CIRCUITS ON SHEETS 1 THROUGH 14 ARE REDUNDANT EXCEPT WHERE INDICATED OTHERWISE.
2. PROTECTION CHANNELS 1 AND 2 ARE CONNECTED TO INVERTER BUSES.
3. MANUAL CONTROLS DO NOT HAVE REDUNDANT ACTUATORS, BUT DO HAVE REDUNDANT CONTACTS WHERE LOGIC IS REDUNDANT.
4. THIS DRAWING SUPERCEDES WESTINGHOUSE DRAWING 882B627 SHEET 1, MICROFILM 190B75.

THIS DRAWING CONTAINS ITEMS WHICH
MUST BE CONTROLLED WITHIN CON Edison AS
"CLASS A" ITEMS
PER CI-240-1



ROD DRIVE SUPPLY SINGLE LINE

REACTOR TRIP SIGNAL
(225096)
FOR TURBINE TRIP

A block diagram showing a gain block labeled $1/2$ in a circle, followed by a delay block labeled -1 in a triangle. Two input lines enter the gain block from the left.

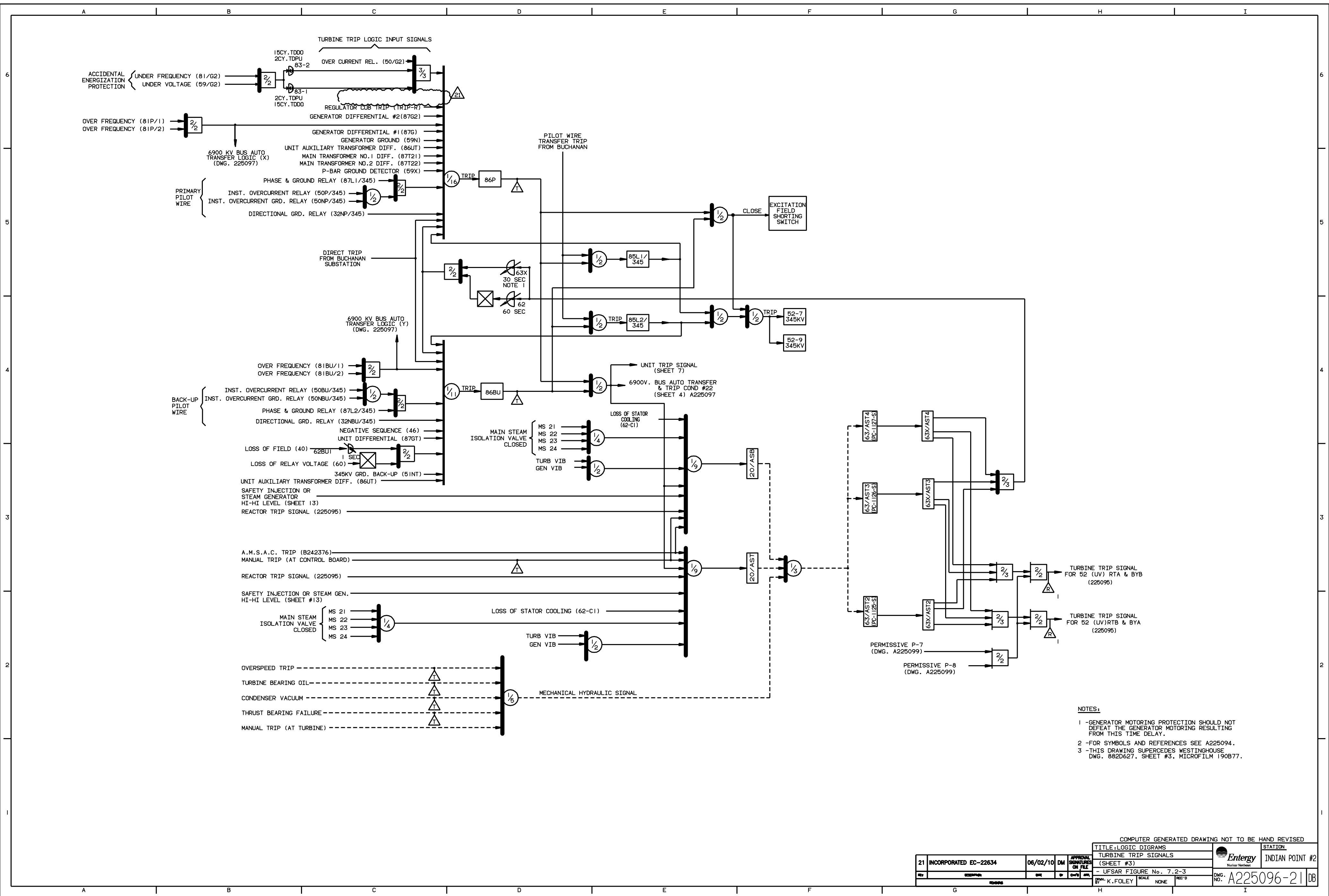
REACTOR TRIP SIGNAL
(225096)
FOR TURBINE TRIP

INPUT SAME AS FOR 52(UV)/RTA & 52(UV)/BY
REQUIRES MULTIPLE CHANNELS, SIGNALS,
CONTACTS, ETC.

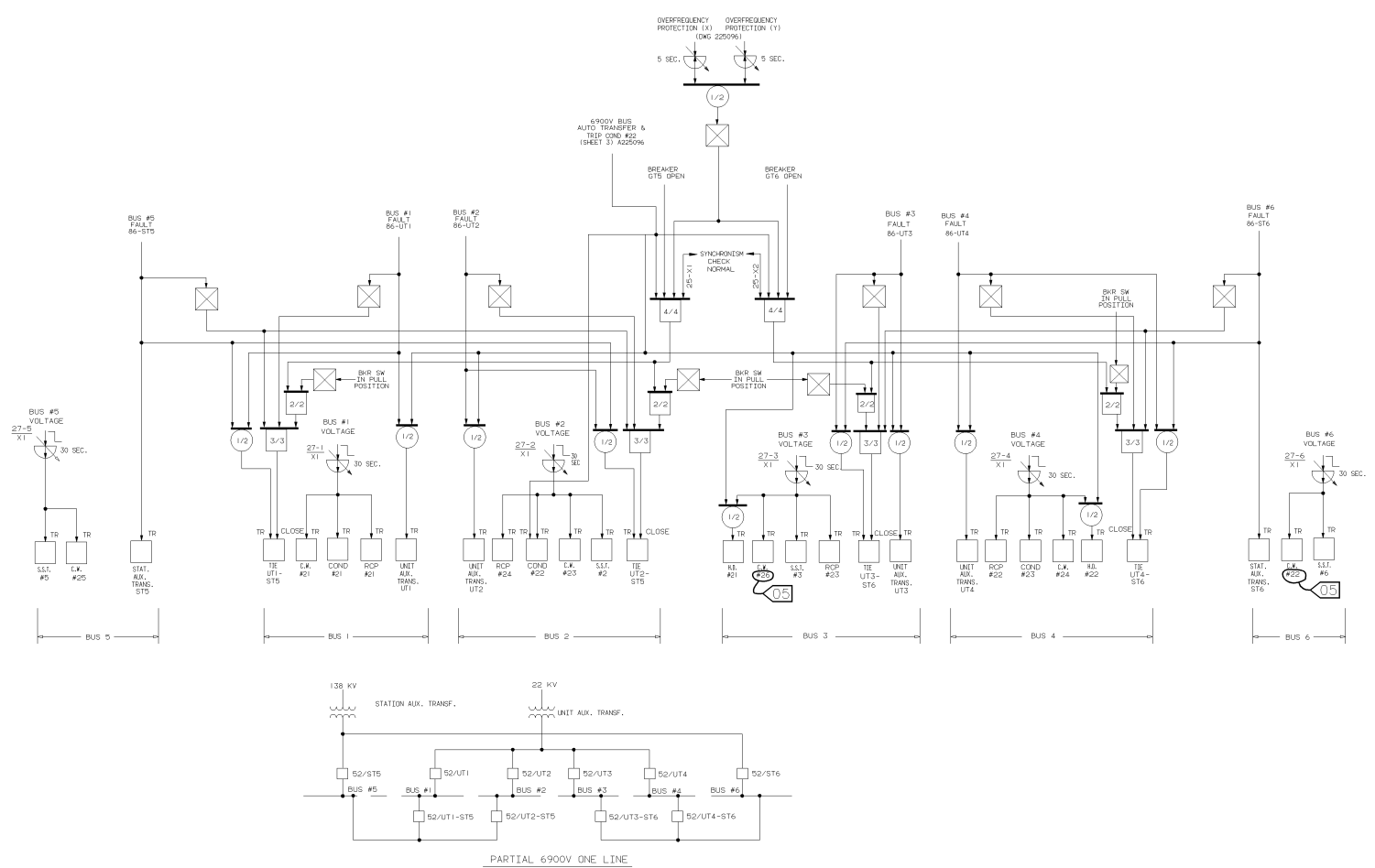
NOTES

- 1- UNDER-FREQUENCY ON ANY 2 OF 4 BUSES
WILL OPEN THE BREAKERS OF ALL REACTOR
COOLANT PUMPS AND CONSEQUENTLY CAUSE
REACTOR TRIP.
- 2- FOR SYMBOLS AND REFERENCES SEE
A225094.
- 3- THIS DRAWING SUPERSEDES WESTINGHOUSE
DRAWING #8820627 SHEET 2. MICROFILM
190876.
- 4- FOR SCHEMATIC DWGS OF REACTOR PROT RACKS
(E2 THRU E6 & F2 THRU F6)
SEE WH/SE DWG 110E073, SHTS 1 THRU 11

THIS DRAWING CONTAINS ITEMS WHICH
MUST BE CONTROLLED WITHIN COM. EDISON AS:
" CLASS A " ITEMS
PER CI-240-1



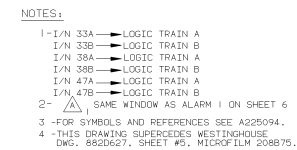
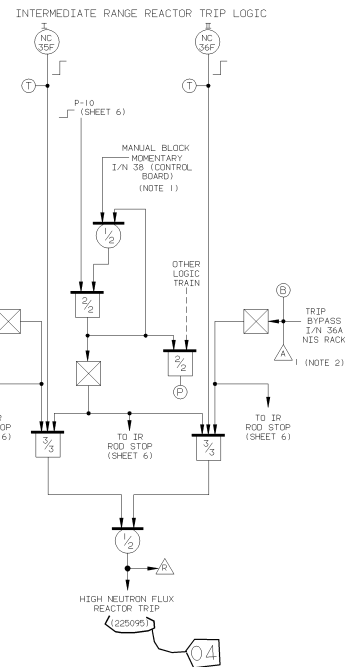
NOTES:
1 -GENERATOR MOTORING PROTECTION SHOULD NOT DEFEAT THE GENERATOR MOTORING RESULTING FROM THIS TIME DELAY.
2 -FOR SYMBOLS AND REFERENCES SEE A225094.
3 -THIS DRAWING SUPERCEDES WESTINGHOUSE DWG. 882D627, SHEET #3, MICROFILM I90B77.



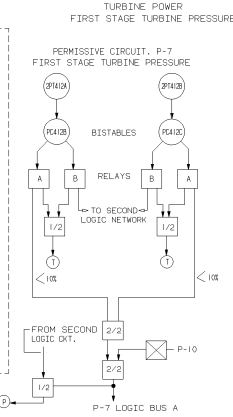
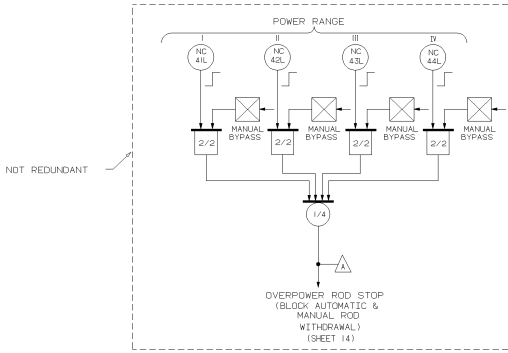
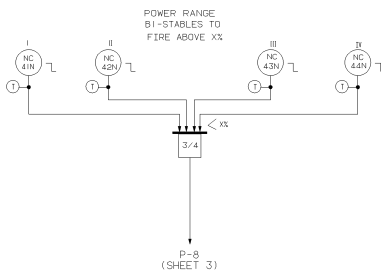
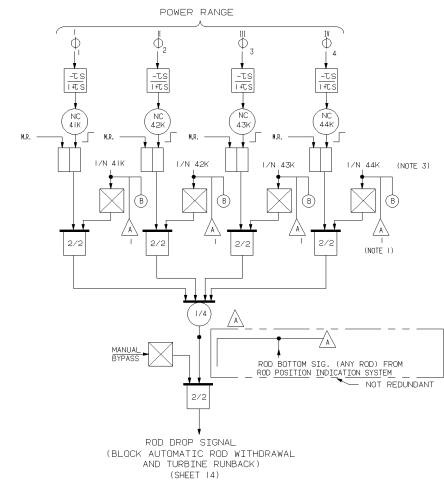
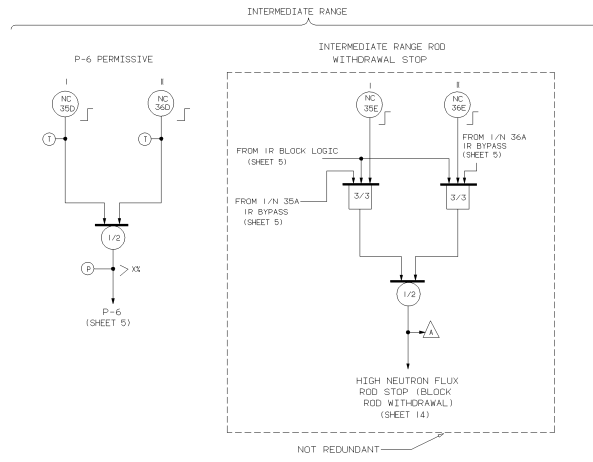
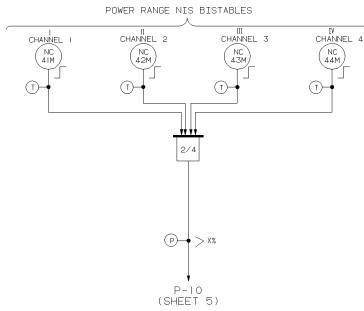
NOTES:
1 -FOR SYMBOLS AND REFERENCES SEE A225094.
2 -THIS SUPERCEDES WESTINGHOUSE DWG. 882D627, SHEET #4, MICROFILM 190B78.

THIS DRAWING CONTAINS ITEMS WHICH
MAY BE CONTROLLED ACTION OR DESIGN K1
"CLASS A" ITEMS
PER CI-240-1

COMPUTER GENERATED DRAWING NOT TO BE HAND REVISED														
DESIGN REVISION NO.	DATE	BY	CHK	APPV	DESIGN ENG	REV. ENG	DES. NO.	TITLE: LOGIC DIAGRAM 6900V BUS AUTO TRANSFER (SHEET #4)			STATION INDIAN POINT #2			
								- UFSAR FIGURE No. 7.2-4						
								SCALE NONE						
								DWG. NO. A225097-05 DB						
THIS REVISION IS NON-CLASS PER Q-240-1 UPDATED UNDER PER QID #1985-0000 ISSUED FOR RECORD PLAN 69002-02								JOHN J. LOWNEY			GEORGE L. BLEMMLE			
DES	05/19/00													
ENG														
F		G		H		I								



COMPUTER GENERATED DRAWINGS NOT TO BE HAND REVISED																							
REV	PMD BY/ISSN	THIS REV IS NON-CLASS AS PER CL-SAP: UPDATED DWG PER CRS19990254 & CRS199903752 PMD D-242 RELEASED FOR RECORD PM 6991-NP	SP		DATE	CHK. BY	SUPV.	DESIGN ENG	ELEC. ENGR	APPROVALS	DATE	DWG. NO.	SCALE	NONE	REV'D	DWG. NO.	A225098-04	DB	STATION INDIAN POINT #2				
JOHN J LOWMEY										GERARD L BLENNIE													
TITLE - LOGIC DIAGRAM NUCLEAR INSTRUMENTATION TRIP SIGNALS (SHEET #5)										USFAR FIGURE NO. 7.2-5													



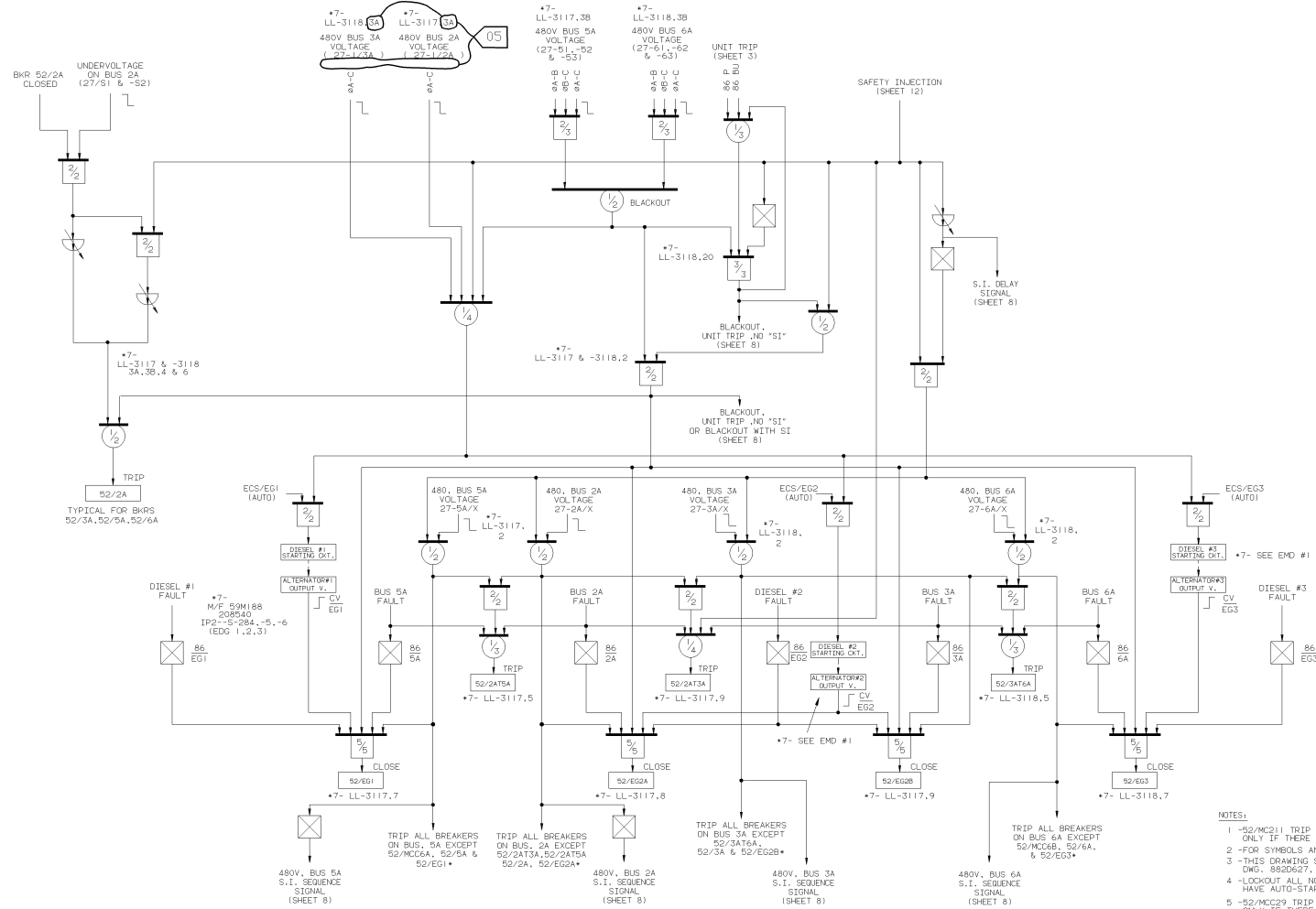
- NOTES:
- 1 - SAME WINDOW AS ALARM 1 ON SHEET 3.
 - 2 - THE BYPASS SIGNALS ARE MADE UP BY MEANS OF TWO THREE-POSITION SWITCHES ON A NIS RACK. SWITCH 1/N 49 A BYPASSES EITHER NC-41L OR NC-43L. SWITCH 1/N 49B BYPASSES EITHER NC-44 OR NC-44L.
 - 3 - 1/N 41K THRU 1/N 44K ARE THREE-POSITION SWITCHES ON NIS RACKS. THE POSITIONS ARE RESET, NORMAL AND BYPASS. RESET OF THE LATCHING BISTABLE ALSO OCCURS IN BYPASS POSITION.
 - 4 - FOR SYMBOLS AND REFERENCES SEE A225094.
 - 5 - THIS DRAWING SUPERCEDES WESTINGHOUSE DWG. 8820627, SHEET #6, MICROFILM 208B76.
5. THE AUTOMATIC CONTROL ROD WITHDRAWAL FEATURE IN PLANT OPERATION HAS BEEN PHYSICALLY DISABLED, ALLOWING ONLY THE AUTOMATIC CONTROL ROD INSERTION MODE TO BE IN EFFECT WHEN ROD CONTROL IS IN AUTOMATIC.

THIS DRAWING CONTAINS ITEMS WHICH MUST BE CONTROLLED ACTION ON DESIGN #1

"CLASS A" ITEMS
PER CI-240-1

REVISIONS	CH	THIS REVISION IS CLASS "A" PER THE GAPP.		JOHN J. LONNEY		GERARD L. BLEWLE		TITLE: LOGIC DIAGRAMS NUCLEAR		STATISTICAL	
	DES	REVISED DRAWING FOR P-7 200708050						INSTR. PERMISSIVES & BLOCKS		INDIAN POINT #2	
	DES	RELEASED FOR RECORD						(SHEET 6)			
	P/N	69801-AF						-- UFSAR FIGURE No. 7.2-6		DWG. NO. A225099-07 DB	
	ENG	12-19-01 CH									
	DATE	REV.	APP.	DESIGN	USE	USE	SCALE	NONE			
	REVIEW		APPROVALS								

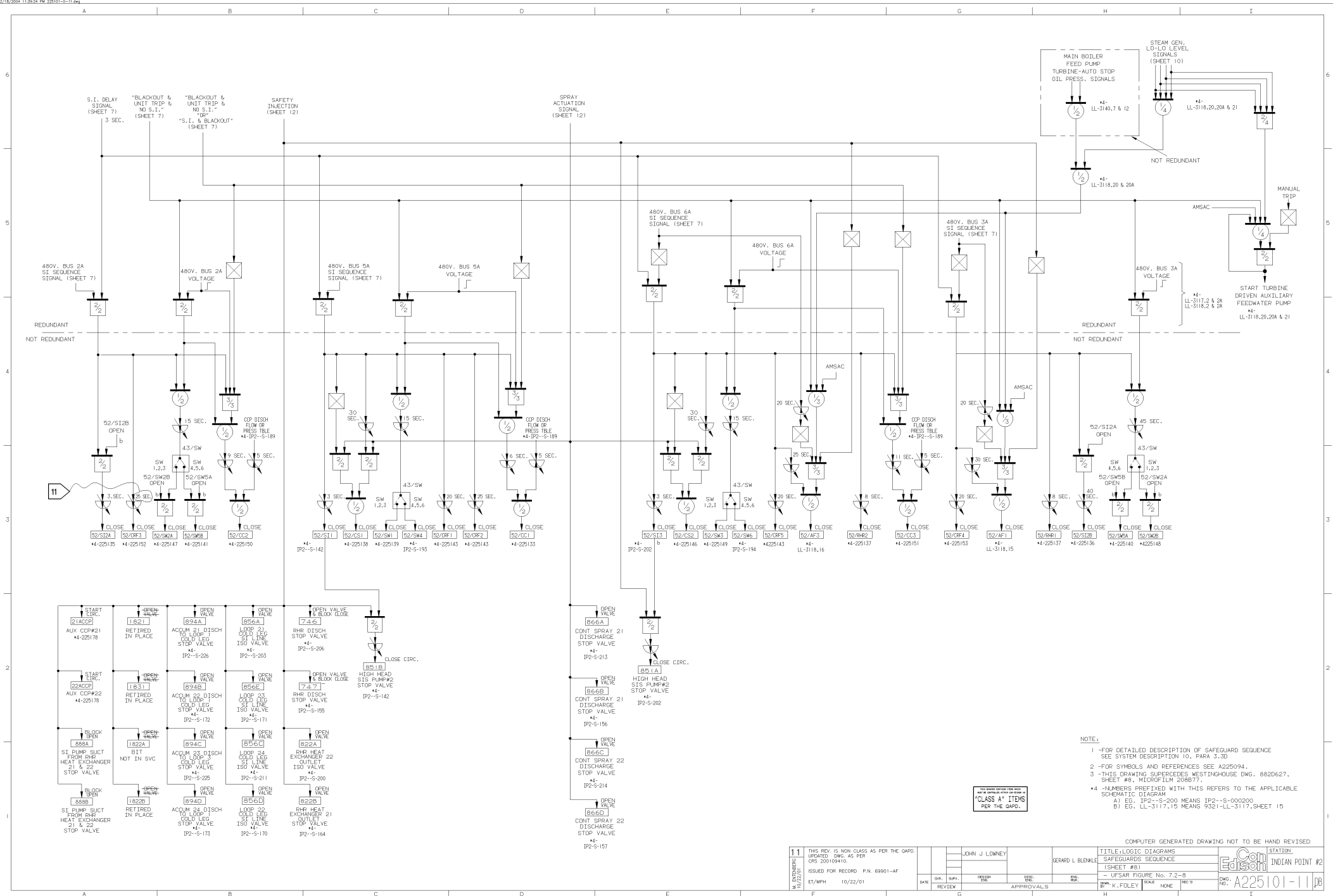
COMPUTER GENERATED DRAWING NOT TO BE HAND REVISED

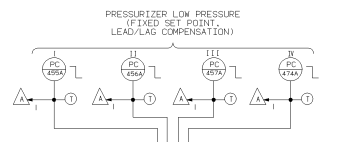


- NOTES:
- 1 -52/MC211 TRIP ON BUS 3A UNDERVOLTAGE ONLY IF THERE IS A LOSS OF OUTSIDE POWER.
 - 2 -FOR SYMBOLS AND REFERENCES SEE A225094.
 - 3 -THIS DRAWING SUPERCEDES WESTINGHOUSE DWG. 8820627, SHEET #7, MICROFILM 205892.
 - 4 -LOCKOUT ALL NON-SAFEGUARDS BREAKERS WHICH HAVE AUTO-START CIRCUIT.
 - 5 -52/MC229 TRIP ON BUS 5A UNDERVOLTAGE ONLY IF THERE IS A LOSS OF OUTSIDE POWER.
 - 6 -52/MC224 TRIP BUS 2A UNDERVOLTAGE ONLY IF THERE IS A LOSS OF OUTSIDE POWER.
 - 7 -NUMBERS PREFIXED WITH THIS REFERS TO THE APPLICABLE SCHEMATIC DIAGRAM
A) EG. IP2-S-200 MEANS IP2-S-000200
B) EG. LL-3117,25 MEANS 9321-LL-3117,SHEET 2

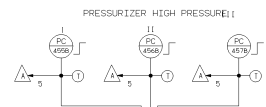
THIS DRAWING CONTAINS ITEMS WHICH
MAY BE CONTROLLED WITHIN OUR DESIGN AS
"CLASS A" ITEMS
PER CI-240-1

COMPUTER GENERATED DRAWING NOT TO BE HAND REVISED									
REVISION					DATE				
1.0					10/10/00				
THIS REVISION IS NON-CLASS PER CI-240-1					SR/VJ/DJM				
UPDATED DWG. AS PER					JOHN J. LOWNEY				
CRS. 189905374					DERARD L. BLEWLE				
RELEASED FOR RECORD					TITLE: LOGIC DIAGRAM				
P/N 69982-CM					EMERGENCY GENERATOR STARTING				
					(SHEET #7)				
					UFSAR FIGURE No. 7.2-7				
					SCALE: NONE				
					DWG. A225100-05 DB				

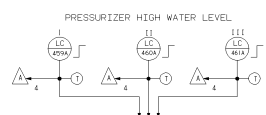




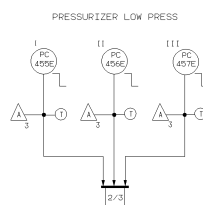
P7 (SHEET 6)



REACTOR TRIP (225095)

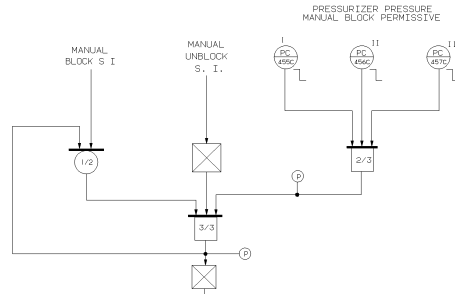


REACTOR TRIP (225095)



*3 -225016 & 225018

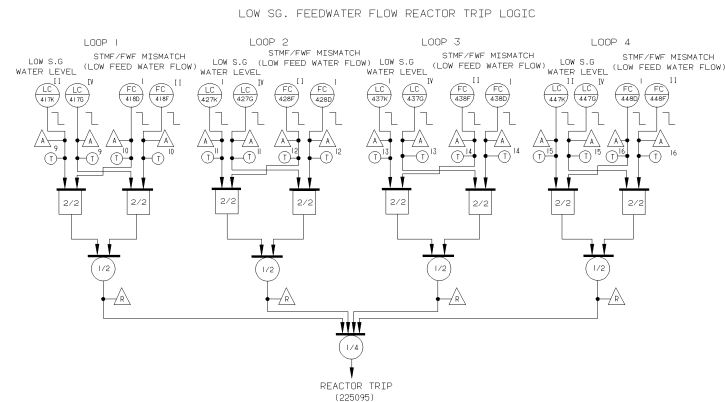
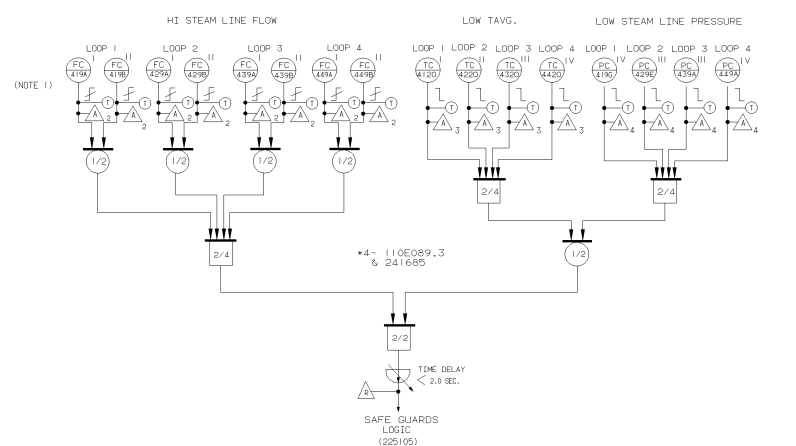
TO SAFEGUARDS LOGIC (225105)



- NOTES:
- 1 -FOR SYMBOLS AND REFERENCES SEE A225094.
 - 2 -THIS DRAWING SUPERCEDES WESTINGHOUSE DWG. 682D627, SHEET #9, MICROFILM 205B94.
 - 3 -NUMBERS PREFIXED WITH THIS REFERS TO THE APPLICABLE SCHEMATIC DIAGRAM

THIS DRAWING CONTAINS ITEMS WHICH MUST BE CONTROLLED WITHIN OUR DESIGN AS
"CLASS A" ITEMS
 PER CI-240-1

REVISION	PMD 5/11/79	THIS REV. IS NON-CLASS AS PER CI-240-1 UPDATED DWG PER CRS199901224 & CRS199903752 RELEASED FOR RECORD P/N 69911-NP	SP	DATE	CHK.	SUPV.	DESIGN NO.	TITLE NO.	SHEET NO.	COMPUTER GENERATED DRAWING NOT TO BE HAND REVISED				STATION					
										JOHN J. LOWNEY				GERARD L. BLENNIE	TITLE: LOGIC DIAGRAMS PRESSURIZER TRIP SIGNALS (SHEET #9)		Edsoh	INDIAN PROJECT #	
										APPROVALS				- UFSAR FIGURE NO. 7.2-9				Dwg. No.	A225102-05
																		SCALE	NONE
INC.										DWG. NO.	A225102-05								

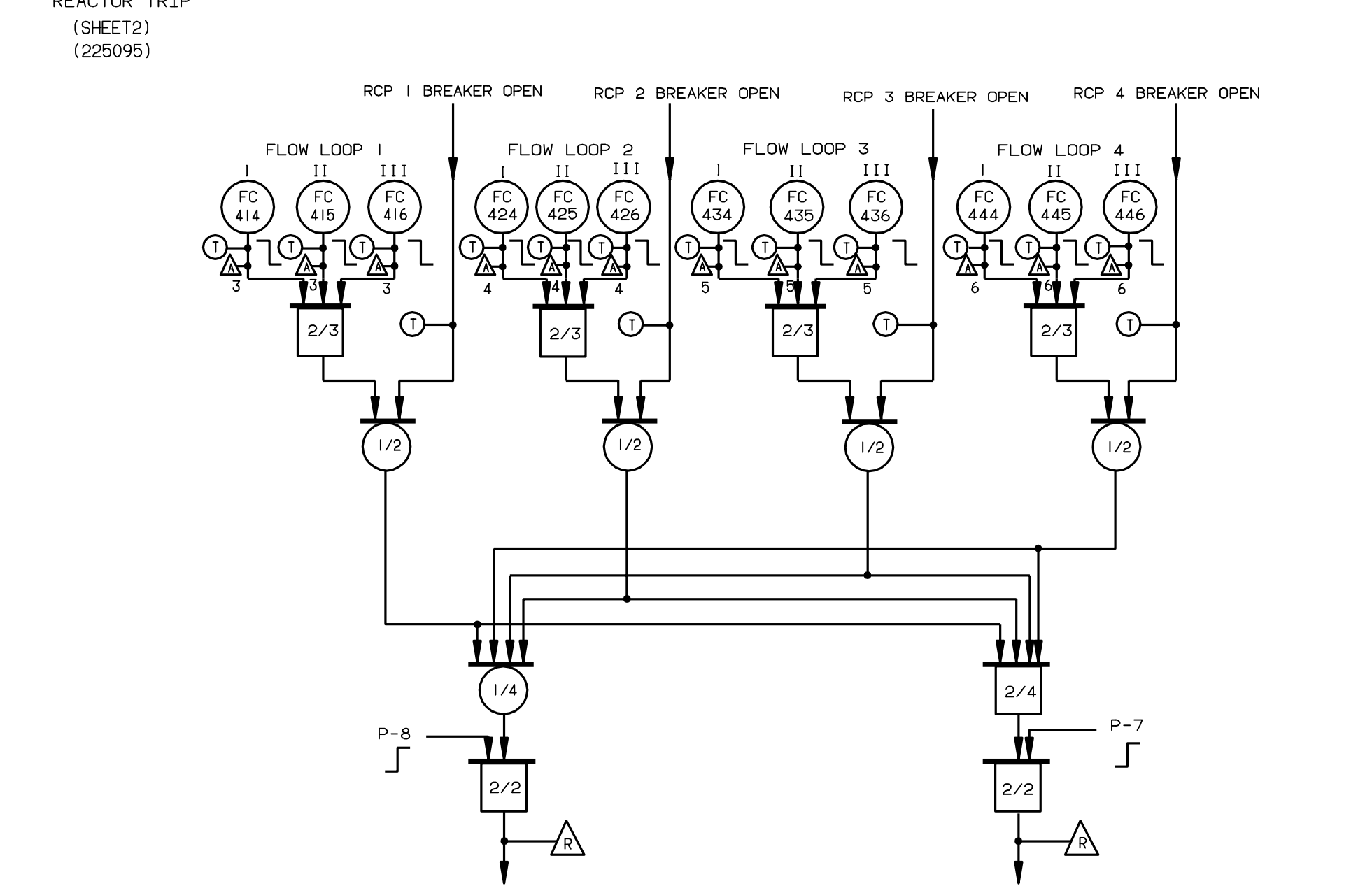
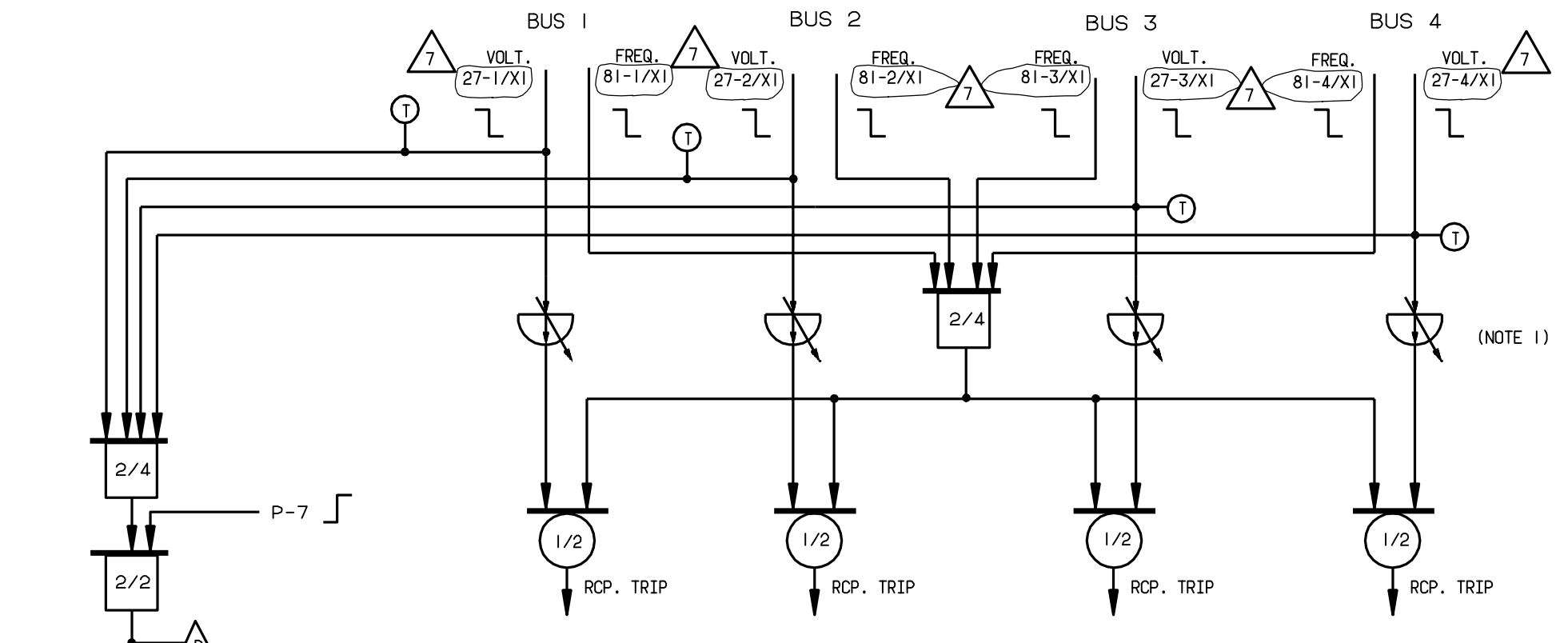
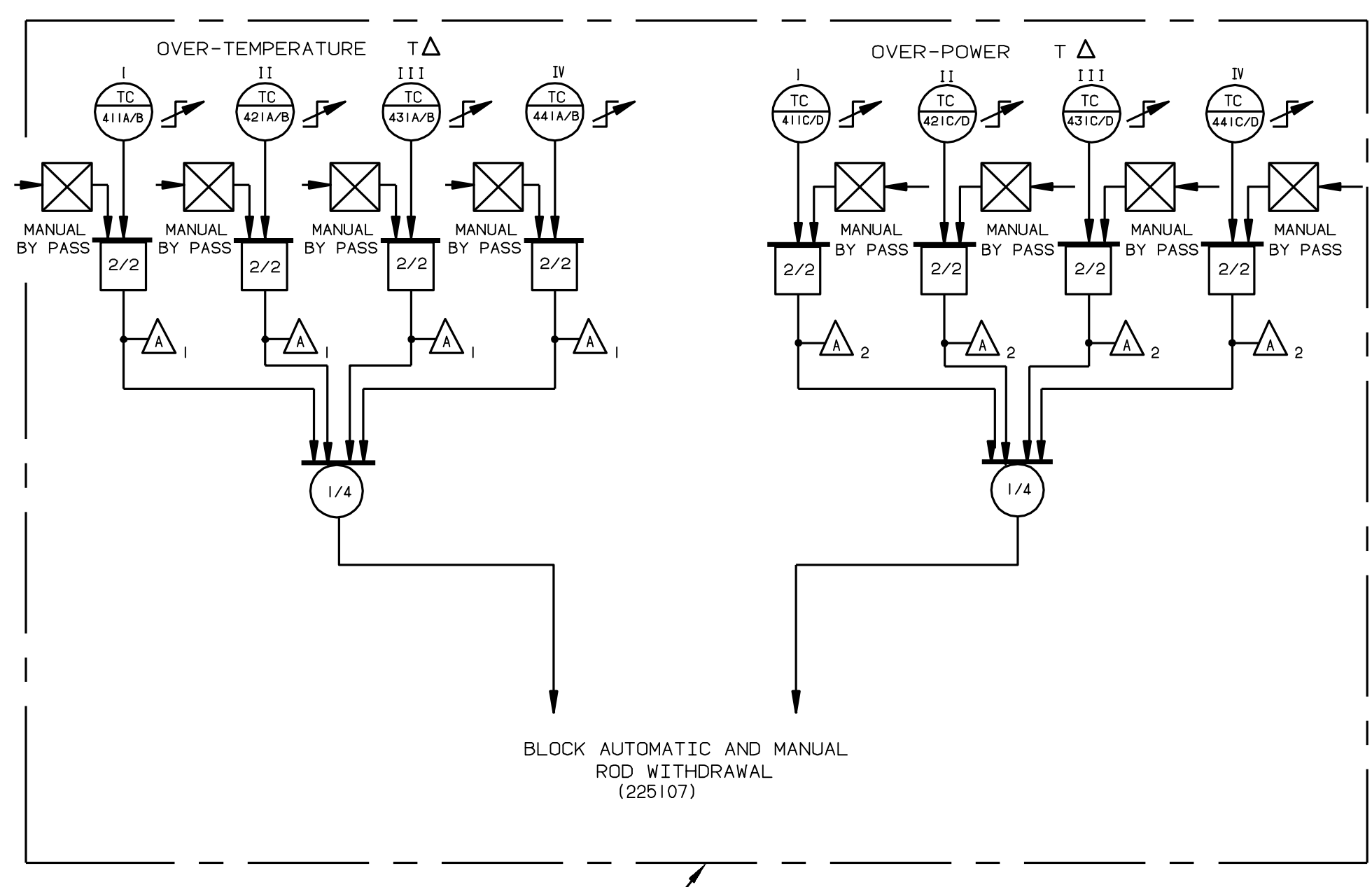
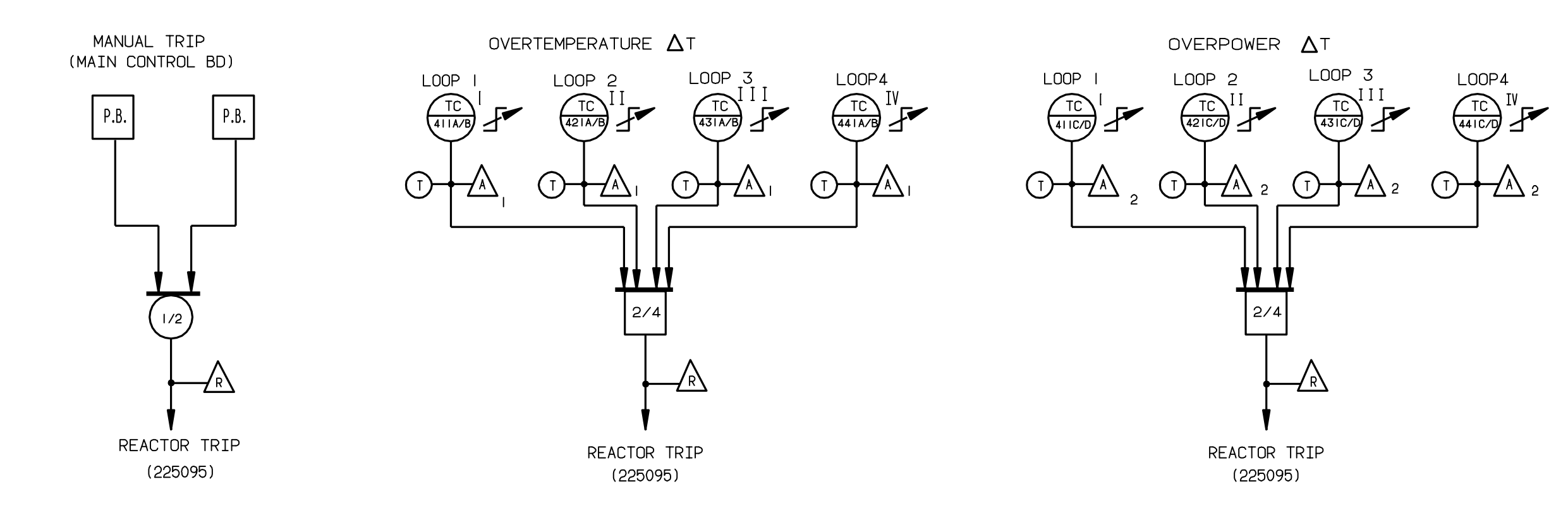


- 1 -SETPOINTS OF STEAM FLOW BISTABLES ARE ADJUSTABLE AND SET BY TURBINE FIRST STAGE PRESSURE.
- 2 -FOR SYMBOLS AND REFERENCES SEE A225094.
- 3 -THIS DRAWING SUPERCEDES WESTINGHOUSE DWG. 8920627, SHEET #10, MICROFILM 205B95.
- *4 -NUMBERS PREFIXED WITH THIS REFERS TO THE APPLICABLE SCHEMATIC DIAGRAM
 - A) EG. 110E089.2 REFERS TO THE WH'S SWD.SHEET #3

THIS DRAWING CONTAINS ITEMS WHICH
MUST BE CONTROLLED WITHIN CON EDISON AS
"CLASS A" ITEMS
PER CI-240-1

08

COMPUTER GENERATED DRAWING NOT TO BE HAND REVISED												
TOW 316/49		THIS REV IS NON-CLASS AS PER C-240-1 UPDATED DWS BY CRS-1999/4906 RELEASED FOR RECORD P/N 6798BZ-CD DT/TY			JOHN J LOWMEY		GERARD BLENKE		TITLE LOGIC DIAGRAM STEAM GENERATOR TRIP SIGNALS (SHEET NO.) USFAR FIGURE NO. 72-10		STATION  INIAN POINT #2	
ENC.		DATE	DRW. SUPV. REV.	CHECKED BY DESIGN	APPROVALS		DRAWN BY	SCALE	NONE	REC'D	DWG. NO. A225103-08	DB



- NOTES:
- 1 -CIRCUITRY FOR RCP TRIP ON UNDERVOLTAGE PERTAINS TO BUS-CLEARING, IS NOT PART OF REACTOR PROTECTION SYSTEM, AND ITS NOT REDUNDANT.
 - 2 -FOR SYMBOLS AND REFERENCES SEE A225094.
 - 3 -THIS DRAWING SUPERCEDES WESTINGHOUSE DWG. 882D627, SHEET #10, MICROFILM 207B97.
 - 4 -FOR REACTOR PROTECTION SCHEMATIC SEE WHSE 110E073
 - 5 -THE AUTOMATIC CONTROL ROD WITHDRAWAL FEATURE IN PLANT OPERATION HAS BEEN PHYSICALLY DISABLED, ALLOWING ONLY THE AUTOMATIC CONTROL ROD INSERTION MODE TO BE IN EFFECT WHEN ROD CONTROL IS IN AUTOMATIC.

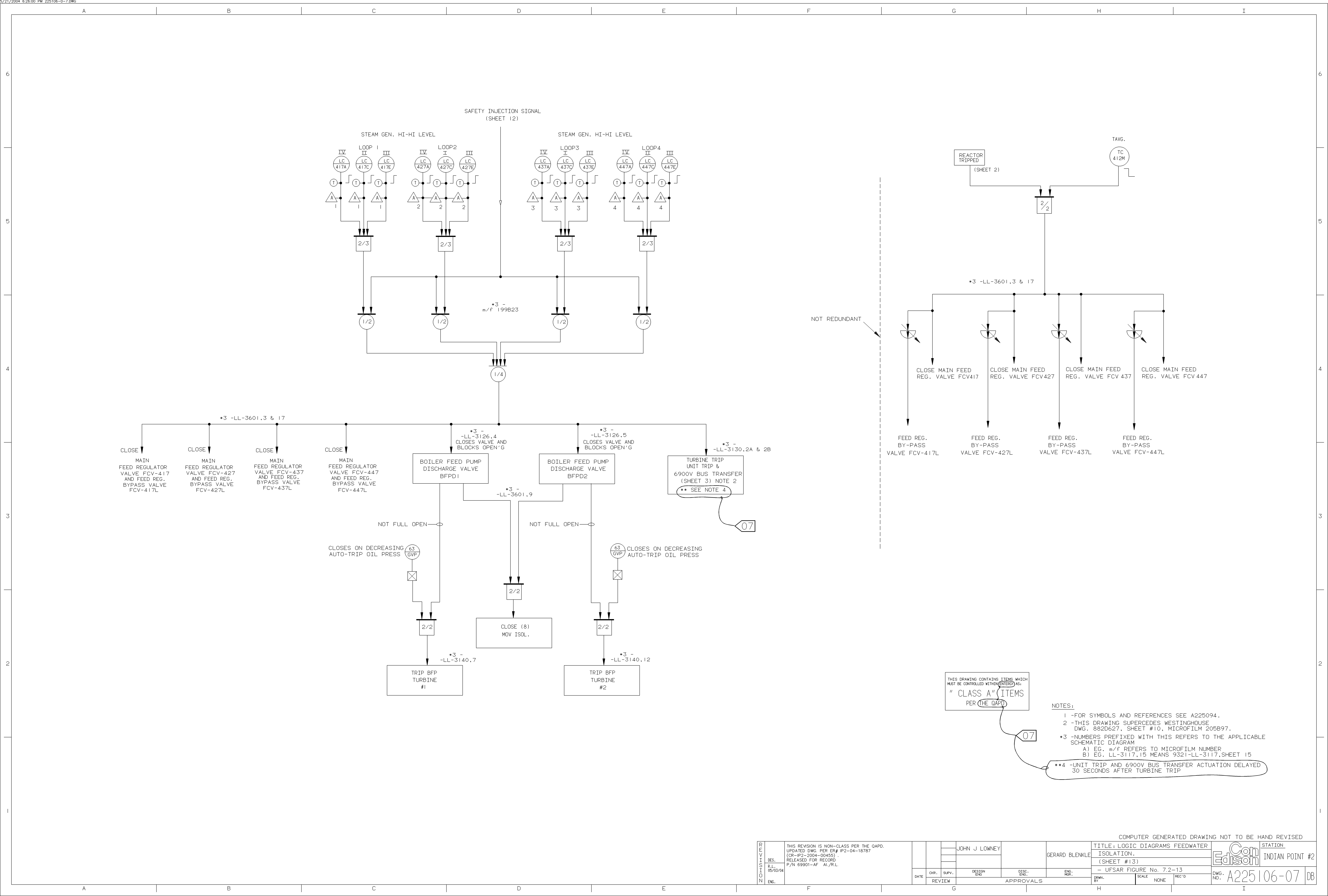
THIS DRAWING CONTAINS ITEMS WHICH
MUST BE CONTROLLED WITHIN CON EDISON AS
"CLASS A" ITEMS
PER CI-240-1

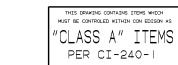
7	INCORPORATED EC 8954	07/24/08	SM	APPROVAL SIGNATURES ON FILE
REV	DESCRIPTION	DATE	BY	CHKD APP.

	DWG NO. A225104	REV 7
SCALE	SHEET	

INDIAN POINT ENERGY CENTER – UNIT 2

LOGIC DIAGRAM
PRIMARY COOLANT SYSTEM TRIP
SIGNALS & MANUAL TRIP
(SHEET #11)





- NOTES:
- 1 -FOR SYMBOLS AND REFERENCES SEE A225094.
 - 2 -THIS DRAWING SUPERCEDES WESTINGHOUSE
DWG. 882D627, SHEET #10, MICROFILM 205B98.
 - 3-THE AUTOMATIC CONTROL ROD WITHDRAWAL
FEATURE IN PLANT OPERATION HAS BEEN PHYSICALLY
DISABLED. ALLOWING ONLY THE AUTOMATIC
CONTROL ROD INSERTION MODE TO BE IN EFFECT
WHEN ROD CONTROL IS IN AUTOMATIC

[illegible]

REVISIONS

V.I.
4/18/99

02

THIS REVISION
IS NON-CLASS
PER CI-240-1
UPDATED DWG.
TO INCLUDE
UFSAR FIG. NO.
IN TITLE
P/N 69911-NP
RELEASED
FOR RECORD
DLA
4/18/99

STRATUS
ENGINEERING

AL	-	Alarm
Buf	-	Buffer
f	-	Special Function (such as a pressure compensation unit or lead/log compensation)
FC	-	Flow controller (off-on unless output signal is shown)
FI	-	Flow Indicator
FT	-	Flow Transmitter
Hi L	-	High Level
Hi LRT	-	High Level Reactor Trip
Hi PRT	-	High Pressure Reactor Trip
I/I	-	Isolation Current Repeater
ISOL	-	Isolation (other than I/I)
LC	-	Level Controller (off-on unless output signal is shown)
LI	-	Level Indicator
L-Low	-	Low Level
Lo L	-	Low Level
Lo Lo L	-	Low Low Level
Lo LRT	-	Low Level Reactor Trip
Lo Lo LRT	-	Low Low level Reactor Trip
Lo PRT	-	Low Pressure Reactor Trip
L _{ref}	-	Programmed Reference Level
LT	-	Level Transmitter
NC	-	Nuclear Flux Controller
NE	-	Nuclear Detector
NI	-	Nuclear Flux Indicator
NQ	-	Nuclear Power Supply
PC	-	Pressure controller (off-on unless output signal is shown)
PI	-	Pressure Indicator
P _{ref}	-	Programmed Reference Pressure
PS	-	Power Supply
PT	-	Pressure Transmitter
R/I	-	Resistance to Current Converter
S	-	Control channel transfer switch (used to maintain auto channel during test of the protection channel)
SI	-	Safety Injection
T	-	Built-in Test Point
TE	-	Temperature Element
TJ	-	Test Signal Insertion Jack
TP	-	Test Point
ΦU,L	-	Out of core upper or lower ion chamber flux signals

02

NI

STATION- INDIAN POINT 2

UFSAR FIGURE NO. 7.2-28

DRAWN BY REPRO

CHECKED

SCALE NONE

J.O. 32357-00

APPROVALS

CHIEF
DESIGN
ENG.DE
ENG.

ENG.

CONSOLIDATED EDISON CO. OF N.Y., INC.

DWG. NO. E 243311-02

RECORDED

REVISIONS

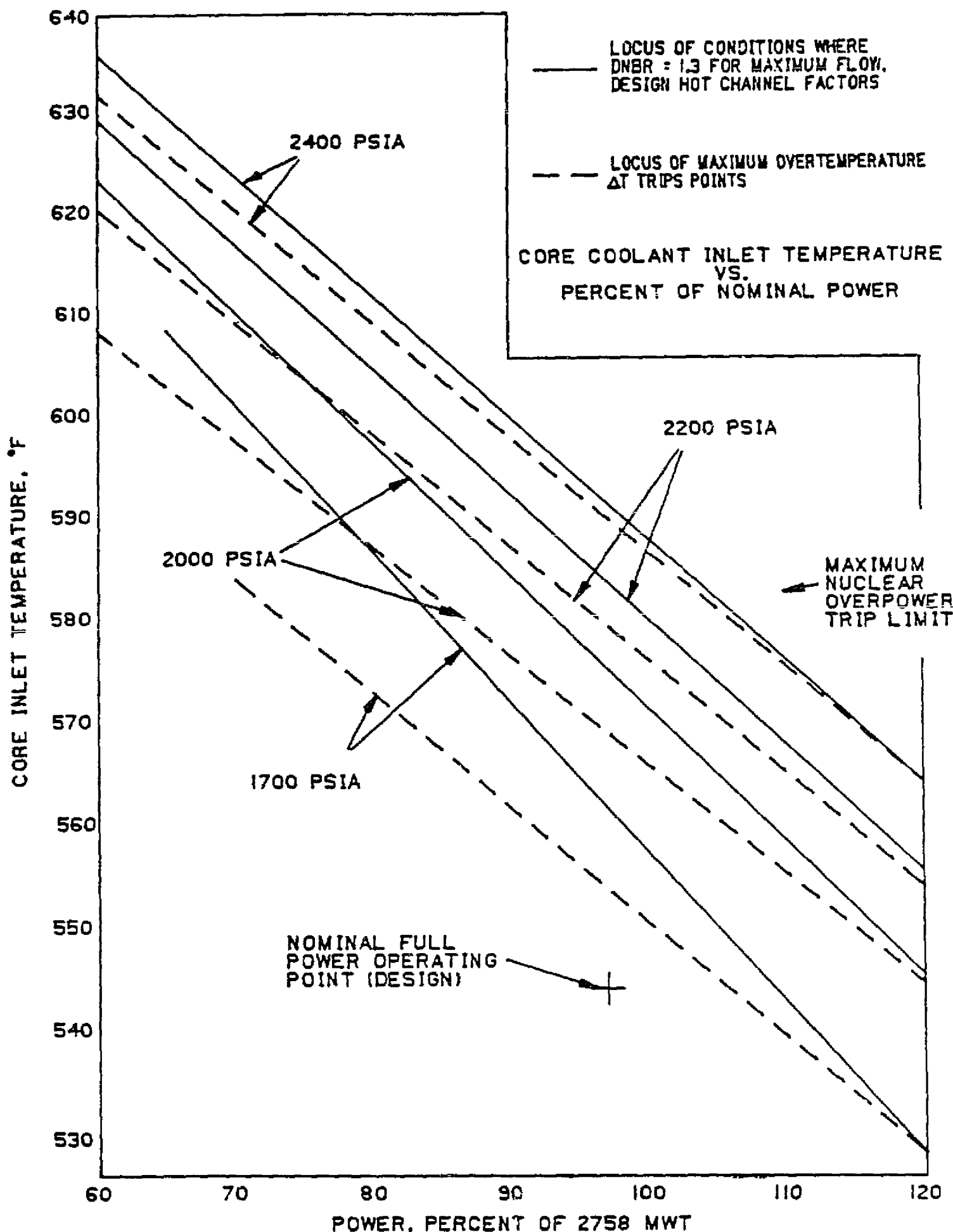
0

THIS REV.
IS NON-
CLASS
AS PER
CI-240-1
RELEASED
FOR INFO
ONLY
PN 32357
4-24-85

V.I.
4/18/99 01

THIS REVISION
IS NON-CLASS
PER CI-240-1
UPDATED DWG.
TO INCLUDE
UFSAR FIG. NO.
IN TITLE
P/N 69911-NP
RELEASED
FOR RECORD
DLA
4/18/99

STRATUS
ENGINEERING



01

MI

STATION- INDIAN POINT 2
UFSAR FIGURE No. 7.2-19

DRAWN BY REPRO

CHECKED

SCALE NONE

J. O. 32357-00

APPROVALS

CHIEF
DESIGN
ENG.

ENG.

DE
ENG.

CONSOLIDATED EDISON CO. OF N.Y., INC.

DWG. NO. E 243312-01

RECORDED

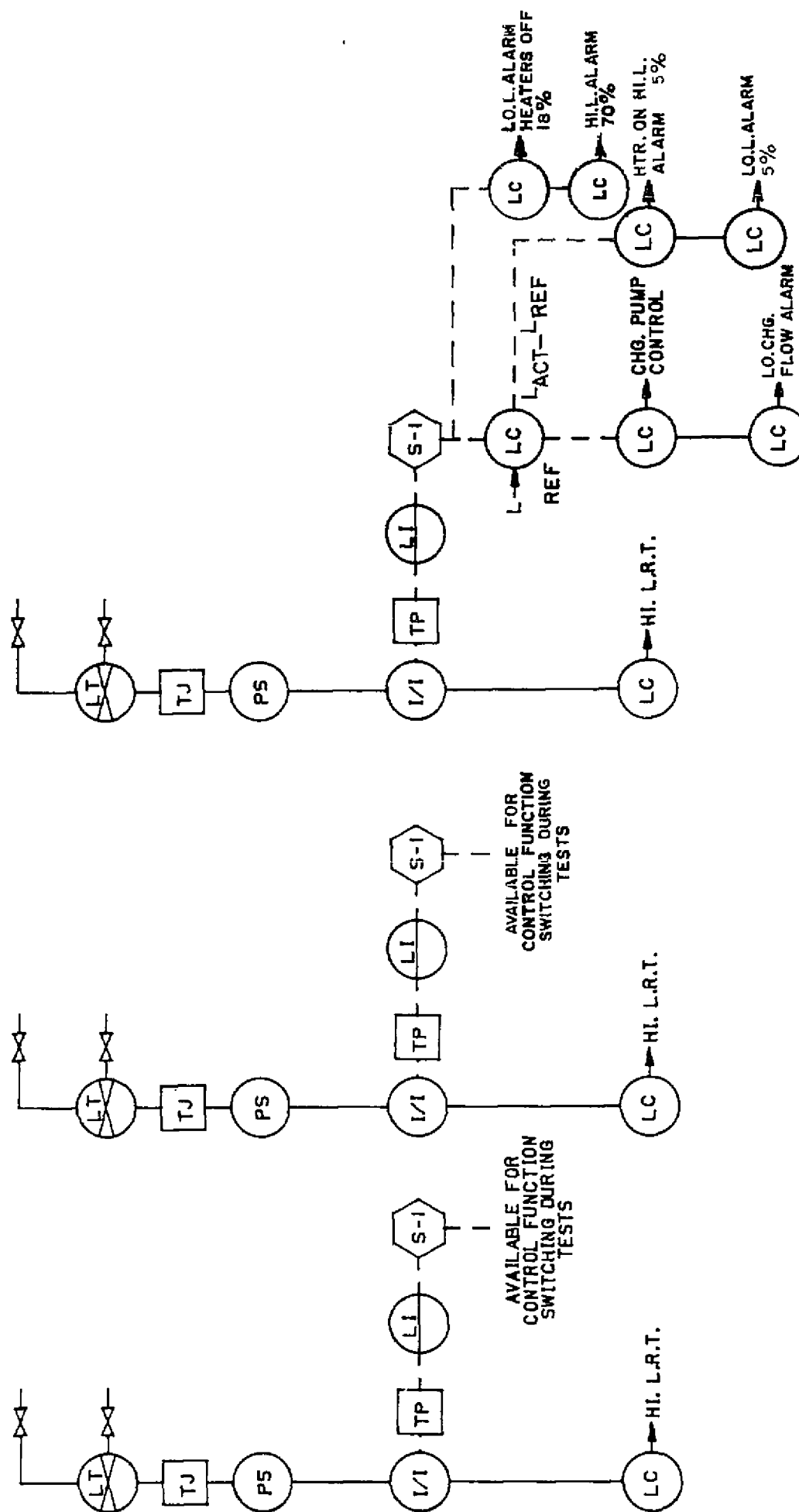
REVISIONS

	62	0
--	----	---

THIS REV.
IS NON-
CLASS
AS PER
CI-240-1
RELEASED
FOR INFO
ONLY
PN 32357
4-24-85

V.I. 4/18/99	01
-----------------	----

THIS REVISION
IS NON-CLASS
PER CI-240-1
UPDATED DWG.
TO INCLUDE
UFSAR FIG. NO.
IN TITLE
P/N 69911-NP
RELEASED
FOR RECORD
DLA
4/18/99

STRATUS
ENGINEERING

PRESSURIZER LEVEL CONTROL AND PROTECTION SYSTEM

STATION- INDIAN POINT 2
(UFSAR FIGURE NO. 7.2-20)

DRAWN BY *REPRO* CHECKED

SCALE NONE J. O. 32357-00

**CHIEF
DESIGN
ENG.**

ENG.

ENG.

CONSOLIDATED EDISON CO. OF N.Y., INC.

DWG. NO. E 243313-01

RECORDED

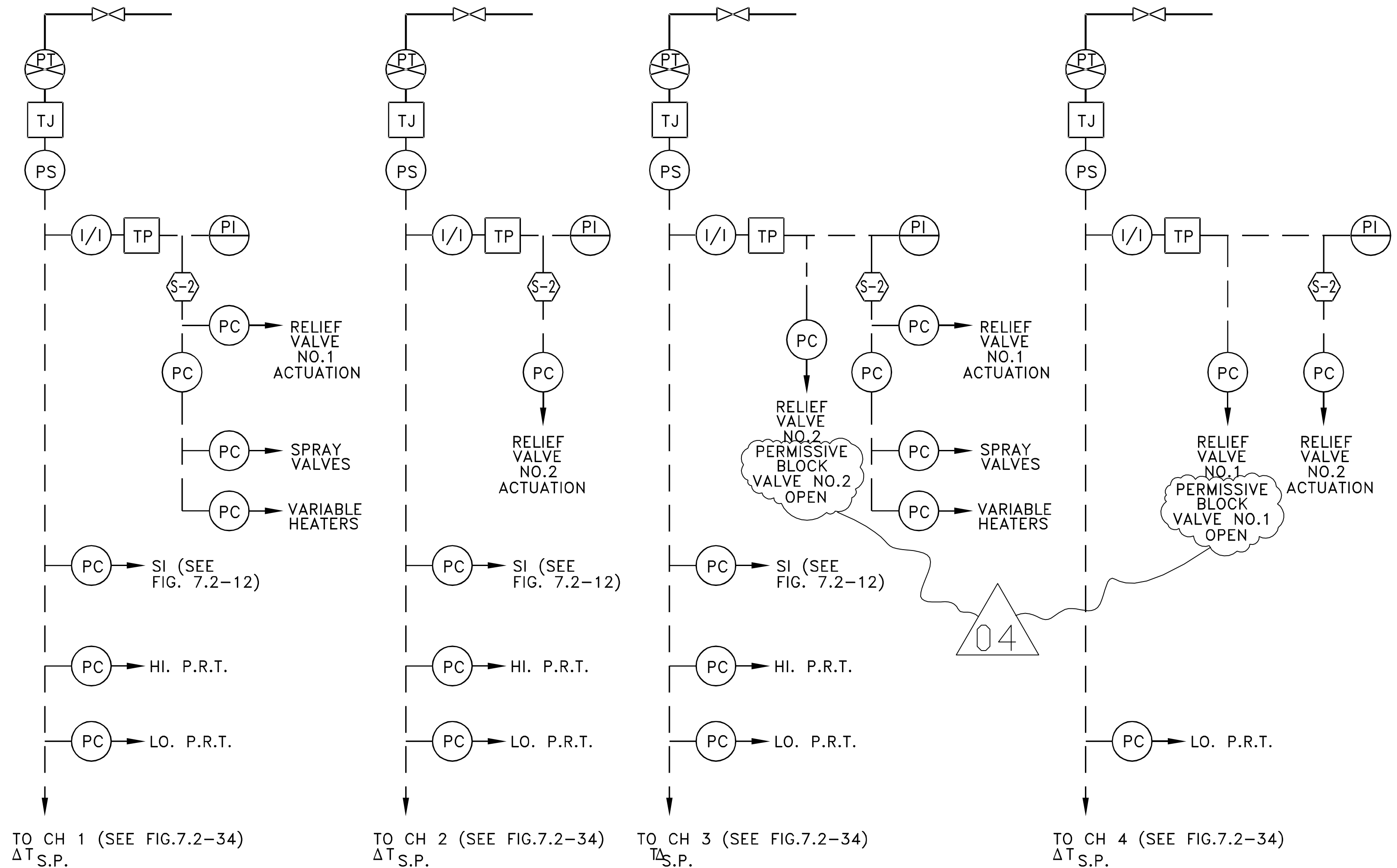
MI

01

04	INCORPORATED EC-7829	05/18/08	JS	APPROVAL SIGNATURES ON FILE	
REV	DESCRIPTION	DATE	BY	CHK'D	APP.
REVISIONS					

LEGEND

S-2 CHANNEL 1,2,3,4
SELECTOR SWITCH



PRESSURIZER PRESSURE CONTROL AND PROTECTION SYSTEM

STATION- INDIVIDUAL POINT 2

UFSAR FIGURE NO. 7.2-21

DRAWN BY REROO CHECKED

SCALE NONE J.O. 32357-00

APPROVALS

CHIEF DESIGN ENG.

ENG. 3. 11/11/85

ENG. 3. 11/11/85

CONSOLIDATED EDISON CO. OF N.Y., INC.

MI

RECORDED

DWG. NO. E 243314-04

REVISIONS

0

THIS REV.
IS NON-
CLASS
AS PER
CI-240-1
RELEASED
FOR INFO
ONLY
PN 32357
4-24-85

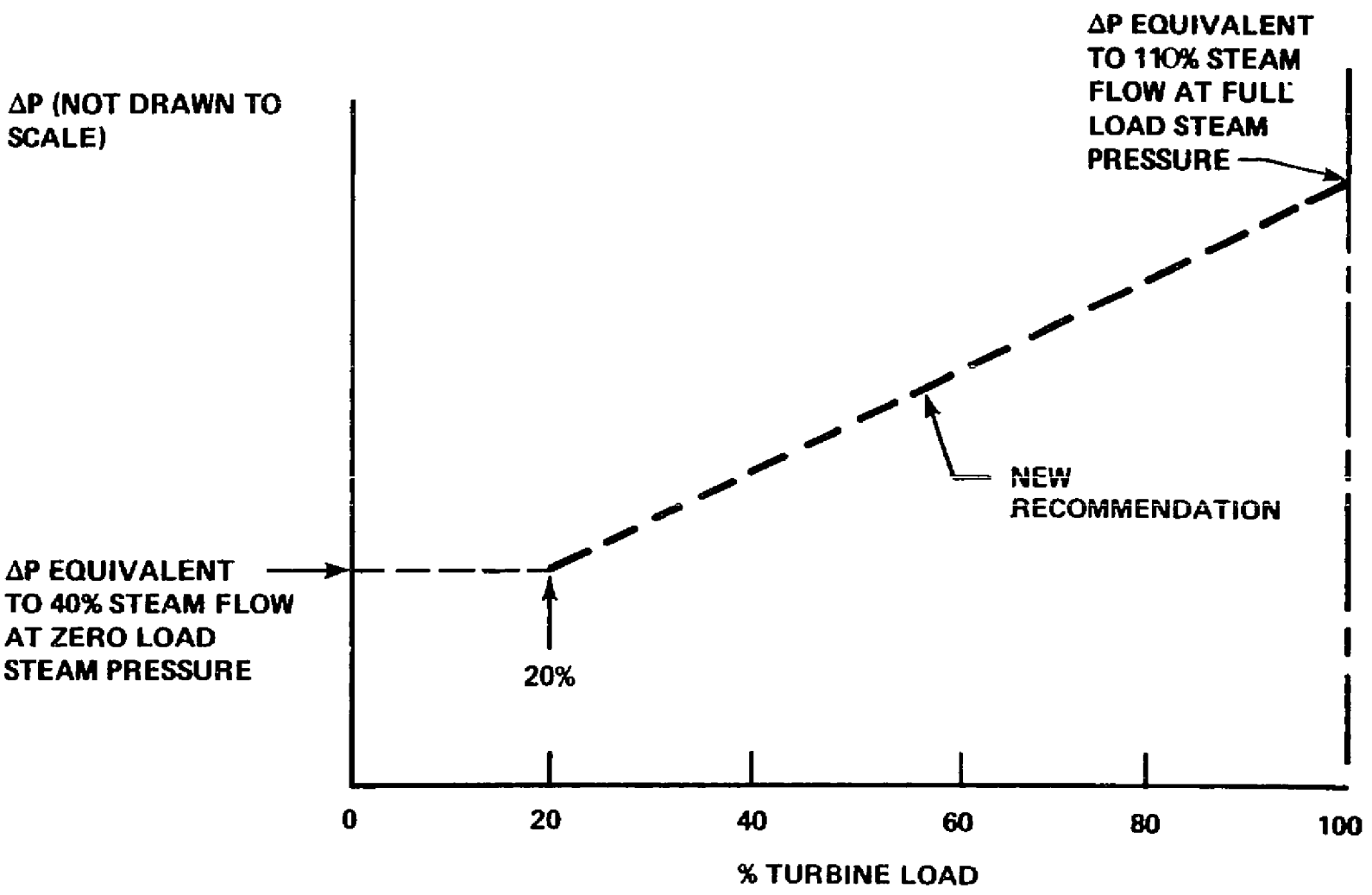
V.I.
4/18/99

01

THIS REVISION
IS NON-CLASS
PER CI-240-1
UPDATED DWG.
TO INCLUDE
UFSAR FIG. NO.
IN TITLE
P/N 69911-NP
RELEASED
FOR RECORD
DLA
4/18/99

STATUS
ENGINEERING

ΔP (NOT DRAWN TO
SCALE)



01

MI

STATION- INDIAN POINT 2
(UFSAR FIGURE NO. 7.2-22)

DRAWN BY REPRO CHECKED
SCALE NONE J.O. 32357-00

APPROVALS

CHIEF
DESIGN
ENG. [Signature] 4/18/99
ENG. [Signature] 3/13/99
DE
ENG. [Signature] 9/9/85

CONSOLIDATED EDISON CO. OF N.Y., INC.
DWG. NO. E 243315-01
RECORDED

REVISIONS

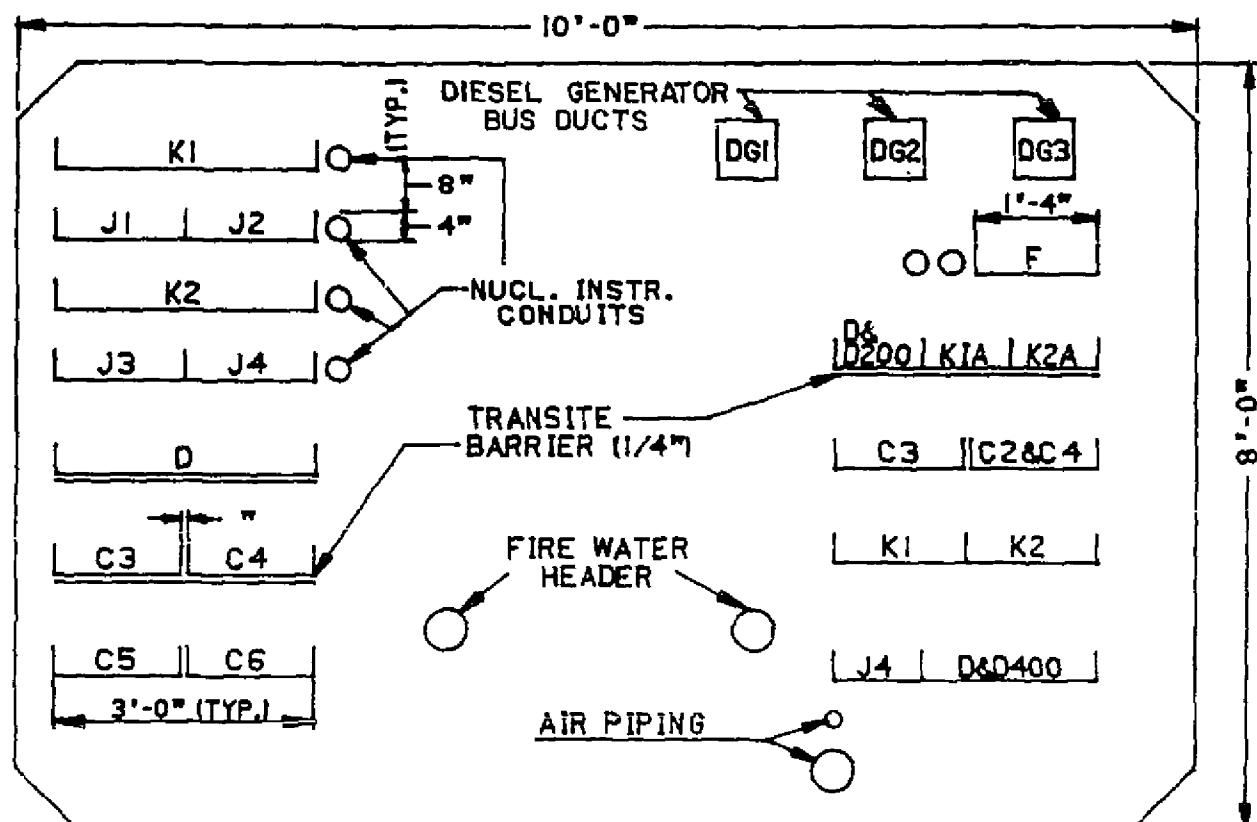
0

THIS REV.
IS NON-
CLASS
AS PER
CI-240-1
RELEASED
FOR INFO
ONLY
PN 32357
4-24-85

V.I.
4/18/99 01

THIS REVISION
IS NON-CLASS
PER CI-240-1
UPDATED DWG.
TO INCLUDE
UFSAR FIG. NO.
IN TITLE
P/N 69911-NP
RELEASED
FOR RECORD
DLA
4/18/99

STRATUS
ENGINEERING



TYPICAL SECTION-CABLE TUNNEL

- K1** CONTROL TRAY ONE CHANNEL (FOR VALVE CONTROL) ETC
J1-J2 2 INSTR TRAYS WITH BARRIERS-2 CHANNELS
K2 CONTROL TRAY ONE CHANNEL (FOR VALVE CONTROL) ETC
J3-J4 2 INSTR TRAYS WITH BARRIERS-2 CHANNELS
D MAX #12 WIRE FOR SMALL POWER & ONE CONTROL CHANNEL
C4 (480 V HEAVY POWER) CONT RECIRC FAN 21 SAF INJ PUMP 21 RECIRC PUMP 21
C3 (480 V HEAVY POWER) CONT RECIRC FAN 25 RES HT REM PUMP 22 SAF INJ PUMP 23 CONT RECIRC FAN 23
C6 (480 V HEAVY POWER) CONT RECIRC FAN 22 SAF INJ PUMP 22
C5 (480 V HEAVY POWER) RECIRC PUMP 22 RES HT REM PUMP 22 CONT RECIRC FAN 24

E (1ST CHANNEL) DC SUPPLY (EMERG) DIESEL GEN CONT PNL 23 LTG & MOTOR FEEDERS
D & D200 - KIA-K2A DIESEL GEN CONTROL 3 CHANNELS
C3 (480V HEAVY POWER) COMP CLG PUMP 23 MCC27 FEEDER MCC 26B FEEDER LTG SWGR TRANSF 22 CHARGING PUMP 22 CHARGING PUMP 23 CONT SPRAY PUMP 22
C2 (480V HEAVY POWER) DC EMER LTG FEEDER
C4 CONT SPRAY PUMP 21 COMP COOLING PUMP 21 COMP COOLING PUMP 22 MCC 26A FEEDER LTG SWGR TRANSF 23 CHARGING PUMP 21

K1-K2 CONTROL, 2 CHANNELS
J4 INSTR 1 CHANNEL
D&D400 MISC SMALL POWER & CONTROL 1 CHANNEL

01

MI

STATION- INDIAN POINT 2
(UFSAR FIGURE NO. 7.2-24)

DRAWN BY REPRO CHECKED

SCALE NONE

J.O. 32357-00

APPROVALS

CHIEF
DESIGN
ENG.

ENG.

DE
ENG.

CONSOLIDATED EDISON CO. OF N.Y., INC.

DWG. NO. E 243317-01

RECORDED

REVISIONS

613 0

THIS REV.
IS NON-
CLASS
AS PER
CI-240-1
RELEASED
FOR INFO
ONLY
PN 32357
4-24-85

V.JAYARAMAN
07-12-99

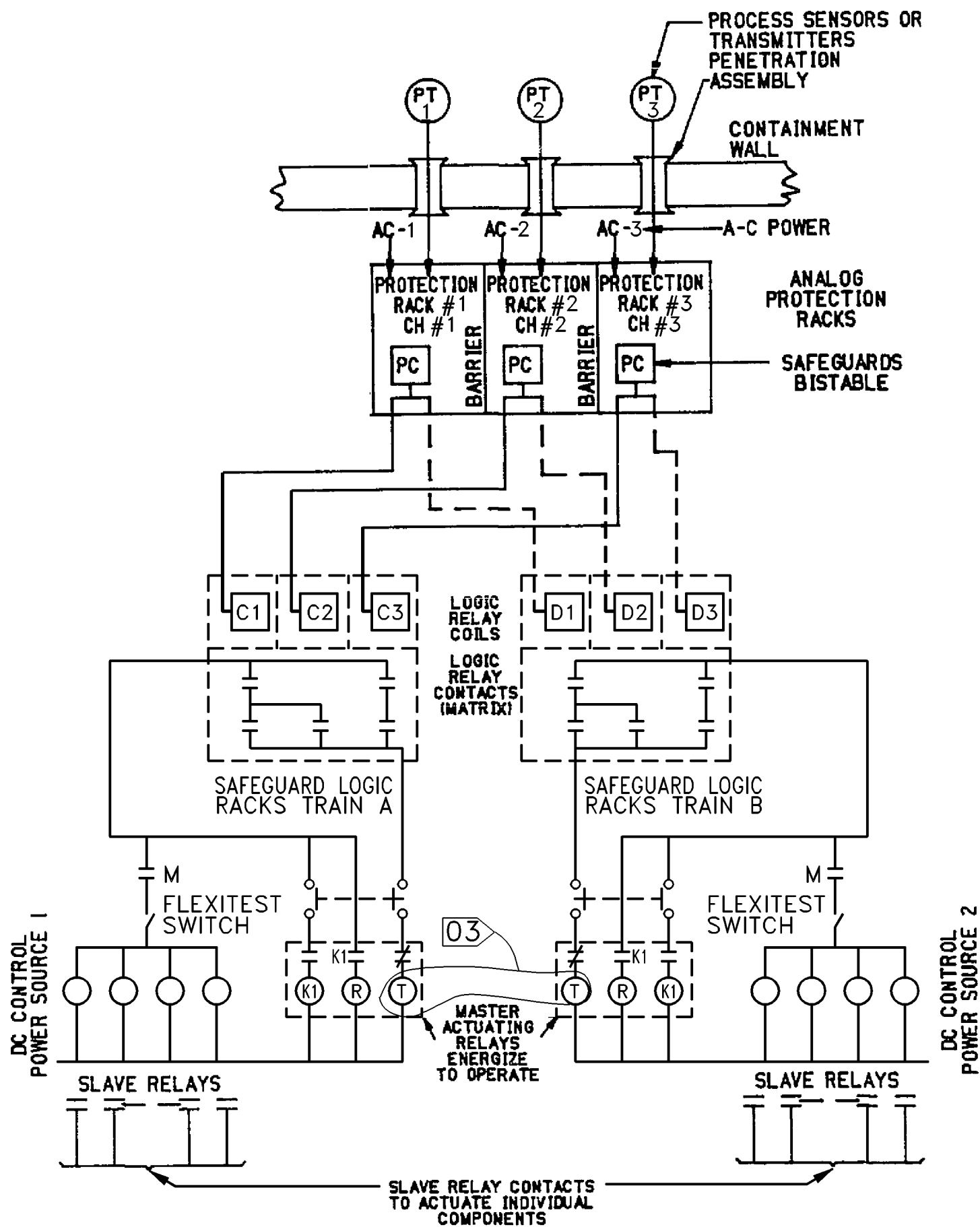
01

THIS REVISION
IS NON-CLASS
PER CI-240-1
UPDATED DWG.
PER CRS
#199806049;
FILE O-2014.
RELEASED
FOR RECORD
P.N.69911-NP
G.To.

V.JAYARAMAN
06/26/00

03

THIS REVISION
IS NON-CLASS
PER CI-240-1
UPDATED DWG.
PER CRS
#199800127
RELEASED
FOR RECORD
P.N.69982-CD
AG/VJ



SAFEGUARD ACTUATION CIRCUITRY
AND HARDWARE CHANNELIZATION

MI

STATION- INDIAN POINT 2
UFSAR FIGURE NO. 7.2-15

DRAWN BY REPRO

CHECKED

SCALE NONE

J. O. 32357-00

APPROVALS

CHIEF
DESIGN
ENG.

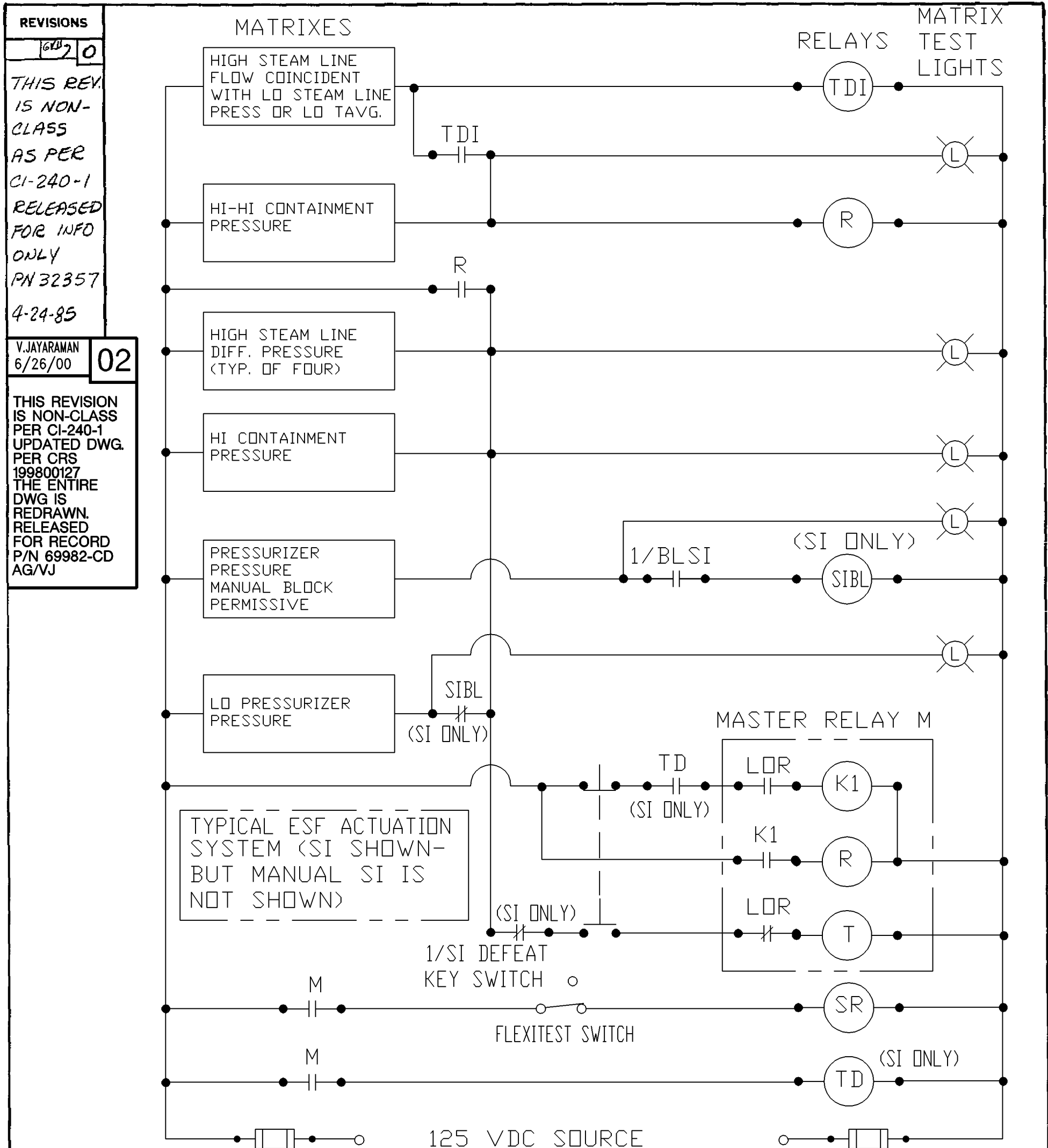
ENG.

DE
ENG.

CONSOLIDATED EDISON CO. OF N.Y., INC.

DWG. NO. E 243318-03

RECORDED



SIMPLIFIED DIAGRAM FOR OVERALL LOGIC RELAY TEST SCHEME

MI

STATION- INDIAN POINT 2
UFSAR FIGURE NO. 7.2-16

DRAWN BY REPRO

CHECKED

SCALE NONE

J. O. 32357-00

APPROVALS

CHIEF
DESIGN
ENG.

ENG.

v. ENG.

CONSOLIDATED EDISON CO. OF N.Y., INC.

DWG. NO. E 243319-02

RECORDED

REVISIONS

625 0
THIS REV.
IS NON-
CLASS
AS PER
CI-240-1
RELEASED
FOR INFO
ONLY
PN 32357
4-24-85

V.JAYARAMAN
08-24-99

1

THIS REV IS
NON CLASS AS
PER CI-240-1.
REVISED DWG
PER CRS
#199806043,
FILE O-2016.
RELEASED FOR
RECORD.
P.N.69911-NP
G.To.

V.INGRAVALLO
11/15/99

02

THIS REVISION
IS NON-CLASS
PER CI-240-1
UPDATED DWG.
TO INCLUDE
UFSAR FIG. NO.
IN TITLE
P/N 69911-NP
RELEASED
FOR RECORD
SW/PP

DUPLICATE
FOR
"B" MATRIX

SUPERVISORY
PANEL ALARM

TO TRANSMITTER

ANNUN.
CHANNEL TEST

SIGNAL
INJECTION

ANALOG TEST SIGNAL INJECTION SWITCH

POWER
SUPPLY

TEST
POINT

BISTABLES

BISTABLE TRIP
SWITCH

BISTABLE
PROVING
LAMP

A RELAY

LOGIC
TEST
SWITCH

ON TEST

RACK

TEST
AUX.
RELAY

MASTER
RELAY

FLEXITEST
SWITCH

A MATRIX

CONTACT

SLAVE
RELAYS

125V DC

COIL

ANALOG AND LOGIC CHANNEL TESTING

MI

STATION- INDIAN POINT 2
UFSAR FIGURE NO. 7.2-17

DRAWN BY *REPRO*

CHECKED

SCALE *NONE*

J.O. 32357-00

APPROVALS

CHIEF
DESIGN
ENG.

ENG.

DE
ENG.

CONSOLIDATED EDISON CO. OF N.Y., INC.

DWG. NO. E 243320-02

RECORDED

REVISIONS

1

0

THIS REV. IS NON-CLASS AS PER CI-240-1 RELEASED FOR INFO ONLY PN 32357 424-85

VJ

3/28/00

2

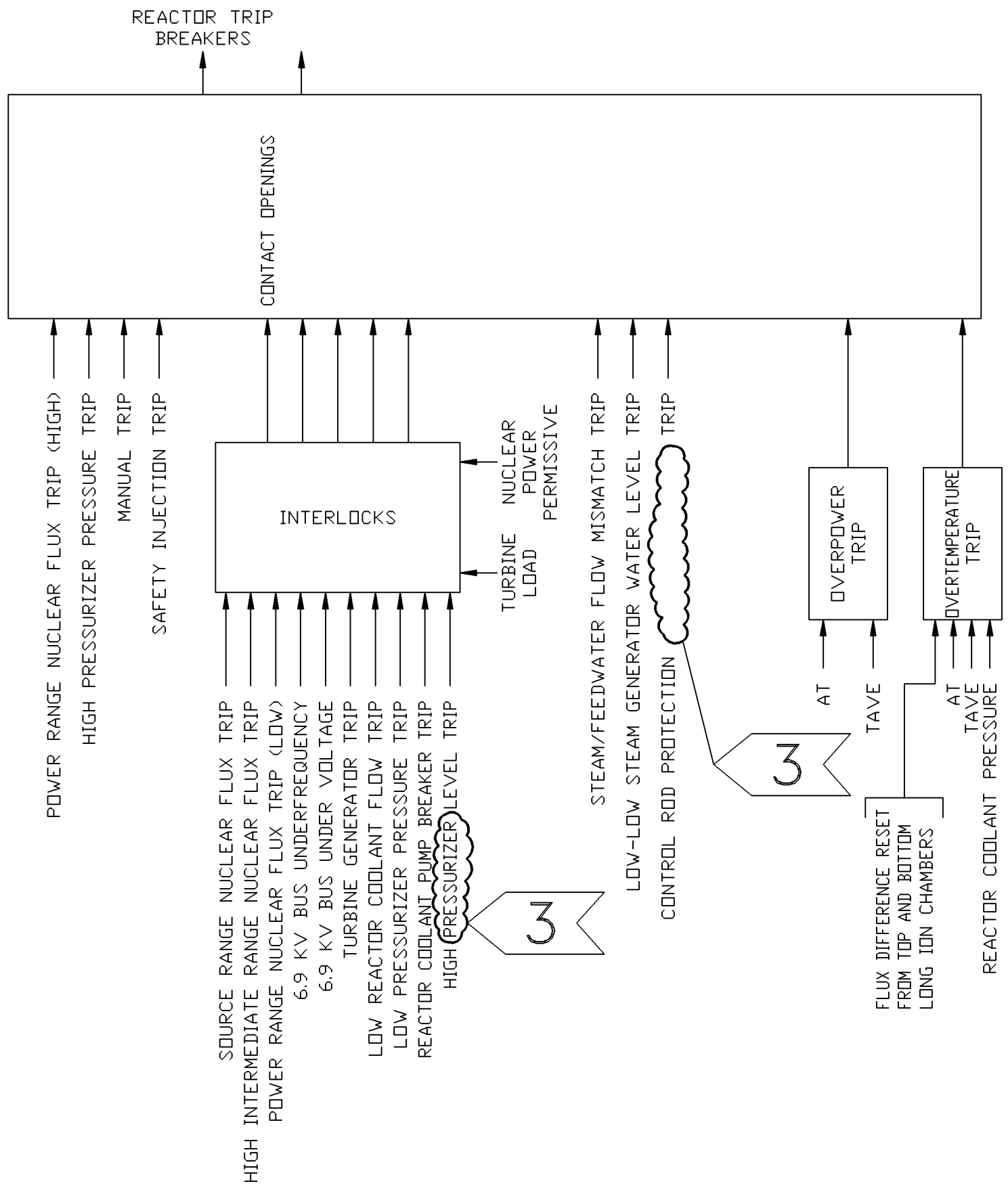
THIS REVISION IS NON-CLASS PER CI-240-1 UPDATED DWG. PER CRS # 199904040, FILE 0-2814. RELEASED FOR RECORD P/N 69982-CM SG

VJ

2/12/01

3

THIS REVISION IS NON-CLASS PER CI-240-1 UPDATED DWG. TO CORRECT TYPO & REMOVE S.P. VALUE FOR RECORD P/N 69901-AF JH



BLOCK DIAGRAM -
REACTOR PROTECTION SYSTEMS

STATION- INDIAN POINT 2	
UFSAR FIGURE NO. 7.2-18	
DRAWN BY REPRO	CHECKED
SCALE NONE	J. O. 32357-00

APPROVALS	CHIEF DESIGN ENG. [Signature]
	ENG. [Signature]
	DE [Signature]
	ENG. [Signature]

CONSOLIDATED EDISON CO. OF N.Y., INC.	
DWG. NO. E 243321-3	
RECORDED	

57952

REVISIONS

VS

0

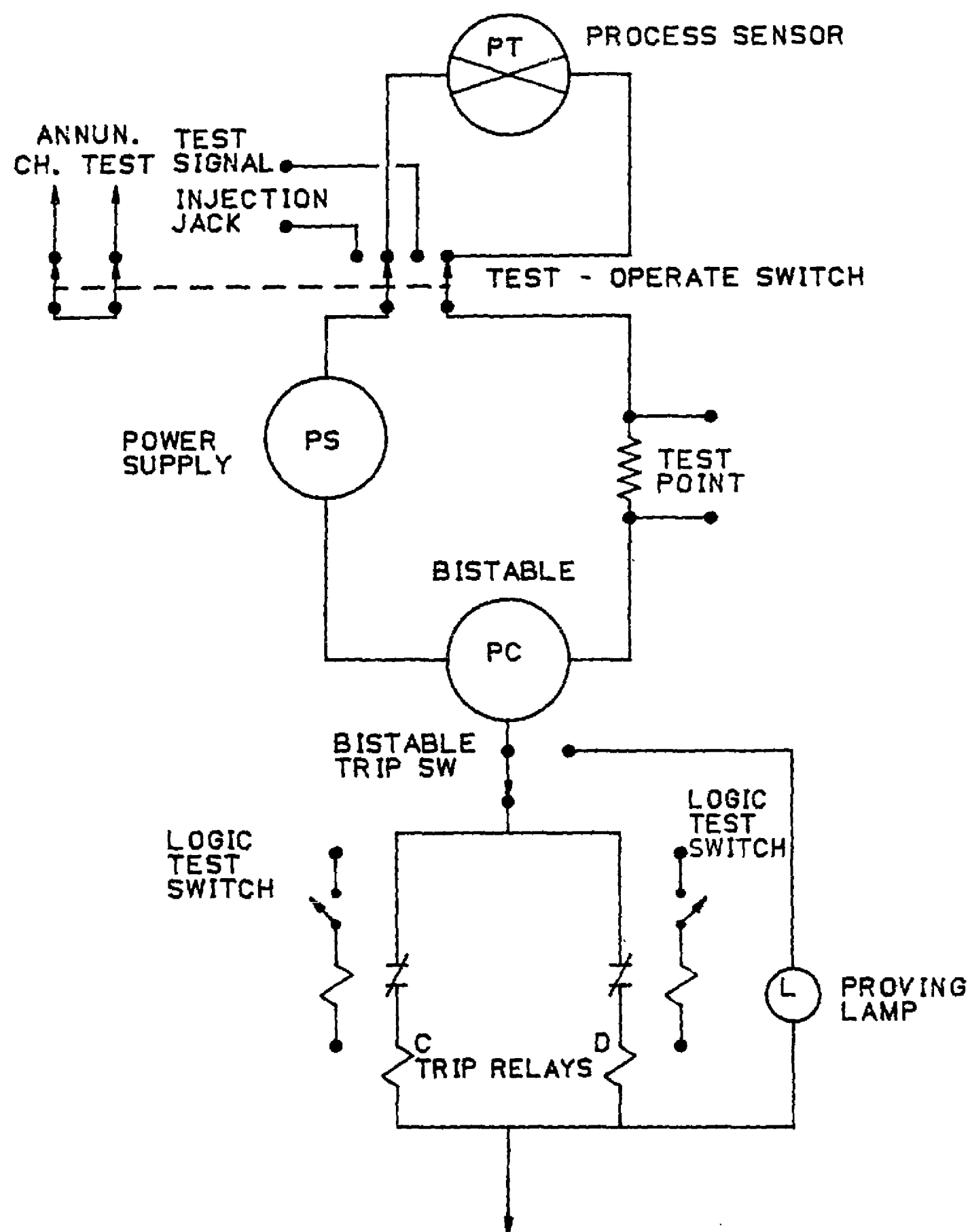
THIS REV.
IS NON-
CLASS
AS PER
CI-240-1
RELEASED
FOR INFO
ONLY
PN 32357
4-24-85

M.R.
05/29/01

01

THIS REVISION
IS NON-CLASS
PER THE QAPD.
UPDATED DWG.
TO INCLUDE
UFSAR FIG. NO.
IN TITLE
P/N 69901-AA
RELEASED
FOR RECORD
JH/T.D.
05/29/01

STRATUS
ENGINEERING



TYPICAL ANALOG CHANNEL TESTING ARRANGEMENT

01

MI

STATION- INDIAN POINT 2
(UFSAR FIGURE NO. 7.2-25)

DRAWN BY BEPRO
SCALE NONE

CHECKED
J. O. 32357-00

APPROVALS

CHIEF DESIGN ENG. *[Signature]* 6/14/89

ENG. *[Signature]* 7/13/85

DE ENG. *[Signature]* 9/9/85

CONSOLIDATED EDISON CO. OF N.Y., INC.

DWG. NO. E 243322-01

RECORDED

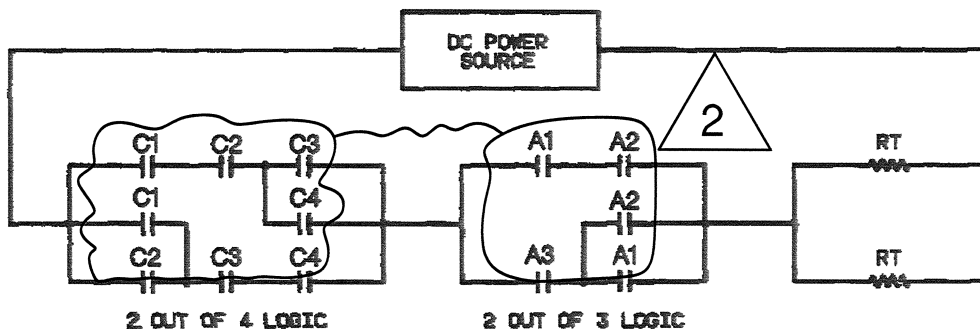
57952

REVISIONS

610 0

THIS REV.
IS NON-
CLASS.
AS PER
CI-240-1
RELEASED
FOR INFO
ONLY
PN32357
4-24-85

REVISION
5/25/88



2 OUT OF 4 LOGIC

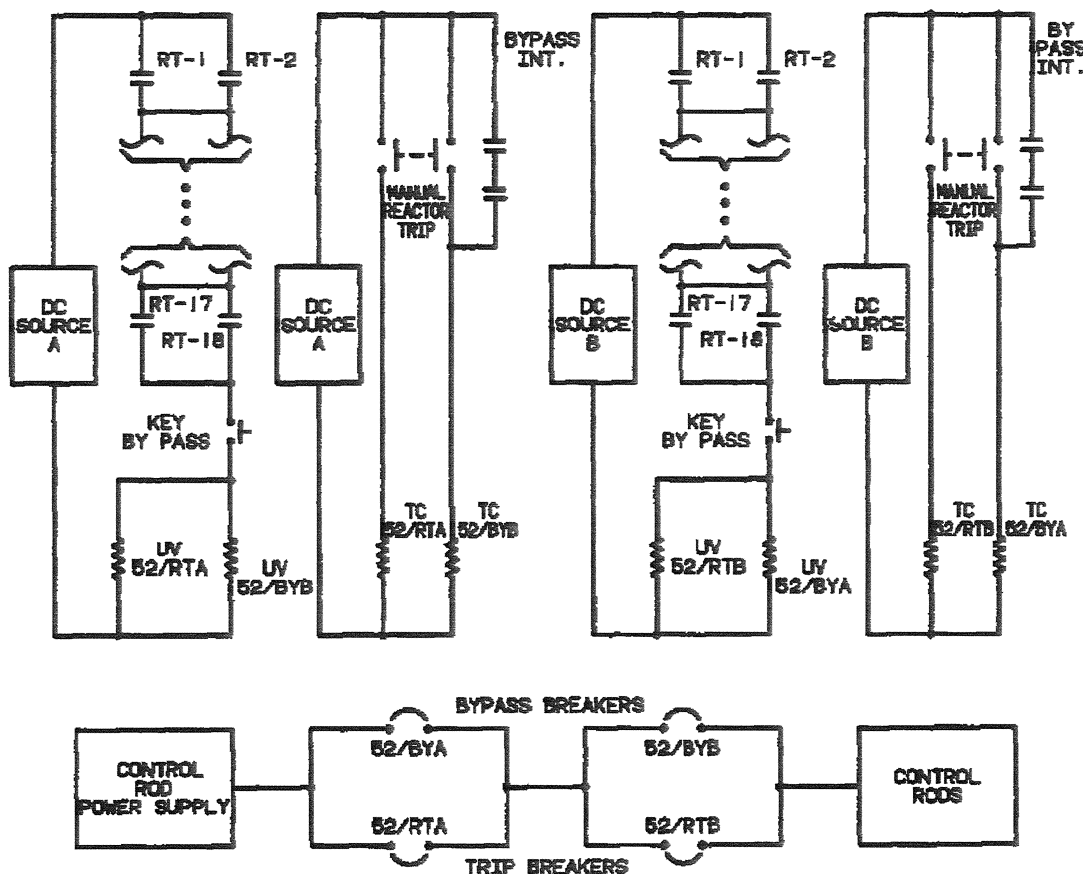
2 OUT OF 3 LOGIC

TYPICAL TRIP LOGIC

V.I.
4/18/99 01

THIS REVISION
IS NON-CLASS
PER CI-240-1
UPDATED DWG.
TO INCLUDE
UFSAR FIG. NO.
IN TITLE
P/N 69911-NP
RELEASED
FOR RECORD
DLA
4/18/99

STRATUS
ENGINEERING



2	INCORPORATED DRN-06-00911, ER-IP2-05-25318	3/14/06	JS	Rev 15/8	
REV	DESCRIPTION	DATE	BY	CHK'D	APP.
REVISIONS					

2

MI

STATION- INDIAN POINT 2

DRAWN BY REPRO CHECKED
SCALE NONE J.O. 32357-00

APPROVALS

CHIEF
DESIGN
ENG.

ENG.
DE
ENG.

CONSOLIDATED EDISON CO. OF N.Y., INC.

DWG. NO. E 243323-2

RECORDED

REVISIONS

615 0

THIS REV.
IS NON-
CLASS
AS PER
CI-240-1
RELEASED
FOR INFO
ONLY
PN 32357
4-24-85

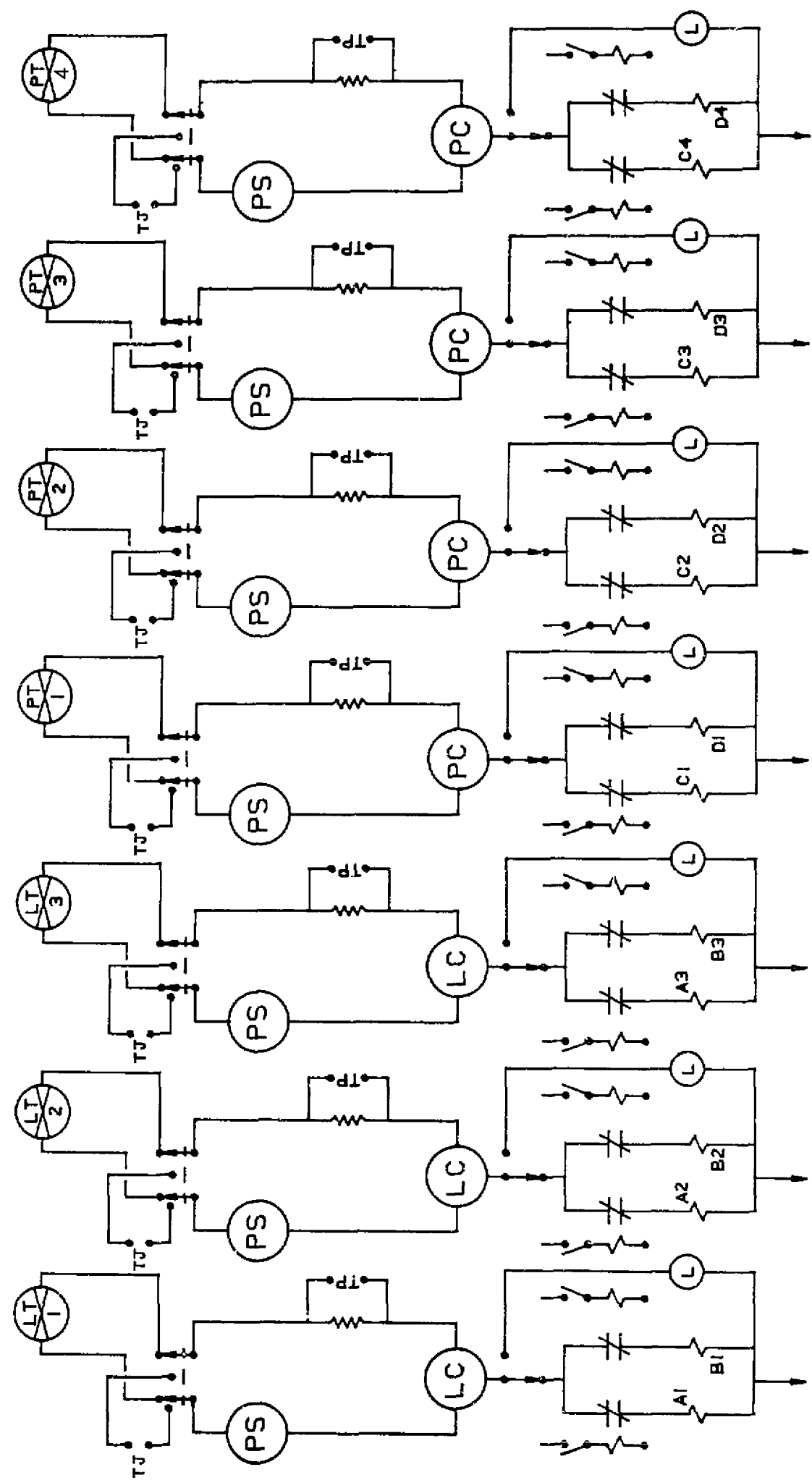
J. SCANDIFFIO
11-24-98 01

THIS REVISION
IS NON CLASS
AS PER CI-240-1.
REVISED DWG.
PER CITRS
#98-E06025,
FILE 0-2010.
RELEASED FOR
INFORMATION.
P.N. 69911-NP.
G.To.

V.I.
4/18/99 02

THIS REVISION
IS NON-CLASS
PER CI-240-1
UPDATED DWG.
TO INCLUDE
UFSAR FIG. NO.
IN TITLE
P/N 69911-NP
RELEASED
FOR RECORD
DLA
4/18/99

STATUS
ENGINEERING



TJ - TEST SIGNAL INSERTION JACK
TP - TEST POINT
NOTE - REDUNDANT CHANNELS
ARE ISOLATED
ANALOG CHANNELS

02

MI

STATION- INDIAN POINT 2
UFSAR FIGURE NO. 7.2-27

DRAWN BY REPRO CHECKED
SCALE SCALE J. O. 32357-00

APPROVALS

CHIEF DESIGN ENG. [Signature] 2/14/87
ENG. [Signature] 3/12/87
ENG. [Signature] 7/1/85

CONSOLIDATED EDISON CO. OF N.Y., INC.

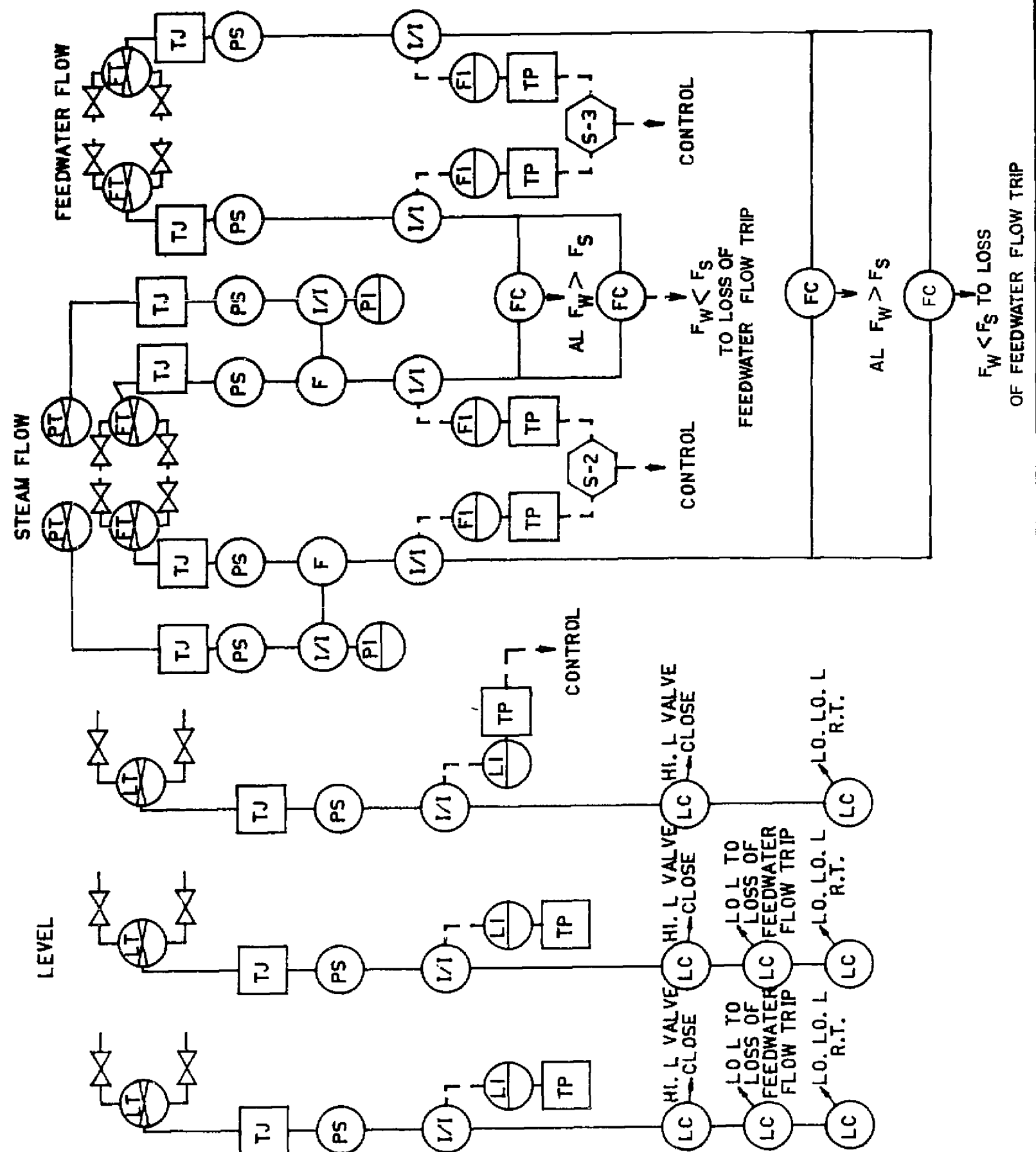
DWG. NO. E 243324-02

RECORDED

REVISIONS	
19	0

THIS REV.
IS NON-
CLASS
AS PER
CI-240-1
RELEASED
FOR INFO
ONLY
PN 32357
4-24-85

V.I. 4/18/99	01
THIS REVISION IS NON-CLASS PER CI-240-1 UPDATED DWG. TO INCLUDE UFSAR FIG. NO. IN TITLE P/N 69911-NP RELEASED FOR RECORD DLA 4/18/99	
STRATUS ENGINEERING	



STATION- INDIAN POINT 2
UFSAR FIGURE NO. 7.2-32

DRAWN BY *REPRO* CHECKED
SCALE *NONE* J.O. 32357-00

01

APPROVALS

CHIEF DESIGN ENG. *[Signature]*
ENG. *[Signature]* 9/9/85
ENG. *[Signature]* 7/1/85

CONSOLIDATED EDISON CO. OF N.Y., INC.

DWG. NO. E 243328-01

RECORDED