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Consumers Power Company

General Offices: 212 West Michigan Avenue, Jackson, Michigan 49201 • Area Code 517 788-0550

COPY

September 16, 1971

Dr. Peter A. Morris, Director
Division of Reactor Licensing
US Atomic Energy Commission
Washington, DC 20545

Re: Docket No 50-255
License No DPR-20

Dear Dr. Morris:

This letter is written to apprise you of a recent incident involving the primary coolant system at this facility.

At the time the incident occurred, the plant was in a hot shutdown condition with the primary coolant system at refueling boron concentration, 532° F and 2100 psia. Three of the four primary coolant pumps were in operation and preparations underway to bring the reactor critical for operator training.

At 1335 on September 8, 1971, a technician de-energized the breakers to the reactor protective system to install a minor modification. This act de-energized the feed to the electromatic relief valve pilot valve solenoids allowing the valves to open.

The primary system pressure decreased to a low point of approximately 1280 psia over a period of 2 - 3 minutes until the blowdown was terminated by closure of the motor operated valves used to isolate the open relief valve.

The system pressure and temperature were back to normal in approximately one hour.

S/JJK/Staff 9/24/71
RHE

Inquiry Amer Date 9-16-71

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S PDR

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The rate of depressurization of the reactor vessel and the pressurizer approximated the design rate for a pressurizer safety valve operation. The number of occurrences allowed for in the design was 200. Therefore, we conclude that the integrity of the primary coolant system has not been compromised by this incident.

SEQUENCE OF EVENTS

1335 Breaker #13 on panels Y10 and Y30 de-energized to allow for a minor modification to the reactor protective system. Refer to attached drawing E-8.
Relays K1 and K3 which feed the electrically operated pressurizer relief valve bi-stables (RV1042B and RV1043B) de-energized.

1335 RV1043B opened and released steam to the quench tank starting a decrease of primary system pressure. RV1042B had previously been isolated by means of the motor operated isolation valve and did not pass steam during the incident. Refer to attached drawing M-201.

1336 Safety injection signal (SIS) actuated on both channels, however the A channel was blocked by action of the operator upon realization of the cause of the pressure drop. Safety injection pumps started.

1336 Operator started MOV1043A closing.

1337 Charging pump P55C manually started.

1337 System pressure decay turned around at a low point of 1280 psia as MOV1043A closed stopping flow of steam to the quench tank via RV1043B.

1338 Stopped safety injection pumps.

1343 Breaker #13 on panels Y10 and Y30 closed and power restored to relief valve control circuits.

1344 Returned charging and letdown to normal.

1400 As the system pressure recovered to a point above 1700 psia, the operator reset the safety injection channel B and returned all equipment to normal.

1430 Primary coolant system pressure and temperature back to normal. The coolant temperature and pressurize level swings of 3^{o} F

and 4 percent respectively are considered insignificant.

CAUSE OF INCIDENT

The basic cause of this incident was the non-standard designation of contacts (as used by the architect engineer on the drawing) in the control circuit to the power operated relief valves. The technician was misled by the 'a' contact designation as shown on the drawing when in fact the circuit is wired using 'b' contact(s). This led him to believe the relief valves would not open when the power was removed by opening breaker #13 on the panels Y10 and Y30.

CORRECTIVE ACTION PLANNED

The drawing(s) will be corrected to indicate the "as built" condition using standard notations.

A review of the control scheme design will be conducted by Consumers and the Reactor Supplier personnel to determine if any changes are desirable in order to lessen the probability of a second incident.

The plant operators will be furnished with revised procedures indicating steps to be utilized to minimize the blowdown if it should occur in the future.

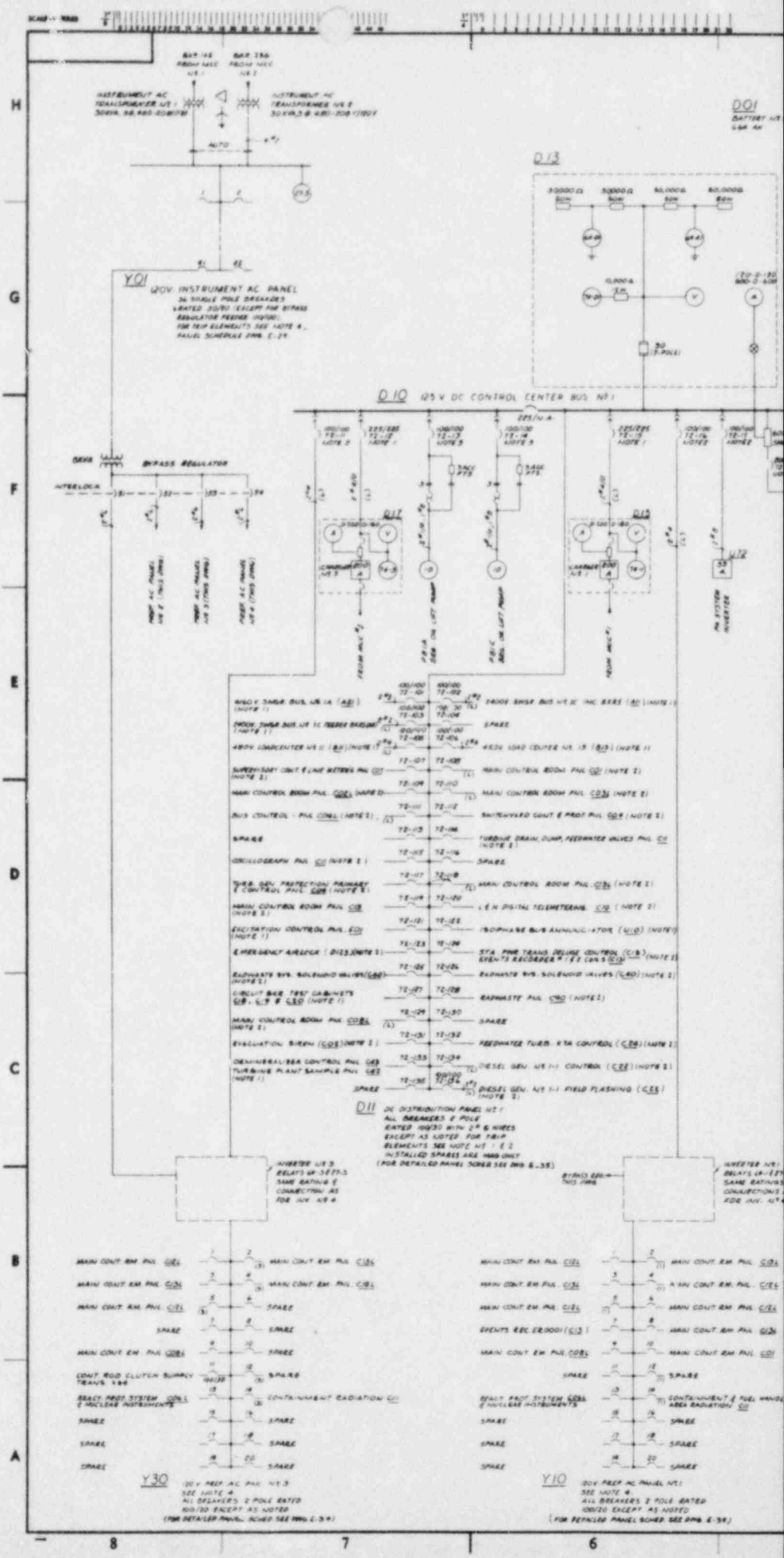
Yours very truly,

R. L. Haueter

LMH/ERC/mho

Robert L. Haueter
Electric Production
Superintendent - Nuclear

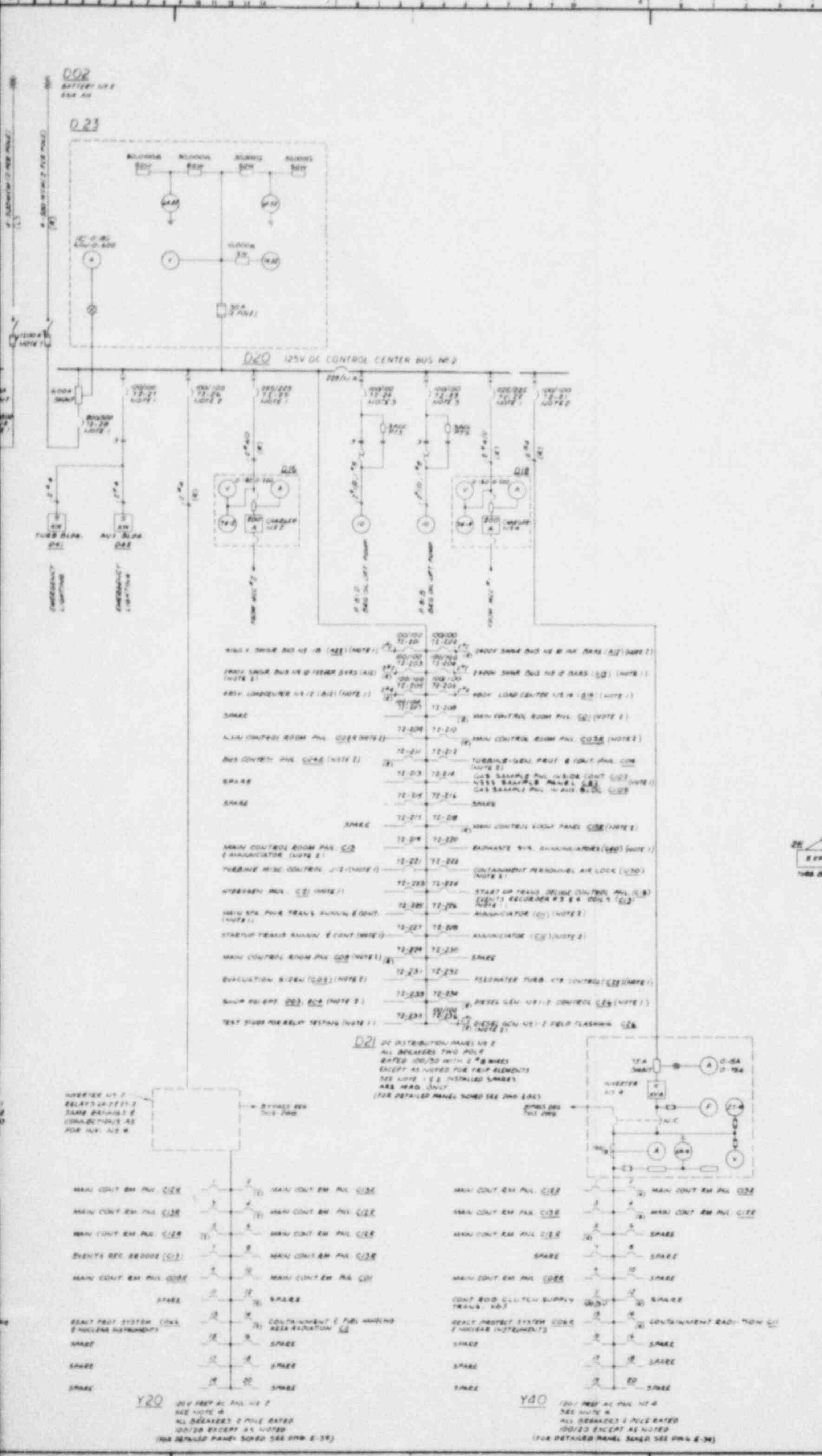
CC: BHGrier
USAEC Compliance, COO


D10 125 V DC CONTROL CENTER BUS NO 1
D13
D11 DC DISTRIBUTION PANEL NO 1
Y01 120V. INSTRUMENT AC PANEL
Y30 120 V PREF AC PNL NO 3
Y10 120V PREF AC PANEL NO 1
BYPASS REGULATOR
INTERLOCK
MAIN CONT. RM. PNL. C06
MAIN CONT. RM. PNL. C26
MAIN CONT. RM. PNL. C07
MAIN CONT. RM. PNL. C27
MAIN CONT. RM. PNL. C21
SPARE
MAIN CONT. RM. PNL. C08
CONT. ROD CLUTCH SUPPLY TRANS. 1 AND 2
REACT. PROT. SYSTEM CONS. & NUCLEAR INSTRUMENTS
CONTAINMENT RADIATION C11
CONTAINMENT & FUEL HANDLING AREA RADIATION C11
EVENTS REC. ER 9001 (C13)
MAIN CONT. RM. PNL. C08A
MAIN CONT. RM. PNL. C01
H
G
F
E
D
C
B
A
8
7
6

SIZE E

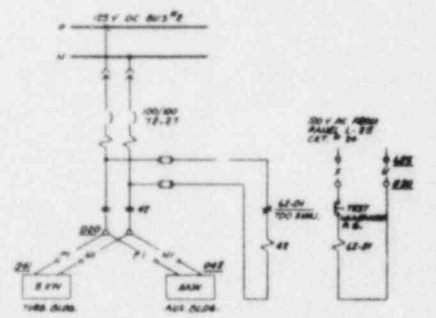
NOTES

1. BREAKERS WITH THERMAL MAGNETIC TRIP.
2. BREAKERS WITH ADJUSTABLE MAGNETIC TRIP ONLY
3. BREAKERS WITH ADJUSTABLE MAGNETIC TRIP ONLY STARTERS WITH THERMAL OVERLOAD ELEMENTS USED FOR ALARM ONLY, SET AT 115% MOTOR FULL LOAD CURRENT.
4. ALL BREAKERS ARE TWO POLE WITH THERMAL MAGNETIC TRIP AND 2/C #12 WIRES
5. (L) INDICATES CIRCUITS ROUTED IN LEFT HAND CHANNEL & (R) INDICATES CIRCUITS ROUTED IN RIGHT HAND CHANNEL SEPARATED FROM EACH OTHER.
6. (1) CHANNEL 1 / (2) CHANNEL 2 / (3) CHANNEL 3 / (4) CHANNEL 4 — CIRCUITS OF THE FOUR CHANNELS MUST BE SEPARATED FROM EACH OTHER.
7. CHASE-SHAWMUT CO FORM 600, TYPE 5 FUSES HOOK-STICK OPERATED.

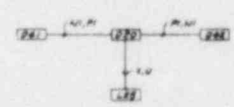


METER AND RELAY TABLE

DEVICE	DESCRIPTION	MFGR. AND TYPE	FUNCTION
62-01	TIMER FOR EMCY LIGHTS	AGLA.K&	CONTROL
64-01	DC BUS 1 GRND DETECTOR	WESTON 1-0-0	ALARM
64-02	" " 2 " "	" " "	"
64-R1	" " 1 " RECORDER	STERLINE ANGUS MODEL A601C	[illegible]
64-R2	" " 2 " "	" "	"
64-1	PREF AC BUS 1 GRND DET	ELECTRONIC DEVICE	ALARM
64-2	" " " 2 " "	" "	"
64-3	" " " 3 " "	" "	"
64-4	" " " 4 " "	" "	"
74-01	DC BUS 1 UNDER V RELAY	[illegible]	"
74-02	" " 2 " " "	" " "	"
A	AMMETER	WESTINGHOUSE SKI	INDICATION
V	VOLTMETER	" "	"
F	FREQUENCY METER	J. & T.	"
74-1	CHARGER 1 UNDER V RELAY	ELECTRONIC DEVICE	ALARM
74-2	" 2 " " "	" "	"
74-3	" 3 " " "	" "	"
74-4	" 4 " " "	" "	"
27-1	PREF. AC BUS 1 UNDER V RELAY	ELECTRONIC DEVICE	"
27-2	" " " 2 " " "	" "	"
27-3	" " " 3 " " "	" "	"
27-4	" " " 4 " " "	" "	"
27-5	INSTR. AC BUS " " "		



EMERGENCY LIGHTING
SCHEME D027



SCHEME D027

4	[illegible]	ADDED FUSES & NOTE 7 REV. PANEL BKR. TITLES	M.T.						
3	[illegible]	REV DC & INST AC BKR LOAD	M.T.						
2	[illegible]	Rev. loads as marked; added note #& 6	[illegible]						
1	[illegible]	ISSUED FOR CONSTRUCTION	M.T.						
No.	DATE	REVISIONS	BY						

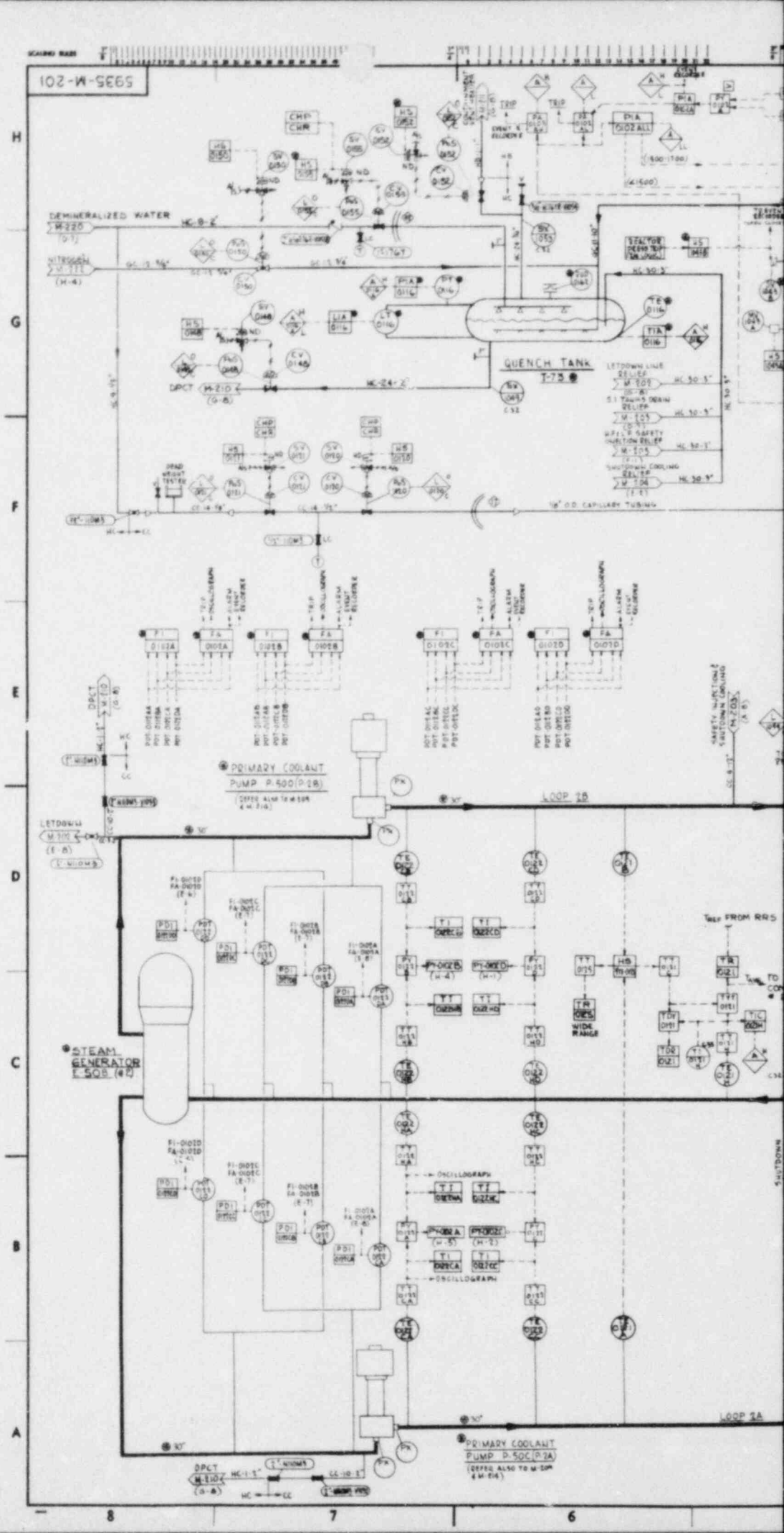
SCALE NONE — DRAWN P. KUKN — [illegible] TAHMASSEBI

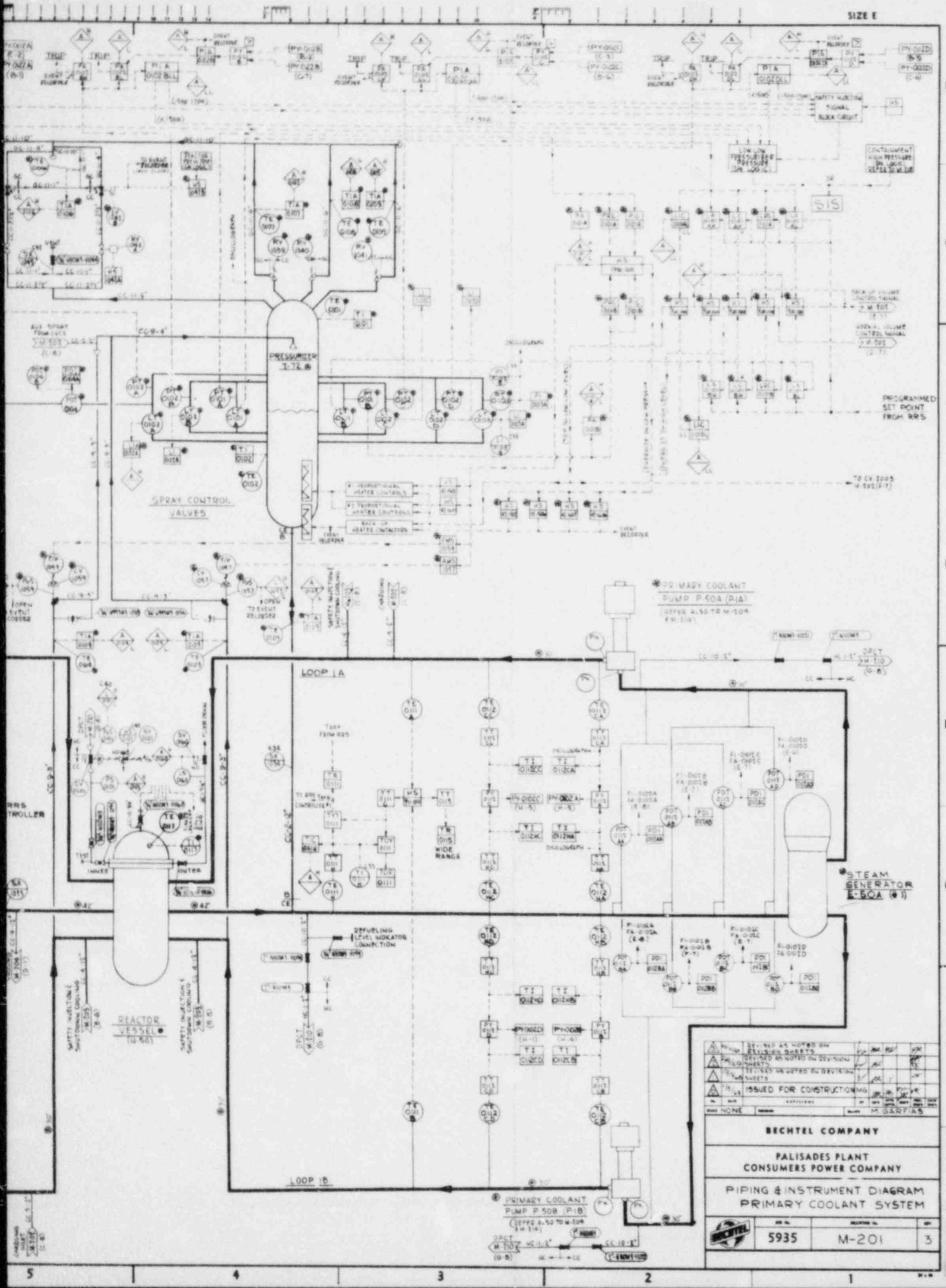
BECHTEL COMPANY

PALISADES PLANT
CONSUMERS POWER COMPANY

SINGLE LINE METER & RELAY DIAGRAM
125V DC,
120V INSTRUMENT & PREFERRED AC SYSTEM

JOB No.	DRAWING No.	REV.
5935	E-8	3


5935-M-201
DEMINERALIZED WATER
QUENCH TANK
T-75
PRIMARY COOLANT PUMP P-50C (P-2A)
LOOP 2A
PRIMARY COOLANT PUMP P-50D (P-2B)
LOOP 2B
STEAM GENERATOR E-50B (E-2)
LETDOWN
WIDE RANGE
H
G
F
E
D
C
B
A
8
7
6


SIZE E
PRESSURIZER T-72A
SPRAY CONTROL VALVES
PROGRAMMED SET POINT FROM RRS
SIS
LOOP 1A
LOOP 1B
REACTOR VESSEL
STEAM GENERATOR E-50A (# 1)
PRIMARY COOLANT PUMP P-50A (P-1A)
PRIMARY COOLANT PUMP P-50B (P-1B)
REFUELING LEVEL INDICATOR CONNECTION
WIDE RANGE
RRS TROLLER
BECHTEL COMPANY
PALISADES PLANT
CONSUMERS POWER COMPANY
PIPING & INSTRUMENT DIAGRAM
PRIMARY COOLANT SYSTEM
5935
M-201
3
ISSUED FOR CONSTRUCTION
M. GARFIAS