



Carolina Power & Light Company

FEB 08 1993

SERIAL: NLS-93-006

United States Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, DC 20555

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325 & 50-324/LICENSE NOS. DPR-71 & DPR-62
RESPONSE TO REQUESTED INFORMATION REGARDING CBHVAC SYSTEM TECHNICAL MEETING
(NRC TAC NOS. M85143 AND M85144)

Gentlemen:

On December 17, 1992, Carolina Power & Light Company made a Technical Presentation to the NRC staff regarding ongoing modifications to the Control Building Heating, Ventilation, and Air Conditioning System (CBHVAC) Emergency Ventilation function (CBEVS). The purpose of this letter is provide the information requested by the NRC staff at the conclusion of the presentation, in support of a Technical Specification Amendment request related to this system (Reference CP&L Letter NLS-93-004, dated January 12, 1993).

Please refer any questions regarding this submittal to Mr. D. B. Waters at (919) 546-3678.

Yours very truly,

D. C. McCarthy
Manager

Nuclear Licensing Section

KAH/kah (nls93006.002)

Enclosure

cc: Mr. Dayne H. Brown
Mr. S. D. Ebner
Mr. P. D. Milano
Mr. R. L. Prevatte

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PDR ADDCK 05000324
P PDR

411 Fayetteville Street * P. O. Box 1551 * Raleigh, N. C. 27602

ADD 1/1

ENCLOSURE 1

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
NRC DOCKET NOS. 50-325 & 50-324
OPERATING LICENSE NOS. DPR-71 & DPR-62
RESPONSE TO REQUESTED INFORMATION REGARDING CBHVAC SYSTEM TECHNICAL MEETING
(NRC TAC NOS. M85143 AND M85144)

Item 1

Provide copies of the 10 CFR 50.59 Evaluations pertaining to this issue.

Response to Item 1

Attachments 1 and 2 provide the 10 CFR 50.59 Evaluations for the proposed modification (PM 92-108) and the review of the as-found condition of the system (EER 92-0352).

Item 2

Provide a discussion on the separation of the various instrument trains, indicating the 1E and non-1E portions of the system.

Response to Item 2

INSTRUMENT TRAIN SEPARATION:

The Original FSAR, Section M14.5 and the Updated FSAR, Table 6.4.4-2, state that no single failure in the Chlorine Detection System will prevent automatic isolation of the control room ventilation system in the event of an accident which causes the chlorine detectors to alarm. In order to ensure that the system meets this criteria, the new chlorine detection logic system was designed redundant/divisionally separated per the requirements stated in Brunswick Specification 048-004 "RACEWAY SYSTEMS AND ISOLATION AND SEPARATION OF INTERCONNECTING WIRE AND CABLE." The referenced specification and standards used in this document include IEEE 279-1971 and IEEE 308-1971. This specification outlines the physical separation requirements for the design of divisionalized raceway systems and specific separation requirements within termination/junction panels. Figure 1 from PM 92-108 provides a color-coded view of the functional arrangement of the chlorine detection system logic.

1E/NON-1E SEPARATION:

The present design of the new chlorine detection logic system contains two 1E/non-1E interface points. The first interface point is where the non-1E chlorine detection system (CDS) logic derives power from the 1E power source that provides power to the 1E Control Building Emergency Air Filtration (EAF) units. The second interface is at the point where the CDS logic provides inputs to the EAF units.

At the first interface point, a fuse is used to provide isolation between the Non-1E CDS and the 1E EAF units. The acceptability of using a fuse as an isolation device between 1E and non-1E logic was reviewed against the requirements of Regulatory Guide 1.75, Revision 2, and IEEE 384-1971. Regulatory Guide 1.75 recommends against the use of interrupting devices actuated only by fault

current; however, IEEE 384-1981, Section 7.2.2.3, allows the use of a fuse as an isolation device provided the fuse meets the general requirements of isolation devices described in IEEE 384-1981, Section 7.2.2.1 with the additional criteria stated in IEEE 384-1981, Section 7.2.2.3.

A calculation has also been performed which demonstrates coordination between the fuse (6A BUSS KTK-R) and the upstream breaker such that a failure in the non-1E CDS logic will not adversely affect the 1E loads fed from the same breaker (CP&L Calc. No. BNP-E-1.034).

The second 1E/Non 1E interface occurs at the relay (GE CR2810) which provides the isolation of the emergency air filter start logic on receipt of a high chlorine signal. The coil of the relay resides in the non-1E CDS logic and is energized on a high chlorine signal. The contacts of the relay are located upstream of the 1E EAF unit start logic. On receipt of a high chlorine signal, the relay coil is energized, and the contacts in the EAF unit start logic open. Isolation of this 1E/non-1E interface point is provided by the coil-contact arrangement. The relay was purchased to Class 1E requirements and seismically qualified to ensure that the EAF unit circuit continuity would be maintained through a design basis event.

The types of isolation used in the design of the new chlorine detection system logic are consistent with isolation methods used in other applications at the Brunswick Plant. For example, the fuse and relay combination was used to provide isolation in plant modifications associated with NUREG-0737, Item II.E.4.2.7, Containment Isolation on High Radiation. The NRC Safety Evaluation associated with this change accepted the design methods used in these modifications.

Item 3

Provide a discussion on how the system meets the single failure criteria.

Response to Item 3

The design of the current Control Building HVAC (CBHVAC) System does not meet the single failure criteria of IEEE 279-1971, as discussed in Attachment 1 (EER 92-0352). This failure to meet the single failure criteria is due to the design of the emergency air filtration (EAF) unit start logic. On a loss of power to the start logic, a fan fail-to-start signal is not provided to the standby EAF unit which would be required to start in this situation (assuming a high radiation/smoke signal is present). The current chlorine detection system logic (not including the logic input to EAF units) does meet the single failure criteria by virtue of a "fail-safe" design. This design was provided to ensure that any single component failure would not prevent the Control Building HVAC System from isolating and the emergency filtration units from operating. The problem with the "fail-safe" design is that it presents the possibility of a chlorine isolation signal input to the EAF unit logic, resulting from a single failure within the chlorine detection system logic, at a time when the EAF function is required for a radiation event.

In order to eliminate the above single failure concerns, a modification to the Control Building EAF unit start logic, including the chlorine detection logic system input to the units, is required. Plant Modification 92-108 outlines the required logic changes within the start logic of EAF units necessary to eliminate the single failure concern. This logic change involves the replacement of the fan fail-to-start relay, which presently is required to energize on an unsuccessful fan start, to a relay which will de-energize on a fan fail-to-start condition. This design ensures that on a high radiation signal, concurrent with a loss of power to the preferred filter train start logic, the standby train will receive the fan fail-to-start signal from the preferred train and begin operation.

In order to eliminate the chlorine detection logic single failure input to the emergency filtration units, an extensive design change is required. A design requirement of the chlorine detection logic is, upon receipt of a chlorine signal, to prevent the emergency air filtration units from operating or shut down operating EAF units. This design requirement prevents the introduction of chlorine into the charcoal beds, since the beds do not effectively remove the chlorine and may be damaged by its introduction. In addition, by operating the EAF units during a chlorine event, an outside air flowpath is created, increasing the potential for chlorine introduction into the Control Room envelope. In order to meet this design requirement, contacts from the chlorine detection system logic were installed in the original system logic upstream of the EAF unit start logic for both EAF units. These contacts would open on a high chlorine signal, preventing either EAF unit from starting or shutting the units down if operating. As mentioned, the "fail-safe" design of the present chlorine detection system presents a situation in which a single failure (loss-of-power, detector failure, etc.) could disable the radiation protection feature of the Control Building HVAC system.

The new chlorine detection system logic employs a one-out-of-two taken twice design approach. In addition, the system was designed to be redundant/divisional to prevent the loss of one train, or one division, from disabling the protective function. In order to accomplish this objective, the existing chlorine detection logic system was re-designed. The logic has been designed to provide single failure protection for a chlorine event as well as single failure protection for the isolation input to the EAF units. Eight new chlorine detectors are employed in the new design, with four detectors at the chlorine loading area and four in the Control Building HVAC intake plenum. Each location comprises an individual trip system. At each location, the system is comprised of two trip subsystems, with two detectors per trip subsystem. One detector out of the two in each trip subsystem must detect chlorine before a Control Building isolation is initiated. By using this design approach, a single spurious isolation of a chlorine detector would not unnecessarily isolate the CBHVAC System. Failures due to a loss of divisional power, loss of ability to detect chlorine, spurious detector isolation, and single component failures within the chlorine detection logic which may initiate a spurious isolation are eliminated with the new design.

Further corrective actions to be taken to ensure no additional single failures exist within the CBHVAC System emergency ventilation function will be identified in a supplemental response to LER 1-92-018. Additional information concerning the identified single failures and proposed modifications is presented in the requested Technical Specification amendment submittal (See NLS-93-004) dated January 12, 1993.

Item 4

Provide a discussion on how the system meets the requirements of IEEE 279.

Response to Item 4

A discussion of how the modified CBHVAC System meets the single failure criteria of IEEE 279-1971 is presented in the response to Item 3 in this enclosure. The design criteria of IEEE 279-1971, such as equipment qualification, channel integrity, independence, and testing, have generally been used as guidance in the design of the new chlorine detection system logic and modifications to the CBHVAC System EAF unit interface.

Item 5

Provide final design documentation for the CBEVS System modification.

Response to Item 5

The following items have been included in this submittal:

1. Existing Emergency Air Filtration Control Wiring Diagrams
2. Revised Emergency Air Filtration Control Wiring Diagrams
3. Figure 1 - Chlorine Detection System Functional Arrangement
4. DBD-37, Rev. 1 - Control Building Heating, Ventilating, and Air Conditioning System

Item 6

For the Request for Authorization to Operate, provide a discussion of what, if any, compensatory measures (e.g. potassium iodine pills, self-contained breathing apparatus, training provide to the operators, etc.) will be in place to off-set the increase in exposure that may result from a radiological release event occurring concurrent with the identified single failures for which the licensee is requesting relief from.

Response to Item 6

As discussed with members of the NRC staff, the current schedule for the installation of the new chlorine detection logic is expected to be completed prior to the start-up of Unit 2 from the current outage. The ability of Brunswick Plant personnel to expedite procurement of certain components, and a revision to the modification implementation method, have improved the expected completion date with respect to earlier estimates. Based upon the schedule improvements, Carolina Power & Light Company has determined that submittal of a request for authorization to operate is not required at this time. Should any unforeseen delays occur, any submittal would include a discussion of compensatory measures which would be in place to off-set potential exposure increases. The NRC staff will be kept informed on the progress of the modifications to the chlorine detection logic.

Item 7

Provide a discussion of the material condition history of the present system.

Response to Item 7

The Brunswick Resident NRC Inspectors, during their April, 1992 monthly inspection, performed an engineered safety feature system walkdown on the Control Building HVAC System. As a result of this walkdown, several maintenance-related deficiencies were identified on the system. A Brunswick Plant Action Item was issued to resolve the deficiencies identified in this report. As a result, Work Requests/Job Orders (WR/JOs) and/or Engineering Work Requests (EWRs) were issued for the individual items.

In addition to the identification of WR/JOs and/or EWRs for the items, a project group was established to identify items necessary to upgrade the material condition of the CBHVAC mechanical equipment room and resolve the numerous WR/JOs. Additional corrective actions for the CBHVAC area have been included in Brunswick Site HVAC Project P0057A. This project is discussed in the Brunswick Three-Year Plan submittal to the NRC (BSEP Serial No. 92-0051).

Reduction of backlog items and maintenance of housekeeping and material condition of plant systems are an integral part of the CP&L Corporate Improvement Initiatives (specifically CII-11 and CII-12) and the Brunswick Three-Year Plan.

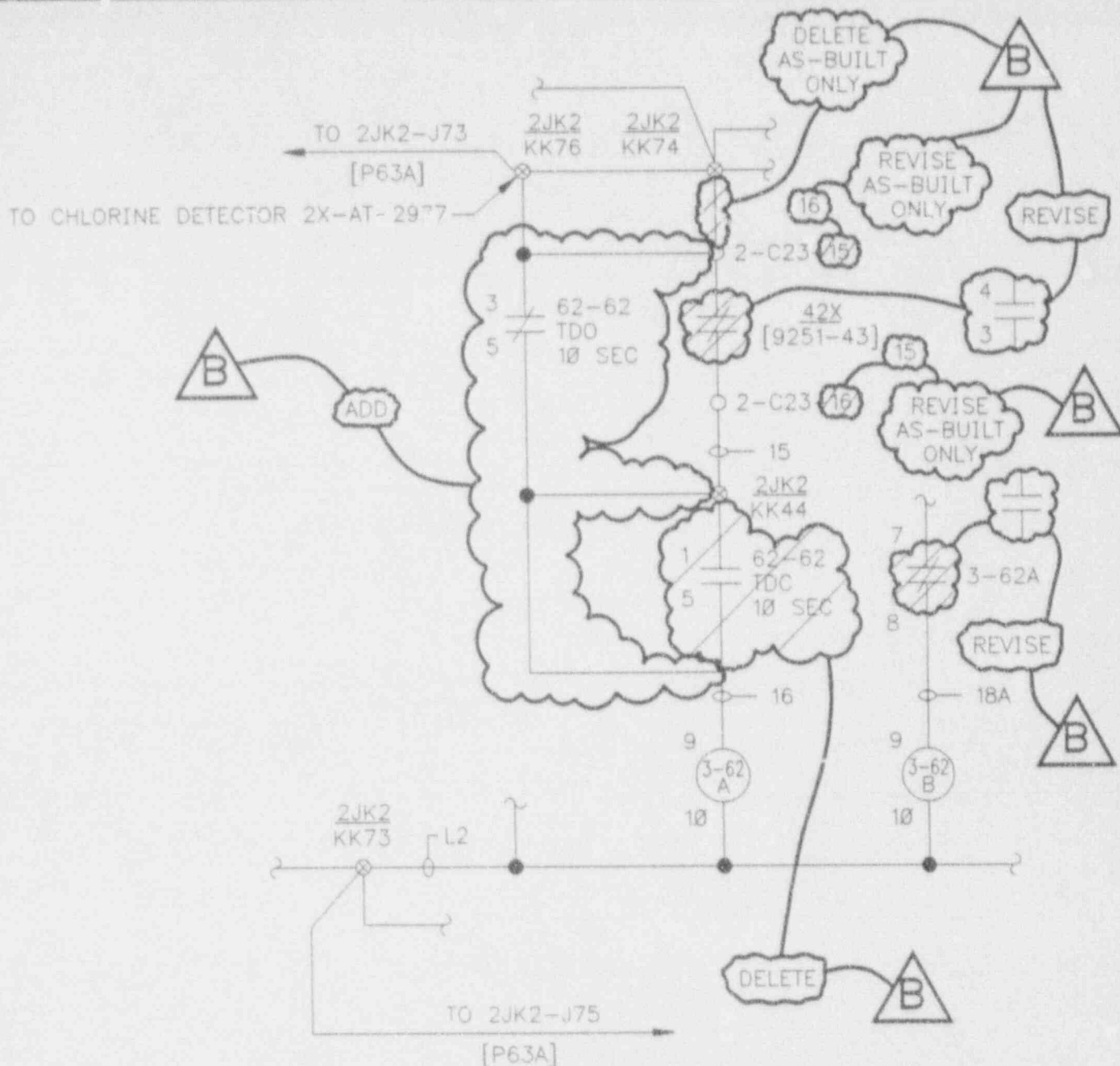
LIST OF ATTACHMENTS (NOT INCLUDING DRAWINGS)

1. EER 92-0352 (Including 10 CFR 50.59 Evaluation)
2. Safety Review Package for PM 92-108 (Including 10 CFR 50.59 Evaluation)
3. DBD-37, Design Basis Document for Control Building HVAC System, Revision 1

LIST OF ATTACHMENTS - DRAWINGS AND SKETCHES

DRAWING #	SKETCH #	SHEET #
LL-09046, REV. 14	SK-92108-Z-7000	P. 62
LL-09046, REV. 14	SK-92108-Z-7001	P. 62
LL-09046, REV. 11	SK-92108-Z-7005	P. 65
LL-09046, REV. 11	SK-92108-Z-7006	P. 65
LL-09251, REV. 7	SK-92108-Z-7007	P. 43
LL-09252, REV. 5	SK-92108-Z-7008	P. 30
LL-09354, REV. 3	SK-92108-Z-7009	P. 41
LL-93054, REV. 3	SK-92108-Z-7010	P. 41
LL-09046, REV. 11	SK-92108-Z-7025	P. 65
LL-09046, REV. 14	SK-92108-Z-7026	P. 62
LL-90046, REV. 9	SK-92108-Z-7027	P. 70
LL-09046, REV. 7	SK-92108-Z-7028	P. 70
LL-09046, REV. 11	SK-92108-Z-7029	P. 50
LL-09046, REV. 9	SK-92108-Z-7030	P. 54
LL-9046, REV. 1	SH-92108-Z-7031	P. 7A
LL-9046, REV. 2	SK-92108-Z-7032	P. 6A
LL-09046, NEW	SK-92108-Z-7024	P. 66B
LL-09046, NEW	SK-92108-Z-7023	P. 63B
LL-09046, REV. 3	SK-92108-Z-7020	P. 63A
LL-09046, NEW	SK-92108-Z-7021	P. 66A
F-32066, REV. 23	SK-92108-Z-7047	SHT. 2
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F-32066, REV. 23	SK-92108-Z-7050	SHT. 2
LL-9046	DESCWD	P. 6a
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LL-09046	DESCWD	P. 64
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9527-LL-0946	DESCD	P. 67
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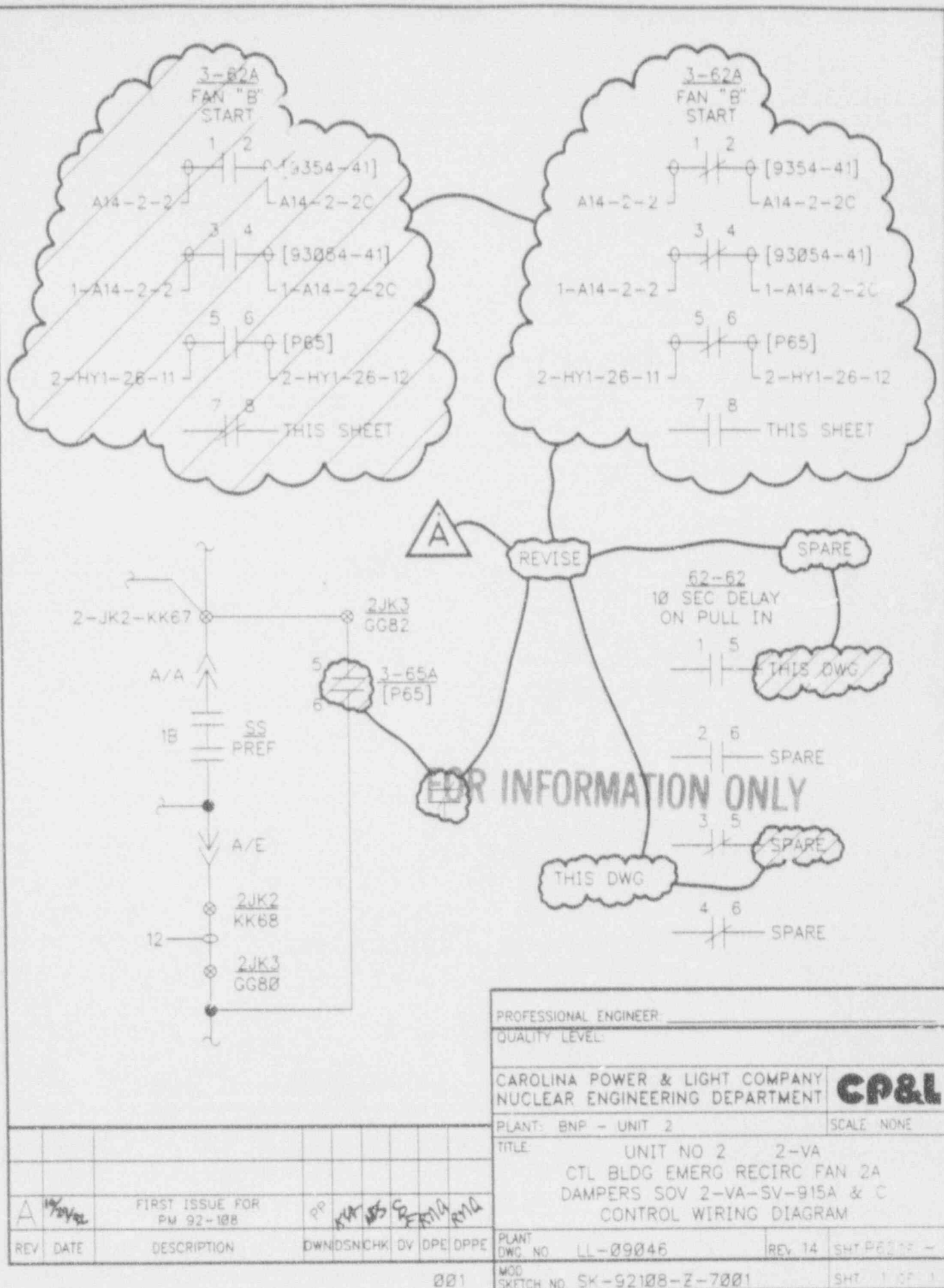
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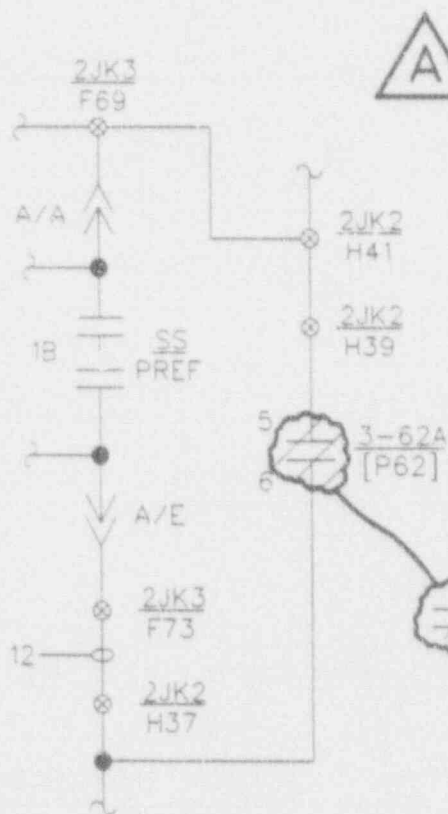
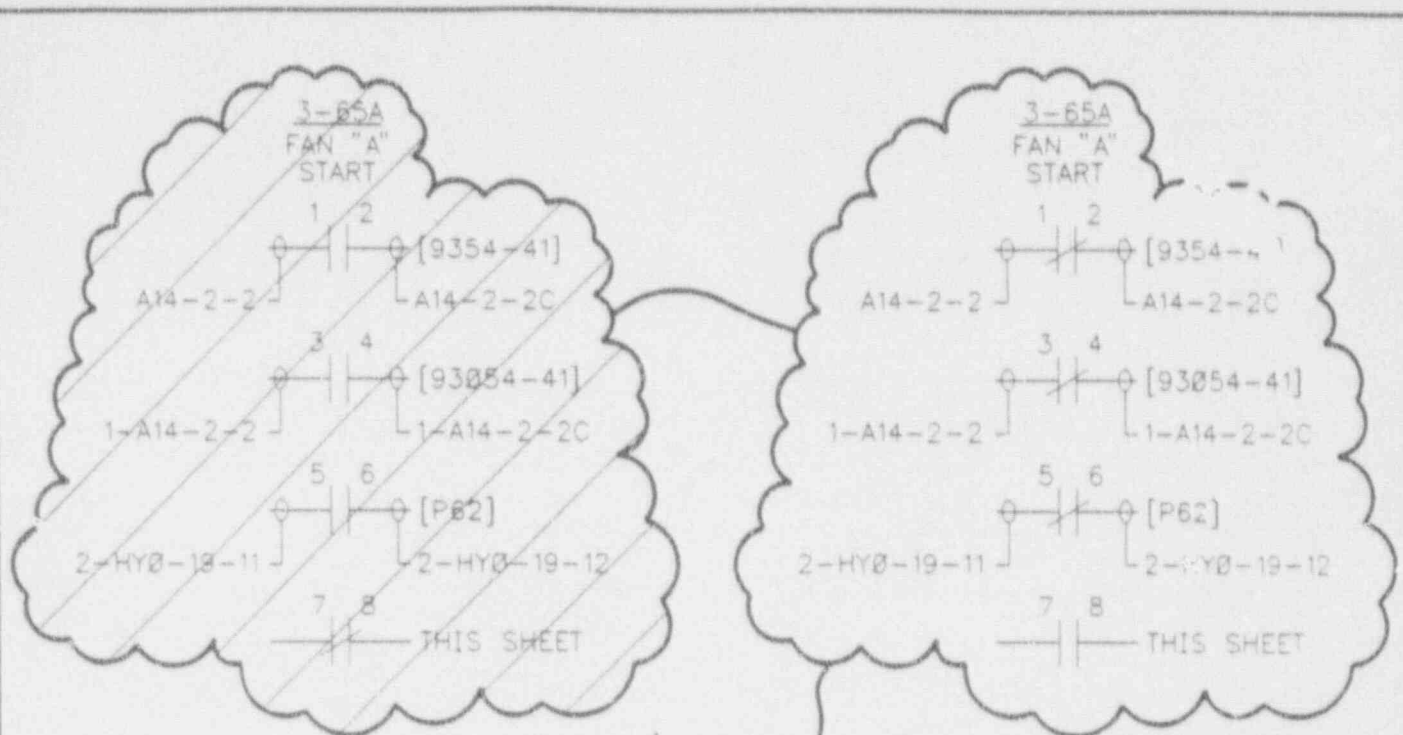
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IF PHASE I & PHASE II WILL BOTH BE
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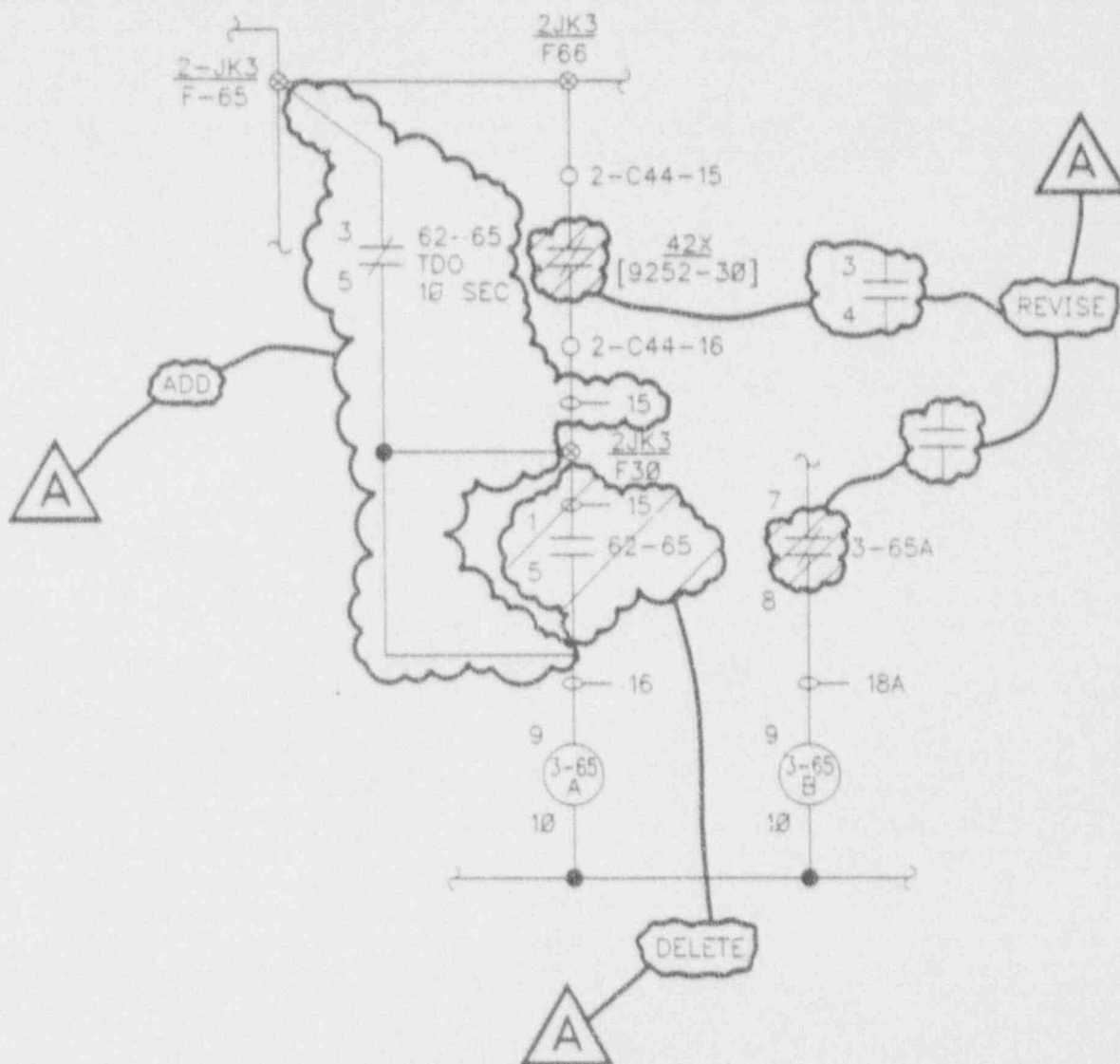
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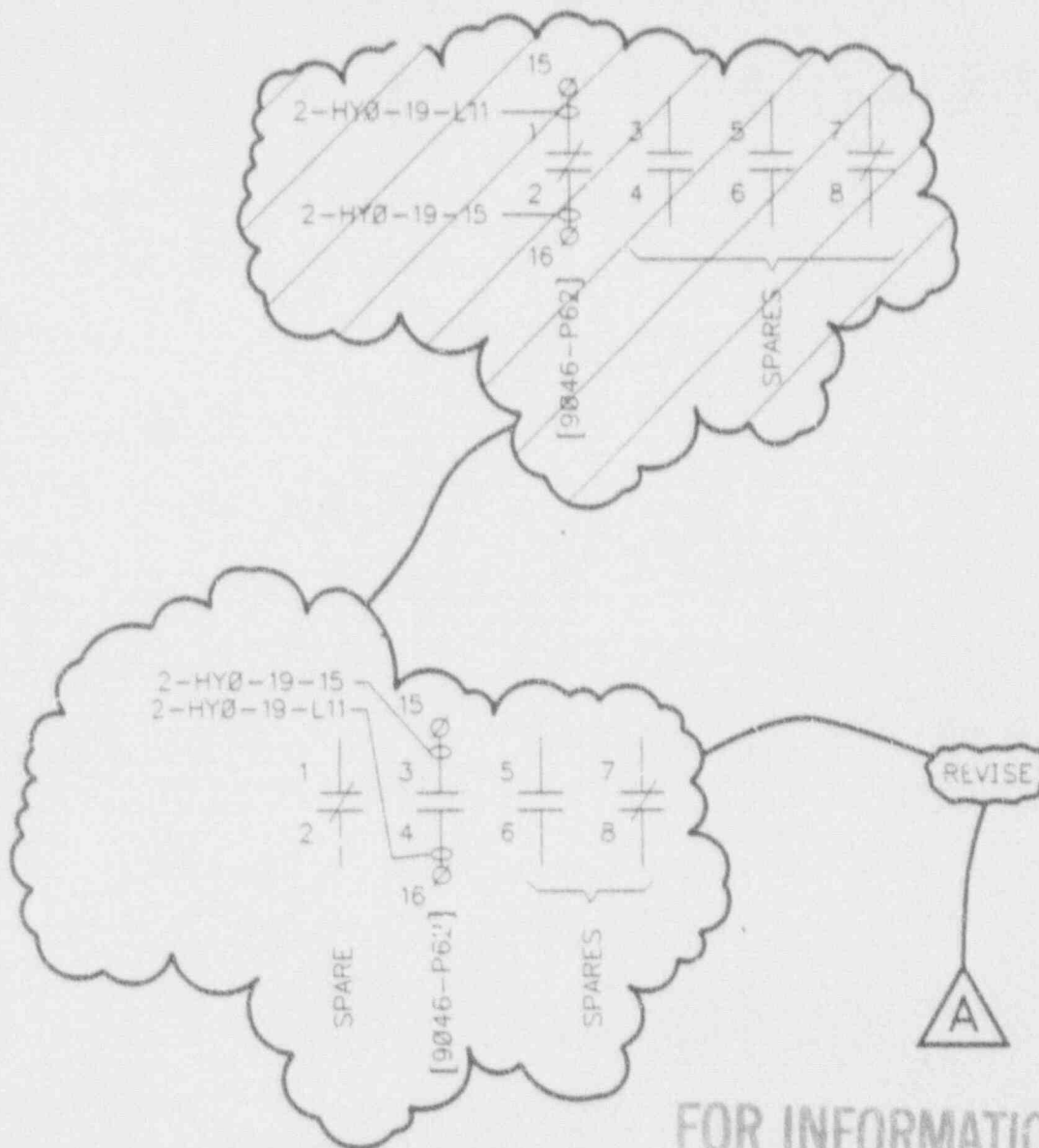
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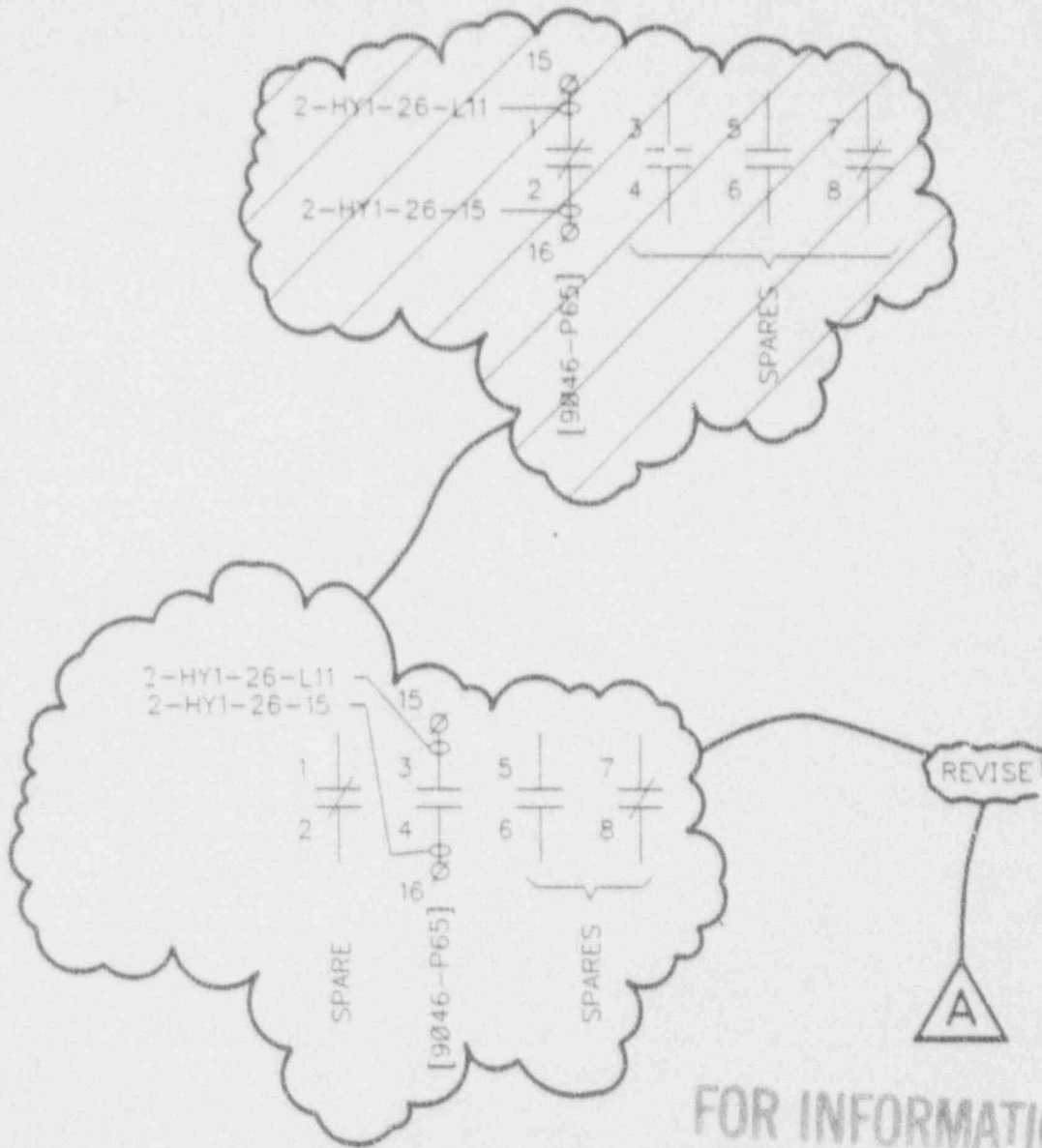
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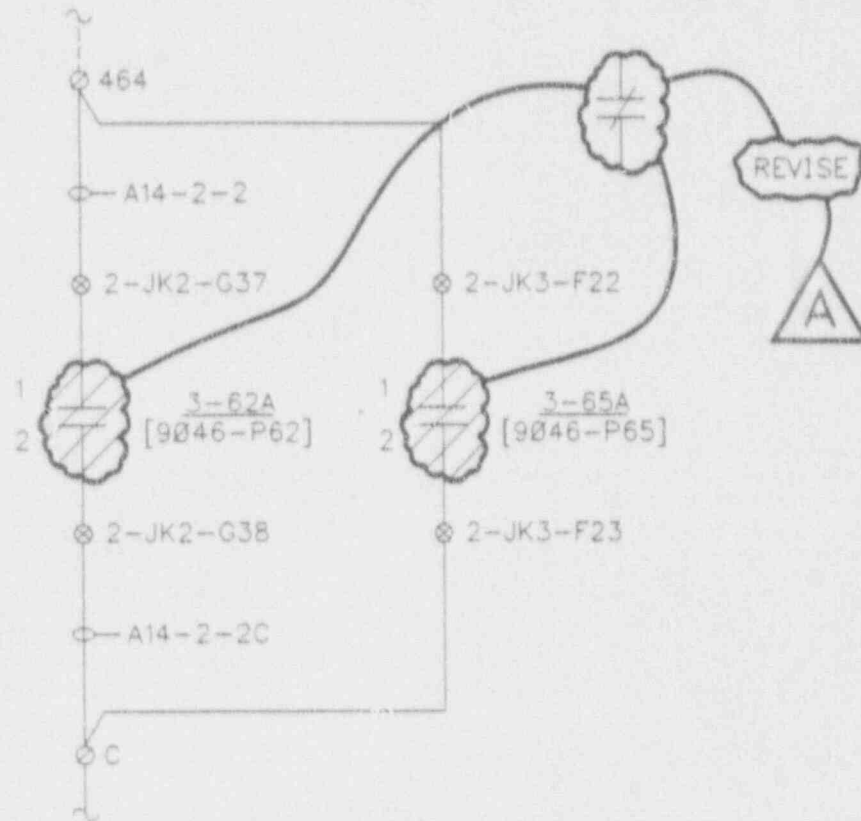
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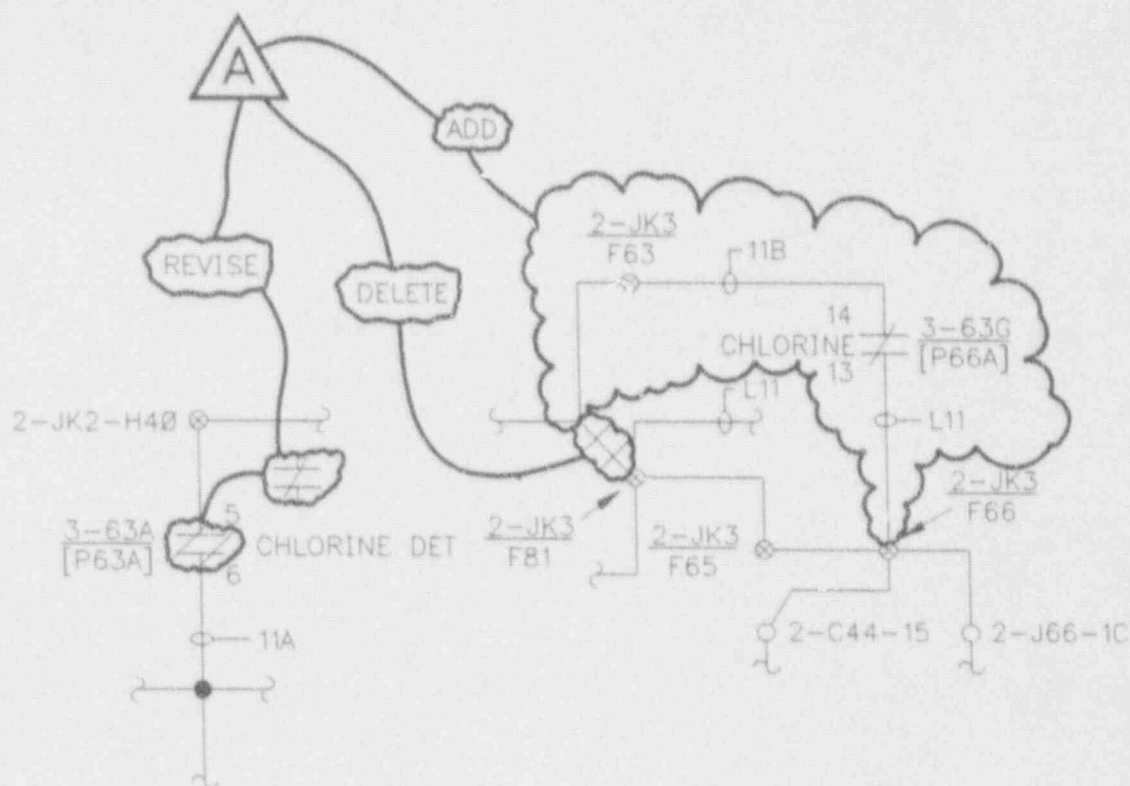
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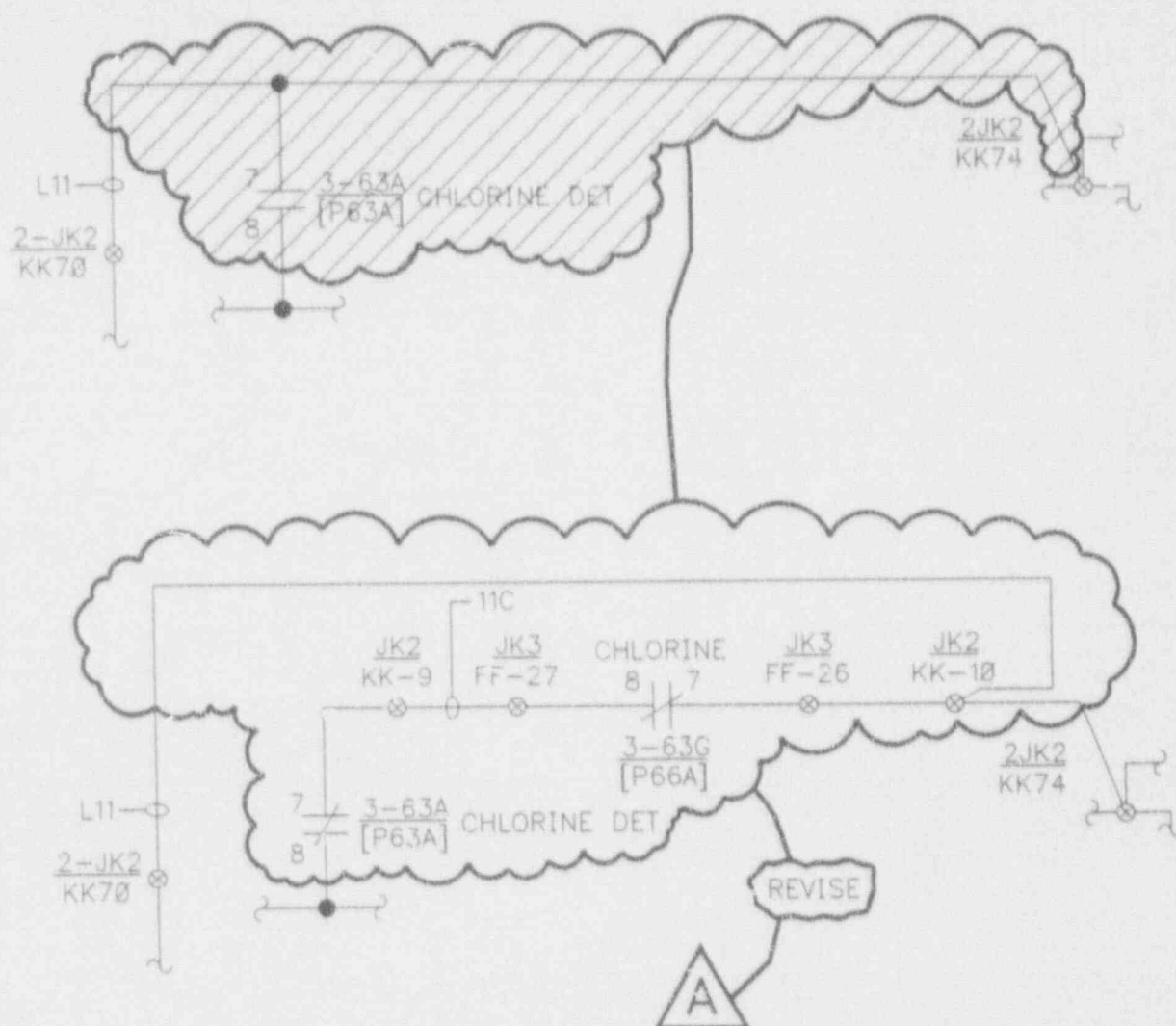
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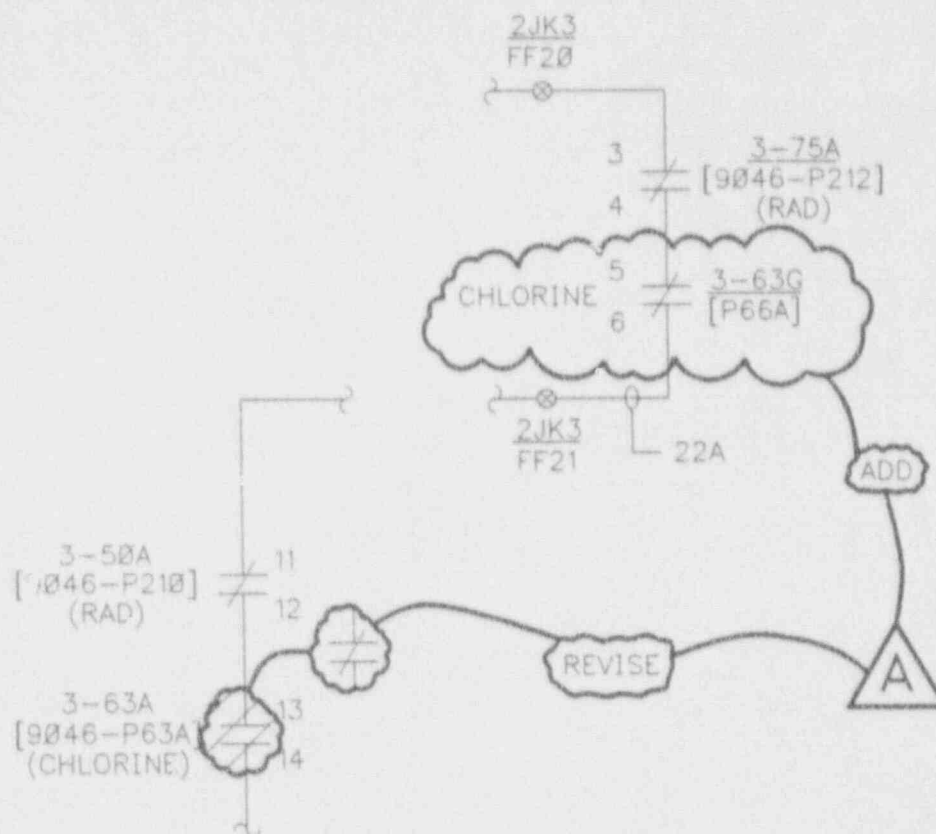
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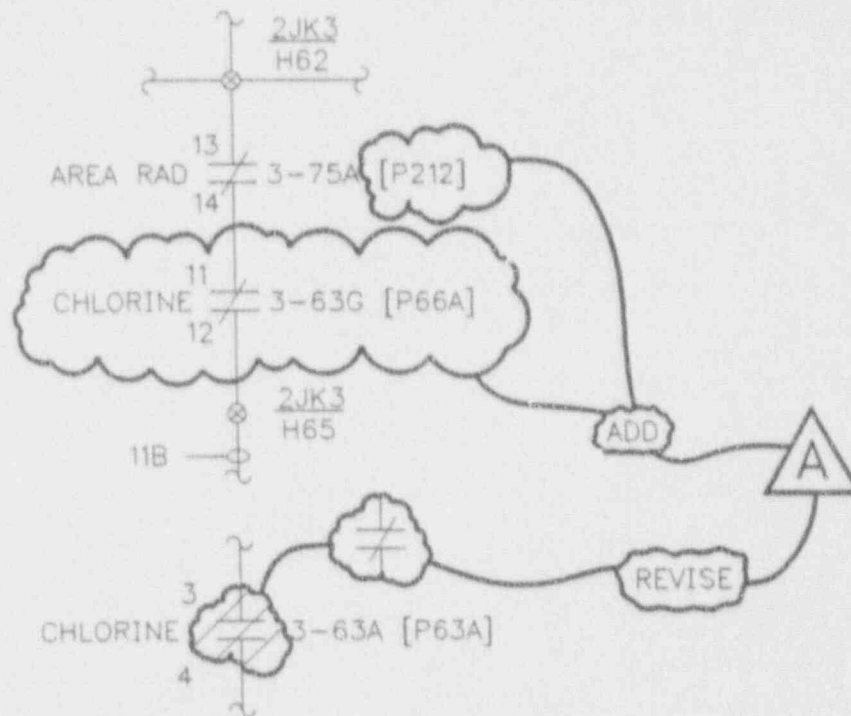
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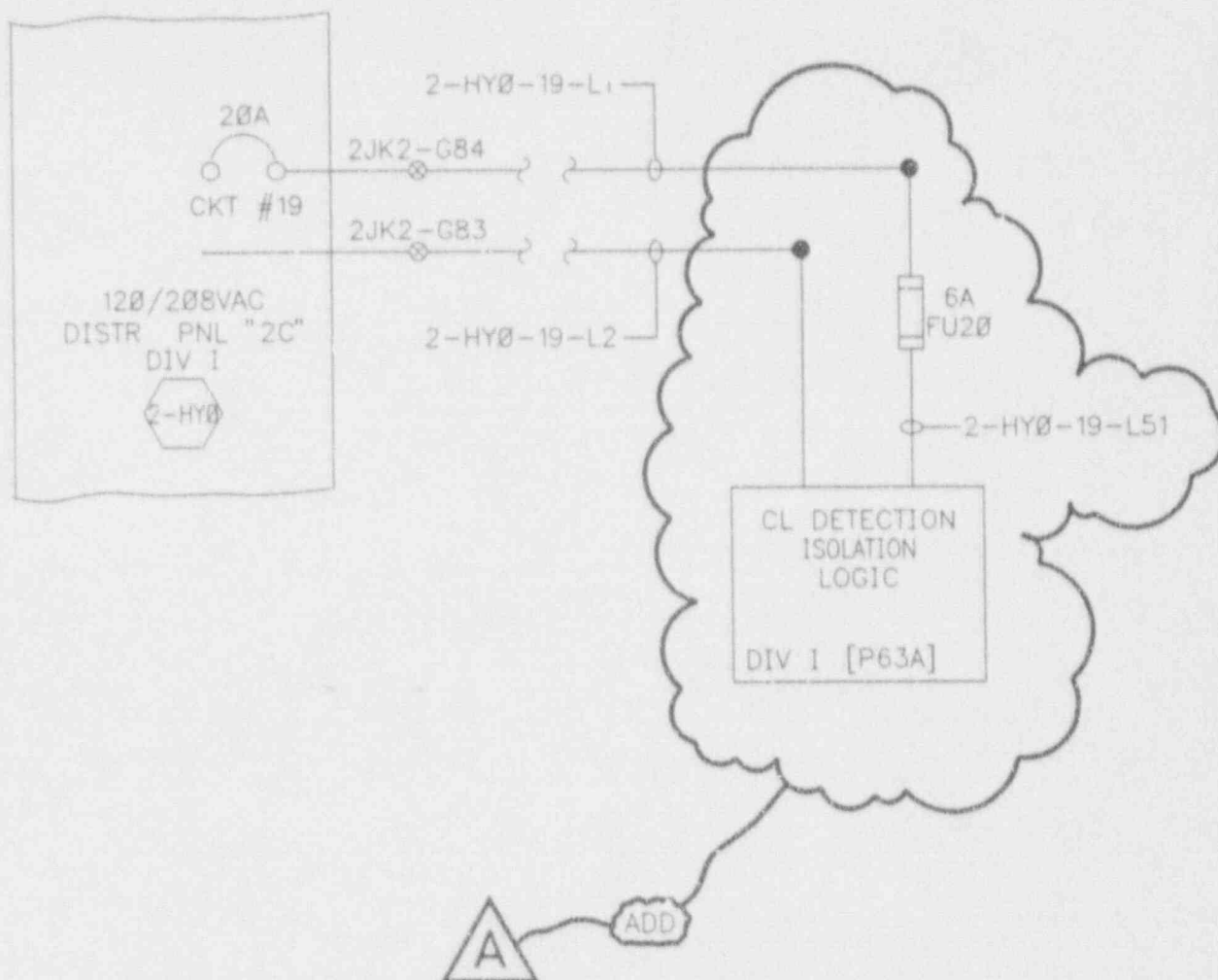
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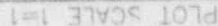
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1-X-AT-2979/1-X-AT-2979-1 (DIV I)



FOR INFORMATION ONLY

DIV I
TERMINAL BOX

1-X-AE-2979-1 1-X-AE-2979

4-X-AE-2979-1

AS-BUILT NOTE

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SW-92188-2-7076

CONSTRUCTION NOTE:

RUN ALL DIV II INTERNAL PANEL WIRING
IN FLEXIBLE CONDUIT

④ DEMOTES FLEXIBLE CONDUIT

CAN FILE 2489

800-427-0044-7-792439

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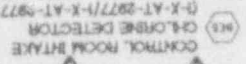
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⊙ DENOTES FLEXIBLE CONDUIT

WORK THIS SKETCH WITH SKETCH
SK-92188-Z-7876

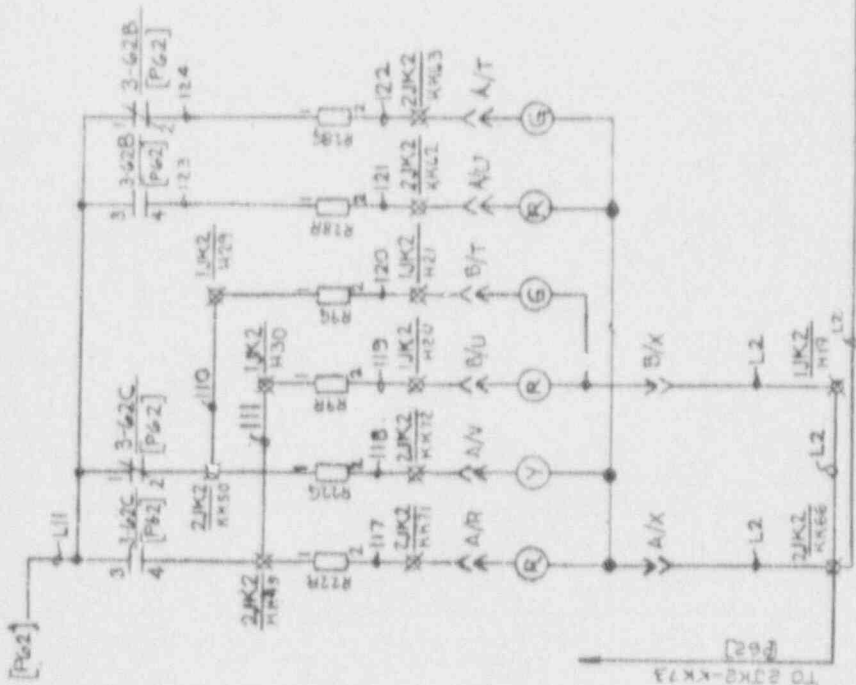
REVISE



400	SELECTION NO.	SP-02100-Z-7958	50' - 0' -
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Sub. P 7A

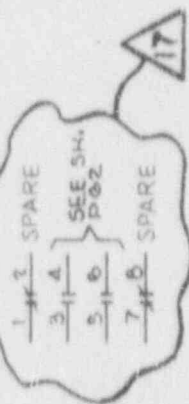
DINA 7530



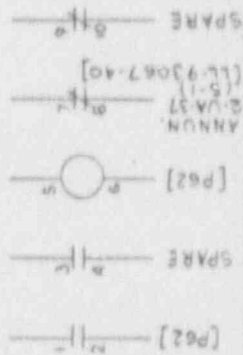
FOR INFORMATION ONLY

3-62F

RADIATION & FIRE
DETECTION



CHARCOAL FILTERS
FP ZONE -15

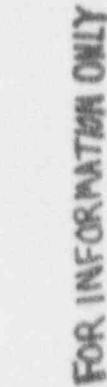


SHP 63

LL-09046

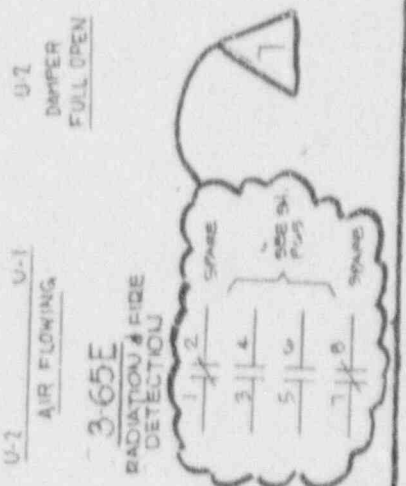
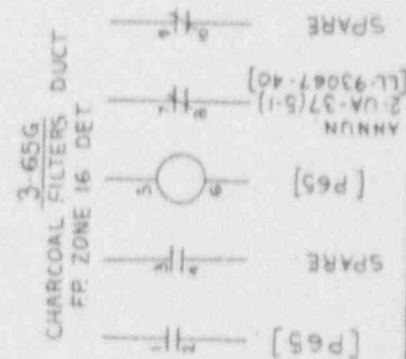
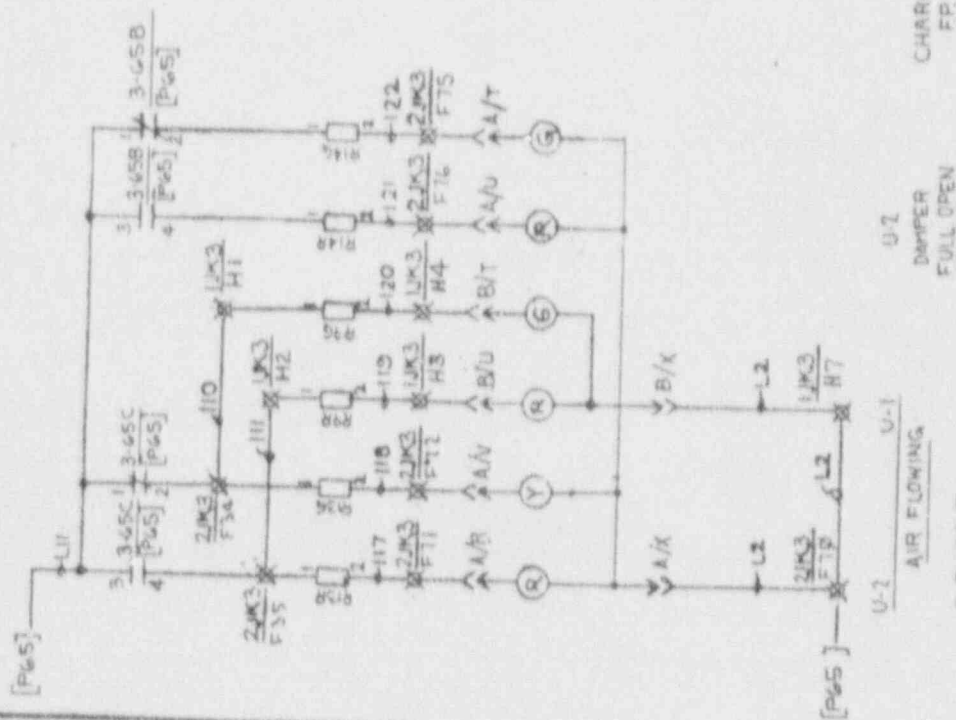
ENGINEER *CDL* DATE *9/1/73*
STATE REG. NORTH CAROLINA No. 6087
CAROLINA POWER & LIGHT COMPANY
BRAUNSWICK STEAM ELECTRIC PLANT
UNIT NO. 2
2-VA
CTL BLDG EMERG RECIRC FAN
DAMPERS SOV 2-VA SV 915A80
CONTROL WIRING DIAGRAM

16	AS-BUILT PER PM 87-012	11/1/87
15	AS-BUILT PER PM 87-012	11/1/87
14	AS-BUILT PER PM 87-012	11/1/87
13	AS-BUILT PER PM 87-012	11/1/87
12	AS-BUILT PER PM 87-012	11/1/87
11	AS-BUILT PER PM 87-012	11/1/87
10	AS-BUILT PER PM 87-012	11/1/87
9	AS-BUILT PER PM 87-012	11/1/87
8	AS-BUILT PER PM 87-012	11/1/87
7	AS-BUILT PER PM 87-012	11/1/87
6	AS-BUILT PER PM 87-012	11/1/87
5	AS-BUILT PER PM 87-012	11/1/87
4	AS-BUILT PER PM 87-012	11/1/87
3	AS-BUILT PER PM 87-012	11/1/87
2	AS-BUILT PER PM 87-012	11/1/87
1	AS-BUILT PER PM 87-012	11/1/87

$3 \times 10^3 \text{ A}$ 

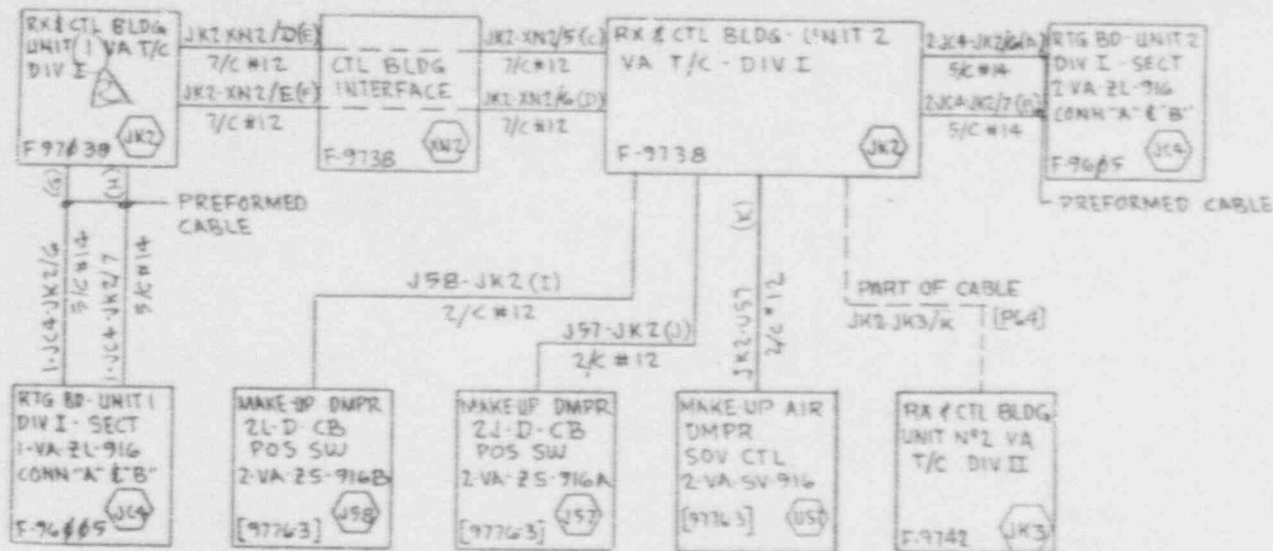
CAROLINA POWER & LIGHT CO. BRUNSWICK STEAM ELECTRIC PLANT	UNIT NO. 1 #2.	2-VA
CONTR BLDG-EMERG DEGRD. FAN "2A" DAMPERS SOV 2VA-SV 215A & C CONTROL WIRING DIAGRAM		
DATE: 10/1/54	LL-09046	5H. P63A 3

FOR INFORMATION ONLY



ENGINEER	DATE
STATE MEN. NORTH CAROLINA No. 6037	8/4/73
CAROLINA POWER & LIGHT COMPANY	
BRUNSWICK STEAM ELECTRIC PLANT	
UNIT NO. 2	
CTL BLDG. EMERG. RECIRC. FAN	
DAMPERS SOV. 2-VA-SV-015B	
CONTROL WIRING DIAGRAM	
54P66	LL-09046

1	REVISED PER
2	PM 10-10-55
3	2/8/50
4	AS BUILT PER
5	5-21-57
6	9/18/74
7	ADDED 3-65F
8	DEV.
9	GFW
10	AS BUILT PER
11	PM 10-10-55
12	2/8/50
13	AS BUILT PER
14	5-21-57
15	9/18/74
16	ADDED 3-65F
17	DEV.
18	GFW
19	AS BUILT PER
20	PM 10-10-55
21	2/8/50
22	AS BUILT PER
23	5-21-57
24	9/18/74
25	ADDED 3-65F
26	DEV.
27	GFW
28	AS BUILT PER
29	PM 10-10-55
30	2/8/50
31	AS BUILT PER
32	5-21-57
33	9/18/74
34	ADDED 3-65F
35	DEV.
36	GFW
37	AS BUILT PER
38	PM 10-10-55
39	2/8/50
40	AS BUILT PER
41	5-21-57
42	9/18/74
43	ADDED 3-65F
44	DEV.
45	GFW
46	AS BUILT PER
47	PM 10-10-55
48	2/8/50
49	AS BUILT PER
50	5-21-57
51	9/18/74
52	ADDED 3-65F
53	DEV.
54	GFW
55	AS BUILT PER
56	PM 10-10-55
57	2/8/50
58	AS BUILT PER
59	5-21-57
60	9/18/74
61	ADDED 3-65F
62	DEV.
63	GFW
64	AS BUILT PER
65	PM 10-10-55
66	2/8/50
67	AS BUILT PER
68	5-21-57
69	9/18/74
70	ADDED 3-65F
71	DEV.
72	GFW
73	AS BUILT PER
74	PM 10-10-55
75	2/8/50
76	AS BUILT PER
77	5-21-57
78	9/18/74
79	ADDED 3-65F
80	DEV.
81	GFW
82	AS BUILT PER
83	PM 10-10-55
84	2/8/50
85	AS BUILT PER
86	5-21-57
87	9/18/74
88	ADDED 3-65F
89	DEV.
90	GFW
91	AS BUILT PER
92	PM 10-10-55
93	2/8/50
94	AS BUILT PER
95	5-21-57
96	9/18/74
97	ADDED 3-65F
98	DEV.
99	GFW
100	AS BUILT PER



WIRE NO. TABLE

CABLE NO.	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)
CIRCUIT TYPE	CA1	CA1	CA1	CA1	CA1	CA1	CA1	CA1	CA1	CA1	CA1
TW/PR	M/C	M/C	M/C	M/C	M/C	M/C	M/C	M/C	M/C	M/C	M/C
W	B	—	—	—	—	—	—	—	L21	L21	215
B	W	L2	L2	—	L2	—	L2	L2	22	21	L2
SHLD	R	27	211	23	25	23	25	29	213		
W	G	28	212	24	26	24	26	210	214		
R	O	—	—	—	—	—	—	—	—		
SHLD	U										
W	W-B										
G	R-B										
SHLD	G-B										
W	O-B										
O	U-B										
SHLD	B-W										
	R-W										
	G-W										

NOTE

ALL WIRES TO BE PREFIXED WITH "2HYD-13"

FOR INFORMATION ONLY

2	REV. C/T TYPE
1	REV. CABLE F
0	DWG REF NO
0	FIRST ISSUE
	REV. DESCRIPTION

ENGINEER *C. J. Norman* DATE *9/9/73*

STATE REG. NORTH CAROLINA NO. *6037*

CAROLINA POWER & LIGHT COMPANY
BRUNSWICK STEAM ELECTRIC PLANT

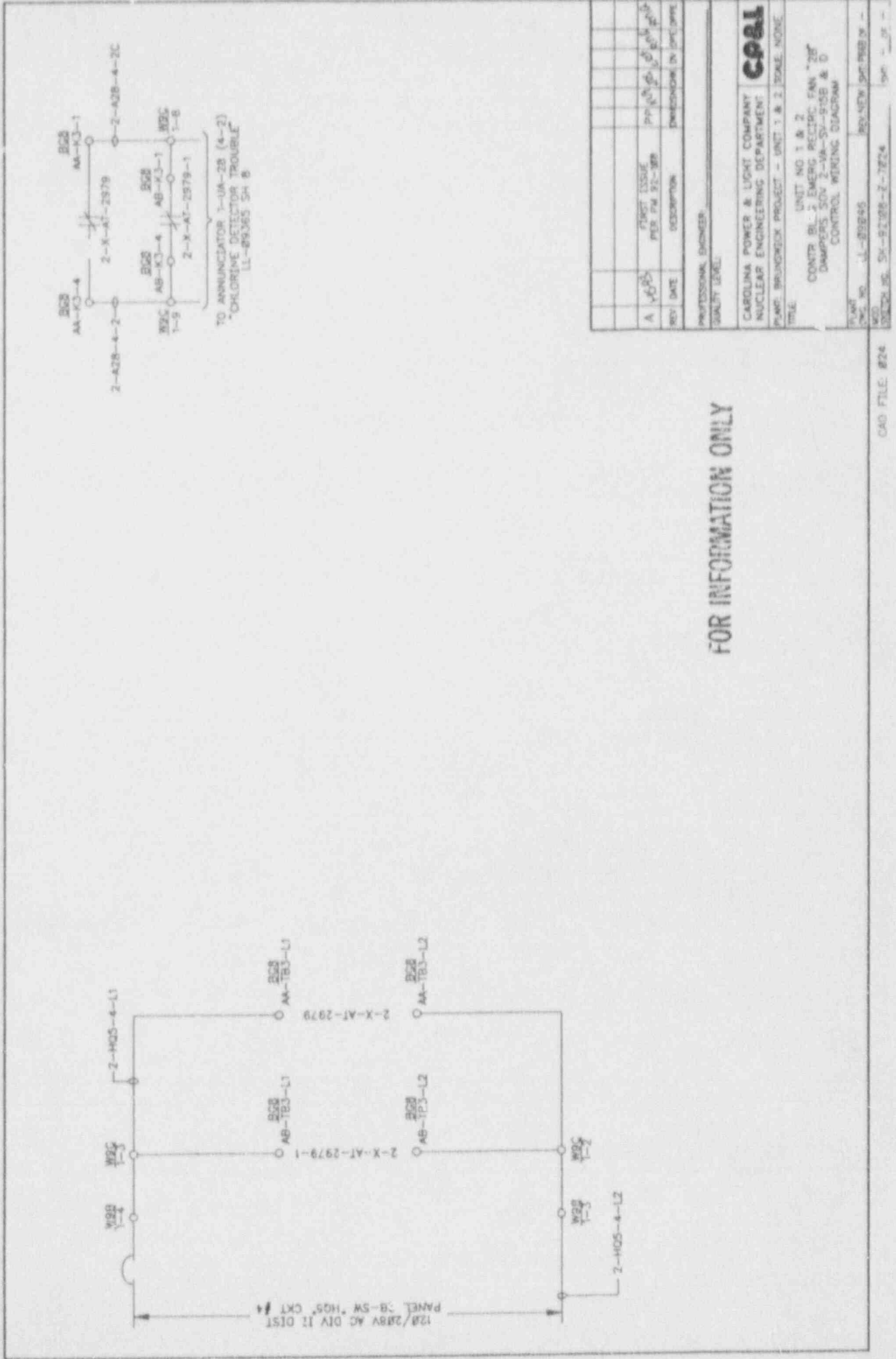
UNIT NO. 2 2-VA

CB MAKE-UP AIR DAMPERS
SOV 2-VA-SV-916
CABLE DIAGRAM

United Engineers

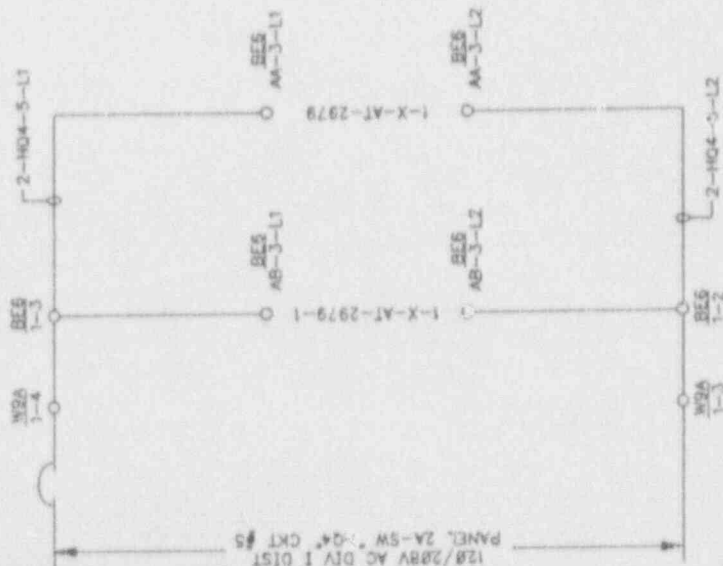
SH. F69 9527-LL-9646

DESCD



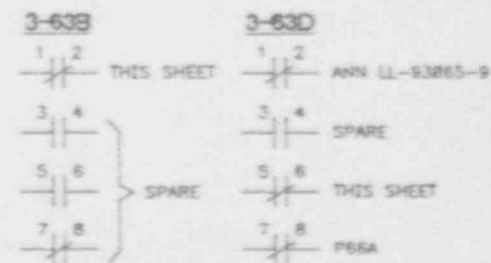
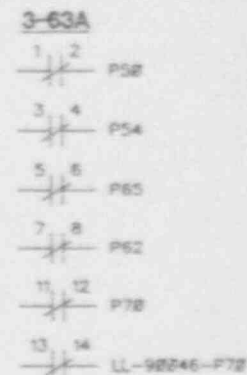
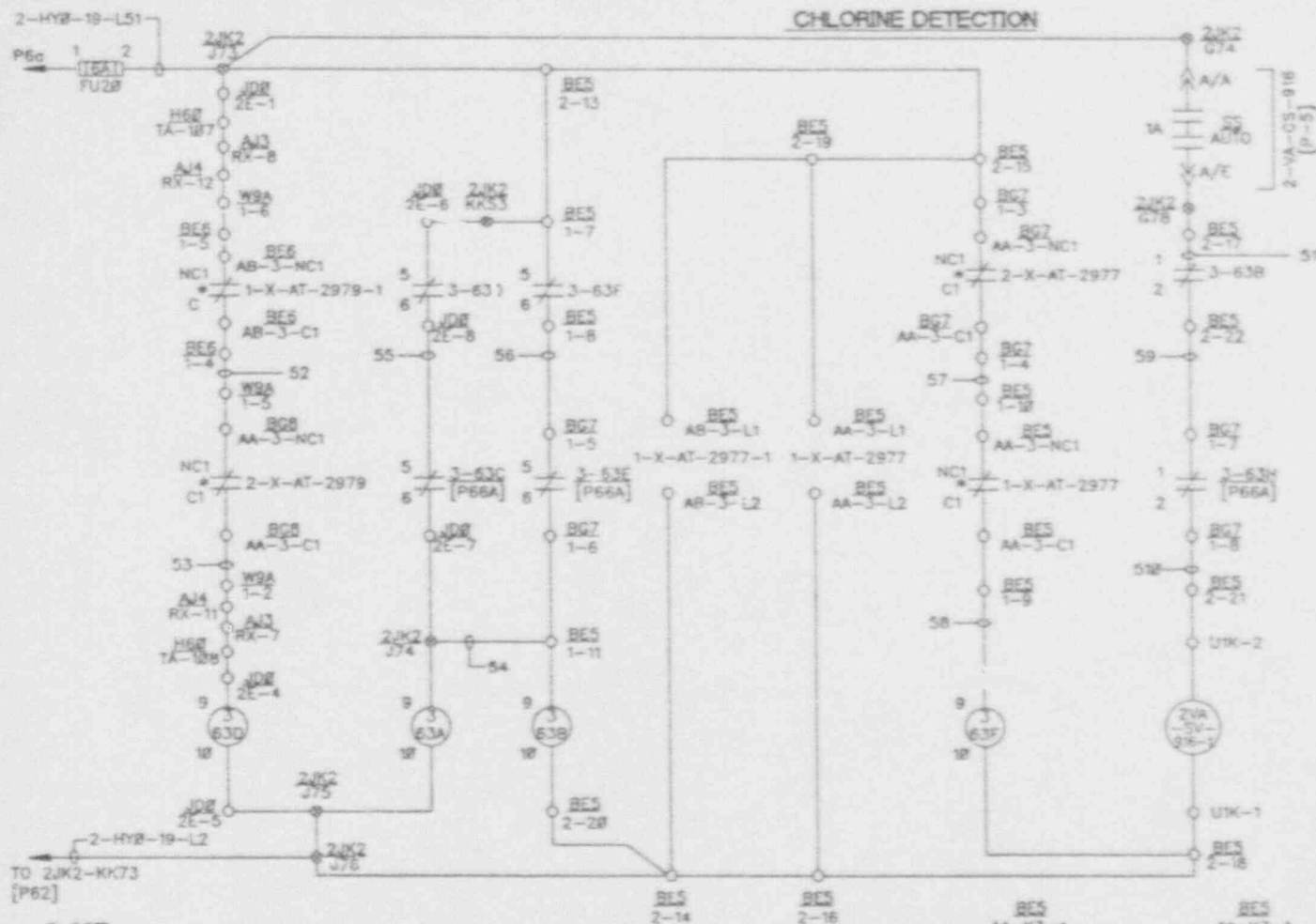
FOR INFORMATION ONLY

REV	DATE	DESCRIPTION	DESIGNED BY	CHECKED BY
A	10/25/65	FIRST ISSUE PER PM 92-388	PP	PP
PROFESSIONAL ENGINEER				
QUALITY LEVEL				
CAROLINA POWER & LIGHT COMPANY				
NUCLEAR ENGINEERING DEPARTMENT				
PLANT BRUNSWICK PROJECT - UNIT 1 & 2 SCALE NONE				
TITLE				
UNIT NO 1 & 2				
CONTR BL 2 EMERG RECIRC FAN "28"				
DAMPERS SOV 2-VA-SV-915B & D				
CONTROL WIRING DIAGRAM				
PLANT	NO	REV	DATE	BY
BRUNSWICK	NO	1	10-25-65	PP
NO	NO	1	10-25-65	PP
NO	NO	1	10-25-65	PP

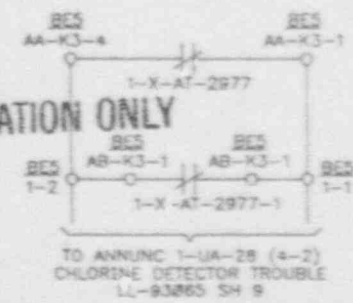


FOR INFORMATION ONLY

CAP FILE #23



FOR INFORMATION ONLY

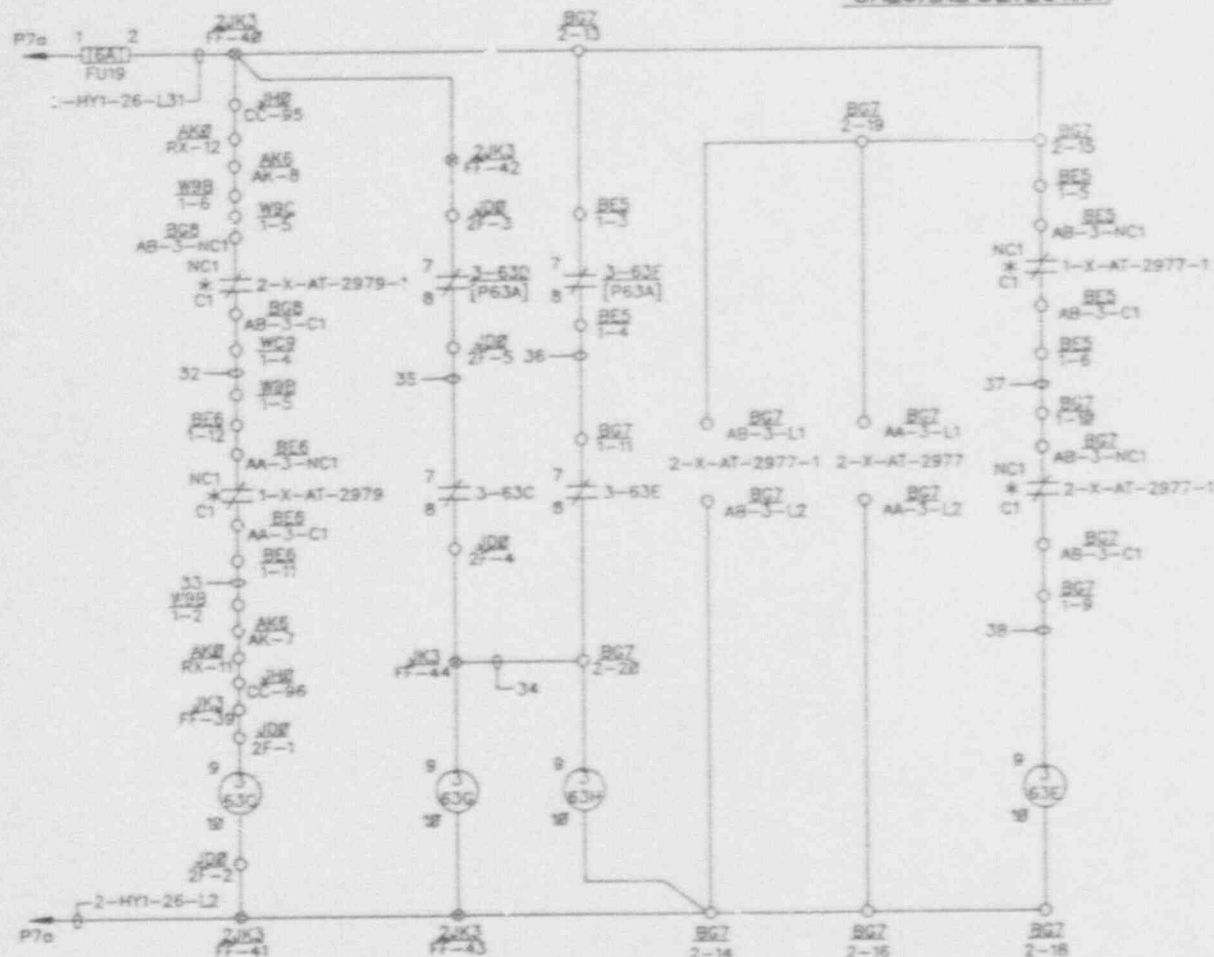


* CONTACT OPENS ON
DETECTION OF HI CHLORINE

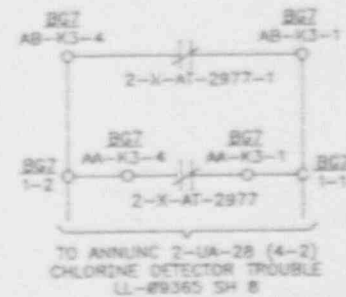
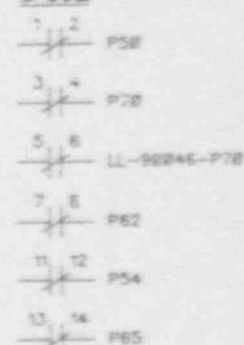
A	REV	REVISED & REDRAWN PER PM 92-188	PP	LD	OK	OK	OK	OK	
REV	DATE	DESCRIPTION	DIMENSION IN INCHES						
PROFESSIONAL ENGINEER:									
QUALITY LEVEL:									
CAROLINA POWER & LIGHT COMPANY NUCLEAR ENGINEERING DEPARTMENT								CP&L	
PLANT: BRANTFORD NUCLEAR PROJECT - UNIT 1 & 2								SCALE: NONE	
TITLE: UNIT NO 1 & 2 2-VA CONTR BLDG EMERG RECIRC FAN "2A" DAMPERS SOV 2-VA-SV-915A & C CONTROL WIRING DIAGRAM									
PLANT DWG. NO.		LL-89846		REV. 3		SHEET P63A OF -			
MOD DATE		SK-92188-2-7828							

CAD FILE: 828

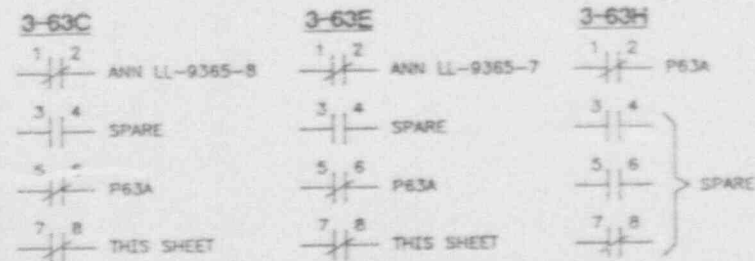
CHLORINE DETECTION



3-63G



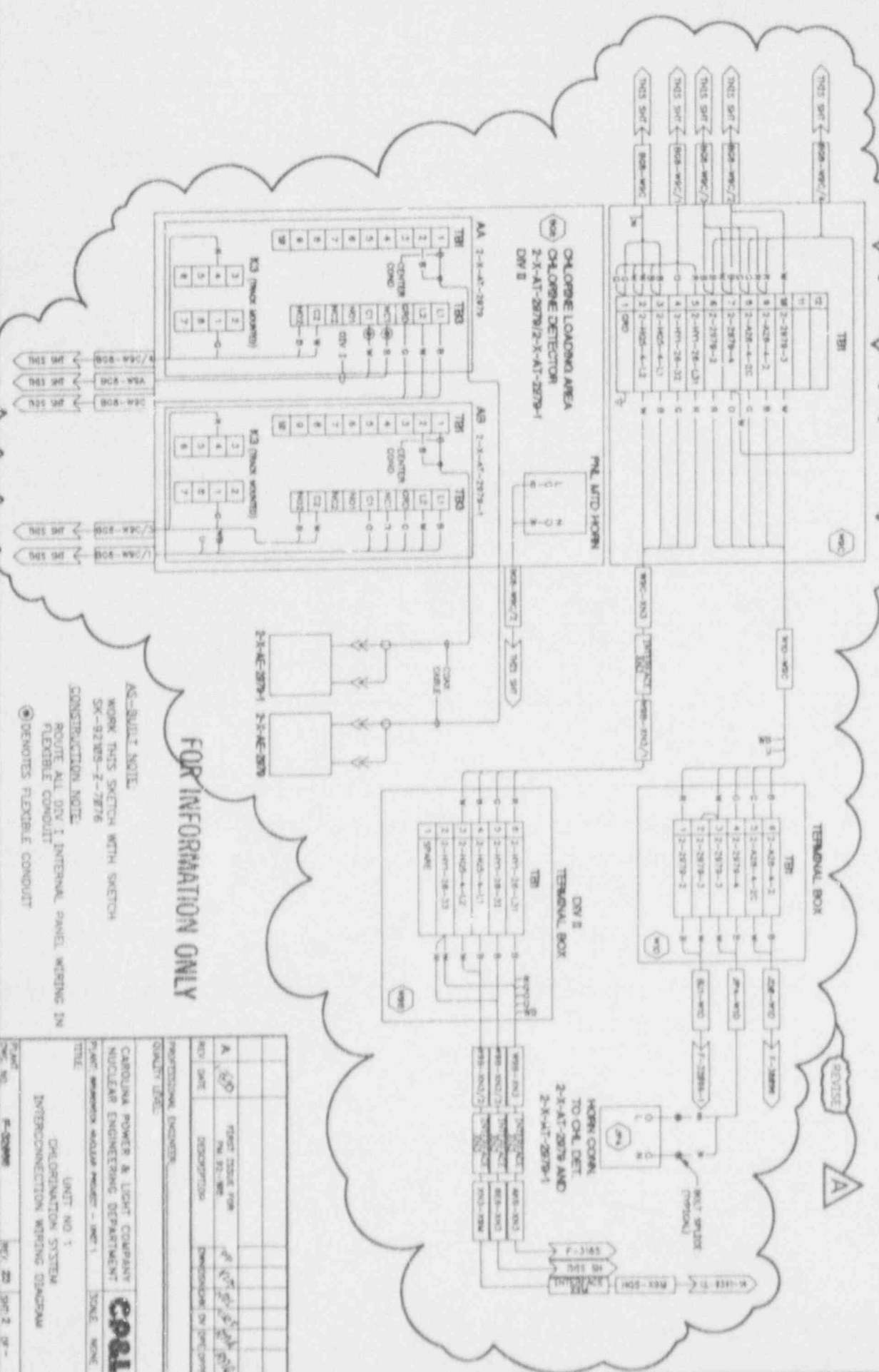
*CONTACT OPENS ON DETECTION OF HI CHLORINE



FOR INFORMATION ONLY

A			
FIRST ISSUE FOR PM 92-18B		PP 92-18B 92-18B 92-18B	
REV	DATE	DESCRIPTION	ENGINEERED BY (P) (D) (E)
PROFESSIONAL ENGINEER			
QUALITY LEVEL			
CAROLINA POWER & LIGHT COMPANY NUCLEAR ENGINEERING DEPARTMENT			CP&L
PLANT: BROWNS FERRY NUCLEAR PROJECT - UNIT 1 & 2			SCALE: NONE
TITLE: UNIT NO 1 & 2 2-VA CONTR BLDG EMERG RECIRC FAN "28" DAMPERS SERV 2-VA-SV-915B & D CONTROL WIRING DIAGRAM			
PLANT CNC NO. LL-89846		REV. NEW 2-VA-915B & D	
WFO SKETCH NO. SK-9218B-2-7821		None - 01 -	

CAD FILE: #21



FOR INFORMATION ONLY

AS-BUILT NOTE:
WORK THIS SWITCH WITH SWITCH
SK-82185-2-7876

CONSTRUCTION NOTE:
ROUTE ALL DIV II INTERNAL PANEL WIRING IN
FLEXIBLE CONDUIT
● DENOTES FLEXIBLE CONDUIT

CAD FILE: 847

PROJECT NO. 98-9000-2-7900		REV. 23	REV. 2	REV. 1
UNIT NO. 1		SCALE: NONE		
CAROLINA POWER & LIGHT COMPANY		CP&L		
NUCLEAR ENGINEERING DEPARTMENT		CHLORINATION SYSTEM		
INTERCONNECTION WIRING DIAGRAM		CHLORINE DETECTOR		
DESIGNED BY: [Signature]		CHECKED BY: [Signature]		
DATE: 10/1/98		DATE: 10/1/98		