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SUBJECT: Requests mod to 841025 exemption from 10CFR50, App R re
component cooling water pump room, per 840425 ltr.

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United States Nuclear Regulatory Commission
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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23
CCW PUMP ROOM EXEMPTION

Gentlemen:

Pursuant to 10CFR50.12, Carolina Power & Light Company (CP&L) requests a modification to the exemption from 10CFR50 Appendix R that was granted on October 25, 1984, for the component cooling water (CCW) pump room at the H. B. Robinson Plant, Unit No. 2. The exemption was granted based on information provided by letter dated April 25, 1984.

The purpose of this exemption is to revise the combustible loading value identified for the CCW room resulting from the need to install additional cables in the area.

The enclosure to this letter provides the details of this request.

Please refer any questions you may have regarding this matter to Mr. M. R. Oates at (919) 546-6063.

Yours very truly



A. B. Cutter

DBB/ecc (760ECC)

Attachments

cc: Mr. S. D. Ebnetter
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Mr. R. Lo

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ATTACHMENT 1

H. B. ROBINSON UNIT NO. 2 COMPONENT COOLING WATER PUMP ROOM EXEMPTION AMENDMENT

1.0 EXEMPTION REQUEST

A revision to the exemption from the requirements of Section III.G.2 to 10 CFR Part 50, Appendix R is requested for the Component Cooling Water (CCW) Pump Room. Specifically, Carolina Power & Light Company requests to revise the basis of the exemption for the partial suppression systems as well as the requirement to have no intervening combustible or fire hazards between redundant shutdown trains. The revised exemption would allow an increase in the quantity of intervening combustibles between redundant trains as well as an increase in overall combustible loading in the area. The combined quantity will not exceed one hour loading.

2.0 INTRODUCTION

The Component Cooling Water (CCW) pump room is exempted from Section III.G.2 of 10 CFR Part 50, Appendix R by NRC letter dated October 25, 1984, to the extent that a complete area-wide suppression system is not installed and the redundant pumps have intervening combustibles. The Safety Evaluation Report (SER), which granted the exemption, was based primarily on the following:

- A one-hour fire barrier wrap is installed around the power cables of the redundant safe shutdown components (CCW Pumps A and C) to preclude damage to the power cables to both Pumps A and C.
- A partial fire suppression sprinkler system is provided in the area of the CCW pumps, to protect the CCW pumps and associated cables.
- The combustible loading in the CCW Pump Room is low.
- A complete area-wide fire detection system is provided, consisting of both heat and smoke detectors.
- Rapid response capability of the fire brigade.

Ongoing safety-related modifications have established the need for installation of new cables in the CCW pump room. The existing cable trays cannot accommodate the additional new cable loading and routing of the new cables in dedicated conduits would not be practical. Therefore, Carolina Power & Light Company plans the installation of new cable trays in the area of the CCW pumps and in the remaining area of the CCW pump room (see Figures 2 and 3). The installation of these new cable trays in the CCW pump room would constitute a change in the previously approved physical configuration by introducing additional intervening

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cable combustibles into the CCW pump room. The composite final proposed 3-D view is shown in Figure 4 of this letter for reference.

This letter summarizes the existing configuration, previously approved by the NRC, and provides detail regarding the new planned cable tray layout configuration for the CCW pump room.

3.0 EXISTING CONFIGURATION

3.1 Safe Shutdown Components

As shown in Figure 1, the component cooling water pumps are located on a north-south orientation, with Pump A redundant to Pump C. Pumps A and C are 24' from the centerline to centerline with approximately 20' (19'-11") between the closest points of each pump. Only one of three pumps and one component cooling heat exchanger are required for safe shutdown.

The pump power cables are installed in conduits, and a one-hour fire barrier wrap is installed around these conduits.

3.2 Fire Protection

3.2.1 Combustible Loading

The CCW pump room is 2250 ft² in area and is separated from adjacent areas by three-hour-rated concrete walls, floors, and ceiling. The existing combustible loading in the area consists primarily of electrical cables. Those cables not inside conduits are coated with a flame retardant material or are IEEE-383 qualified.

The remaining fixed fuel load consists of approximately one quart of lubricating oil in each pump.

The total combustible loading in the CCW pump room is approximately 15,100 Btu/ft² which is equivalent to a fire severity of approximately 11 minutes. Note that this value has been changed from the 16 minute time that was previously submitted to the NRC as the result of refinement of combustible loading calculations.

Since all transient combustibles are controlled by procedure, the potential for transient combustibles accumulating to form a hazard is insignificant.

3.2.2 Existing Active and Passive Fire Protection Features

A cross-zoned smoke and heat detection system is installed in the area. A fire suppression sprinkler system is installed above the existing cable trays and pumps to suppress any fire between redundant Pumps A and C. The fire

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suppression system is a wet pipe system with 165°F rated sprinkler heads. Water flow through the suppression system alarms in the control room.

A portable fire extinguisher is available in addition to fire extinguishers and fire hose stations located in adjacent areas.

4.0 PROPOSED CONFIGURATION CHANGES

As shown in Figures 2 and 3, CP&L plans to install new cable trays in the CCW pump room. Cables installed in these trays will be qualified to IEEE-383, Vertical Flame Test.

If these cable trays are eventually filled with the maximum allowable cable loading, the proposed installation of the new cable trays would introduce additional cable combustible loading of approximately 100,000 Btu/ft², which would be equivalent to a fire severity of approximately 75 minutes. However, through existing design control, CP&L will ensure that the in-situ combustible fire severity in the area does not exceed 60 minutes. At that point, measures will be taken to preclude an increase in combustibles loading above 60 minutes or to provide additional appropriate fire protection features.

5.0 SUMMARY

A cross-zoned smoke and heat detection system is presently installed in the area. A partial fire suppression sprinkler system is above the existing cable trays and pumps to suppress the migration of fire between the redundant Pumps A and C. Portable fire extinguishers and manual fire hose stations are available in adjacent areas and would be deployed if needed.

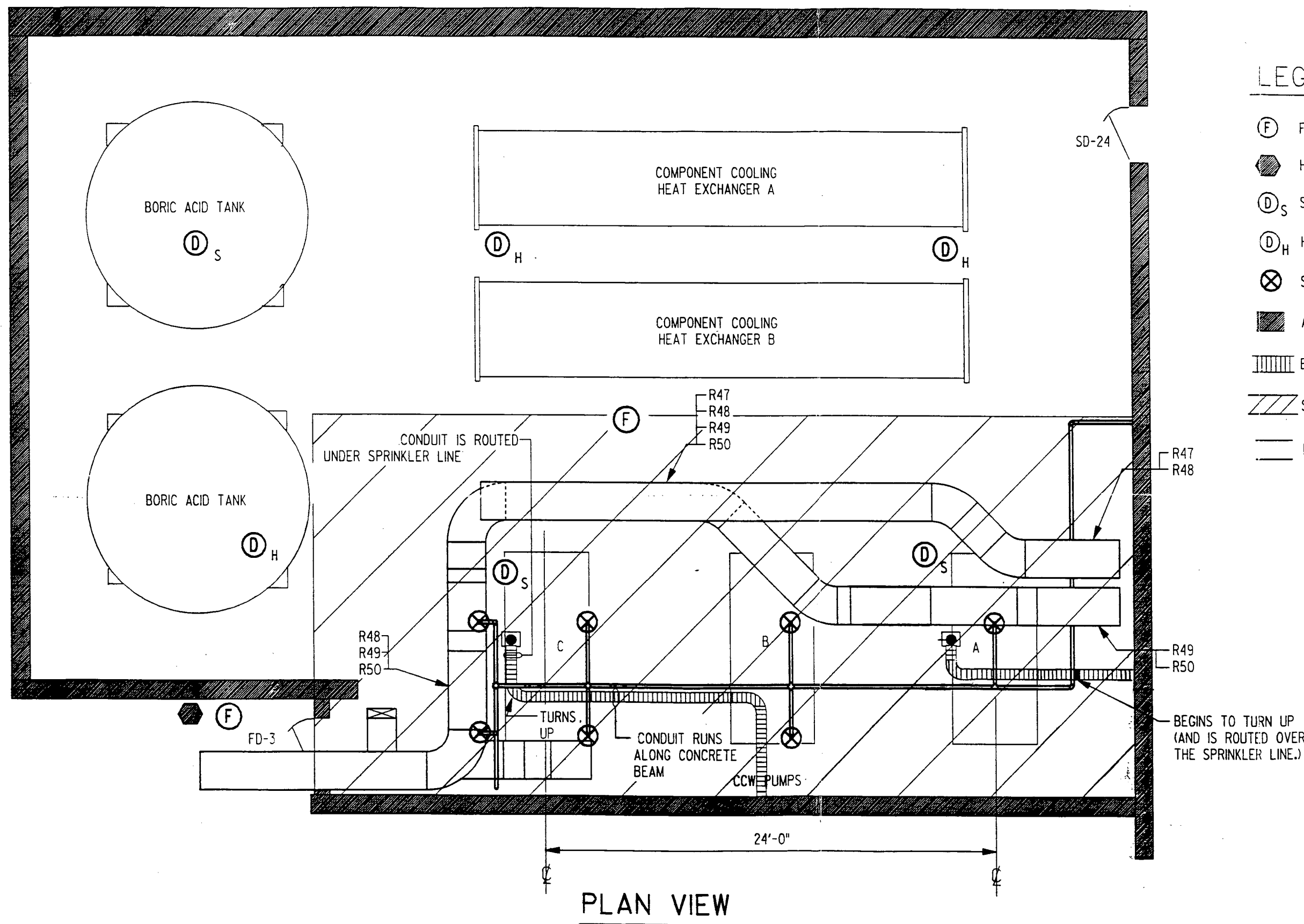
The power cables to Pumps A and C are in conduit with a one hour fire barrier wrap, and existing cable in trays are coated with a fire retardant material or are qualified to IEEE-383. Cables installed in the new trays will be qualified to IEEE-383.

The fire severity in the Component Cooling Water Pump Room will not exceed 60 minutes without additional fire protection features being provided.

COMPONENT COOLING PUMP ROOM

SUMMARY PARAMETER EVALUATION TABLE

- A. Area Description
 - 1. Construction
 - a. Walls - reinforced concrete
 - b. Floor - reinforced concrete
 - c. Ceiling - reinforced concrete
- B. Safe Shutdown Equipment
 - 1. Redundant systems in area - two safety-related component cooling pumps; one nonsafety-related alternative shutdown component cooling pump and heat exchanger
 - 2. Equipment in area required for hot shutdown - (1) component cooling water pump and (1) heat exchanger required for hot and cold shutdown
 - 3. Type of equipment involved - 480V power cables for component cooling pump motors
- C. Fire Hazards
 - 1. Type of combustibles in area
 - a. Cable insulation coated with fire retardant coating in existing cable tray
 - b. IEEE-383 qualified cable in cable trays
 - c. Pump lube oil
 - 2. Quantity of fixed combustibles
 - a. Cable insulation
 - b. One quart lube oil for each of three pumps
 - 3. Combustible loading will be controlled to limit the equivalent fire severity to 60 minutes
- D. Existing Fire Protection Feature
 - 1. Fire detection systems - redundant cross-zoned smoke and heat detectors
 - 2. Fire extinguishing systems
 - a. Automatic sprinklers above pumps and existing cable trays in vicinity of pumps
 - b. Portable extinguishers
 - c. Hose stations
 - 3. Propagation retardants - exposed cables in existing cable trays coated with fire retardant mastic
 - 4. One (1) hour rated barriers around the power cables for Pumps A and C



LEGEND:

- (F) FIRE EXTINGUISHER
- HOSE STATION
- (D)_S SMOKE DETECTOR
- (D)_H HEAT DETECTOR
- ⊗ SPRINKLER HEAD
- AREA BOUNDARY
- EXISTING WRAPPED CONDUITS
- SUPPRESSED AREA
- EXISTING CABLE TRAY

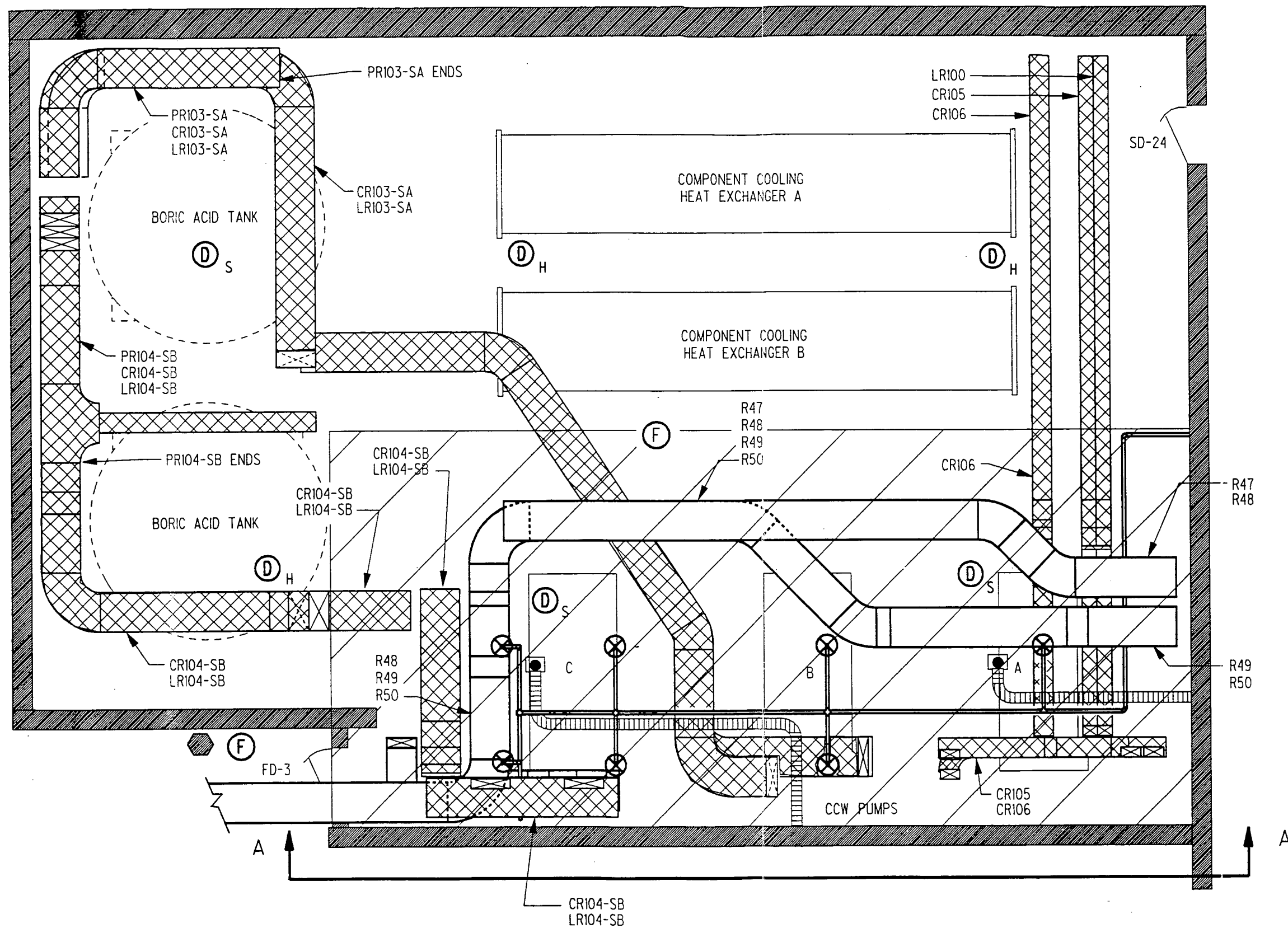
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FIGURE 1

CCW PUMP ROOM
EXISTING CABLE
TRAY LAYOUT



LEGEND:

- (F) FIRE EXTINGUISHER
- HOSE STATION
- (D_S) SMOKE DETECTOR
- (D_H) HEAT DETECTOR
- (X) SPRINKLER HEAD
- AREA BOUNDARY
- PROPOSED NEW CABLE TRAYS (APPROXIMATE LOCATION)
- EXISTING WRAPPED CONDUITS
- SUPPRESSED AREA
- EXISTING CABLE TRAY

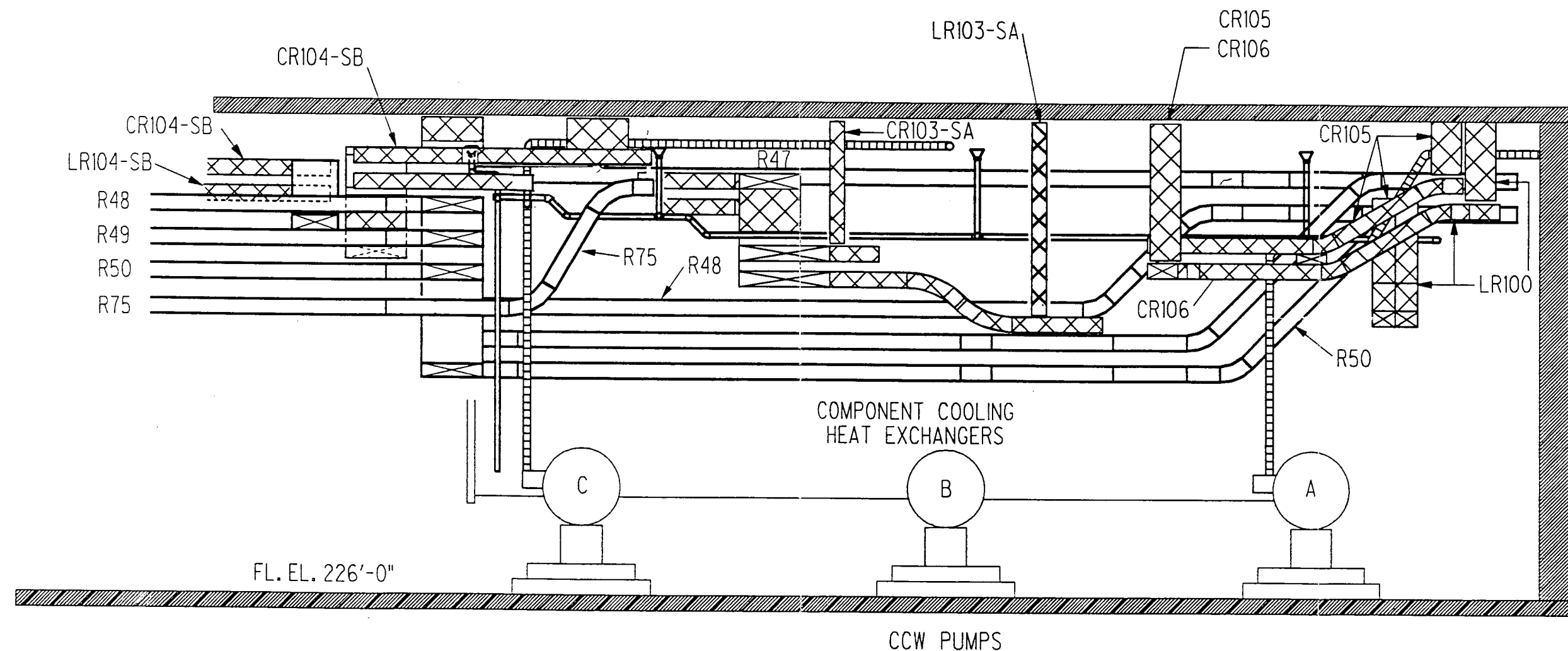
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FIGURE 2

CCW PUMP ROOM
NEW AND EXISTING
CABLE TRAY LAYOUT



SECTION A-A
LOOKING EAST

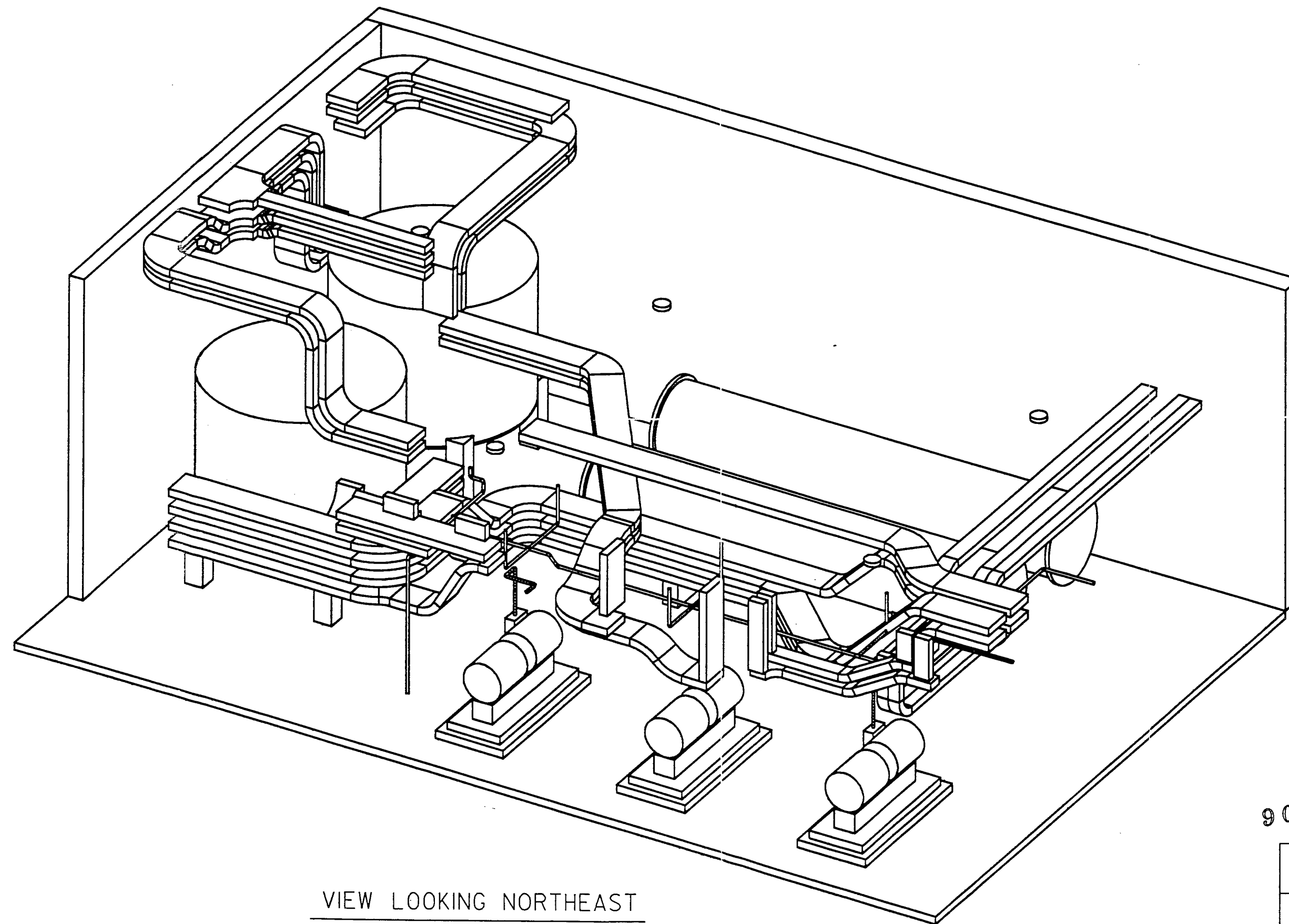
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FIGURE 3

CCW PUMP ROOM
NEW AND EXISTING
CABLE TRAY LAYOUT



VIEW LOOKING NORTHEAST

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FIGURE 4

CCW PUMP ROOM
PROPOSED FINAL
CONFIGURATION