William J. Cahill, Jr.
Vice President

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4 Irving Place, New York, N Y 10003
Telephone (212) 460-3819

June 30, 1980

Re: Indian Point Unit No. 2
Docket No. 50-247

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Denton:

In accordance with the response to NUREG-0578 Recommendation 2.1.6 (b) contained in our December 31, 1979 letter, Attachment A to this letter provides detailed information for implementation of the Category B requirements for that recommendation.

Should you or your staff have any additional questions, please contact us.

Very truly yours,

William J. Cahill, Jr.
Vice President

Attach.

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ATTACHMENT A

Detailed Design Information for Implementation of NUREG-0578 Recommendation No. 2.1.6b - "Design Review of Plant Shielding"

Consolidated Edison Company of New York

Indian Point Unit No. 2

Docket No. 50-247

June, 1980

In our letters dated October 17, 1979 and November 20, 1979 we informed the Commission that implementation of NUREG-0578 recommendation 2.1.6(b) would be accomplished in three phases. Phase one involved a detailed design review of the systems outside Containment which could contain highly radioactive fluids to determine the ability of personnel to access vital areas and the capability of critical equipment to withstand anticipated radiation fields following a postulated accident. A large amount of work was accomplished in this phase, which was completed prior to our January 1, 1980 commitment date.

Following completion of this work, the second phase of our implementation effort was undertaken. This phase involved the determination of realistic solutions to the problem areas found during the first phase study. A listing of the vital areas that had been reviewed and specific dose rates for these areas were provided to the Commission in our letter of February 15, 1980.

To satisfy the requirements of NUREG-0578 considerable effort has been expended in developing modifications which can be retrofitted into the existing Indian Point Unit No.2 design. These modifications involve major systems and equipment as well as significant structural changes and require extensive interfacing with modifications resulting from other NUREG-0578 recommendations. Specific areas found to require modification as a result of our review include:

1) Manual Containment Isolation Valves - The original Indian Point Unit No.2 plant design included a significant number of manually operated containment isolation valves on different systems, many of which are required to be operated at some time following a postulated accident. Those valves which are located in areas which will be inaccessible for an extended period of time following a NUREG-0578 type accident, are being modified to allow remote operation. The valves range in size from 3/8" up to 8" and are shown, along with the action being taken, in Table 1.

2) Filter Bypass Capability - Our review also pointed out the advisability of providing remote bypass capability for filters located in the CVCS letdown/charging path. Remote manual operators are therefore, being added to the valves in the Reactor Coolant Pump Seal Water Supply Filter bypass line, the Reactor Coolant Filter bypass line, and the Seal Water Return Filter bypass line.

3) Hydrogen Recombiner System - Although our study verified that the Hydrogen Recombiner System control panel location will be accessible within a short time after a postulated accident, several solenoid operated valves on the hydrogen and oxygen supply lines are located in an area which will be inaccessible. The existing operators are the latching type which require local operator action to reset into the open position. These will be replaced with a direct acting type that can be remotely re-positioned. In addition, the hydrogen main and pilot supply lines contain manual containment isolation valves. These manual valves will be locked in the open position and additional solenoid operated valves will be installed to function as containment isolation valves.

3) Post Accident Containment Ventilation System (PACVS) - The valving and controls for the PACVS are located for the most part in the Steam Generator Blowdown Tank Room. Although the fields within this room would not prevent access following a NUREG-0578 type accident, the only entry into this room is through the mechanical penetration area which will be completely inaccessible for an extended period of time. The PACVS will therefore be modified to allow complete remote operation including flow indication and control valve throttling capability.

4) Gas Analyzer - The existing gas analyzer draws continuous samples from various sources (headers and tanks) within the Primary Auxiliary Building (PAB). The gases contained in the sampling lines could become highly radioactive following a postulated accident and would severely inhibit or preclude normal access to portions of the PAB. To improve personnel access capability, the expected fields will be reduced by installing a purge system in each of the lines to the gas analyzer.

The large additional power and control requirements necessitated by the abovementioned modifications and other NUREG-0578 related changes cannot be handled by the existing power supply system. A major effort has, therefore, been undertaken to locate, design and install a new and separate power supply and control center. Preliminary design effort for this center began coincident with Phase Two activities, but the final specification and design was dependent on establishment of overall power requirements and channelization for each modification. The scope of these requirements is now established and the design of the center and specification of equipment is being completed. The center, will be located in area number 33A on the 98 foot elevation of the PAB (see Figure 1) and requires structural modifications, provision of auxiliary services, location of major equipment and extensive cable placement. To permit long term occupancy, following an accident, 12 inch thick concrete shield walls will be provided along the north, east and west perimeters of the area. A layout sketch, Motor Control Center front views and an auxiliary one line diagram for the proposed control center and support equipment are shown in Figures 2, 3, 4 and 5, respectively.

All work on this effort has been performed in an expeditious manner in an attempt to complete as many activities as possible by January 1, 1981. As anticipated in the previously noted Con Edison letters, the phase two review has resulted in a very large scope of work to be accomplished and has shown many areas in which design activities involve precedence relationships (i.e. some system designs depend on the completion of design activities in one or more other areas). In addition, the stringent qualification and design criteria which must be met add significantly to procurement and delivery times since, in most cases, qualified equipment is not readily available. Based on the above considerations it appears that while a significant amount of work will have been accomplished, a January 1, 1981 service date for all equipment is not feasible.

Since most of the systems and equipment being added and/or modified are required to be operable during power operation, the work involved must be performed during an outage. It is anticipated that a major portion of the mechanical work associated with the Phase Three implementation effort will be accomplished during our next refueling outage presently scheduled to start around the beginning of next year. The design of the power supply system, which is dependent on the overall mechanical design and has had to await a number of inputs, is now being finalized. The supply system is being designed in accordance with the requirements of all applicable IEEE standards including seismic criteria, separation requirements, single failure criteria and qualification requirements. The extensive testing and qualification process necessitated by these requirements together with the wide range of quality assurance functions required to comply with 10CFR50 Appendix B results in a lengthy lead time from the suppliers. Based on current delivery time estimates for motor control centers, transformers and control panels it is expected that the final connection of the electrical supply to all equipment can be accomplished during the first scheduled outage, of sufficient duration, following completion of the refueling outage. Any changes to this schedule will be reported to the Commission as soon as possible.

TABLE 1

CONTAINMENT ISOLATION VALVE MODIFICATIONS

VALVE NO.	SYSTEM DESCRIPTION	PROPOSED CHANGE
205	CVCS Charging Line	Add Motor Operator
226	CVCS Charging Line	Add Motor Operator
227	CVCS Charging Line (Bypass)	Add Motor Operator
241A	RCP Seal Water Supply	Add Motor Operator
241B	RCP Seal Water Supply	Add Motor Operator
241C	RCP Seal Water Supply	Add Motor Operator
241D	RCP Seal Water Supply	Add Motor Operator
250A	RCP Seal Water Supply	Add Motor Operator
250B	RCP Seal Water Supply	Add Motor Operator
250C	RCP Seal Water Supply	Add Motor Operator
250D	RCP Seal Water Supply	Add Motor Operator
550	Nitrogen Supply to PRT	Add Parallel Valve and two Pneumatic Operators
743	RHR Miniflow Line	Add Motor Operator
850A	Safety Injection Pump Discharge	Add Motor Operator
850B	Safety Injection Pump Discharge	Add Motor Operator
869A	Containment Spray System Header	Add Motor Operator
869B	Containment Spray System Header	Add Motor OPerator
958	RHR Loop Sample Line	Add Motor Operator
990A	Recirculation Pump Discharge Sample Line	Add Motor Operator
990B	Recirculation Pump Discharge Sample Line	Add Motor Operator
1401	Nitrogen Seal between MOV's 1870 & 743	Add Parallel Valve with Direct Solenoid Operator
1402	IVSWS between MOV's 205 &226	Add Parallel Valve with Direct Solenoid Operator
1403	IVSWS to MOV 850B	Add Parallel Valve with Direct Solenoid Operator
1404	IVSWS to MOV 850A	Add Parallel Valve with Direct Solenoid Operator
1405	IVSWS to MOV 869B	Add Parallel Valve with Direct Solenoid Operator
1420	Nitrogen Seal between 990A & 990B	Add Parallel Valve with Direct Solenoid Operator
1446	Nitrogen Seal to MOV 744	Add Parallel Valve with Direct Solenoid Operator
1447	Nitrogen Seal to MOV 888A	Add Parallel Valve with Direct Solenoid Operator
1448	Nitrogen Seal to MOV 888B	Add Parallel Valve with Direct Solenoid Operator
1449	Nitrogen Seal to MOV 958	Add Parallel Valve with Direct Solenoid Operator
1450	Nitrogen Seal to MOV 732	Add Parallel Valve with Direct Solenoid Operator
1463	IVSWS to MOV 869A	Add Parallel Valve with Direct Solenoid Operator
1464	IVSWS to MOV 851B	Add Parallel Valve with Direct Solenoid Operator

1465	IVSWS to MOV 851A	Add Parallel Valve with Direct Solenoid Operator
1466	IVSWS between MOV 241A & MOV 250A	Add Parallel Valve with Direct Solenoid Operator
1467	IVSWS between MOV 241B & MOV 250B	Add Parallel Valve with Direct Solenoid Operator
1468	IVSWS between MOV 241C & MOV 250C	Add Parallel Valve with Direct Solenoid Operator
1469	IVSWS between MOV 241D & MOV 250D	Add Parallel Valve with Direct Solenoid Operator
1610	Nitrogen Supply to RCDT	Add Parallel Valve and two Pneumatic Operators
1870	RHR Miniflow Line	Add Motor Operator

CVCS - Chemical and Volume Control System

RCP - Reactor Coolant Pump

PRT - Pressurizer Relief Tank

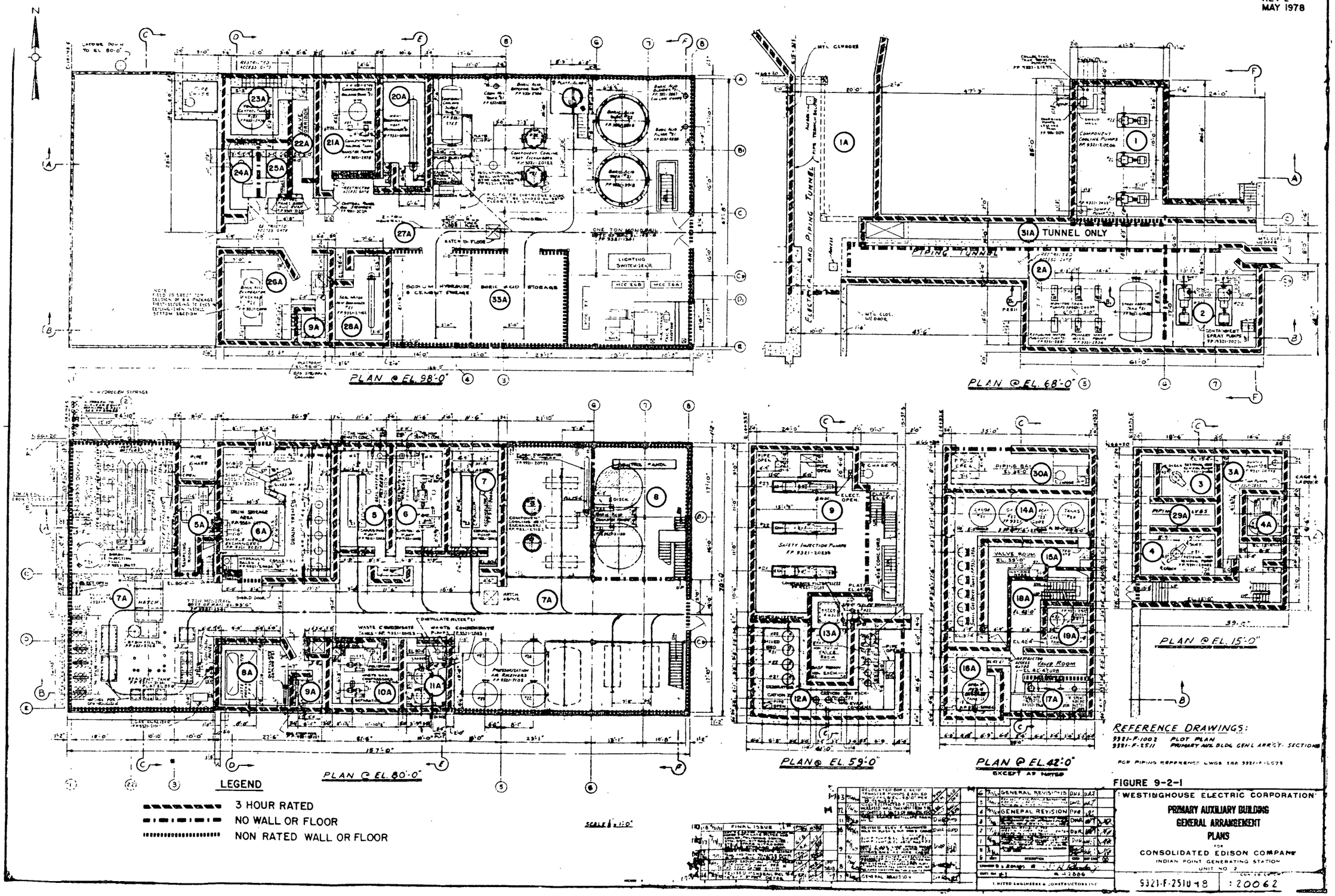
RHR - Residual Heat Removal System

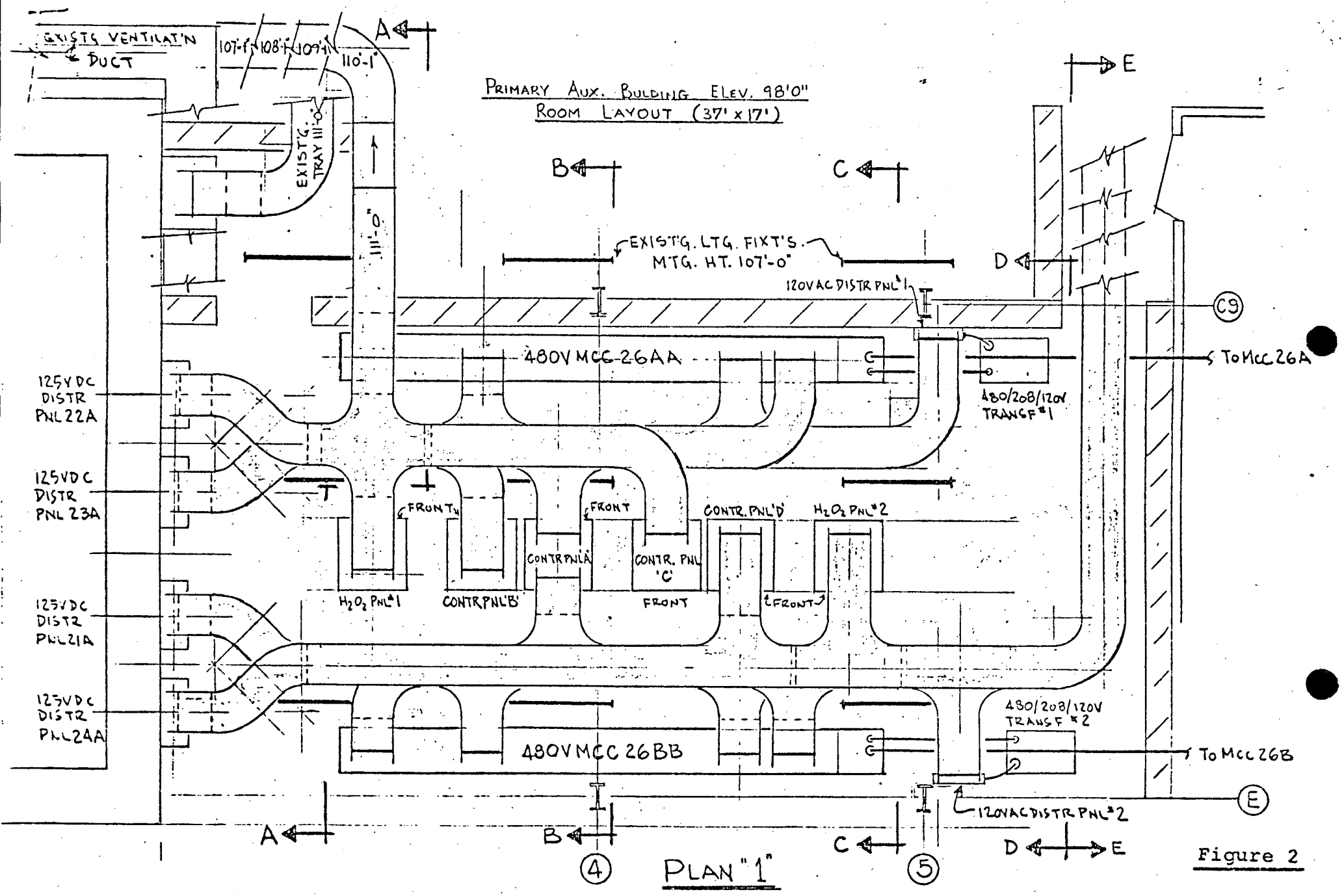
IVSWS - Isolation Valve Seal Water System

RCDT - Reactor Coolant Drain Tank

Figure 1

REV 2
MAY 1978





PLAN "1"

Figure 2

MOTOR CONTROL CENTER 26AA

NOTE: THIS MCC WILL CONSIST OF A TOTAL OF 6-MCC'S OR 12 STACKS. THIS SKETCH SHOWS ONLY 10 STACKS FOR SIMPLICITY. THE TWO (2) ADDITIONAL STACKS WILL HAVE "SPACE" ONLY. THEY WILL BE PHYSICALLY LOCATED HERE

*- MOLDED CASE 225A CIRCUIT BRKR. IS REQUIRED.

MCC 26 AA

INCOMING FEEDER AND 225A CIRC. BRKR. *	MOV 4396 BOOSTER FP BLOCK VA.	MOV 4394 WTR. FLUSH	MOV 955A RCS HOT LEG LOOP #1	SPARE SIZE I REV. COMB. STARTER	SPARE SIZE I REV. COMB. STARTER	SPARE SIZE I REV. COMB. STARTER	MOV 1870 RHR MINIFLOW TEST LINE VA.	MOV 869A CONT. SPRAY ISO. VA LINE #15	MOV 850B HI. HEAD S.I. PP#23 DISCH. VA LINE #16
O_2/H_2 ANALYZER PUMP CHAN. I SIZE I NON-REV. COMB. STARTER	MOV 4397 BOOSTER PP BLOCK VA.	SPARE SIZE I REV. COMB. STARTER	MOV 956E RCS SAMPLE ISO. VA LINE #59	SPARE SIZE I REV. COMB. STARTER	SPARE SIZE I REV. COMB. STARTER	SPARE SIZE I REV. COMB. STARTER	MOV 205 CHARG. LINE ISO. VA.	MOV 250C RCP #23 SEAL INJ. WTR. SUPP. ISO. VA	MOV 250A RCP #21 SEAL INJ. WTR. SUPP. ISO. VA
RCS SAMPLE BOOSTER PUMP SIZE I NON-REV. COMB. STARTER	SPACE	SPARE SIZE I REV. COMB. STARTER	MOV 990A RECIRC. PP #21 & #22 SAMPLE LINE #595	SPARE SIZE I REV. COMB. STARTER	SPARE SIZE I REV. COMB. STARTER	SPARE SIZE I REV. COMB. STARTER	MOV 958 RHR SAMPLE ISO. VA LINE #294	MOV 241B RCP #22 SEAL INJ. WTR. SUPP. ISO. VA	MOV 241D RCP #24 SEAL INJ. WTR. SUPP. ISO. VA
SPARE SIZE I NON-REV. COMB. STARTER 15A	50KVA TR#1 70A								

PAD

CONSOLIDATED EDISON CO. OF N.Y. INC. — MECHANICAL ENG. DEPT. — DATA SHEET

J.O. 90049-50/54 PREPARED BY [illegible] DATE [illegible] NO. 4/5

32-35 (PAD) 11-62 MECH. ENG. 5000

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Figure 3

MOTOR CONTROL CENTER 26BB

*-MOLDED CASE 225A CIRCUIT BRKR. IS REQUIRED.

NOTE: THIS MCC WILL CONSIST OF A TOTAL OF 6-MCC'S OR 12 STACKS. THIS SKETCH SHOWS ONLY 10 STACKS FOR SIMPLICITY. THE 2 ADDITIONAL STACKS WILL HAVE "SPACE" ONLY. THEY WILL BE PHYSICALLY LOCATED HERE

MCC 26BB

MOV 850A HI HEAD S.I. PP#21 DISCH. VA. LINE#56	MOV 869B CONT. SPRAY ISO. VA. LINE# 51	MOV 743 RHR MINIFLOW TEST LINE VA.	SPARE SIZE I REV. COMB. STARTER	SPARE SIZE I REV. COMB. STARTER.	SPARE SIZE I REV. COMB. STARTER	MOV 955B RCS HOT LEG LOOP #3	MOV 959 RHR SAMPLE VA LINE#294	SPARE SIZE I REV. COMB. STARTER.	INCOMING FEEDER AND 225A CIRC. BRKR. *
MOV 241A RCP#21 SEAL INJ. WTR. SUPP. ISO. VA	MOV 241C RCP#23 SEAL INJ. WTR. SUPP. ISO VA	MOV 226 CHARG. LINE ISO. VA.	SPARE SIZE I REV. COMB. STARTER	SPARE SIZE I REV. COMB. STARTER	SPARE SIZE I REV. COMB. STARTER	MOV 956F RCS SAMPLE ISO. VA. LINE # 59	MOV 4395 WTR. FLUSH	SPACE	O_2/H_2 ANALYZER PUMP CHAN. II SIZE I NON-REV. COMB. STARTER
MOV 250D RCP#24 SEAL INJ. WTR. SUPP. ISO. VA	MOV 250B RCP#22 SEAL INJ. WTR. SUPP. ISO. VA	MOV 227 CHARG. LINE ISO. VA.	SPARE SIZE I REV. COMB. STARTER	SPARE SIZE I REV. COMB. STARTER.	SPARE SIZE I REV. COMB. STARTER	MOV 990B RECIRC. PP#21 & #22 SAMPLE LINE # 595	SPARE SIZE I REV. COMB. STARTER	SPACE 50KVA TR#2 70A	SPARE SIZE I NON-REV COMB. STARTER 15A SPACE.

PAD

Figure 4

CONSOLIDATED EDISON CO. OF N.Y. INC.—MECHANICAL ENG. DEPT. Elect. Gen. and Control DATA SHEET

J.O. 90049-50/54 PREPARED BY _____ DATE _____ NO. 5/5

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