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U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

PLANT HATCH - UNIT 2
NRC DOCKET 50-366
OPERATING LICENSE NPF-5
RESOLUTION OF HUMAN ENGINEERING DEFICIENCIES

Gentlemen:

Georgia Power Company's (GPC's) present human factors commitment, based on the guidance of NUREG-0700, "Human Factors Engineering Design Standards," for the Unit 2 annunciator windows requires completion of all modifications by the end of the 1992 refueling outage. After considerable review and evaluation, GPC has determined the safety/operations benefits to be gained from regrouping and relocating several Unit 2 annunciators are not justified when compared with the possibility of negative transfer of training and experience from the existing arrangement to the proposed arrangement.

Based on the discussion presented in the enclosure to this letter, GPC requests concurrence to remove the items described above from the Plant Hatch Human Factors Project. All modifications associated with human factors improvements are complete for Hatch Unit 1.

If additional information relative to any of the human engineering deficiencies and/or the DCRs is required, do not hesitate to contact this office. Your timely response to our proposal is requested.

Sincerely,

J. T. Beckham, Jr.

OCV/sp

Enclosure:

c: (See next page.)

A001 1/1
LTR. ENCL.
ADD: NRR/DLPQ/LHFB 1 1

c: Georgia Power Company
Mr. H. L. Sumner, General Manager - Nuclear Plant
NORMS

U.S. Nuclear Regulatory Commission, Washington, D.C.
Mr. K. Jabbour, Licensing Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II
Mr. S. D. Ebneter, Regional Administrator
Mr. L. D. Wert, Senior Resident Inspector - Hatch

ENCLOSURE

PLANT HATCH - UNIT 2
NRC DOCKET 50-366
OPERATING LICENSE NPF-5
RESOLUTION OF HUMAN ENGINEERING DEFICIENCIES

At present, all Unit 1 human engineering discrepancies (HEDs) and all Unit 2 Categories 1 and 2 HEDs have been resolved. This request involves seven Unit 2 HEDs (nos. 295, 296, 298, 301, 302, 303, and 472) which, for resolution, require the regrouping and relocating of several annunciators. Four HEDs are Category 3, and three HEDs are Category 4. Category 3 HEDs include safety-related items having a low probability of ever causing an operational or safety problem. Category 4 HEDs are nonsafety-related items. Early in the categorization process, the HEDs relative to multiple panels or problems were upgraded one category; i.e., a nonsafety-related HED was upgraded to a Category 3. If Hatch had not taken this conservative approach, all HEDs relative to this request would be Category 4. Listed below are representative examples from the five Design Change Requests GPC is seeking to remove from the Human Factors Project:

1. Panel 2H11-P700 (houses controls for the drywell chillers, hydrogen and oxygen analyzers, and nitrogen supply systems) (Figure 1).

   a. Move annunciator at location Y15 to location Y03 to group the alarm with related system (turbine building instrument air) annunciators.

   b. Swap the location of annunciators Y23 and Y24 to more logically arrange the annunciators related to the waste gas treatment system and the control building.

2. Panel 2N62-P600 (houses annunciators and controls for the offgas system) (Figure 2).

   Move the offgas carbon bed bypassed annunciator and the recombiner A or B temp hi/low annunciator to group the alarms with related systems, similar to the Unit 1 arrangement.

3. Panel 2H11-P654 (houses annunciators for heating and ventilation) (Figure 3).

   Move seven annunciators within the panel to group them with related systems.

4. Panels 2H11-P601 and 2H11-P602 (house controls for core spray (CS), residual heat removal (RHR), recirculation system, and safety relief valves (SRVs). Each panel contains four annunciator panels.

   Move the annunciators to position them above their specific controls, following the left-to-right flow of their corresponding systems. Some annunciators will be moved to adjacent annunciator panels.

ENCLOSURE (Continued)

RESOLUTION OF HUMAN ENGINEERING DEFICIENCIES

All the changes described above were originally designed to optimize the arrangement or location of alarms by:

1. Grouping annunciators closer to other related annunciators.

2. Relocating annunciators closer to their appropriate system and controls.

3. Establishing consistency between the annunciator panels of both units.

It should be noted that the annunciators, in their existing configuration, are not grossly out of position with respect to other related annunciators or their respective systems and controls. For example, an operator working at the off-gas panel (Figure 2) can respond to the recombiner A or B temp hi/lo annunciator from its present position just as easily as he can from the proposed position. As shown in Figure 3, four annunciators related to primary containment isolation system vent valve overrides are to be moved from one side of the annunciator panel to the other. The associated controls for the annunciators are located directly under the panel. If an operator were to override the high drywell pressure signal for one of the vent valves using the keylock switch, he could verify this action by looking at the alarming annunciator on the 2H11-P654 panel. Moving the annunciator to its proposed location will not improve the operator's ability to make the verification.

In addition, the normal response to an alarming annunciator for a Plant Hatch operator consists of, after acknowledging the alarm, pulling the annunciator response procedure and taking the delineated actions. Such actions may require the operator to go to another panel to investigate other alarms and/or take some action. Therefore, relocating the annunciator to a position closer to its respective controls may not decrease the operator's response time to the abnormal condition. This argument applies to all the examples discussed herein.

After considerable review and discussion, the Engineering and Operations staffs agreed the proposed modifications will not significantly improve plant safety nor significantly enhance the ability of licensed personnel to operate the appropriate systems or respond to alarms.

Since the original decision to reconfigure the arrangement of annunciator windows for Plant Hatch Units 1 and 2, control room operators have had approximately 4 years additional experience in operating with the present annunciator arrangement, both in the main control room and in the simulator. If the proposed changes are made, the potential for an increase in operator errors is created due the negative transfer of training and experience. Optimal location of the annunciators is not necessary to ensure a proper, timely operator response.

RESOLUTION OF HUMAN ENGINEERING DEFICIENCIES

The majority of differences between Unit 1 and Unit 2 have been reconciled. For example, many back panel alarms on Unit 1 were moved to the front panels to match the Unit 2 configuration. The remaining differences, such as the one described in example 2, are barely discernible and, therefore, are not as conspicuous as a back panel-to-front panel discrepancy. GPC believes the cost of the modifications and the increased potential for operator error due to unfamiliarity with the new design are greater than the benefit to plant safety and effectiveness of operation.

In conclusion, GPC believes the deletion of seven of the ten remaining HEDs from the Unit 2 Human Factors Project will not decrease the level of safety at which the plant is operated. Following resolution of the three outstanding HEDs and pending NRC staff concurrence, GPC will consider the NUREG-0700 Human Factors Project complete for Hatch Unit 2.

BAY A ANNUNCIATOR

Y01 / Y01 H-27753 RB INSTR AIR NON-INT AIR HDR PRESS LOW	Y07 / Y02 H-27788 RFP AREA LEAK DETECTION	Y13 / Y03 H-27788 MAIN TURB AREA LEAK DETECTION	Y19 / Y04 H-23678 CONTROL BLDG AFTCLR B001A DISCH TEMP HIGH	Y25 / Y05 INST AIR DRYER MALFUNCTION	Y31 / Y06 H-27753 WGT BLDG INSTR AIR SUPPLY LINE PRESS LOW
Y02 / Y07 H-27753 RB INSTR AIR N2 INERT SYS PRESS LOW	Y08 / Y08 H-27780 INSTR AIR AFT FLTR D102A DIFF PRESS HIGH	Y14 / Y09 H-27788 MAIN CNDSR AREA LEAK DETECTION	Y20 / Y10 H-23678 CONTROL BLDG AFTCLR B001B DISCH TEMP HIGH	Y26 / Y11 H-24018 H2O2 ANALYZER B HEAT TRACE SYS FAIL	Y32 / Y12 H-27742 WGT BLDG CHEMICAL SUMP LEVEL HIGH
Y03 / Y13	Y09 / Y14 H-27780 INSTR AIR AFT FLTR D102B DIFF PRESS HIGH	Y15 / Y15 H-27780 INSTR AIR ESSENTIAL SPLY PRESS LOW	Y21 / Y16 H-23678 CONTROL BLDG AFTCLR B001C DISCH TEMP HIGH	Y27 / Y17 H-24008 H2O2 ANALYZER SYSTEM B FAIL	Y33 / Y18 H-27742 WGT BLDG CRW DRAIN SUMP LEVEL HIGH
Y04 / Y19 H-23680 INSTR AIR DRYERS SYS PRESS LOW	Y10 / Y20 H-27782 WGT VAULT VENT B528A/B SUPPLY FLOW LOW	Y16 / Y21 H-23678 AIR CMPSR 2A TRIPPED/ SHUTDOWN	Y22 / Y22 H-23680 CONTROL BLDG SERVICE AIR PRESS LOW	Y28 / Y23 H-27746 PCIS OUTBOARD H2O2/FPM SYS OVERRIDE	Y34 / Y24 H-27742 WGT BLDG CRW DRAIN SUMP LEVEL HIGH-HIGH
Y05 / Y25 H-23680 INSTR AIR PREFLTR D103A DIFF PRESS HIGH	Y11 / Y26 H-27782 WGT VAULT VENT B530 SUPPLY FLOW LOW	Y17 / Y27 H-23678 AIR CMPSR 2B TRIPPED/ SHUTDOWN	Y23 / Y28 H-24008 H2O2 ANALYZER SAMPLE B FLOW LOW	Y29 / Y29 H-24008 DRWL/TORUS CH B O2 CONTENT HIGH	Y35 / Y30 H-27742 WGT BLDG DRW DRAIN SUMP LEVEL HIGH
Y06 / Y31 H-23680 INSTR AIR PREFLTR D103B DIFF PRESS HIGH	Y12 / Y32 H-27753 RW BLDG INSTR AIR NON-ESS SPLY PRESS LOW	Y18 / Y33 H-23678 AIR CMPSR 2C TRIPPED/ SHUTDOWN	Y24 / Y34 H-23680 CONTROL BLDG SERVICE AIR SHUTOFF	Y30 / Y35 H-24008 DRWL/TORUS CH B H2 CONTENT HIGH	Y36 / Y36 H-27742 WGT BLDG DRW DRAIN SUMP LEVEL HIGH-HIGH

A

BEFORE

A

FIGURE 1 (SHEET 1 OF 2)

BAY A ANNUNCIATOR

Y01 / Y01 H-27753 RB INSTR AIR NON-INT AIR HDR PRESS LOW	Y07 / Y02 H-27788 RFP AREA LEAK DETECTION	Y13 / Y03 H-27788 MAIN TURB AREA LEAK DETECTION	Y19 / Y04 H-23678 CONTROL BLDG AFTCLR B001A DISCH TEMP HIGH	Y25 / Y05 H-23680 INST AIR DRYER MALFUNCTION	Y31 / Y06 H-27753 WGT BLDG INL R AIR SUPPLY LINE PRESS LOW
Y02 / Y07 H-27753 RB INSTR AIR N2 INERT SYS PRESS LOW	Y08 / Y08 H-27780 INSTR AIR AFT FLTR D102A DIFF PRESS HIGH	Y14 / Y09 H-27788 MAIN CNDSR AREA LEAK DETECTION	Y20 / Y10 H-23678 CONTROL BLDG AFTCLR B001B DISCH TEMP HIGH	Y26 / Y11 H-24018 H2O2 ANALYZER B HEAT TRACE SYS FAIL	Y32 / Y12 H-27742 WGT BLDG CHEMICAL SUMP LEVEL HIGH
Y03 / Y13 H-27780 INSTR AIR ESSENTIAL SPLY PRESS LOW	Y09 / Y14 H-27780 INSTR AIR AFT FLTR D102B DIFF PRESS HIGH	Y15 / Y15	Y21 / Y16 H-23678 CONTROL BLDG AFTCLR B001C DISCH TEMP HIGH	Y27 / Y17 H-24008 H2O2 ANALYZER SYSTEM B FAIL	Y33 / Y18 H-27742 WGT BLDG CRW DRAIN SUMP LEVEL HIGH
Y04 / Y19 H-23680 INSTR AIR DRYERS SYS PRESS LOW	Y10 / Y20 H-27782 WGT VAULT VENT B528A/B SUPPLY FLOW LOW	Y16 / Y21 H-23678 AIR CMPSR 2A TRIPPED/ SHUTDOWN	Y22 / Y22 H-23680 CONTROL BLDG SERVICE AIR PRESS LOW	Y28 / Y23 H-27746 PCIS OUTBOARD H2O2/FPM SYS OVERRIDE	Y34 / Y24 H-27742 WGT BLDG CRW DRAIN SUMP LEVEL HIGH-HIGH
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Y06 / Y31 H-23680 INSTR AIR PREFLTR D103B DIFF PRESS HIGH	Y12 / Y32 H-27753 RW BLDG INSTR AIR NON-ESS SPLY PRESS LOW	Y18 / Y33 H-23678 AIR CMPSR 2C TRIPPED/ SHUTDOWN	Y24 / Y34 H-24008 H2O2 ANALYZER SAMPLE B FLOW LOW	Y30 / Y35 H-24008 DRWL/TORUS CH B H2 CONTENT HIGH	Y36 / Y36 H-27742 WGT BLDG DRW DRAIN SUMP LEVEL HIGH-HIGH

A

AFTER

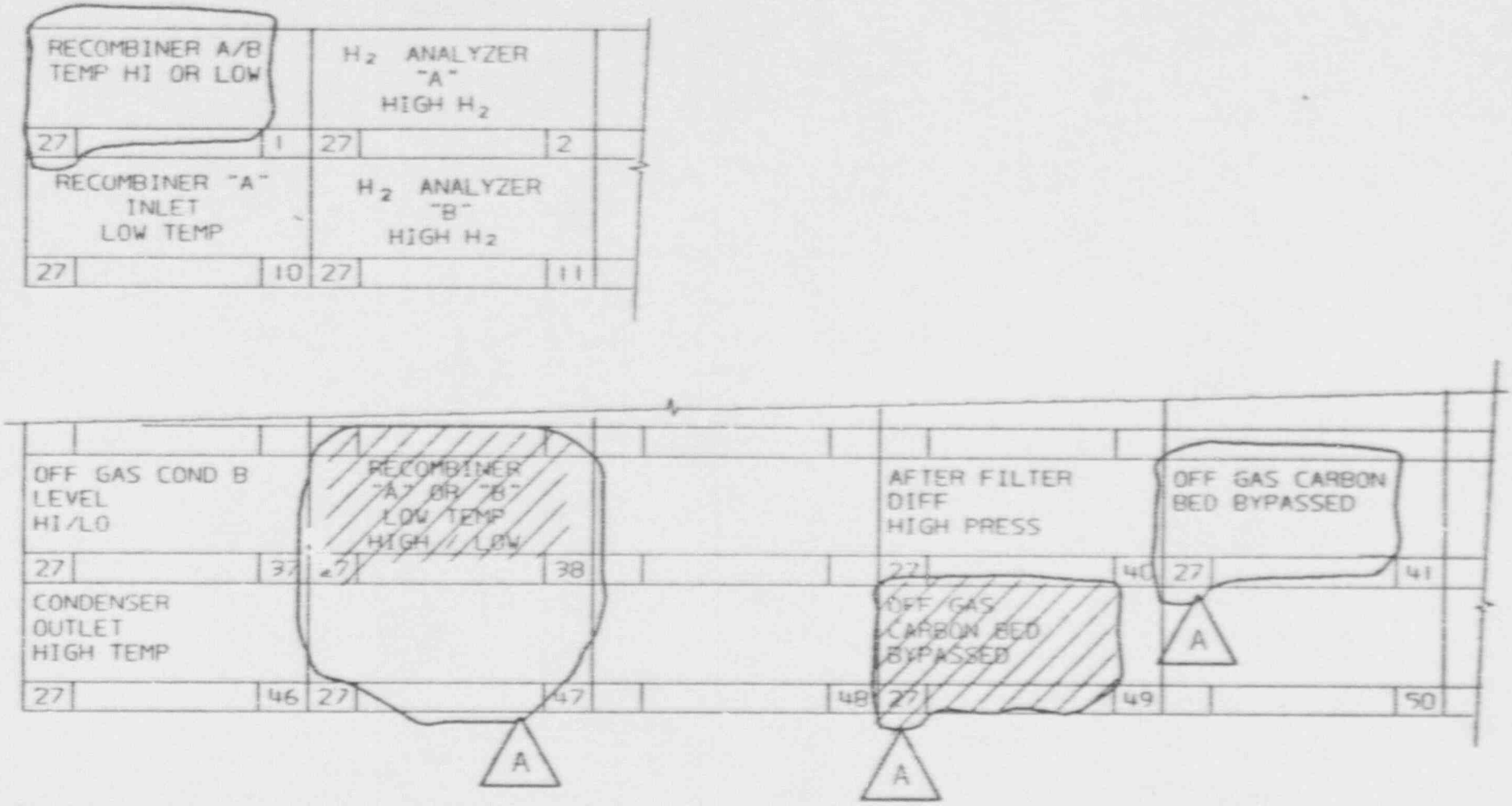
FIGURE 1 (SHEET 2 OF 2)

RECOMBINER A OR B TEMP HIGH OR LOW *	H2 ANALYZER B HIGH H2	GLYCOL STORAGE TANK HIGH TEMP	GAS REHEATER INLET HIGH TEMP	ADSORBER VAULT HIGH TEMP				
RECOMBINER A INLET LOW TEMP	H2 ANALYZER B HIGH H2	GLYCOL STORAGE TANK LOW TEMP	GAS REHEATER INLET LOW TEMP	ADSORBER VAULT LOW TEMP				
RECOMBINER B INLET LOW TEMP	HIGH INLET FLOW TO HOLD LINE	GLYCOL STORAGE TANK LOW LEVEL	GAS DRYER OUTLET DEWPOINT HIGH TEMP	ADSORBER VESSEL HIGH TEMP	ADSORBER VAULT RAD HIGH			
OFFGAS COND A LEVEL HI/LO	LOW INLET FLOW TO HOLD LINE	REFRIGERATION MACHINES INOPERABLE	PRE-FILTER DIFF HIGH PRESS	ADSORBER TRAIN OUTLET/INLET HIGH PRESS	ADSORBER VAULT RAD DOWNSCALE			
OFFGAS COND B LEVEL HI/LO			AFTER FILTER DIFF HIGH PRESS	OFFGAS CARBON BED BYPASSED *				
CONDENSER OUTLET HIGH TEMP								

* RELOCATED

OVERALL VIEW OF PANEL 2N62-P600

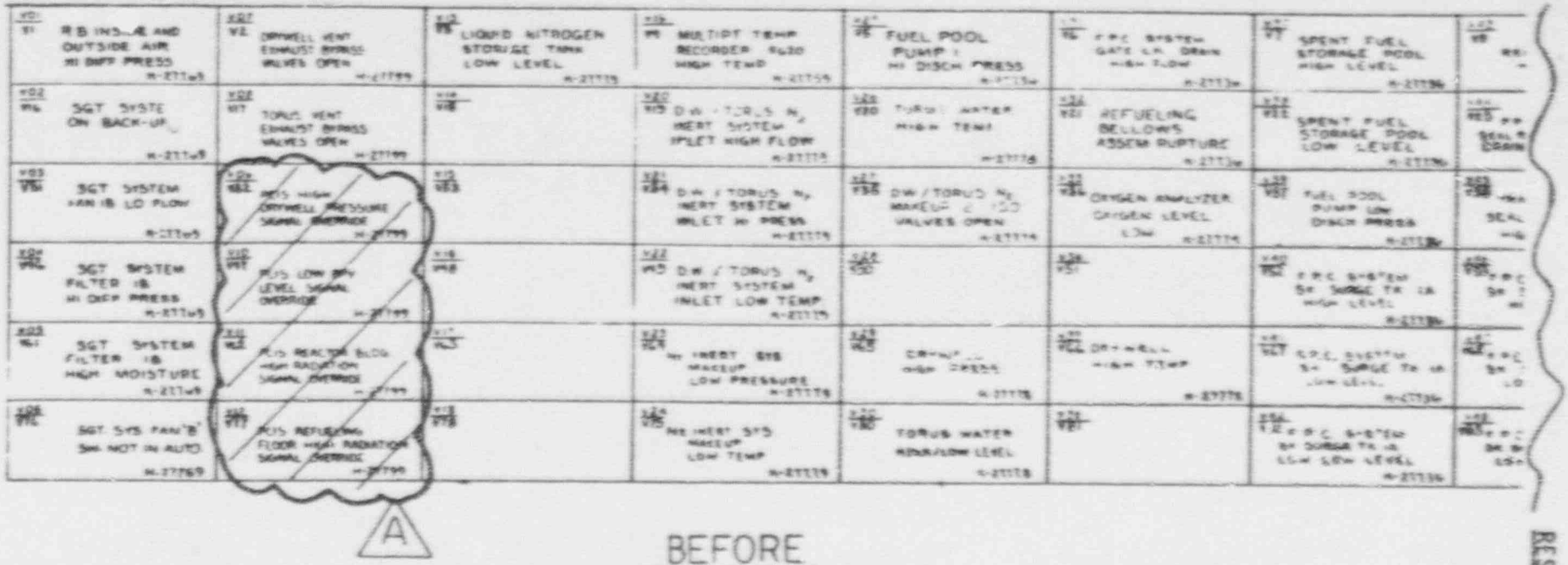
FIGURE 2 (SHEET 1 OF 2)



LOCATION OF CHANGES TO PANEL 2N62-P600

FIGURE 2 (SHEET 2 OF 2)

ANNUNCIATOR PANEL "F" H11-P654
HEATING & VENTILATION ANNUNCIATOR



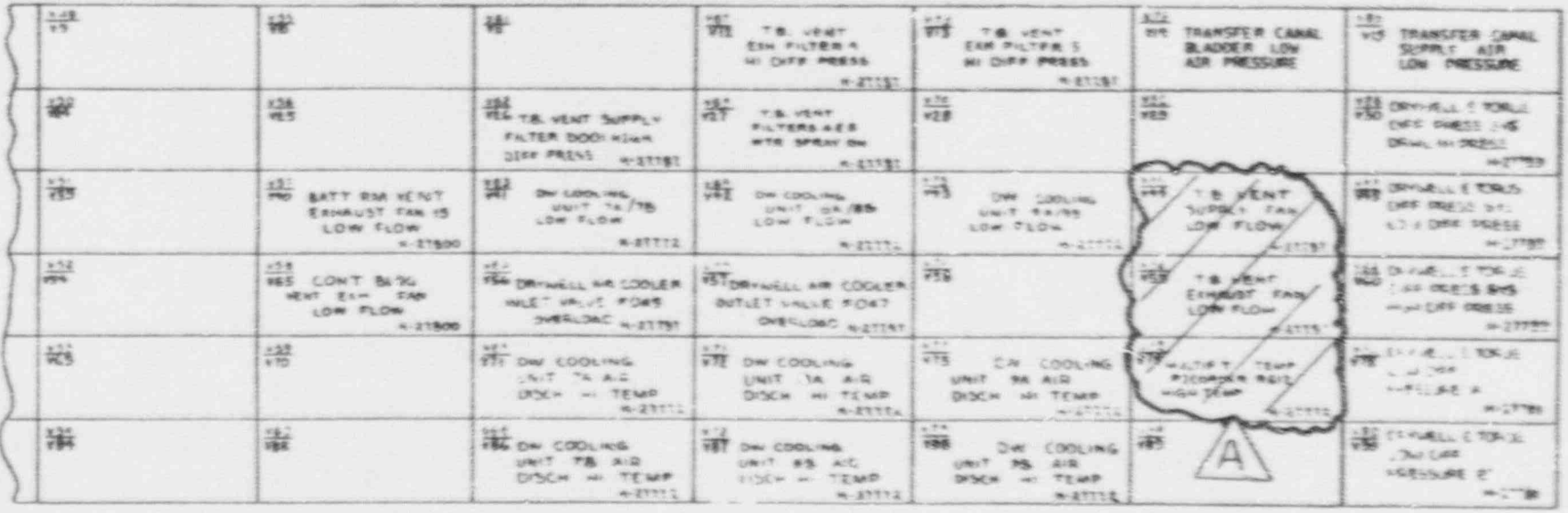


FIGURE 3 (SHEET 1 OF 2)

ENCLOSURE (Continued)

RESOLUTION OF HUMAN ENGINEERING DEFICIENCIES

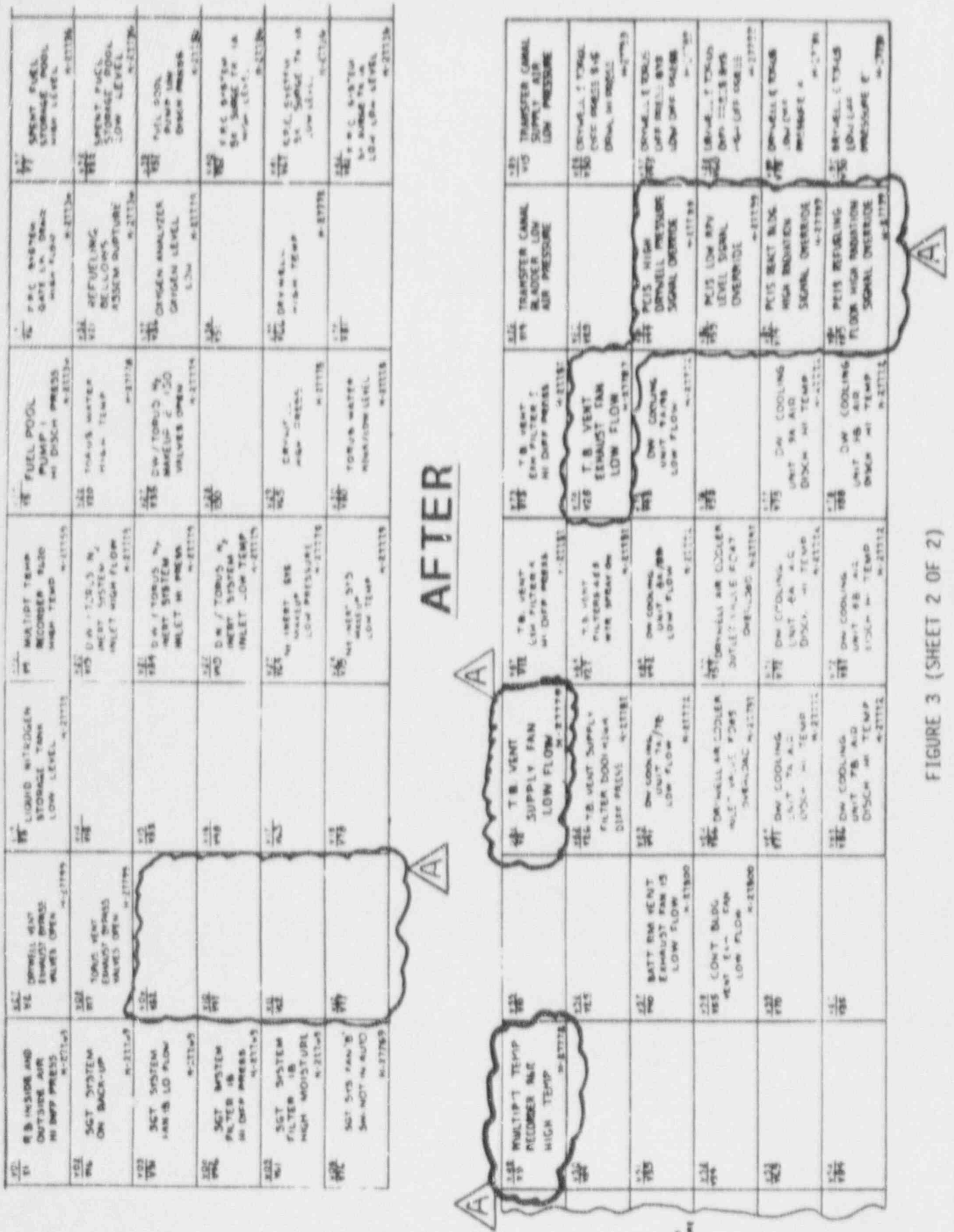


FIGURE 3 (SHEET 2 OF 2)