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DETAILED CONTROL ROOM DESIGN REVIEW  
FINAL SUMMARY REPORT  
PROGRAM IMPLEMENTATION  
VOLUME 2

For

Nine Mile Point Unit 2

Submitted by

Niagara Mohawk Power Corporation

September 1985

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## 1.0 INTRODUCTION

Niagara Mohawk Power Corporation (NMPC) had a Detailed Control Room Design Review (DCRDR) performed on its Nine Mile Point Unit 2 plant (NMP-2). The purpose was to identify and correct design deficiencies in order to lower the probability of human error and to effectively mitigate emergency conditions. The following review processes were used to analyze the man/machine interface with the control room: historical document review, operator survey, inventory, task analysis, verification, check-list and validation. Because of these processes, potential Human Engineering Observations (HEOs) were identified. These potential HEOs were reviewed and assessed for their impact on plant safety, plant operability and NRC guidelines. Significant HEOs were designated Human Engineering Deficiencies (HEDs). Appropriate corrective actions for each HED then were determined and a schedule was developed for the implementation of these corrective actions.



## 2.0 RESULTS

The Appendices contain the completed Human Engineering Forms for the DCRDR at Nine Mile Point Unit 2. There are 441 Human Engineering Observations which can be divided into 200 HEDs or Fix items, and 190 No Fix and 51 Invalid HEOs. Table 2-1 lists the number of Fix and No Fix Observations by primary reference source. The main source of items (190 HEOs) came from the checklist. A further division of the Fix and No Fix HEOs by assessment category and level can be observed in Table 2-2. Although most of category/level 4 are No Fix items, there were a significant number (59) of the HEOs selected to be fixed by the review team. This fact should attest to the motivation of and the in-depth analysis by the NMPC reviewers.

Appendices A through K contain the Human Engineering Deficiencies by type of fix. These HEDs are not sorted by number. Appendix L functions as a cross-index for the HEDs. This section depicts each of the corrective actions in HED numerical order and gives the Appendix page number where the write-up can be found. Appendix M contains the Invalid and No Fix HEOs, which are sorted by number. Below are listed the fix categories and their HEDs:



Reference Source	Fix	No Fix
Historical Survey	4	0
Operator Survey	58	37
Checklist	94	96
Verification	33	47
Validation	11	10
Total	200	190

Table 2-1  
Number of Fix and No Fix Observations by  
Primary Reference Source



Category/Level	Fix	No Fix
1A	1	0
1B	3	0
1D	0	0
1E	0	0
2C	63	2
2D	7	2
2E	0	1
3C	41	9
3D	26	10
4	59	168
Total	200	190

Table 2-2  
Number of Fix and No Fix Observations by  
Assessment Category and Level

67  
19  
—  
86





1. Add components (28 HEDs in Appendix A).

1. Add meters: 122, 211, 212, 126, 128, 130, 219, 931, 131, 958, 143, 220, 232, 942, 950
2. Add annunciators: 133, 235.03, 309, 970, 972
3. Add controls: 37.01, 37.03, 112, 165
4. Add displays: 949, 993
5. Add monitoring equipment: 225, 946

2. Modify/Replace/Remove Components (22 HEDs in Appendix B).

1. Modify/replace/remove controls: 238, 239, 69, 121, 72, 164, 184
2. Modify/remove annunciators: 58, 154
3. Establish maintenance procedures: 66, 108, 52, 54, 57
4. Provide easy access to fuzes: 282, 292.01, 292.02
5. Establish/maintain an expendable inventory: 35, 203, 36, 106
6. Modify displays: 287

3: Relocate Components (6 HEDs in Appendix C).

1. Relocate displays/controls: 291
2. Rearrange/relocate meters: 83.02



3. Relocate CRT: 125
4. Rearrange/relocate annunciators: 150, 152, 155
4. Label Displays/Controls (50 HEDs in Appendix D).
  1. Ensure labels describe function: 39.02, 51, 96, 97, 256, 260, 266, 280, 157, 63, 107, 208, 169, 215, 95, 240, 171
  2. Standardize wording of labels: 3, 8, 138, 166, 199, 262, 76, 261, 917, 924, 907, 933, 936, 947, 290
  3. Utilize hierarchical labeling and demarcation of components: 83.13, 268, 185, 77, 257, 100
  4. Increase readability of labels: 64, 103, 163, 175, 99, 101, 91, 237, 274, 74.03
  5. Establish procedure for cleaning labels: 275
  6. Ensure label security: 93
5. Label Annunciators (6 HEDs in Appendix E).
  1. Ensure tiles describe function: 156, 188, 194
  2. Utilize coordinate location designation: 55
  3. Standardize wording of tiles: 193
  4. Permanently engrave tiles: 60



6. Modify Meter/Recorder Faces (26 HEDs in Appendix F).

1. Change scale: 102.01, 88, 241, 243, 926, 928, 979, 901, 911, 912, 914, 919, 994, 922, 174, 941, 952, 978, 984, 207
2. Change units: 216, 932, 916
3. Ensure secure labeling: 233, 234
4. Place tick mark on scale: 982

7. Utilize/Modify Mimics (8 HEDs in Appendix G).

1. Mimic system flow: 182, 259
2. Label mimic components: 98, 183, 269
3. Utilize/standardize color coding: 206; 270, 271

8. Initiate Computer Modifications (17 HEDs in Appendix H).

1. Alter CRT viewing angle: 31, 32, 33, 200
2. Provide CRT message with large processing times: 10, 11
3. Modify program to divide information: 23, 281
4. Increase readability of information: 13, 14, 15, 198, 311, 312, 192.02
5. Provide explicit commands for computer usage: 5
6. Remove enable button: 202



9. Utilize Color Coding on Displays/Controls (11 HEDs in Appendix I).

1. Utilize shading to identify function: 61, 142, 226.01, 288, 904, 151, 153, 160
2. Utilize zone banding: 104, 137
3. Standardize color coding conventions: 277

10. Operator Training and Operational Procedures Development/Usage: (19 HEDs in Appendix J).

1. Operator training: 47, 79.01, 37.02, 53, 59, 187, 79.03, 159, 195, 170, 186
2. Facilitate document usage: 40, 248, 204, 205
3. Develop operational procedures: 283, 285, 284, 286

11. Modify Communications Systems (7 HEDs in Appendix K).

1. Increase transmission capability: 44, 46, 146
2. Establish priority for emergency messages: 42, 48, 196
3. Develop procedure for periodic testing: 41





### 3.0 SUMMARY OF CORRECTIVE ACTION STUDIES

The purpose of the below listed studies is to satisfactorily complete the corrective actions which have resulted from the findings of the DCRDR. These studies have either been completed or are presently being performed. These studies are:

1. Center Desk Study. Analyze operator information needs and tasks associated with the center desk area in the control room; and provide specific guidance for the Human Engineering Observations (HEOs) identified in the DCRDR relating to the center desk area.
2. Annunciator Study. Review the location and wording of each annunciator on the main control panels, prepare a data base to be used for comparison of labeling words and abbreviations, and respond appropriately to the Human Engineering Observations from the DCRDR relating to annunciators.
3. Inventory Discrepancy Study. Perform an inventory analysis of the completed control room; and provide a discrepancy list of the components reviewed in the DCRDR from the data base drawings and those that were additions that had not been reviewed.
4. Zone Banding Study. Determine the meters which should be banded and their appropriate color limits, and provide guidance to the Human Engineering Deficiencies resulting from the DCRDR relating to meters.



- 5.. Labeling Study. Review all labels in the control room and remote shutdown panel including component labels and computer displays. Recommendations to fix labels will include wordiness, abbreviations, function, hierarchical level, placement, legend and pushbutton light discrimination and demarcation. The solution package will identify location, size, color, printing, letter and line separation, and stroke width. Mimic labeling and color coding of the panels will also be studied. This "follow-up" package will be responsive to those Human Engineering Deficiencies relating to labels and mimics.
  
6. Follow-Up to Solution Packages. Verify that the results of the solution packages of Annunciator, Labeling, Zone Banding and Center Desk studies were properly implemented. Evaluate the results from the Inventory Discrepancies study, determine as to any potential Human Engineering Observations, and provide a solution package for each individual fix. Conduct additional analyses of the DRMS and GEMS, the SPDS interface with the ERF, and color coding of CRT displays.

100



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APPENDIX A  
Add Components (28 HEDs)



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 37.01  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE FOLLOWING ANNUNCIATOR BOXES ARE OUTSIDE OF THE 45 DEG OBLIQUE ANGLE BETWEEN LINE OF SIGHT AND ANNUNCIATOR ACKNOWLEDGE STATION.

## COMMENTS

ANNUNCIATOR TILES CANNOT BE SEEN FROM ACKNOWLEDGE STATIONS. THE NUMBERS IN PARENTHESIS REPRESENT THE DEVIATION FROM THE 45 DEG ANGLE (IN INCHES).

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

PROVIDE A NEW SET OF ANNUNCIATOR RESPONSE CONTROLS FOR THE PANEL IN THE AREA OF STANDBY LIQUID CONTROL.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

1.2.2.E(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	1	ENTIRE BOX	
601	4	5 COLUMNS	
601	5	ENTIRE BOX	
601	6	ENTIRE BOX	
601	7	ENTIRE BOX	





# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 37.03  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE FOLLOWING ANNUNCIATOR BOXES ARE OUTSIDE OF THE 45 DEG OBLIQUE ANGLE BETWEEN LINE OF SIGHT AND ANNUNCIATOR ACKNOWLEDGE STATION.

## COMMENTS

ANNUNCIATOR TILES CANNOT BE SEEN FROM ACKNOWLEDGE STATIONS. THE NUMBERS IN PARENTHESIS REPRESENT THE DEVIATION FROM THE 45 DEG ANGLE (IN INCHES).

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

RESOLVE THE DISCREPANCY THROUGH ONE OF THE FOLLOWING OPTIONS:

1. TRAINING - INSTRUCT OPERATORS TO IDENTIFY ANNUNCIATOR BEFORE ACKNOWLEDGING VIA BUTTON
2. MOVE 603 BUTTONS TO FRONT
3. ADD NEW SET OF BUTTONS TO P602
4. ADD NEW SET OF BUTTONS WITH SEPARATE LOGIC FROM P603.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

1.2.2.E(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
603	1	ENTIRE BOX	
603	2	ENTIRE BOX	



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Art:

## Communication HEDs

HED #

Source

041  
042  
043  
044  
045  
046  
047  
048  
428

Checklist

138  
146  
196

Operator Survey



HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 41.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

PERIODIC TESTING IS NOT PERFORMED ON ALL COMMUNICATION SYSTEMS TO  
ENSURE THAT THE SYSTEMS ARE OPERABLE.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

ESTABLISH A PROCEDURE FOR PERIODIC TESTING OF COMMUNICATION  
SYSTEMS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

2.1.1.B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 42.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

PROCEDURES ARE NOT IN PLACE TO GIVE PRIORITY FOR PROVIDING  
TRANSMISSION OF EMERGENCY MESSAGES FROM THE CONTROL ROOM BY ANY  
OF THE COMMUNICATIONS SYSTEMS.

## COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

ADMINISTRATIVELY PRIORITIZE CHANNELS FOR OPERATORS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

2.1.1.C(1)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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ETC



HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 43.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

PROCEDURES ARE NOT PROVIDED FOR HANDLING COMMUNICATIONS DURING  
AN EMERGENCY.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

THE EMERGENCY PLAN PROVIDES PROCEDURES FOR HANDLING  
COMMUNICATIONS.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

2.1.1.C(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 44.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THERE ARE AREAS OF THE PLANT WHERE WALKIE-TALKIE'S CANNOT TRANSMIT. A REPEATER SYSTEM IS NEEDED.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

INSTALL A LEAK CABLE SYSTEM TO RESOLVE THIS PROBLEM.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

2.1.4.B(1)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
-----	-----	-----	-----



HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 45.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

A SUPPLY OF BATTERIES FOR THE OPERATOR'S WALKIE-TALKIES IS NOT  
STORED IN AN ACCESSIBLE AND WELL MARKED SPACE.

COMMENTS

CURRENTLY STORED IN SHIFT SUPERVISOR'S OFFICE.

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

BATTERIES ARE CURRENTLY AVAILABLE IN THE CONTROL ROOM.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

2.1.4.E(1)

PANEL

EQUIPMENT  
ID NUMBER

EQUIPMENT  
NAME

OTHER



HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 46.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE ANNOUNCING SYSTEM DOES NOT PROVIDE RAPIDLY INTELLIGIBLE  
MESSAGES.

COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

THIS CONDITION WILL BE EVALUATED IN AN AUDITORY STUDY TO BE  
CONDUCTED AFTER THE PERMANENT SYSTEM IS INSTALLED.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

2.1.6.A(1)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 47.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

NO PROCEDURE IS IN PLACE TO INSTRUCT THE OPERATORS WITH THE  
PROPER WAY TO SPEAK ON THE ANNOUNCING SYSTEM.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

PROVIDE TRAINING ON THE USE OF STANDARD TERMS AND MESSAGES FOR  
EFFECTIVE COMMUNICATION.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

2.1.6.D

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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...

...

# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 48.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

CONTROL ROOM INPUTS TO THE PLANT ANNOUNCING SYSTEM DO NOT HAVE PRIORITY OVER OTHER INPUT. THE CONTROL ROOM INPUT SHOULD BE CAPABLE OF INTERRUPTING AN ANNOUNCEMENT IN PROGRESS, OR OF BYPASSING QUEUED ANNOUNCEMENTS.

## COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

ADMINISTRATIVELY PRIORITIZE CHANNELS FOR OPERATORS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

2.1.6.F

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 428.00  
UTILITY: NMP

ORIGINATOR: RK  
PLANT: NMP

DATE: 4/20/1986  
UNIT: 2

DESCRIPTION OF DISCREPANCY

EMERGENCY TELEPHONE CORDS STRETCH ACROSS OPERATORS WORKSTATIONS.

COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

EMERGENCY TELEPHONES WILL BE RELOCATED TO PREVENT CORDS FROM  
HINDERING OPERATIONS.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

2.1.2 B(5)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 138.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THERE WAS DIFFICULTY IN COMMUNICATION SINCE THERE IS NO STANDARDIZATION IN ACRONYMS, EQUIPMENT NAMES AND ABBREVIATIONS.

## COMMENTS

A LIST OF STANDARD NAMES, ACRONYMS, ABBREVIATIONS AND PART/SYSTEM NUMBERS SHOULD BE IN PLACE AND ADMINISTRATIVELY CONTROLLED. LABELS IN THE CONTROL ROOM SHOULD BE CONSISTENT IN USE OF WORDS, ACRONYMS, ABBREVIATIONS AND PART/SYSTEM NUMBERS.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

ESTABLISH THROUGH THE LABELING STUDY A UNIQUE MASTER LIST OF ABBREVIATIONS AND ACRONYMS FOR NMP-2 PLANT EQUIPMENT.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

A5.6

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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10



# HUMAN ENGINEERING DISCREPANCY

IED NUMBER: 146.00  
ILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT CURRENTLY TOO MANY  
TELEPHONES ARE LOCATED TOGETHER WITH POOR ABILITY TO  
DIFFERENTIATE WHICH ONE IS RINGING. THIS COULD BE A SERIOUS  
PROBLEM IN AN EMERGENCY.

## COMMENTS

VISUAL CODING SHOULD BE USED IN ADDITION TO AUDITORY RINGING TO  
HELP OPERATORS TELL WHICH PHONE IN A BANK OF TELEPHONES IS  
RINGING. A FLASHING LIGHT ON THE RINGING TELEPHONE WOULD LOCALIZE  
THE ACTIVE PHONE.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

WHEN THE COMMUNICATION PHONES ARE INSTALLED, DETERMINE IF THE  
PROBLEM OF DISCRIMINATING BETWEEN PHONES IS PRESENT. IF PROBLEM  
IS PRESENT, INSTALL EMERGENCY PHONES WITH LIGHTS WHICH BLINK TO  
INDICATE PHONE IS RINGING.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

B3.7

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 196.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT CURRENT PAGING SYSTEM IS INADEQUATE. OPERATIONS IN CONTROL ROOM SHOULD HAVE AN OVERRIDE CAPABILITY.

## COMMENTS

CONTROL ROOM INPUTS TO THE PLANT ANNOUNCING SYSTEM SHOULD HAVE PRIORITY OVER ANY OTHER INPUT. THE CONTROL INPUT SHOULD BE CAPABLE OF INTERRUPTING AN ANNOUNCEMENT IN PROGRESS, OR OF BYPASSING QUERRED ANNOUNCEMENTS.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

SAME AS HEO. 42.00.  
ADMINISTRATIVELY PRIORITIZE CHANNELS FOR OPERATORS.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

D2.2

PANEL  
EQUIPMENT  
ID NUMBER

EQUIPMENT  
NAME

OTHE

10

11

12

13

14

15

# HUMAN ENGINEERING DISCREPANCY

HE: NUMBER: 112.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 5/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THE CONTROL ROOM NEEDED A CONTROL OVER THE STACK ISOLATION VALVE. IT IS NEEDED IN ORDER TO PROMPTLY PREVENT THE RELEASE OF FISSION PRODUCTS FROM THE STACK IN THE EVENT OF SEVERE FUEL FAILURE. CURRENTLY CONTROL ROOM ONLY HAS CONTROL OF STEAM TO AIR INJECTORS AND PRECOOLER INLET VALVE. ALL OTHER CONTROLS MUST BE PERFORMED AT THE LOCAL LEVEL.

## COMMENTS

CONTROLS SHOULD BE SELECTED TO ENSURE EASE OF OPERATION AND TO MINIMIZE OPERATOR ERRORS. EACH CONTROL SHOULD BE NECESSARY, AND THE SIMPLEST EFFECTIVE CONTROL FOR THE EMERGENCY TASKS PERFORMED. MOREOVER, DURING EMERGENCIES OPERATOR SHOULD NOT LEAVE THE PRIMARY OPERATING AREA OF OPERATION.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

DURING AN EMERGENCY, THERE IS ONLY STACK ISOLATION CONTROL FROM A LOCAL PANEL, THEREFORE, EITHER 1) ADD EXPLICIT ANNUNCIATOR TO ALLOW TIME FOR LOCAL PANEL CONTROL, 2) ADD EXPLICIT ANNUNCIATION AND CONTROL SWITCH IN CONTROL ROOM, OR 3) ADD EXPLICIT ANNUNCIATION AND AUTO TRIP FUNCTION IN OFF-GAS HIGH RADIATION.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

A1.4

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 122.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THREE NARROW RANGE REACTOR WATER LEVEL INDICATORS ARE LOCATED TO THE LEFT OF PANEL 2CECPNL603. AT LEAST ONE ADDITIONAL NARROW RANGE WATER LEVEL INDICATOR IS NEEDED IN WITH THE CONTROLS AND INSTRUMENTS ON THE REACTOR WATER CLEANUP (RWCV) AND REACTOR RECIRCULATION CONTROL BOARD 2CEC\*PNL602 (TO THE RIGHT OF 2CECPNL603). DURING A START-UP FROM SHUTDOWN THE LEVEL IS A BALANCE BETWEEN CRD COOLING WATER FLOW, HEAT UP RATE, AND REJECT THRU THE RWCU FLOW CONTROL VALVE FV 135 MANUAL CONTROL ON THE RIGHT HAND SIDE OF 2CECPNL602. ONE OPERATOR OPERATION WOULD BE INCONVENIENT BECAUSE THE LEVEL INDICATION (NARROW RANGE-ABOVE IS APPROXIMATELY 15 FEET FROM FV 135.

ADDITIONALLY, THE REACTOR RECIRCULATION SYSTEM FLOW CONTROL VALVE OPENING AND CLOSING CAN HAVE A DRAMATIC EFFECT ON LEVEL IN THE REACTOR VESSEL. THIS CONTROLLED (RECIRC. FLUX CONTROL M/A STATION) IS ON PANEL CEC\*PNL602 AND IS APPROXIMATELY 12 FEET FROM THE SAME TANK OF NARROW RANGE LEVEL INDICATORS. (THIS IS FURTHER BASIS FOR LOCATING A NARROW RANGE LEVEL INDICATOR ON CEC\*PNL602).

## COMMENTS

THE MAXIMUM LATERAL SPREAD OF CONTROLS AND DISPLAYS AT A SINGLE-OPERATOR WORK STATION SHOULD NOT EXCEED 72 INCHES. AN ADDITIONAL INDICATOR FOR NARROW RANGE WATER LEVEL ON 2CECPNL602 WOULD MEET THIS REQUIREMENT.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

PROVIDE A REACTOR LEVEL METER ON PANEL 602. USE OPERATOR FEEDBACK AND TASK ANALYSIS DATA TO DETERMINE APPROPRIATE LOCATION.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

OPERATOR SURVEY

## EXPLANATORY INFORMATION

A3.4

A-1





PANEL -----	EQUIPMENT ID NUMBER -----	EQUIPMENT NAME -----	OTHER -----
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2CECPNL602			
2CECPNL603			



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 126.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THERE IS A NEED FOR METER INDICATION ON THE 600V DISTRIBUTION. THIS WOULD PROVIDE A MORE ACCURATE INDICATION OF A DEGRADED VOLTAGE SITUATION IN THE PLANT WHICH CAN LEAD TO TRANSFORMER OVERHEATING.

## COMMENTS

CONTROL ROOM INSTRUMENTATION AND EQUIPMENT SHOULD INCLUDE ALL CONTROLS AND DISPLAYS NEEDED FOR 1) DETECTION OF ABNORMAL CONDITIONS AND 2) BRINGING THE PLANT TO A SAFE SHUTDOWN.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

INDICATIONS WILL BE ADDED FOR THE ECCS 600V SUPPLY FROM BUSES EHS MCCS AND EJS US. THE OTHER ECCS 600V DISTRIBUTION FEEDBACKS ARE NOT SAFETY RELATED, AND WILL NOT REQUIRE DEDICATED CONTROL ROOM INSTRUMENTATION.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

A3.9

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HELD NUMBER: 128.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THERE IS A NEED FOR REACTOR PRESSURE AND LEVEL GUAGES ON THE 601 PANEL FOR REFERENCE DURING EMERGENCY OPERATIONS. THERE SHOULD BE MORE INDICATIONS ON PANEL WHERE THEY ARE NEEDED DURING EMERGENCY OPERATIONS.

## COMMENTS

CONTROLS AND DISPLAYS SHOULD BE ASSIGNED TO WORK STATIONS SO AS TO MINIMIZE OPERATOR MOVEMENTS. THIS ASSIGNMENT SHOULD CONSIDER EMERGENCY OPERATIONS. IT SHOULD BE PRACTICAL TO PERFORM ALL FREQUENTLY OCCURRING ROUTINE TASKS AND TIME-SENSITIVE EMERGENCY TASKS WITH A MINIMUM OF HUMAN MOVEMENT FROM PANEL TO PANEL.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

PROVIDE THE APPROPRIATE LEVEL INDICATIONS ON PANEL 601.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

A3.11

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601			



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 130.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY STATED A NEED FOR AN INDICATOR OF DRYWELL TEMPERATURE IN THE CONTROL ROOM. DURING EMERGENCIES THIS AVERAGE MAY BE IMPORTANT INFORMATION FOR THE OPERATOR.

## COMMENTS

VISUAL DISPLAYS PROVIDED IN THE CONTROL ROOM SHOULD GIVE OPERATORS ALL THE INFORMATION ABOUT SYSTEM STATUS AND PARAMETER VALUES THAT IS NEEDED TO MEET TASK REQUIREMENTS IN EMERGENCY SITUATIONS.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

(STAGE 1) CALCULATE AVERAGE DRYWELL TEMPERATURE VIA THE MAIN PLANT COMPUTER.  
(STAGE 2) PROVIDE OVERALL DRYWELL TEMPERATURE INDICATIONS ON PANEL 601.

IMPLEMENTATION: STAGE 1: FUEL LOAD STAGE 2: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

A3.14

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HEM NUMBER: 131.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT AN INDICATION OF AVERAGE SUPPRESSION POOL TEMPERATURE IS NEEDED IN THE CONTROL ROOM. THIS MAY BE A CRITICAL INDICATOR IN EMERGENCY OPERATIONS.

## COMMENTS

VISUAL DISPLAYS PROVIDED IN THE CONTROL ROOM SHOULD GIVE OPERATORS ALL THE INFORMATION ABOUT SYSTEM STATUS AND PARAMETERS NEEDED TO MEET TASK REQUIREMENTS IN EMERGENCY SITUATIONS.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

THE SPDS COMPUTER CURRENTLY PROVIDES AN INDICATION OF AVERAGE SUPPRESSION POOL TEMP. AN INDICATION OF AVERAGE SUPPRESSION POOL AND TEMPERATURE WILL BE PROVIDED ON PANEL 601.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

A3.15

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HEM NUMBER: 133.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED A NEED FOR ANNUNCIATOR FOR THE SAFETY/RELIEF VALVE ACOUSTICAL MONITORS. CURRENTLY OPERATORS HAVE COMPUTER POINT FOR EACH VALVE.

## COMMENTS

PLANT PARAMETERS SELECTED FOR INCLUSION IN THE ANNUNCIATOR WARNING SYSTEM AND THE LIMITS OR ALARM SETPOINTS FOR THOSE PARAMETERS SHOULD BE ESTABLISHED TO ENSURE COMPLIANCE WITH TECHNICAL SPECIFICATIONS AND TO ALLOW THE OPERATOR TO MONITOR THE STATUS OF THE PLANT AND RESPOND TO OUT-OF-TOLERANCE CONDITIONS EFFECTIVELY.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

THIS WILL BE CORRECTED BY INSTALLING AN ANNUNCIATOR TO IDENTIFY SAFETY/RELIEF VALVE OPENING.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

A3.18

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 143.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE DIESEL AND CLEAN UP CONTROLS ARE WIDELY SEPARATED FROM PLANT INDICATORS NEEDED DURING THEIR OPERATION.

## COMMENTS

CONTROLS AND DISPLAYS SHOULD BE PLACED WITHIN THE CONTROL ROOM AT LOCATIONS WHICH PROMOTE EFFICIENT PROCEDURES, SAFE OPERATIONS AND MAXIMUM OPERATOR AWARENESS OF THE CURRENT SYSTEM CONDITION.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

THERE IS NO PROBLEM WITH THE OPERATION OF THE DIESEL CONTROLS AND INDICATORS. PROVIDE A REACTOR LEVEL METER ON PANEL 602. USE OPERATOR FEEDBACK AND TASK ANALYSIS DATA TO DETERMINE APPROPRIATE LOCATION.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B3.2

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 165.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE PANEL ALARM ACKNOWLEDGE/RESET/TEST BUTTONS 1) SHOULD BE LOCATED TOWARD THE FRONT OF THE HORIZONTAL BENCHBOARDS AND 2) SHOULD BE MORE THAN ONE SET FOR THE LONG PANEL (H13-P601).

## COMMENTS

ACKNOWLEDGEMENT SHOULD BE POSSIBLE ONLY AT THE WORK STATION WHERE THE ALARM ORIGINATED. DUE TO ITS LENGTH LONG PANEL INCLUDES MORE THAN ONE WORK STATION. IT SHOULD BE DIVIDED INTO WORK STATIONS AND AN ACKNOWLEDGE/RESET TEST BUTTON PUT WITH EACH WORK STATION. OPERATORS DO NOT HAVE TO REACH OVER CONTROLS AND RISK INADVERTENT ACTIVATION WHEN ACKNOWLEDGE/RESET TEST BUTTONS ARE ON THE FRONT OF THE BENCHBOARD.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

PROVIDE AN ADDITIONAL SET OF ANNUNCIATOR CONTROLS FOR PANEL 601. THE CURRENT SET DOES NOT HAVE TO BE LOCATED TOWARD THE FRONT OF THE PANEL AS THEY ARE DEMARCATED FOR EASY RECOGNITION AND ARE VERY ACCESSIBLE.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B4.14

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
H1	601		

[illegible]



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 211.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THERE IS NO CONVENIENT REACTOR LEVEL INDICATION TO THE RWCU  
WORKSTATION AT PANEL 602 FOR FEEDBACK WHEN CONTROLLING RPV  
PRESSURE USING RWCU.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

SEE AS HEO 122. PROVIDE AN ADDITIONAL REACTOR LEVEL INDICATION ON PANEL  
602.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VALIDATION

3.18

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 212.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THERE IS NO CONVENIENT RPV LEVEL INDICATION AT THE NUCLEAR STEAM  
SUPPLY WORKSTATION WHEN CONTROLLING RPV PRESSURE USING MS LINE  
DRAINS.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

AS HEO 122. PROVIDE AN ADDITIONAL RPV LEVEL INDICATION ON PANEL 602.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VALIDATION

3.19

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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HUMAN ENGINEERING DISCREPANCY

HEX NUMBER: 219.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THERE IS NO DRYWELL TEMPERATURE IN THE PRIMARY OPERATING AREA.  
MUST GO TO PANEL 873 FOR INDICATION.

COMMENTS

COULD BE AVAILABLE ON SPDS.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

THE AS HEO 130. A METER WITH A SELECTABLE SET OF POINTS,  
INCLUDING AN AVERAGE SET POINT, FOR DRYWELL TEMPERATURE WILL BE  
INCLUDED ON PANEL 801, NEAR THE RHR SYSTEMS.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VALIDATION

7.3

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
873		DRYWELL TEMP	



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 220.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

PROCEDURE REFERS TO SUPPRESSION CHAMBER TEMPERATURE WHEN DETERMINING DRYWELL SPRAY INITIATION PRESSURE LIMIT. THE INDICATION AVAILABLE ON PANEL 601 IS SUPPRESSION POOL TEMPERATURE.

## COMMENTS

CHAMBER TEMPERATURE IS AVAILABLE ON BACK PANELS 873 AND 875.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

ADD SUPPRESSION CHAMBER TEMPERATURE METER TO PANEL 601.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VALIDATION

7.5

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601		SUPPRESSION CHAMBER TEMP	





# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 225.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THERE IS NO PROCESS AND AREA RADIATION MONITORING EQUIPMENT IN THE CONTROL ROOM.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

INSTALL PREVIOUSLY PURCHASED RADIATION MONITORING EQUIPMENT (PANEL 880) IN CONTROL ROOM.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

25

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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SECRET

HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 232.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THERE IS NO RPV LEVEL AT THE RCIC AND RPV DEPRESSURIZATION  
WORKSTATIONS AVAILABLE FOR FEEDBACK WHEN CONTROLLING RPV PRESSURE  
USING RCIC.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

SEE AS HEO 128. PROVIDE THE APPROPRIATE LEVEL INDICATIONS ON PANEL 601.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VALIDATION

3.17

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 235.03  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE CHARACTER HEIGHT OF THE LETTERING ON THE BYPASS VALVE  
POSITION DISPLAY DOES NOT SUBTEND THE MINIMUM SPECIFIED VISUAL  
ANGLE OF 15 MINUTES.

## COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

## EXPLANATION

PROVIDE AN ANNUNCIATOR RELATING TO THE POSITION OF THE BYPASS VALVE.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

5.1.3.A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
851		BYPASS VALVE POSITION	



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 309.00  
UTILITY: NMP

ORIGINATOR: VJF  
PLANT: NMP

DATE: 6/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

A DEDICATED CRT WITH A SINGLE PRIMARY DISPLAY FORMAT DOES NOT CONTINUOUSLY DISPLAY THE MINIMUM PARAMETER SET NECESSARY TO ASSESS THE SAFETY STATUS OF THE PLANT.

## COMMENTS

THE TWO CRTS IN THE CONTROL ROOM THAT ARE USED TO ACCESS SPDS DISPLAYS ALSO CAN BE USED TO ACCESS OTHER INFORMATION (E.G. ERF DISPLAYS, POINT DISPLAYS, VIDEO TRENDS). IT IS POSSIBLE THAT AT ANY PARTICULAR TIME, NEITHER CRT WILL HAVE THE PRIMARY SPDS DISPLAY ACCESSED. A SMALL INDICATOR LIGHT ON THE KEYBOARD TURNS ON WHENEVER AN SPDS PARAMETER GOES INTO ALARM, WARNING THE OPERATOR TO RETURN TO THE SPDS DISPLAY. HOWEVER, THIS LIGHT WOULD BE EASILY MISSED UNLESS AN OPERATOR IS NEAR THE TERMINAL.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

INSTALL AN SPDS ANNUNCIATOR IN THE CONTROL ROOM. THIS WILL ALERT THE OPERATOR TO CALL UP SPDS DISPLAYS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

SDPS REVIEW

4.4.2.A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		SPDS	

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HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 931.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT TEMPERATURE INDICATION IS NOT AVAILABLE FOR DRYWELL TEMPERATURE.

COMMENTS

A DEDICATED DISPLAY FOR DRYWELL TEMPERATURE SHOULD BE CONSIDERED.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

SAME AS HED 130. A METER WITH A SELECTABLE SET OF POINTS, INCLUDING AN AVERAGE SET POINT, FOR DRYWELL TEMPERATURE WILL BE INCLUDED ON PANEL 601, NEAR THE RHR SYSTEMS.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0005, TASK 0002, A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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DRYWELL TEMP IND



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 942.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED RADIATION INSTRUMENTATION IS  
PRESENTLY UNAVAILABLE IN THE CONTROL ROOM.

## COMMENTS

THIS INSTRUMENTATION HAS YET TO BE INSTALLED IN THE NMP-2 CONTROL  
ROOM.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

THIS INSTRUMENTATION IS PRESENTLY ON ORDER AND WILL BE INSTALLED  
IN THE MAIN CONTROL ROOM.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY	PROC 0013,TASK 0006,A.S. 01
VERIFICATION OF SUITABILITY	PROC 0013,TASK 0004,A.S. 01
VERIFICATION OF SUITABILITY	PROC 0015,TASK 0004,A.S.04
VERIFICATION OF SUITABILITY	PROC 0012,TASK 0001,A.S. 01
VERIFICATION OF SUITABILITY	PROC #0011,TASK 0004,A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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GENERIC RAD MONITOR CHARACTERISTICS  
SBGT RAD MONITOR

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**SECRET**

# HUMAN ENGINEERING DISCREPANCY

HELD NUMBER: 946.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT INSTRUMENTATION FOR STACK RADIATION MONITOR, RX BLDG VENT RAD-MONITOR, AND OFF-GAS RAD-MONITOR IS UNAVAILABLE.

## COMMENTS

THIS INSTRUMENTATION HAS NOT YET BEEN INSTALLED IN THE NMP-11 CONTROL ROOM, BUT IS ON ORDER.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

THIS INSTRUMENTATION IS ON ORDER AND WILL BE INSTALLED IN THE CONTROL ROOM.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0015, TASK 0001, A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER



1940-1941 - 1942-1943 - 1944-1945



# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 949.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION INDICATES THAT CONTROL INDICATION FOR FIRE PUMPS ARE NOT AVAILABLE.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

IS INSTRUMENTATION WILL BE INSTALLED ON PANEL 849.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0016, TASK 0009, A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		FIRE PUMP	



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190

191



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 950.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION INDICATES THAT DISPLAY/FEEDBACK FOR FIRE MAIN HEADER  
PRESSURE IS NOT AVAILABLE.

COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

THIS INSTRUMENTATION WILL BE INSTALLED ON PANEL 849.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0016, TASK 0009, A.S. 03

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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FIRE MAIN HDR PRESS GAUGE



# HUMAN ENGINEERING DISCREPANCY

HEO NUMBER: 958.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT INDICATION FOR AVERAGE SUPPRESSION POOL TEMPERATURE IS NOT AVAILABLE.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

THE SAME AS HEO 131. THE SPDS COMPUTER CURRENTLY PROVIDES AN INDICATION OF AVERAGE SUPPRESSION POOL TEMP. AN INDICATION OF AVERAGE SUPPRESSION POOL TEMPERATURE WILL BE PROVIDED ON PANEL 601.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PRO.0020, TASK 0020, A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		POOL TEMP IND.	



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 970.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED A NEED FOR AN ANNUNCIATOR FOR DRYWELL TEMPERATURE HIGH. NO ANNUNCIATOR CURRENTLY EXISTS FOR THIS.

COMMENTS

ANNUNCIATOR NEEDED: DRYWELL TEMPERATURE HIGH. TIE IN WITH NMP-2 ANNUNCIATOR REVIEW.

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

INSTALL ANNUNCIATOR.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF AVAILABILITY

PROC #021, TASK 079, A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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ANNUNCIATOR: DRYWELL TEMPERATURE HIGH



Page 1

1

1

1

1

HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 972.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED A NEED FOR AN ANNUNCIATOR FOR SRV  
PNEUMATIC SUPPLY PRESSURE LOW. NO ANNUNCIATOR CURRENTLY EXISTS  
FOR THIS.

COMMENTS

ANNUNCIATOR NEEDED: SRV PNEUMATIC SUPPLY PRESSURE LOW. TIE IN  
WITH NMP-2 ANNUNCIATOR REVIEW.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

ADD ANNUNCIATOR.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF AVAILABILITY

PROC #03, TASK 02, A.S. 02

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
-------	------------------------	-------------------	-------

ANN: SRV PNEUMATIC SUPPLY PRESS. LOW

1. 1000  
 2. 1000  
 3. 1000  
 4. 1000  
 5. 1000  
 6. 1000  
 7. 1000  
 8. 1000  
 9. 1000  
 10. 1000



# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 993.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE CONTROL FOR LPCI INJECTION TESTABLE CHECK VALVE AOV16B NEEDS A POSITION LABELLED OPEN. THIS DOES NOT CURRENTLY EXIST.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

INSTALL LIGHT.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #020, TASK 014, A.S. 06

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	43-005	AOV16B	



Appendix B  
Modify/Replace/Remove  
Components (22 HEDs)



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 238.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE PLASTIC HANDLE ON THE CITED J-HANDLE IS BROKEN.

COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

THE HANDLE WILL BE REPLACED.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

4.1.1.C(1)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
851		REAC FW PUMP 1A	



# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 239.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE CITED J-HANDLES ARE LOOSE ON THEIR SHAFTS. THERE IS ALOT OF PLAY IN THE HANDLE BEFORE ACTUAL SWITCH MOVEMENT.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

THE INTEGRITY OF THE SWITCH IS NOT AFFECTED BY THIS CONDITION. THE FLAGS OF CERTAIN SWITCHES ON THE VERTICAL PANELS, WHICH HAVE THIS PROBLEM, HAVE BEEN OBSERVED TO CHANGE POSITION DUE TO VIBRATION OR KNOCKING. DETERMINE THESE POTENTIAL TROUBLE SWITCHES ON THE VERTICAL PANELS AND REPAIR OR REPLACE WITH NEW SWITCHES. ENSURE THE SWITCHES ARE WITHIN SPECIFICATIONS. FOR ALL SBM SWITCHES WITH LOOSE HANDLES MEASURE THE TOLERANCE FITTING BETWEEN THE COLLAR AND THE SWITCHES WHICH DO NOT MEET SPECIFICATIONS.

IMPLEMENTATION: COMMERCIAL OPERATION

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

4.1.1.E(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601		FISH JET PUMP 3	
601		HPCS PUMP 1	
601		RBCLCW BOOSTER PUMP 2CC-P3B	
601		RHR PUMP 1A	
601		RHR PUMP 1B	
601		RHR PUMP 1C	
601		SERVICE WATER PUMP 1B	
601		SERVICE WATER PUMP 1D	
601		SERVICE WATER PUMP 1E	
601		SERVICE WATER PUMP 1F	



1  
2  
3  
4  
5  
6



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 69.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE CONTROL MOVEMENT ON THIS SWITCH DOES NOT CONFORM TO THE  
POPULATION STEREOTYPE OF OPEN ON THE RIGHT AND CLOSE ON THE LEFT.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

ALL LEADS ON THE SWITCHES AND CHANGE NAMEPLATE TO PROVIDE THE  
APPROPRIATE CONTROL POSITION CONVENTIONS.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

4.2.1.A  
4.2.1.B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601		DIV 1 BAR RACK HTRS TUNNEL A (ON/OFF/AUTO)	
601		DIV 1 BAR RACK HTRS TUNNEL B (ON/OFF/AUTO)	
601		DIV 2 BAR RACK HTRS TUNNEL A (ON/OFF/AUTO)	
601		DIV 2 BAR RACK HTRS TUNNEL B (ON/OFF/AUTO)	
851	A0	TURBINE SPEED (RAISE, LOWER)	
851		TURB GLAND STM PROM MAIN STM (OPEN, CLS, AUTO)	
852		MOTOR OPERATED DISCONNECT FOR 115V	



HUMAN ENGINEERING DISCREPANCY

DATE: 3/ 8/1985  
UNIT: 2

HED NUMBER: 121.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT IT IS UNNECESSARY THAT SO MANY KEY LOCK SWITCHES BE USED. TURN SWITCHES WOULD BE EASIER TO USE. EXAMPLES INCLUDE SAFETY RELIEF VALVES, SCRAM RESETS, REACTOR CORE ISOLATION COOLING RESETS.

COMMENTS

KEY-OPERATED CONTROLS ARE USED ONLY WHEN SYSTEM REQUIREMENTS DICTATE THAT THE FUNCTION BEING CONTROLLED SHOULD BE SECURED AGAINST ACTIVATION BY UNAUTHORIZED PERSONNEL. IF KEY-OPERATED CONTROLS CANNOT BE JUSTIFIED IN TERMS OF SECURITY, THEY ARE PROBABLY NOT NECESSARY AND SHOULD NOT BE USED.

ASSESSMENT CATEGORY: 3D  
DISPOSITION: FIX

EXPLANATION

ALL KEY LOCK FUNCTIONS ARE APPROPRIATE EXCEPT FOR THE SCF RESETS. THIS FUNCTION SHOULD NOT BE KEYLOCKED. REPLACE KEYLOCK SWITCHES WITH APPROPRIATE ROTARY TYPE SWITCHES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

A2.4

OPERATOR SURVEY

EQUIPMENT  
ID NUMBER

EQUIPMENT  
NAME

PANEL

601  
601  
601  
602  
603

B22-520  
B22C-509  
B22C-510  
B22H-516  
C72A-55A  
C72A-55C

ADS SAFETY/RELIEF VLV PSV  
SAFETY/RELIEF VLV PSV128  
SAFETY/RELIEF VLV PSV133  
CLEANUP SUCTION OUTSIDE  
REACTOR SCRAM RESET LOG  
REACTOR SCRAM RESET LOG



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 72.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

SOME KEYS WITH SINGLE ROW OF TEETH ARE INSERTED INTO THE BACK WITH THE TEETH POINTING UP OR FORWARD. OTHERS ARE INSERTED WITH THE TEETH POINTING DOWN.

## COMMENTS

ALL SHOULD BE INSERTED WITH THE TEETH POINTING UP OR FORWARD TO FOLLOW POPULATION STEREOTYPE.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

ALL KEYS ARE INSERTED WITH THE TEETH UP EXCEPT THOSE LISTED. INVESTIGATE INVERTING THESE SWITCHES TO CONFORM TO CONVENTION. ON PANEL 601 THE RCIC ISOLATION DIV II SEAL/RESET IS A SIDE ENTRY TEETH UP BUT THIS IS THE CONVENTION FOR A TWO POSITION SELECTOR.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

4.4.3.B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601		REACTOR SCRAM DISCHARGE LOGIC A	
601		REACTOR SCRAM DISCHARGE LOGIC B	
601		REACTOR SCRAM DISCHARGE LOGIC C	
601		REACTOR SCRAM DISCHARGE LOGIC D	



# HUMAN ENGINEERING DISCREPANCY

HEM NUMBER: 164.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE 4 KEY SPRING RETURN SWITCHES FOR "CRD H1 WATER LEVEL BYPASS" AT H13-P603 SHOULD BE CHANGED TO A ONE KEY MAINTAINED SWITCH. CURRENT EQUIPMENT WILL REQUIRE THREE OPERATORS TO RESET A SCRAM.

## COMMENTS

KEY-OPERATED CONTROLS SHOULD BE USED ONLY WHEN SYSTEM REQUIREMENTS DICTATE THAT THE FUNCTION BEING CONTROLLED SHOULD BE SECURED AGAINST ACTIVATION BY UNAUTHORIZED PERSONNEL. IF KEY-OPERATED CONTROLS CANNOT BE JUSTIFIED IN TERMS OF SECURITY, THEY ARE PROBABLY NOT NECESSARY AND SHOULD NOT BE USED.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

REPLACE THE 4 KEY SPRING RETURN SWITCHES WITH MAINTAINED KEY OPERATED SWITCHES OR MODIFY PRESENT SWITCHES TO BE MAINTAINED POSITION SWITCHES. THE FOUR SWITCHES ARE FOR THE 4 SAFETY CHANNELS AS NEEDED FOR TRAIN SEPARATION PURPOSES. KEY MAINTAINED SWITCHES WILL RESOLVE THE DISCREPANCY. UPDATE PANEL DRAWINGS TO SHOW SWITCHES AS MAINTAINED INSTEAD OF SPRING RETURNED SWITCHES.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B4.12

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
H13-P603			





# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 184.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

IN RESPONSE TO THE OPERATOR SURVEY FOUR OPERATORS INDICATED THAT THE REACTOR CONTROL IS PRESENTLY SET UP WHERE IT WILL REQUIRE THREE OPERATORS MANIPULATING CONTROLS TO RESET A REACTOR SCRAM. THIS IS PRIMARILY DUE TO THE INSTALLED SPRING-RETURN KEY-LOCK SWITCHES THAT MUST ALL BE HELD SIMUTANEOUSLY IN "BYPASS" TO BYPASS THE SCRAM DUMP VOLUME HIGH LEVEL SCRAM SIGNAL.

## COMMENTS

KEY OPERATED SWITCHES SHOULD BE USED ONLY WHEN SYSTEM REQUIREMENTS DICTATE THAT THE FUNCTION BEING CONTROLLED SHOULD BE SECURED AGAINST ACTIVATION BY UNAUTHORIZED PERSONNEL.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

REPLACE THE 4 KEY SPRING RETURN SWITCHES WITH MAINTAINED KEY OPERATED SWITCHES OR MODIFY PRESENT SWITCHES TO BE MAINTAINED POSITION SWITCHES. THE FOUR SWITCHES ARE FOR THE 4 SAFETY CHANNELS AS NEEDED FOR TRAIN SEPARATION PURPOSES. KEY MAINTAINED SWITCHES WILL RESOLVE THE DISCREPANCY. UPDATE PANEL DRAWINGS TO SHOW SWITCHES AS MAINTAINED INSTEAD OF SPRING RETURNED SWITCHES.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B8.6

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

SECRET

HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 58.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

SOME BLANK OR UNUSED ANNUNCIATOR TILES ARE ILLUMINATED.

COMMENTS

THIS IS UNACCEPTABLE IN ALL CASES EXCEPT DURING ANNUNCIATOR TESTING.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

REWIRE BLANK ANNUNCIATOR TILES SO THAT THEY ILLUMINATE IN TEST ONLY.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

3.3.3.F

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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"1

# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 154.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT ON PANEL H13-602 THE ALARMS "REACTOR WATER CLEANUP PMP RM A-B AND HXRM DIFF TEMP HIGH" ARE LOCATED OVER THE RR SYSTEM SECTION. THESE SHOULD BE REMOVED AS ALARMS INASMUCH AS THEY ARE UNNECESSARY AND IN THE WRONG LOCATION.

## COMMENTS

PLANT PARAMETERS SELECTED FOR INCLUSION IN THE ANNUNCIATOR WARNING SYSTEM AS WELL AS SETPOINT LIMITS SHOULD BE SELECTED TO ALLOW THE OPERATOR TO MONITOR THE STATUS OF THE PLANT AND TO RESPOND TO OUT OF TOLERANCE CONDITIONS. IN GENERAL ANNUNCIATORS SHOULD BE LOCATED ABOVE CONTROLS AND DISPLAYS REQUIRED FOR CORRECTIVE OR DIAGNOSTIC ACTION IN RESPONSE TO EACH ALARM.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

IMPLEMENT FIX AS DETERMINED IN THE ANNUNCIATOR STUDY.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B.22

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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H13-602



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 66.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

PROVISIONS HAVE NOT BEEN MADE TO PREVENT THE POSSIBILITY OF  
INTERCHANGING LEGEND PUSHBUTTON COVERS.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

PROPER ADMINISTRATIVE CONTROLS WILL BE IN PLACE TO ENSURE LEGEND  
PUSHBUTTONS ARE REPLACED PROPERLY.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

4.3.3.C(4)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 108.00  
UTILITY: NMP

ORIGINATOR: RK  
PLANT: NMP

DATE: 1/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THERE IS NO PROVISION MADE TO PREVENT INTERCHANGING OF INDICATOR LENSES.

COMMENTS

THERE SHOULD BE A METHOD, EITHER DESIGN OR PROCEDURAL, TO PREVENT THE INTERCHANGING OF REFLECTOR LENSES THAT COULD CAUSE THE WRONG COLOR LENS TO BE PLACED ON A LIGHT.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

EXPLANATION

ESTABLISH A PROCEDURE TO REPLACE BULBS FOR BACKLIT INDICATORS ONE AT A TIME SO AS TO PREVENT INTERCHANGING OF LENSES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

5.3.1.C(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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ALL INDICATORS LIGHTS



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 52.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

DURING LAMP REPLACEMENT FOR ANNUNCIATOR TILES, THERE ARE NO PROVISIONS TO ENSURE THAT THE TILE IS REPLACED IN THE CORRECT LOCATION.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

PROPER ADMINISTRATIVE CONTROLS WILL BE IN PLACE TO ENSURE TILES ARE REPLACED PROPERLY.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

3.3.1.C(1)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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11 12 13 14 15

# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 54.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

NO PROVISIONS HAVE BEEN MADE FOR EXTENDED DURATION ILLUMINATION OF ANNUNCIATOR TILES.

## COMMENTS

IF AN ANNUNCIATOR TILE MUST BE "ON" FOR AN EXTENDED PERIOD DURING NORMAL OPERATIONS (E.G. DURING EQUIPMENT REPAIR OR REPLACEMENT), IT SHOULD BE DISTINCTIVELY CODED FOR POSITIVE RECOGNITION AND CONTROLLED BY ADMINISTRATIVE PROCEDURES.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

ESTABLISH ADMINISTRATIVE PROCEDURES TO ENSURE THAT "ANNUNCIATORS OUT OF SERVICE" ARE PROPERLY IDENTIFIED AND CONTROLLED.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

3.3.2.F

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 57.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

CUES FOR PROMPT RECOGNITION OF AN OUT-OF-SERVICE ANNUNCIATOR ARE NOT DESIGNED INTO THE SYSTEM.

COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

ESTABLISH ADMINISTRATIVE PROCEDURES TO ENSURE THAT "ANNUNCIATORS OUT OF SERVICE" ARE IDENTIFIED AND CONTROLLED.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

3.3.3.E

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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1000

1000

1000

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1000

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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 282.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/29/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

DURING THE VALIDATION FAILURE TO SCRAM SCENARIO, EOP-RQ, REACTIVITY CONTROL STEP RQ13 EIGHT FUSES (CT1-F18A THRU H) ARE REQUIRED TO BE REMOVED. THESE ARE DIFFICULT TO REACH WITH THE PRESENT DESIGN.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

PROVIDE EASY ACCESS TO THE FUSES. HMPC TO REVIEW FIX PRIOR TO IMPLEMENTATION.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## VALIDATION

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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1944-1945

HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 292.01  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/29/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

IT IS DIFFICULT TO CHANGE FUSES ON MAIN CONTROL ROOM PANEL.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

EXPLANATION

OPERATIONS TO EVALUATE THE ACCESSABILITY AND IMPACT OF FUSES ARE  
ON A CASE BY CASE BASIS. PROBLEMS WILL BE CORRECTED AND A  
SCHEDULE FOR FIXES ESTABLISHED.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

11-052

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
824			
842			
851			

61 1072 2 2

HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 292.02  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/29/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

IT IS DIFFICULT TO CHANGE FUSES ON MAIN CONTROL ROOM PANEL.

COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

OPERATIONS TO EVALUATE THE ACCESSABILITY AND IMPACT OF FUSES ARE  
ON A CASE BY CASE BASIS. PROBLEMS WILL BE CORRECTED AND A  
SCHEDULE FOR FIXES ESTABLISHED.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

II-052

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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601  
602  
603  
852

10  
 9  
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 2  
 1

# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 35.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THERE IS NOT A SUPPLY OF EXPENDABLES AND SPARE PARTS:  
FUSES, BULBS, INK AND INKING PENS, RECORDER CHARTS, PRINTER PAPER,  
ETC....

## COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

## EXPLANATION

ESTABLISH A CABINET OR STORAGE AREA PREFERABLY IN THE CONTROL  
ROOM FOR SUPPLIES OF EXPENDABLES SIMILAR TO SITUATION AT UNIT  
ONE. EXPENDABLES SHOULD CONSIST OF BULBS FOR LIGHTS AND  
ANNUNCIATORS, CHART PAPER, INK, INK PENS, AND SPARE FUSES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

1.1.5.A  
1.1.5.B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 203.01  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THEY DO NOT CURRENTLY HAVE FUSES, CHART PAPER, BULBS, INK, ETC IN CONTROL ROOM.

## COMMENTS

SPARE PARTS, OPERATING EXPENDABLES AND ANY TOOLS THAT ARE NEEDED BY OPERATING PERSONNEL WILL BE STORED IN A SUITABLE, DESIGNATED SPACE IN THE CONTROL ROOM. ALL OPERATING PROCEDURES WILL BE KEPT IN THE CONTROL ROOM. OTHER TYPES OF DOCUMENTS TO BE KEPT IN CONTROL ROOM IN AN ORGANIZED MANNER ARE PLANT SCHEMATICS, CHECK OFF SHEETS, EMERGENCY PLANS, TECHNICAL MANUALS AND STATION AND GENERAL ADMINISTRATIVE ORDERS.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

ESTABLISH A CABINET OR STORAGE AREA PREFERABLY IN THE CONTROL ROOM FOR SUPPLIES OF EXPENDABLES. EXPENDABLES SHOULD CONSIST OF BULBS FOR LIGHTS AND ANNUNCIATORS, CHART PAPER, INK, INK PENS, AND SPARE FUSES. BESIDES THE COMMENT CONCERNING SUPPLIES IN THE CONTROL ROOM, THE REST OF "DESCRIPTION OF DISCREPANCY" IS INVALID.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

F2.5

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
-----	-----	-----	-----








HUMAN ENGINEERING DISCREPANCY  
-----

HEAD NUMBER: 36.00  
UTILITY: NMP

ORIGINATOR: CFV  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY  
-----

RECORDS ARE NOT KEPT AS TO THE STATUS OF EXPENDABLES AND SPARE PARTS.

COMMENTS  
-----

SET UP AN INVENTORY OF EXPENDABLES AND SPARE PARTS.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

EXPLANATION  
-----

ESTABLISH A METHOD SIMILAR TO UNIT 1 TO KEEP WATCH ON THE STATUS OF EXPENDABLES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY  
-----

EXPLANATORY INFORMATION  
-----

CHECKLIST

1.1.5.F

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
-----	-----	-----	-----



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 106.00  
UTILITY: NMP

ORIGINATOR: RK  
PLANT: NMP

DATE: 1/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

SCALE ON THE RECORDER METER IS DIFFERENT FROM SCALE ON RECORDER PAPER. THESE SCALES SHOULD ALWAYS BE THE SAME.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

THE APPROPRIATE PAPER FOR THE RECORDER SHOULD BE MAINTAINED IN AN INVENTORY. A PROGRAM WILL BE PROVIDED TO ENSURE THE NECESSARY INVENTORY IS MAINTAINED. (SEE HEO-35)

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

5.4.1.B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601		REACTOR VESSEL LEVEL	
602		188C7983P001	
602		188C7983P002	
602		188C7983P003	
602		188C7983P004	
602		C33-R608	
602		CORE PRESS DROP	
602		REACTOR WATER LEVEL	
851		345 KV LINE MAIN GENERATOR VOLTS	
880		ACCIDENT WATER TEMP	
880		NORMAL WATER TEMP	
880		PRESSURE & HYDROGEN	
880		PRESSURE LEVEL ACCIDENT WATER TEMP	
880		TOTAL RECIRC FLOW	



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 287.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/29/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

DIGITAL PRESSURE DISPLAY ON PANEL 603 DOES NOT HAVE ENOUGH DIGITS FOR POSSIBLE PRESSURES GREATER THAN 1000. THIS DISPLAY CAN BE CONFUSING.

## COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

## EXPLANATION

INCLUDE SUFFICIENT DIGITS ON DIGITAL PRESSURE DISPLAY FOR ACCURATE INDICATION UNDER ALL POSSIBLE CONDITIONS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

11-052

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
603		DIGITAL PRESSURE DISPLAY	





APPENDIX C  
Relocate Components (6 HEDs)



1. 1000

2. 1000

3. 1000

4. 1000

5. 1000

6. 1000

7. 1000

8. 1000



# HUMAN ENGINEERING DISCREPANCY

HE. NUMBER: 83.02  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

STRINGS OF GREATER THAN 5 SIMILAR COMPONENTS EXIST IN VARIOUS LOCATIONS. ALSO, WHERE THESE STRINGS DO EXIST AND HAVE A VALID REASON FOR EXISTING, THERE ARE CASES WHERE NO DEMARCATION OR OTHER FORM OF ENHANCEMENT EXIST TO "BREAK" UP THE STRING.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

CHANGE ARRANGEMENT TO ELIMINATE CONFUSION.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

8.3.2.C(1)  
8.3.2.C(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601		SERV WATER SYS (6X4 PB MATRIX)	6



11

12

13

14

15

16

# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 125.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT CRTS SHOULD BE ON TOP OF 601 PANEL (ECCS) FOR EMERGENCY CORE COOLING SYSTEM AND REACTOR CONTROL PANEL SO WHEN OPERATOR IS WORKING ON EITHER PANEL HE DOES NOT HAVE TO GO BACK AND FORTH TO THE COMPUTER.

## COMMENTS

OPERATORS SHOULD NOT HAVE TO LEAVE THE PRIMARY OPERATING AREA TO ATTEND TO CONTROL ROOM INSTRUMENTATION ON REMOTE PANELS WHEN CONTINUOUS MONITORING OR TIMING OF CONTROL ACTIONS MAY BE CRITICAL.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

DETERMINE THE DESIRABILITY OF RELOCATING CRTS AFTER SUFFICIENT EXPERIENCE IN OPERATING THE CONTROL ROOM.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

A3.8

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 150.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT PANEL 852 MIGHT BE EASIER TO USE IF ASSOCIATED ANNUNCIATORS WERE GROUPED LIKE THE DIESEL CONTROLS ARE ON PANEL 852.

## COMMENTS

THE CONTROL DISPLAY RELATIONSHIP SHOULD BE CONSISTENT SO THAT OPERATOR EXPECTATIONS ARE NOT CONFUSED. DISPLAYS AND CONTROL PAIRS ARE ARRANGED IN ROWS. ALTERNATIVELY, EACH CONTROL OCCUPIES THE SAME RELATIVE POSITION AS THE DISPLAYS TO WHICH IT IS ASSOCIATED. THE SAME PRINCIPLES APPLY TO CONTROL AND VISUAL ANNUNCIATORS.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

GROUP THESE ANNUNCIATORS IN A DIVISION GROUPING SCHEME WHICH RELATES TO THE LAYOUT OF SYSTEMS ON THE PANEL BELOW. TO THE EXTENT POSSIBLE PRESENT REPEATED GROUPS OF ANNUNCIATORS IN A LOCATION PATTERN AND REPEAT THIS SAME PATTERN BETWEEN BOXES. THIS WILL BE ANALYZED IN THE ANNUNCIATOR STUDY.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B3.16

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
-------	------------------------	-------------------	-------

852



1000

1000

1000

1000

1000





# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 152.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT ON PANEL H13-P601 ALARM "REACTOR CORE ISOLATION ONLY VESSEL HIGH" IS OVER THE SERVICE WATER PANEL INSTEAD OF OVER THE RCIC PANEL SECTION.

## COMMENTS

ANNUNCIATOR PANELS SHOULD GENERALLY BE ORGANIZED AS MATRICES OF VISUAL ALARM TILES. THESE MATRICES, SEPARATED INTO GROUPS BY FUNCTION, SHOULD BE LOCATED ABOVE RELATED CONTROLS AND DISPLAYS WHICH ARE REQUIRED FOR CORRECTIVE OR DIAGNOSTIC ACTION IN RESPONSE TO EACH ALARM.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

RELOCATE THIS ANNUNCIATOR TO THE RCIC PANEL SECTION.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B3.18

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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H13-P601



# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 155.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO OPERATOR SURVEY INDICATED THAT ON PANEL H13-P601 ALARMS "DIV 2 REACTOR HEAT REMOVAL SYSTEM DRYWELL PRESS HIGH" AND "DIV 2 RESIDUAL HEAT REMOVAL SYSTEM REACTOR WATER LEVEL LOW" SHOULD BE OVER THE DIVISION 2 SYSTEM PANEL SECTION.

## COMMENTS

IN GENERAL ANNUNCIATORS SHOULD BE LOCATED ABOVE CONTROLS AND DISPLAYS REQUIRED FOR CORRECTIVE OR DIAGNOSTIC ACTION IN RESPONSE TO EACH ALARM.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

RELOCATE THESE ANNUNCIATORS TO THE DIVISION 2 PANEL SECTION.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B3.23

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
H13-P601			



HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 291.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/29/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

CONTROL SWITCHES FOR SWP\*MOV 95A AND B (SERVICE WATER ISOLATION TO DIESEL GENERATOR #2) ARE LABELED WRONG AND ARE IN THE WRONG LOCATION. THEY ARE NOT WITH THE ASSOCIATED DIESEL.

COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

RELOCATE SWITCH TO THE APPROPRIATE PANEL LOCATION AND LABEL PROPERLY AS PART OF LABELING STUDY.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

OPERATOR SURVEY

EXPLANATORY INFORMATION

II - 052

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		SWP*MOV 95A	
		SWP*MOV 95B	

1  
2  
3  
4  
5  
6

APPENDIX D  
Label Displays/Controls (50 HEDs)





# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 39.02  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE DISPLAYS ARE LOCATED OUT OF THE 41"-80" ENVELOPE RECOMMENDED BY NUREG-0700.

## COMMENTS

THE DISPLAYS ARE LOCATED ABOVE THE EYEHEIGHT OF THE 5% FEMALE.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

THE PRIMARY PURPOSE OF THE OFF NORMAL STATUS PANEL IS TO QUICKLY IDENTIFY THE TROUBLE SYSTEM. THIS IS A BACKUP TO THE ANNUNCIATOR SYSTEM. ADD SYSTEM LABELS TO DISPLAY FOR QUICK ID. MAKE REFERENCE DRAWING AVAILABLE TO ENHANCE VALVE IDENTIFICATION PROCESS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

1.2.5.B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
602		OFF NORMAL PANEL	



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 51.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

ANNUNCIATOR PANELS ARE NOT IDENTIFIED BY A LABEL ABOVE THE PANEL.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

ADD LABELS IDENTIFYING THE BOX ABOVE THE RESPECTIVE PANELS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

3.3.1.B(1)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

ALL ANNUNCIATOR BOXES



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 96.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE FOLLOWING EQUIPMENT IS NOT LABELED.

## COMMENTS

ASSESSMENT CATEGORY: 30

DISPOSITION: FIX

## EXPLANATION

IDENTIFY THE COMPONENTS WHICH DO NOT HAVE APPROPRIATE LABELS AND PROVIDE FUNCTIONAL LABELS, IN ACCORDANCE WITH THE HF MANUAL GUIDANCE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

6.1.1

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
602		REACTOR BLDG CLOSED LOOP B COOLING WATER	
603		FEEDWATER BIAS A TO LV10A	
603		FEEDWATER LEVEL STPT TO LV55A-55B-137	
824		(UNLAB SW + 2 IND LIGHTS-5TH PT HTRS)	
824		(UNLAB SW + 4 IND LIGHTS)	
824		COLD REHEAT STM DRAIN VALVE MOV9B	
849		(UNLAB VALVE IN LOW PRESS CO2 SECTION)	
851		FW HTR 4A WATER LEVEL CONTROL	
851		FW HTR 4B WATER LEVEL CONTROL	
851		FW HTR 4C WATER LEVEL CONTROL	
851		GND PUMPS RECIRC FLOW CONTROL	
851		HYDROGEN COLD GAS TEMP CONTROL	
851		LP HTR STRING BYPASS AOV101	
851		LUBE OIL CLRS BRG OIL SUP TEMP CONTROL	
851		NJS-US6-6A TURNING	
851		RHR REGULATED ST PRESS E1A CONTROL	
851		RHR REGULATED ST PRESS E1B CONTROL	



851		TURB LUBE OIL CLR 1A TEMP CONTROL
851		TURB LUBE OIL CLR 1B TEMP CONTROL
852		115KV FEED FROM JAF ENERGY CENT LINE KV
852		115KV FEED FROM SCRIBA STA LINE KV
852		4KV EMER BUS 101 VOLTS
852		4KV EMER BUS 102 VOLTS
852		4KV EMER BUS 103 VOLTS
852		EMER DIESEL GEN 2 CLNG WATER FLOW
852		EMER DIESEL GENERATOR 1 VOLTS
852		EMER DIESEL GENERATOR 2 VOLTS
852		EMER DIESEL GENERATOR 3 VOLTS
852		MAIN GENERATOR KILOVOLTS
852		NORM STA SER XFMR MEGAVARS
852		NORM STA SER XFMR MEGAWATTS
852		TAP POS IND NORM STA SER XFMR
871		CONTROL BLDG COND WTR PUMP P2B
871		REACTOR BLDG VENTILATON RECORDER
871		SBGT FILTER TRAIN B
871	2HVC*AOD6B	CONTROL RM A/C FAN DISCH DMPR
873		HYDROGEN RECOMBINER CONTROLLER
873		RS/2CCP-FR266
873		SPENT FUEL CLG + SUMP CONTROLLER





# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 97.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

LABELS DO NOT DESCRIBE THE FUNCTION OF THE FOLLOWING EQUIPMENT  
ITEMS IN SUFFICIENT DETAIL FOR OPERATOR USE.

## COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

DETERMINE APPROPRIATE FUNCTIONAL LABELS FOR THE EQUIPMENT IN THE  
LABELING STUDY, AND PROVIDE NEW LABELS, IN ACCORDANCE WITH HF  
MANUAL GUIDANCE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

6.3.1.A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
602	B22-R609A		
602	B22-R609B		
602	B22-R609C		
602	B22-R609D		
602	B22-R611A		
602	B22-R611B		
602	B35-R602A		
602	B35-R602B		
602	B35-R603A		
602	B35-R603B		
602	B35-R612A		
602	B35-R612B		
602	B35-R634A		
602	B35-R634B		
602	B35-R651A		
602	B35-R651B		

D-4



602	B35-R652A	
602	B35-R652B	
603		188C7983P001
603		188C7983P002
603		188C7983P003
603		188C7983P004
603		TREND RECORDER
603	2FWS-T164A	
603	2FWS-T164B	
603	AM-2RDSA51	
603	AM-2RDSB51	
603	B22-R604	
603	C12-R602	
603	C12-R603	
603	C12-R604	
603	C12-R605	
603	C12-R606	
603	C33-R603A	
603	C33-R603B	
603	C33-R603C	
603	C33-R603D	
603	C33-R605	
603	C33-R606A	
603	C33-R606B	
603	C33-R606C	
603	C51-R600A	
603	C51-R600B	
603	C51-R600C	
603	C51-R600D	
603	C51-R601A	
603	C51-R601B	
603	C51-R601C	
603	C51-R601D	
603	SP-603-01	
603	SP-603-02	
603	SP-603-03	
603	SP-603-04	
849		FIXED(PUMPS & ACCESSORIES SECTION)
851		TREND RECORDER
871		REACTOR BLDG IN/OUT DIFF PRESS
873	HVK-CH1A	CURRENT
873	UC413A	CURRENT
875	SOV11B	RECOMB 1B CLG WTR DRAIN VALVE



# HUMAN ENGINEERING DISCREPANCY

NUMBER: 256.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 4/19/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THERE ARE NO SUBSYSTEM OR FUNCTIONAL GROUP LABELS USED TO IDENTIFY GROUPS OF COMPONENTS ON THE REMOTE SHUTDOWN PANEL.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

APPLY SYSTEM/SUBSYSTEM LABELING TO THE REMOTE SHUTDOWN PANELS. THE RSP PROCEDURE HAS BEEN REVIEWED AND IT CLEARLY DELINEATES EACH CONTROL OPERATION NEEDED FOR THE PANEL OPERATION.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

6.1.2.A(2) (RSDP)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
405	GENERIC		



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 260.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

LABELS ON REMOTE SHUTDOWN PANEL COMPONENTS DO NOT DESCRIBE THE  
FUNCTION OF EQUIPMENT ITEMS. VERTICAL METERS ARE IDENTIFIED ONLY  
BY AN EQUIPMENT NUMBER.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

IDENTIFY THE COMPONENTS WHICH DO NOT HAVE APPROPRIATE LABELS, AND  
PROVIDE FUNCTIONAL LABELS, IN ACCORDANCE WITH THE HF MANUAL GUIDANCE.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

6.3.1. (RSDP)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

NUMBER: 266.00  
 UTILITY: NMP

ORIGINATOR: BK  
 PLANT: NMP

DATE: 4/22/1985  
 UNIT: 2

## DESCRIPTION OF DISCREPANCY

ON THE REMOTE SHUTDOWN PANEL IT IS DIFFICULT TO DETERMINE THE  
 CONTROL/DISPLAY RELATIONSHIP BECAUSE METERS ARE LABELED WITH ONLY  
 EQUIPMENT NUMBERS. BETTER LABELS WOULD FACILITATE RELATING  
 DISPLAYS TO THEIR ASSOCIATED CONTROLS.

## COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

INCORPORATE THE RSP INTO THE LABELING STUDY. ENSURE THE 3 LETTER  
 SWEC DESIGNATOR IS CONSISTENT WITH THOSE USED IN THE CONTROL  
 ROOM. PROVIDE FUNCTIONAL LABELS AS NEEDED THAT ADEQUATELY  
 DESCRIBE THE FUNCTION OF THE COMPONENTS IN ACCORDANCE WITH THE HF  
 MANUAL.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

CHECKLIST  
 CHECKLIST  
 CHECKLIST

9.1.1.C(1) (RSDP)  
 9.2.2.C(2) (RSDP)  
 9.2.2.B(2) (RSDP)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 280.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/2  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE LETTER HEIGHT FOR CONTROL ROOM LABELS IS NOT THE SAME  
LABELS WITHIN THE SAME HIERARCHICAL LEVEL. THE CHARACTER  
OF MANY OF THE COMPONENT LABELS ARE DIFFERENT.

COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

IDENTIFY THE COMPONENTS WHICH DO NOT HAVE APPROPRIA  
WITHIN THE SAME HIERARCHICAL LEVEL, AND PROVIDE FUN  
IN ACCORDANCE WITH HF MANUAL GUIDANCE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORM

6.4.1.A(2)

CHECKLIST

EQUIPMENT  
ID NUMBER

EQUIPMENT  
NAME

PANEL



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 157.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY STATED THAT CONTROL SWITCHES FOR PUMPS SHOULD BE DISCRIMINATED FROM VALVE CONTROL SWITCHES BY COLOR CODING THE SWITCHES.

COMMENTS

CODING TO DISTINGUISH PUMP FROM VALVE CONTROL SWITCHES IS DESIRABLE. CODING METHOD SELECTED FOR A PARTICULAR APPLICATION SHOULD BE DETERMINED BY ADVANTAGES AND DISAVANTAGES OF EACH TYPE OF CODING (LOCATION, SHAPE, SIZE, MODE OF OPERATION, LABELING, COLOR).

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

INSURE LABELING CLEARLY IDENTIFIES DEVICE CONTROLLED.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

B3.26

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 63.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

LEGEND PUSHBUTTONS ARE NOT DISTINGUISHABLE FROM LEGEND LIGHTS.

COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

PERFORM A STUDY TO IDENTIFY ALL LEGEND PUSHBUTTONS AND LEGEND LIGHTS. ESTABLISH A TECHNIQUE TO DIFFERENTIATE BETWEEN THE TWO AND INSTALL MARKINGS ON THE APPROPRIATE TYPES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

4.3.3.A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HEO NUMBER: 107.00  
UTILITY: NMP

ORIGINATOR: RK  
PLANT: NMP

DATE: 1/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THERE IS NO WAY TO DISTINGUISH ILLUMINATED LEGEND INDICATORS FROM ILLUMINATED PUSHBUTTONS.

## COMMENTS

THERE SHOULD BE SOME WAY TO DISTINGUISH LIGHTED PUSHBUTTONS FROM ILLUMINATED LEGEND INDICATORS. A BORDER AROUND THE EDGE COULD BE USED TO INDICATE PUSHBUTTON OR AN INDENTED SURFACE TO SHOW THAT IT CAN BE PUSHED.

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

## EXPLANATION

SAME AS HEO 63. PERFORM A STUDY TO IDENTIFY ALL LEGEND PUSHBUTTONS AND LEGEND LIGHTS. ESTABLISH A TECHNIQUE TO DIFFERENTIATE BETWEEN THE TWO AND INSTALL MARKINGS ON THE APPROPRIATE TYPES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

5.3.3.C

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

ALL LEGEND INDICATORS/PUSHBUTTONS



# HUMAN ENGINEERING DISCREPANCY

HEO NUMBER: 208.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THERE IS NO DISTINCTION BETWEEN LEGEND PUSHBUTTONS AND LEGEND LIGHT.

## COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

## EXPLANATION

SAME AS HEO 63. PERFORM A STUDY TO IDENTIFY ALL LEGEND PUSHBUTTONS AND LEGEND LIGHTS. ESTABLISH A TECHNIQUE TO DIFFERENTIATE BETWEEN THE TWO AND INSTALL MARKINGS ON THE APPROPRIATE TYPES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## VALIDATION

3.2

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
851		BYPASS OPENING JACK IN CONTROL	
851		BYPASS OPENING JACK OPEN	
851		BYPASS OPENING JACK SELECTOR	



4  
E

1

1

4

4

24  
r

1

1)



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 189.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT PUSHBUTTONS C71-52A/52B FOR THE SCRAM DISCHARGE VOLUME VENT AND DRAIN VALVES ARE LABELED OPEN WHEN IN FACT PUSHING THESE PUSHBUTTONS WILL CLOSE THE VENT AND DRAIN VALVES.

## COMMENTS

THE WORDS ON THE PUSHBUTTON LABEL SHOULD EXPRESS EXACTLY WHAT ACTION IS INTENDED.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

PROVIDE A NEW LABEL FOR THE PUSHBUTTON WHICH DENOTES "TEST" IN LIEU OF "OPEN".

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B5.10

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 215.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

CONTROL POSITION LABEL FOR THE SCRAM DISCH VENT AND DRAIN PILOT  
VLVS ARE INAPPROPRIATE. THE LABEL READS "OPEN" WHEN IT SHOULD  
READ "TEST". VALVES OPEN AUTOMATICALLY.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

PROVIDE NEW ESCUTCHEON FOR PUSHBUTTON WHICH READS "TEST".

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VALIDATION

4.48

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
603		SCRAM DISCH VENT & DRAIN PILOT	





# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 95.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

DISCRETE FUNCTIONAL CONTROL POSITIONS ARE NOT IDENTIFIED.

## COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

## EXPLANATION

IDENTIFY THE COMPONENTS WHICH DO NOT HAVE THE CONTROL POSITION LABELS, AND INSTALL EITHER ESCUTCHEANS OR OTHER LABELING AS REQUIRED, IN ACCORDANCE WITH THE HF MANUAL GUIDANCE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

6.1.1  
6.3.8.A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
824		(UNLAB SW + IND LIGHTS)	
871		SVCE WTR TO HPCS CLG MOV15A	
871		SVCE WTR TO HPCS CLG MOV15B	
873		PURGE OUTBD VALUES OVERRIDE	
873	SOV34A	CTMT ATM MON SUP POOL INBD ISOL RTN	



HUMAN ENGINEERING DISCREPANCY

DATE: 4/22/1985  
UNIT: 2

HED NUMBER: 240.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DESCRIPTION OF DISCREPANCY

THE CITED KEY OPERATED SWITCHES DO NOT HAVE SWITCH POSITION LABELS.

COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

ESCUTCHEON PLATES WILL BE ADDED SO AS TO INDICATE SWITCH POSITIONS ON KEY OPERATED SWITCHES.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

4.4.3.F

CHECKLIST

EQUIPMENT ID NUMBER

EQUIPMENT NAME

PANEL

601  
601  
601  
601  
601  
601  
601  
601

LOCA OVERRIDE FOR MOV164  
LOCA OVERRIDE FOR MOV165  
RHR SAMPLE LINE ISOL OVRD 2RHS-SC  
RHR SAMPLE LINE ISOL OVRD 2RHS-S  
RHR SAMPLE LINE ISOL OVRD 2RHS-F  
RHR SAMPLE LINE ISOL OVRD 2RHS-  
STANDBY LIQUID PUMP C41-C001A  
STANDBY LIQUID PUMP C41-C001B



HUMAN ENGINEERING DISCREPANCY

DATE: 3/10/1985  
UNIT: 2

HED NUMBER: 171.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT FOR THE ISOLATION PUSHBUTTONS THE SAME PUSHBUTTON IS USED TO RESET OR ISOLATE SYSTEMS DEPENDING ONLY ON THE POSITION OF A ROTATING COLLAR OR THE PUSHBUTTON.

COMMENTS

CONTROLS SHOULD BE SELECTED TO ENSURE EASE OF OPERATION AND TO MINIMIZE ERRORS.

ASSESSMENT CATEGORY: 3D  
DISPOSITION: FIX

EXPLANATION

THE DESCRIPTION REFERS TO THE 20 MANUAL ISOLATION BUTTONS ON PANEL 602. PROVIDE A MORE POSITIVE INDICATION OF THE FUNCTION OF THE PUSHBUTTON AS DICTATED BY THE POSITION OF THE COLLAR BY ENGRAVING A LINE ON THE BUTTON WHICH CORRESPONDS TO THE LINE ON THE COLLAR. THE BUTTON ROTATES WITH THE COLLAR THUS PROVIDING A MORE POSITIVE AND DISTINCTIVE INDICATION OF THE FUNCTION PERFORMED WHEN THE BUTTON IS DEPRESSED. THE COLLAR POSITION MARKED BUT MAY BE OVERLOOKED BY THE OPERATOR. THE POTENTIAL ERROR IS REDUCED WITH A LINE ENGRAVED ON THE PUSHBUTTON TO THE SELECTED FUNCTION.

IMPLEMENTATION: FIRST REFUEL OUTAGE

EXPLANATORY INFORMATION

SOURCE OF DISCREPANCY

B5.13

OPERATOR SURVEY

EQUIPMENT  
ID NUMBER

EQUIPMENT  
NAME

PANEL



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 3.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/18/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE LIMIT OF 24 CHARACTERS FOR THE DESCRIPTIONS OF POINT ID'S  
SOMETIMES REQUIRES EXTENSIVE USE OF ABBREVIATIONS. THESE  
DESCRIPTIONS CAN BE RATHER CRYPTIC AT TIMES.

COMMENTS

EFFORTS HAVE BEEN MADE TO USE ABBREVIATIONS WHICH ARE CONSISTENT  
WITH PLANT-WIDE CONVENTIONS WHEN ABBREVIATIONS ARE NECESSARY.

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

PERFORM A STUDY OF POINT ID DESCRIPTIONS TO ENSURE CONSISTENCY OF  
ABBREVIATIONS AND NOMENCLATURE WITH CONTROL BOARD LABELING.  
INCLUDE NMP-2 OPERATORS AS PART OF THE REVIEW TEAM.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.1.2.C.3

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 8.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/18/1984  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

TERMS, NOMENCLATURE AND ABBREVIATIONS USED ON FUNCTIONS CONTROLS ARE NOT ALWAYS THE SAME AS, OR CONSISTENT WITH TERMS, NOMENCLATURE AND ABBREVIATIONS ON THE DISPLAY OPTION SELECTED.

## COMMENTS

SPACE IS LIMITED ON FUNCTION KEYS TO ETCH FULLY MEANINGFUL LABELING INFORMATION. NONE OF THE DEDICATED FUNCTION KEYS HOWEVER, TOTALLY DEVIATES IN MEANING FROM THE INFORMATION CONTAINED ON THE DISPLAYS.

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

## EXPLANATION

PERFORM A STUDY OF POINT ID DESCRIPTIONS TO ENSURE CONSISTENCY OF ABBREVIATIONS AND NOMENCLATURE WITH CONTROL BOARD LABELING. INCLUDE NMP-2 OPERATORS AS PART OF THE REVIEW TEAM.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

7.1.5.B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 138.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THERE WAS DIFFICULTY IN COMMUNICATION SINCE THERE IS NO STANDARDIZATION IN ACRONYMS, EQUIPMENT NAMES AND ABBREVIATIONS.

## COMMENTS

A LIST OF STANDARD NAMES, ACRONYMS, ABBREVIATIONS AND PART/SYSTEM NUMBERS SHOULD BE IN PLACE AND ADMINISTRATIVELY CONTROLLED. LABELS IN THE CONTROL ROOM SHOULD BE CONSISTENT IN USE OF WORDS, ACRONYMS, ABBREVIATIONS AND PART/SYSTEM NUMBERS.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

ESTABLISH THROUGH THE LABELING STUDY A UNIQUE MASTER LIST OF ABBREVIATIONS AND ACRONYMS FOR NMP-2 PLANT EQUIPMENT.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

AS.6

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 166.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE SWITCH VALVE AND METER LABELING SCHEME IS INCONSISTENT. IT SHOULD BE STANDARDIZED AROUND THE STONE AND WEBSTER 3 LETTER SYSTEM DESIGNATORS. SOMETIMES THE SWITCH OR METER HAS AN ABBREVIATED WORD DESCRIPTION (I.E., SERV WTR FOR SERVICE WATER). SOMETIMES IT HAS LETTER # DESIGNATORS (I.E., SWS FOR SERVICE WATER).

COMMENTS

A LIST OF STANDARD NAMES, ACRONYMS, ABBREVIATIONS AND PART/SYSTEM NUMBERS SHOULD BE IN PLACE AND ADMINISTRATIVELY CONTROLLED. LABELS IN CONTROL ROOM SHOULD BE CONSISTENT.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

ESTABLISH A STANDARDIZED LIST OF ACRONYMS AND ABBREVIATIONS IN THE LABELING STUDY. PROVIDE NEW LABELS AS NECESSARY TO CONFORM TO LABELING STANDARD IN ACCORDANCE WITH HF MANUAL GUIDANCE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

B5.3

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 199.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY THAT THERE WAS DIFFICULTY IN UNDERSTANDING A LOT OF COMPUTER DISPLAYS BECAUSE OF LACK OF CONVENTION AND COMMUNICATIONS BETWEEN OPERATIONS AND PERSON PREPARING PRINTER MATERIAL.

## COMMENTS

A LIST OF STANDARD NAMES, ACRONYMS, ABBREVIATIONS AND PART/SYSTEM NUMBERS SHOULD BE IN PLACE AND ADMINISTRATIVELY CONTROLLED. OPERATORS AND COMPUTER PERSONNEL SHOULD USE THESE STANDARDIZED MATERIALS TO ENSURE CONSISTENCY AND FACILITATE UNDERSTANDING.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

CONDUCT A LABELING STUDY TO ESTABLISH A STANDARD LIST OF ABBREVIATIONS AND ACRONYMS INCLUDING THE COMPUTER DISPLAYS AND MESSAGES. FOR THE COMPUTER POINTS ESTABLISH AN ABBREVIATION ALTERNATIVE WHICH CAN ACCOMODATE THE SPACE LIMITATION AND UTILIZE ONLY WHEN NECESSARY. ELIMINATE INCONSISTENCIES THROUGHOUT THE CONTROL ROOM.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

E3.5

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 262.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

LABELS ON THE REMOTE SHUTDOWN PANEL ARE NOT CONSISTENT IN THEIR USE OF ACRONYMS AND ABBREVIATIONS. SEVERAL DIFFERENT ABBREVIATIONS ARE USED FOR THE SAME TERM.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

IDENTIFY THE COMPONENTS WHICH DO NOT HAVE APPROPRIATE LABELS, AND PROVIDE ABBREVIATIONS ON LABELS, IN ACCORDANCE WITH THE HF MANUAL GUIDANCE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

6.3.3.B (RSDP)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
405	GENERIC		



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 76.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/30/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

SEVERAL INSTANCES EXIST WHERE CONTROLS AND DISPLAYS WHICH ARE ASSOCIATED DO NOT HAVE CORRESPONDING LABELS.

COMMENTS

THE CAUSE OF THIS HED IS THE USE OF EQUIPMENT NUMBER LABELS IN PLACE OF MORE DESCRIPTIVE LABELS. THIS OCCURS PRIMARILY ON DISPLAYS (USUALLY VERTICAL METERS). THIS SHOULD BE REVIEWED WITH REFERENCE TO THE "LABELS" CHECKLIST SECTIONS.

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

PERFORM A LABELING STUDY TO IDENTIFY DISCREPENCIES AND PROVIDE NEW LABELS WHICH ENHANCE THE ASSOCIATION.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

9.2.2.B(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 261.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

WORDS ARE NOT SPELLED CORRECTLY ON REMOTE SHUTDOWN PANEL LABELS.  
"TURBINE" IS INCORRECTLY SPELLED "TURBIN" ON TWO LABELS.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

THE CORRECT SPELLING OF THE LABEL WILL BE IMPLEMENTED.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

6.3.2.F (RSDP)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
405		TURBIN TRIP	
405		TURBIN TRIP AND THROTTLE MOV	



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 917.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT PUMP CONTROL POSITIONS LABELS ARE OFTEN INCONSISTENT WITH EACH OTHER AND ARE INCONSISTENT WITH PUMP OPERATION NOMENCLATURE. MANY PUMPS ARE LABELLED OFF/ON. TASK ANALYSIS SME'S SUGGEST THAT STOP/START WOULD BE MORE APPROPRIATE.

## COMMENTS

PUMPS SHOULD BE CONSISTENTLY LABELLED START/STOP RATHER THAN OFF/ON.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

ALL J-HANDLE PUMP CONTROL WILL BE REVISED TO HAVE CONTROL POSITIONS OF STOP/START AND THIS NOMENCLATURE WILL BE USED CONSISTENTLY THROUGHOUT THE CONTROL ROOM.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY  
VERIFICATION OF SUITABILITY

PROC #2, TASK 0011, A.S. 01  
PROC 0002, TASK 0013, A.S. 02

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	22-004-000	RHR PUMP	
601	44-004-000	HPCS PUMP	





# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 924.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE SLC PUMPS HAVE INAPPROPRIATE CONTROL POSITION LABELS. PRESENT CONTROL POSITIONS ARE TEST/NORMAL. SME'S IN TASK ANALYSIS SUGGEST POSITIONS CONSISTENT WITH OTHER PUMP CONTROLS. APPROPRIATE POSITIONS WOULD BE STOP/START.

## COMMENTS

PUMPS SHOULD BE CONSISTENTLY LABELLED STOP/START RATHER THAN OFF/ON.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

ALL J-HANDLE PUMP CONTROL WILL BE REVISED TO HAVE CONTROL POSITIONS OF STOP/START AND THIS NOMENCLATURE WILL BE USED CONSISTENTLY THROUGHOUT THE CONTROL ROOM.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY	PROC 0004.TASK 0013
VERIFICATION OF SUITABILITY	PROC 0004.TASK 0013.A.S. 01
VERIFICATION OF SUITABILITY	PROC 0003.TASK 0024.A.S. 02
VERIFICATION OF SUITABILITY	PROC 0004.TASK 0002.A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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601	24-001-000	SLC PUMP	
601	24-002-000	SLC PUMP	

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# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 907.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS HIGHLIGHTED SEVERAL INCONSISTENCIES IN THE LABELLING OF CONTROL SWITCH POSITIONS FOR VALVE CONTROLS.

## COMMENTS

IN SEVERAL INSTANCES VALVE CONTROLS HAVE POSITIONS LABELLED ON/OFF, WHICH IS MORE APPROPRIATE FOR FAN OR PUMP CONTROLS. VALVE CONTROLS SHOULD BE RE-LABELLED TO READ OPEN/CLOSE OR OPEN/SHUT.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

VALVE POSITION LABELS WILL BE MODIFIED TO CONSISTENTLY READ OPEN/CLOSE THROUGHOUT THE CONTROL ROOM.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY	PROC #0017, TASK 0005, A.S. 03
VERIFICATION OF SUITABILITY	PROC #0017, TASK 0007, A.S. 01
VERIFICATION OF SUITABILITY	PROC# 0002, TASK 0004, A.S. 5

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	31-001-000	ADS VLV 128	
601	41-001-000	ADS SAFETY RELIEF VLV	
601	41-001-000	ADS VLV 121	
601	41-003-000	ADS SAFETY RELIEF VLV	
601	41-003-000	ADS VLV 130	
601	41-009-000	ADS SAFETY RELIEF VLV	
601	41-009-000	ADS VLV 129	
601	41-010-000	ADS SAFETY RELIEF VLV	
601	41-010-000	ADS VLV 134	
999			



# HUMAN ENGINEERING DISCREPANCY

H. NUMBER: 933.00  
 UTILITY: NMP

ORIGINATOR: DKB  
 PLANT: NMP

DATE: 5/15/1985  
 UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE CONTROL POSITIONS FOR SRV'S ARE INAPPROPRIATE. PRESENT POSITIONS ARE AUTO, OFF, OPEN. SME'S IN TASK ANALYSIS SUGGEST THAT "CLOSE" WOULD BE MORE APPROPRIATE FOR VALVES THAN "OFF".

## COMMENTS

NOTE THAT CLOSE OR SHUT MAY BE USED, BUT USE SHOULD BE CONSISTENT THROUGHOUT THE CONTROL ROOM. IN SEVERAL INSTANCES VALVE CONTROLS HAVE POSITIONS LABELLED ON/OFF, WHICH IS MORE APPROPRIATE FOR FAN OR PUMP CONTROLS. VALVE CONTROLS SHOULD BE RE-LABELLED TO READ OPEN/CLOSE OR OPEN/SHUT.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

VALVE POSITION LABELS WILL BE MODIFIED TO CONSISTENTLY READ OPEN/CLOSE THROUGHOUT THE CONTROL ROOM.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC # 0006, TASK 0001, A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	31-001-000	SRV-128	
601	31-002-000	SRV-133	
601	31-005-000	SRV-123	
601	31-006-000	SRV-127	
601	31-007-000	SRV-132	
601	31-008-000	SRV-137	
601	31-011-000	SRV-122	
601	31-012-000	SRV-126	
601	31-013-000	SRV-131	
601	31-014-000	SRV-136	



601	41-001-000	SRV-121
601	41-002-000	SRV-125
601	41-003-000	SRV-130
601	41-004-000	SRV-135
601	41-007-000	SRV-120
601	41-008-000	
601	41-009-000	SRV-129
601	41-010-000	SRV-134

10/10/10

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# HUMAN ENGINEERING DISCREPANCY

HEE NUMBER: 936.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT CONTROL POSITIONS FOR MOV 25B  
NEEDS TO HAVE AN OPEN POSITION LABELLED.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

OPEN POSITION LABELS WILL BE MODIFIED TO CONSISTENTLY READ  
OPEN/CLOSE THROUGHOUT THE CONTROL ROOM.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0007, TASK 0008, A.S. 02

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	43-002-000	MOV 25B	



12 1



12 1



12 1

# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 947.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE LABELLED CONTROL POSITIONS FOR THE SBGTS INLET VALVES ARE INAPPROPRIATE. PRESENTLY THESE ARE J-HANDLES AND HAVE A POSITION LABELLED STOP. SME'S SUGGEST THAT THESE SHOULD BE LABELED CLOSE.

## COMMENTS

CLOSE OR SHUT SHOULD BE USED TO BE CONSISTENT WITH POSITION LABELLING OF OTHER VALVES.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

VALVE POSITION LABELS WILL BE MODIFIED TO CONSISTENTLY READ OPEN/CLOSE THROUGHOUT THE CONTROL ROOM.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## VERIFICATION OF SUITABILITY

PROC #0015, TASK 0002, A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
870	21-008-000	MOV 2A	
877	21-008-000	MOV 2B	



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 290.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/29/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE ADS RELIEF VALVE KEYLOCK SWITCHES ON 2CEC\*PNL 628 AND PNL 631 DO NOT HAVE THE SWEC IDENTIFICATION NUMBERS, ONLY THE GE NUMBERS.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

THE LABELS ON THESE SWITCHES WILL BE REVIEWED AND CORRECTED AS PART OF THE LABELING STUDY.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

11-052

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
628		ADS RELIEF VALVE KEYLOCK SW	
631		ADS RELIEF VALVE KEYLOCK SW	

270

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# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 83.13  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

STRINGS OF GREATER THAN 5 SIMILAR COMPONENTS EXIST IN VARIOUS LOCATIONS. ALSO, WHERE THESE STRINGS DO EXIST AND HAVE A VALID REASON FOR EXISTING, THERE ARE CASES WHERE NO DEMARCATION OR OTHER FORMS OF ENHANCEMENT EXIST TO "BREAK" UP THE STRING.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

THESE COMPONENTS REPRESENT 3 ROWS OF 6 ADJACENT METERS. DEMARCATATE THESE COMPONENTS TO ELIMINATE CONFUSION IN THEIR READING. ENSURE LABELING IS SUFFICIENT TO ACCURATELY DISCRIMINATE BETWEEN COMPONENTS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

CHECKLIST	8.3.2.C(1)
CHECKLIST	8.3.2.C(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
852		ELECTRICAL/BUS SYSTEM (4 ROWS OF 6)	6





# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 268.00  
 UTILITY: NMP

ORIGINATOR: BK  
 PLANT: NMP

DATE: 4/22/1985  
 UNIT: 2

## DESCRIPTION OF DISCREPANCY

ON THE REMOTE SHUTDOWN PANEL EACH DISPLAY IS NOT LOCATED DIRECTLY  
 ABOVE ITS ASSOCIATED CONTROL. CONTROLS AND DISPLAYS ARE NOT  
 ARRANGED BY PAIRS IN ROWS.

## COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

MODIFY DEMARCATION ON RSP TO ENHANCE THE ASSOCIATION OF SUPPRESSION POOL  
 TEMPERATURE AND SELECTOR WITH DIV 11 AND RHR B.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

CHECKLIST  
 CHECKLIST

9.2.2.A(1) (RSDP)  
 9.2.2.A(2) (RSDP)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
RSDP	2SWP/PIC	SERVICE WTR PUMP	
RSDP	2SWP/PIE		
RSDP	2SWPF1200C	SERVICE WATER PUMP	
RSDP	2SWPF1200E		



# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 185.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE FIRE PANEL GENERATOR HYDROGEN DUMP VALVE NEEDS A DIFFERENT TYPE OF SWITCH TO DISTINGUISH IT FROM GENERATOR HYDROGEN ADDITION VALVES LOCATED ADJACENT TO IT.

## COMMENTS

CONTROLS THAT ARE ADJACENT SHOULD BE VISUALLY AND TACTUALLY IDENTIFIABLE.

ASSESSMENT CATEGORY: 2D

DISPOSITION: FIX

## EXPLANATION

RESOLVE THE SWITCH DISCRIMINATION PROBLEM BY ENHANCING SWITCH LABEL AND/OR DEMARCATING AROUND THE SWITCH.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B8.8

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 77.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/30/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

CONTROL/DISPLAY PACKAGES (VENDOR PANELS) EXIST WHICH DO NOT CONFORM TO THE GUIDELINES PRESCRIBED BY SECTION 9 OF THE CHECKLIST.

## COMMENTS

THE VENDOR PANEL FOR TURBINE GENERATOR AUXILIARIES ON PANEL 851 IS AN EXAMPLE OF A MODULAR CONTROL/DISPLAY PACKAGE WHICH DOES NOT CONFORM TO THE REQUIREMENTS LISTED IN SECTION 9. PROBLEM ARISES DUE TO POSITIONING OF CONTROLS/DISPLAYS FOR BYPASS VALVE OPENING JACK AND STEAM CHEST/WARMING SHELL.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

PROVIDE DEMARCATION OR HIERARCHICAL LABELING TO ENHANCE THESE ASSOCIATIONS OF LEFT TO RIGHT CONTROL SEQUENCE AND BOTTOM TO TOP METER ASSOCIATIONS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

9.2.2.E

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
851	21(13-17)	P/B CONTROLS FOR BP. VLV OP. JK	
851	21(18-19)	STEAM CHEST/WARMING SHELL METERS	
851	21(33-37)	P/B CONTROLS FOR S.C./WRM. SHELL	
851	2112	BYPASS VALVE OPENING JACK METER	
851	4A TO 4ABC	PILOT SCRAM VLV SOLENOIDS	
851	4B TO 4ABC	PILOT SCRAM VLV SOLENOIDS	



HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 257.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

LABELS ON THE REMOTE SHUTDOWN PANEL ARE NOT GRADUATED IN SIZE  
ACCORDING TO THE GUIDELINE. SYSTEM LABELS SHOULD BE LARGER.  
THERE ARE NO SUBSYSTEM LABELS, AND COMPONENT LABELS ARE THE SAME  
SIZE AS POSITION IDENTIFIER LABELS.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

EXPLANATION

IDENTIFY THE COMPONENTS WHICH DO NOT HAVE APPROPRIATE LABELS, AND  
PROVIDE SYSTEM, SUBSYSTEM AND COMPONENT LEVEL LABELS, IN  
ACCORDANCE WITH THE HF MANUAL GUIDANCE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

6.1.2.B (RSDP)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
405	GENERIC		



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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 100.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

LABELS REPEAT INFORMATION CONTAINED IN HIGHER-LEVEL LABELS.

## COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

PROVIDE NEW LABELS IN THE LABELING STUDY WHICH ELIMINATES THE NECESSARY WORDING IN THE LABEL. PROVIDE NEW LABELS IN ACCORDANCE WITH HF MANUAL GUIDANCE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

6.1.2.A.4

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
851		CIRC WATER P1A CURRENT	
851		CIRC WATER P1B CURRENT	
851		CIRC WATER P1C CURRENT	
851		CIRC WATER P1D CURRENT	
851		CIRC WATER P1E CURRENT	
851		CIRC WATER P1F CURRENT	
851		CIRC WTR PUMP 1A	
851		CIRC WTR PUMP 1B	
851		CIRC WTR PUMP 1C	
851		CIRC WTR PUMP 1D	
851		CIRC WTR PUMP 1E	
851		CIRC WTR PUMP 1F	
851		COND AIR REMOVAL PUMP 1A	
851		COND AIR REMOVAL PUMP 1B	
851		MS RHTR 1A HEHTG STEAM SUPPLY TEAM	
851		MS RHTR 1B HEHTG STEAM SUPPLY TEAM	
851		MS RHTR DR TK 4A DRAIN TO FW HEATER 4A	



851		MS RHTR DR TK 4A DRAIN TO FW HEATER 4B
851		MS RHTR DR TK 4A DRAIN TO FW HEATER 4C
851		MS RHTR DR TK 4B DRAIN TO FW HEATER 4A
851		MS RHTR DR TK 4B DRAIN TO FW HEATER 4B
851		MS RHTR DR TK 4B DRAIN TO FW HEATER 4C
851		MS RHTR DR TK 6A DRAIN TO FW HEATER 6A
851		MS RHTR DR TK 6A DRAIN TO FW HEATER 6B
851		MS RHTR DR TK 6A DRAIN TO FW HEATER 6C
851		MS RHTR DR TK 6B DRAIN TO FW HEATER 6A
851		MS RHTR DR TK 6B DRAIN TO FW HEATER 6B
851		MS RHTR DR TK 6B DRAIN TO FW HEATER 6C
851	AOV105	COND AIR REMOVAL PUMPS INLET ISOL VALVE
851	AOV20A	CLN STM REBLR 1A SHELL BLOWDOWN
851	AOV20B	CLN STM REBLR 1B SHELL BLOWDOWN
851	AOV21A	CLN STM REBLR 1A CONDENSATE INLET
851	AOV21B	CLN STM REBLR 1B CONDENSATE INLET
851	HV34A	CLN STM REBLR DR TK 1A ISOL VALVE
851	HV34B	CLN STM REBLR DR TK 2B ISOL VALVE
851	HV98A	SER WTR TO AIR REM PUMP 1A SEAL CLR E1A
851	HV98B	SER WTR TO AIR REM PUMP 1B SEAL CLR E1B
851	LVX65A	MSTR SEP DR RCVR TO 6TH PT FW HTR & CND NORM
851	LVX65B	MSTR SEP DR RCVR TO 6TH PT HTR & CND
851	LVX75A	MSTR SEP DR RCVR TO 6TH PT FW HTR & CND NORM
851	LVX75B	MSTR SEP DR RCVR TO 4TH PT FW HTR & CND NORM
851	LVY65A	MSTR SEP DR RCVR TO 6TH PT FW HTR & CND
851	LVY65B	MSTR SEP DR RCVR TO 6TH PT FW HTR & CND
851	LVY75A	MSTR SEP DR RCVR TO 4TH PT FW HTR & CND
851	LVY75B	MSTR SEP DR RCVR TO 4TH PT FW HTR & CND
851	LVZ65A	MSTR SEP DR RCVR TO 6TH PT FW HTR & CND NORM
851	LVZ65B	MSTR SEP DR RCVR TO 6TH PT FW HTR & CND
851	LVZ75A	MSTR SEP DR RCVR TO 4TH PT FW HTR & CND
851	LVZ75B	MSTR SEP DR RCVR TO 4TH PT FW HTR & CND NORM
851	MOS A	CIRC WATER DISCH FROM COND A
851	MOS B	CIRC WATER DISCH FROM COND A
851	MOS C	CIRC WATER DISCH FROM COND B
851	MOS D	CIRC WATER DISCH FROM COND B
851	MOS E	CIRC WATER DISCH FROM COND C
851	MOS F	CIRC WATER DISCH FROM COND C
851	MOV16A	CLN STM REBLR 1A STEAM OUTLET
851	MOV16B	CLN STM REBLR 1B STEAM OUTLET
851	MOV19A	MS RHTR 1A BLANKSTRIG STM VALVE
851	MOV19B	MS RHTR 1B BLANKSTRIG STM VALVE
851	MOV2A	CIRC WTR PUMP 1A SUCT
851	MOV2B	CIRC WTR PUMP 1B SUCT
851	MOV2C	CIRC WTR PUMP 1C SUCT
851	MOV2D	CIRC WTR PUMP 1D SUCT
851	MOV2E	CIRC WTR PUMP 1E SUCT
851	MOV2F	CIRC WTR PUMP 1F SUCT
851	MOV3A	CLN STM REBLR STEAM INLET
851	MOV71A	MS RHTR 1A VENT TO ATMOS
851	MOV71B	MS RHTR 1B VENT TO ATMOS
851	SOV166	INST AIR PRI CONTMT ISOL VALVE
851	SOV167	INST AIR TO DW OUTSIDE ISOL
851	SOV168	INST AIR TO DW INSIDE ISOL
851	SOV180	INST AIR TO DW INSIDE ISOL
851	SOV185	INST AIR TO DW OUTSIDE ISOL
851	SOV36A	CLN STM REBLR 1A STARTUP VENT VALVE
851	SOV36B	CLN STM REBLR 1B STARTUP VENT VALVE



851	SOV37A	CLN STM REBLR 1A STARTUP DRAIN
851	SOV37B	CLN STM REBLR 1B STARTUP DRAIN
851	STV104	CLN STM REBLRS EXTRACTION SUPPLY ISOL
851	STV112	CLN STM REBLR MN STM SUPPLY
870		CONT RM RTN AIR TEMP
870		CONTROL BLDG CHILLER 1A TEST
870		CTMT ATM MON ANAL IN/OUT VALVES
870		CTMT ATM MON ANAL IN/OUT VALVES
870		DRYWELL EQUIP DRAINS LEAK RATE
870		DRYWELL FLOOR DRAINS LEAK RATE
870		RB VENT LOW FLOW ISOLATION
870		SGBT FILTER TRAIN A FAN DISCH FLOW/PRESS
870		SGBT HEATER
870	ACU1A	CONT ROOM A/C FAN
870	AIT6A	CTMT ATM MON ANALYZER
870	AOD10A	RB VENT REFUELING FLOOR EXH ISOL
870	AOD145	SMOKE RMVL FAN CONT RM INL DMPR
870	AOD1A	RB VENT SUPPLY AIR ISOLATION
870	AOD204	RB VENT REAC HEAD EVAC FLTR ASSY
870	AOD34A	RB VENT EMER RECIRC TEST DAMPER
870	AOD4A	DIESEL GEN G1 RM OUTSIDE AIR DMPR
870	AOD4C	DIESEL GEN G1 RM OUTSIDE AIR DMPR
870	AOD61A	CONT RM INLET AIR ISOL DMPR
870	AOD6A	CONTROL RM A/C FAN DISCH DMPR 2HVC
870	AOD6A	RB VENT EMER RECIRC INLET DAMPER
870	AOD9A	RB VENT GENERAL AREA EXH ISOL
870	AOV97A	REAC BLDG VENT EMER CLR
870	CHL1A	CONT BLDG CHILLER COMPRESSOR
870	FN1A	DG G1 RM EXHAUST FAN
870	FN1A	SBGT DISCH FAN
870	FN1C	DG G1 RM EXHAUST FAN
870	FN2A	CONT ROOM A/C BSTR FAN
870	MOD1A	DG G1 RM EXH DMPR
870	MOD1C	DG G1 RM EXH DMPR
870	MOD6A	DG G1 RM RECIRC DMPR
870	MOD6C	DG G1 RM RECIRC DMPR
870	MOV119	DRYWELL EQUIP DR CONT ISOL VLV
870	MOV120	DRYWELL EQUIP DR CONT ISOL VLV
870	MOV121	DRYWELL FLOOR DR CONT ISOL VALVE
870	MOV139	DW FL DRS TANK VENT ISOL VALVE
870	MOV140	DW FL DRS TANK VENT ISOL VALVE
870	MOV1A	CONT RM OUTSIDE AIR ISOL VLV
870	MOV3A	SGBT DISCH FAN DISCH VALVE
870	MOV4A	SGBT TRAIN A DECAY HT CLG
870	MOV67A	CONT BLDG CHILLER SER WTR SPLY
870	P1A	CONT BLDG CHILLED WTR CIRC PUMP
870	P1A	CONT BLDG CHILLED WTR PUMP
870	P2A	CONTROL BLDG COND WTR PUMP
870	SOV23A	CTMT ATM MON DW SAMPLING VLV
870	SOV23C	CTMT ATM MON DW SAMPLE VLV
870	SOV23E	CTMT ATM MON ANAL SAMPLE VLV
870	SOV24A	CTMT ATM MON DW INBD ISOL SPLY VLV
870	SOV24C	CTMT ATM MON DW OUTBD ISOL SPLY VLV
870	SOV25A	CTMT ATM MON SUPPR POOL INBD VLV
870	SOV25C	CNTMT ATM MON SUPPR POOL SAMPLE V
870	SOV26A	CNTMT ATM MON SUPPR POOL INBD ISOL SUP VLV
870	SOV26C	CTMT ATM MON SUPPR POOL OTBD ISOL SPLY V
870	SOV32A	CTMT ATM MON DW OUTBD ISOL RTN VLV
870	SOV33A	CTMT ATM MON ANAL INBD ISOL RTN
870	SOV34A	CTMT ATM MON SUPPR POOL INBD ISOL RTN V
870	SOV35A	CTMT ATM MON SUPPR POOL INBD ISOL RH V
870	SOV60A	CTMT ATM MON DW OUTBD ISOL SPLY VLV



870	SOV61A	CTMT ATM MON DW INBD ISOL SPLY VLV
870	SOV62A	CTMT ATM MON DW OUTBD ISOL RTN VLV
870	SOV63A	CTMT ATM MON DW INBD ISOL RTN VLV
870	SOV64A	CTMT ATM MON H2 ANALYZER INLET VLV
870	SOV65A	CTMT ATM MON H2 ANALYZER OUTLET VLV
870	TV21A	CONT RM CHILLED WTR TEMP VLV
870	UC 401A	RB UNIT COOLER
870	UC101A	CONT BLDG ELEV 261' UNIT COOLER
870	UC108A	CONT BLDG ELEV 261' UNIT COOLER
870	UC1A	DG G1 CONT RM UNIT COOLER
870	UC401D	RB UNIT COOLER
870	UC402A	RB UNIT COOLER
870	UC402B	RB UNIT COOLER
870	UC404A	RB UNIT COOLER
870	UC404B	RB UNIT COOLER
870	UC405	RB UNIT COOLER
870	UC407A	RB UNIT COOLER
870	UC407B	RB UNIT COOLER
870	UC407C	RB UNIT COOLER
870	UC408A	RB UNIT COOLER
870	UC408B	RB UNIT COOLER
870	UC410A	RB UNIT COOLER
870	UC411A	RB UNIT COOLER
870	UC412A	RB UNIT COOLER
870	UC413A	RB VENT RECIRC FAN TEST
870	UC413A	RB VENT RECIRC FAN TEST
870	UC414A	RB UNIT COOLER
870	UC415A	RB UNIT COOLER
871		CONTRL ROOM EMER FLTR 2B DIFF PRESS
871		CONTROL BLDG CHILLER 1B TEST
871		CONTROL RM CHILLER 1B SER WTR OUT TEMP
871		SBGTS TRAIN B INITIATION
871	ACU1B	CONTROL ROOM A/C FAN
871	AOD34B	RB VENT EMER RECIRC TEST DAMPER
871	AOD4B	DIESEL GEN G3 RM OUTSIDE AIR DMPR
871	AOD4D	DIESEL GEN G3 RM OUTSIDE AIR DMPR
871	AOD61B	CONTROL RM INLET AIR ISOL DMPR
871	AOD6B	RB VENT EMER RECIRC INLET DAMPER
871	AOV97B	RB VENT EMER CLR
871	CH1B	CONTROL BLDG CHILLER COMPRESSOR
871	CH1B	SBGTS HEATER
871	FN1B	DIESEL GEN G3 CONT RM EXHAUST FAN
871	FN1B	SBGTS DISCH FAN
871	FN1D	DIESEL GEN G3 CONT RM EXHAUST FAN
871	FN2B	CONTROL ROOM A/C BSTR FAN
871	MOD1B	DIESEL GEN G3 CONT RM EXH DMPR
871	MOD1D	DIESEL GEN G3 CONT RM EXH DMPR
871	MOD6B	DIESEL GEN G3 CONT RM AIR RECIRC DMPR
871	MOD6D	DIESEL GEN G3 CONT RM AIR RECIRC DMPR
871	MOV1B	CONT RM OUTSIDE AIR ISOL VLV
871	MOV1B	SBGTS INL VLV FR RB VENT
871	MOV2B	SBGTS TRAIN B INLET VALVE
871	MOV3B	SBGTS DISCH FAN DISCH VALVE
871	MOV4B	SBGTS TRAIN B DECAY HT CLG
871	MOV67B	CONTROL BLDG CHILLER SER WTR SPLY
871	P18	CONTROL BLDG CHILLED WATER CIRC PUMP
871	TV21B	CONT RM CHILLED WATER TEMP VLV
871	UC101B	CONT BLDG UNIT COOLER
871	UC108B	CONT BLDG ELEV 261 UNIT COOLER
871	UC1B	DIESEL GEN G3 CONT RM UNIT CLR
871	UC413B	RB VENT EMER RECIRC FAN
871	UC413B	RB VENT RECIRC FAN TEST
875		CNTMT ATM MON H2 ANAL IN/OUT VALVES

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875		CONT ATMOS MON ISOL VLV OVERRIDE
875		CTMT ATM MON DW OUTBD ISOL SUPPLY V
875		HYDROGEN RECOMBINER 1B
875		HYDROGEN RECOMBINER 1B LOCA OVERRIDE
875		SFP CIRC PUMP 1B AMPS TEST
875		SFP CLG WTR CIRC PUMP 1B
875		SPENT F POOL ELEVATION
875	AIT6B	CNTMT ATM MON ANALYZER
875	AOD5A	HPCS DG RM OUTSIDE AIR DMPR
875	AOD5B	HPCS DG RM OUTSIDE AIR DMPR
875	FN2A	DIESEL GEN RM EXHAUST FAN
875	FN2B	DIESEL GEN RM EXHAUST FAN
875	HV17B	SFP CLG WTR F/D BYPASS VALVE
875	HV18B	SFP CLG WTR FILTER INL VLV
875	HV19B	SFP CLG WTR FILTER OUT VALVE
875	HV35B	SFT TO SURGE TK1B INL WTR VLV
875	HV37B	SFP CLG HT EXCH DISCH XCONN VLV
875	HV5B	SFP SURG TK 1B OUTLET WTR VLV
875	HV6B	SFP SURGE TK 1B XOVER WTR VLV
875	MO21B	SFP MKUP TO SFP CLG & CLN UP
875	MOD2A	DIESEL GEN RM AIR EXH DMPR
875	MOD2B	DIESEL GEN RM AIR EXH DMPR
875	MOD7A	DIESEL GEN RM AIR RECIRC DMPR
875	MOD7B	DIESEL GEN RM AIR RECIRC DMPR
875	SOV23B	CNTMT ATM MON DW SAMPLE V
875	SOV23D	CNTMT ATM MON DW SAMPLE
875	SOV23D	CNTMT ATM MON HYDROGEN ANALYZER IN/OUT VLVS
875	SOV23F	CNTMT ATM MON DW SAMPLE
875	SOV24B	CNTMT ATM HYDROGEN ANALYZER INLET
875	SOV24B	CNTMT ATM MON DW INBD ISOL SUPPLY V
875	SOV25B	CNTMT ATM MON SUPPR POOL SAMPLE VALVE
875	SOV25D	CNTMT ATM MON SUP POOL SAMP VLV
875	SOV26B	CNTMT ATM MON SUPPR POOL INBD ISOL SPLY
875	SOV26D	CNTMT ATM MON OUTBD ISOL SPLY VLV
875	SOV32B	CNTMT ATM MON DW OUTBD ISOL RETURN
875	SOV34B	CNTMT ATM MON INBD ISOL RTN VLV
875	SOV35B	CNTMT ATM MON DW INBD ISOL RETURN
875	SOV35B	CNTMT ATM MON SUPPR POOL OUTBD ISOL RTN
875	SOV65B	CNTMT ATM MON HYDROGEN ANALYZER OUTLET V
875	UC2	DSL GEN CONT RM UNIT CLR

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64

# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 64.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

LEGEND LETTERING ON LEGEND PUSHBUTTONS IS TOO SMALL TO BE READ BY THE 5% FEMALE AT THE REQUIRED VIEWING DISTANCE.

## COMMENTS

THE LETTER HEIGHT IS 1/16 INCHES ON PUSHBUTTONS. A HEIGHT OF 1/8 INCH IS REQUIRED TO ENSURE READABILITY.

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

## EXPLANATION

PERFORM A STUDY TO IDENTIFY LEGEND LETTERING WHICH CANNOT BE EASILY READ. FIX BY PROVIDING NEW LEGENDS OF APPROPRIATE SIZE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

4.3.3.B(3)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	C41A-S5A	STBY LIQ I MANUALLY OUT OF SERVICE	
601	E12A-DS32	RHR HT EXCH 1A DISCH MOV12A INOP	
601	E12A-DS35	RHR PUMP 1A SUCT MOV1A INOP	
602		CNTMT EVF POSN (0-180 DEG)	77
602		CNTMT EVF POSN (180-360 DEG)	77
603	C72-05190	TRIP UNIT D IN CALIB/GROSS FLR	
603	C72-0519B	TRIP UNIT B IN CALIB/GROSS FLR	
603	C72-508B	RPS B MANUALLY OUT OF SERVICE	

SECRET

HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 103.00  
UTILITY: NMP

ORIGINATOR: RK  
PLANT: NMP

DATE: 1/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

LEGEND MESSAGES ON LEGEND LIGHTS CONTAIN MORE THAN THREE LINES OF TEXT. IT IS RECOMMENDED THAT ONLY THREE LINES OF TEXT BE DISPLAYED ON A LEGEND LIGHT TO ALLOW THE OPERATOR TO PERCEIVE THE MESSAGE AT A GLANCE.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

EXPLANATION

ADDRESS THE INOP LIGHT LEGENDS IN THE LABELING STUDY TO DETERMINE IF THE LEGENDS CAN BE REDUCED TO THREE LINES ALLOWING AN INCREASE IN THE LETTER SIZE FOR BETTER READABILITY. REDUCE THE NUMBER OF LINES TO THREE LINES WHERE POSSIBLE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

5.3.3.B(5)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

101

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104

# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 163.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE REACTOR MIMIC DISPLAY ON PANEL 602 IS VERY DIFFICULT TO READ. LETTERING IS VERY SMALL AND CANNOT BE READ FROM CHIEF SHIFT OPERATOR'S DESK. MOREOVER PANEL 602 IS TOO COMPLICATED.

## COMMENTS

PROPERLY DESIGNED MIMICS SHOULD DECREASE THE OPERATOR'S DECISION MAKING LOAD. PRINCIPLES FOR THE DESIGN OF MIMICS IN THE CHECKLIST SHOULD BE ADHERED TO. LABELING, LINES, PATHS SHOULD BE EASILY READABLE AND UNDERSTANDABLE.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

DURING THE LABELING STUDY, PROVIDE A RECOMMENDED LABELING SCHEME TO ADD LARGER, READABLE LABELS TO THE RIGHT AND LEFT SIDES OF THE MIMIC TO ENHANCE READABILITY.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B4.9

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HEC NUMBER: 175.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE CONTAMINANT ISOLATION BOARD IS HARD TO READ UNLESS THE OPERATOR IS STANDING DIRECTLY IN FRONT OF IT. THE LETTERING SIZE IS TOO SMALL. RSES DISPLAY IS TOO SMALL.

## COMMENTS

CHARACTER HEIGHTS SHOULD SUBTEND A MINIMUM VISUAL ANGLE OF 15 MINUTES, OR .004 X VIEWING DISTANCE OF NORMAL OPERATOR POSITION.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

DETERMINE LABELS WHICH ARE NOT READABLE AT CONTAINMENT ISOLATION PANEL. PROVIDE LABELS WHICH ARE READABLE ON EITHER SIDE OF THE PANEL IDENTIFYING THE RESPECTIVE VALUES. ENSURE ASSOCIATION OF THE NEW LABEL TO THE LEGEND LIGHT IS APPROPRIATE AND POSITIVE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B6.14

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 99.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE ABBREVIATIONS "DER" AND "DFR" ARE SIMILAR IN APPEARANCE AND  
COULD BE INTERPRETED INCORRECTLY ON PANEL 873.

## COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

PROVIDE NEW LABELS TO ACCURATELY DIFFERENTIATE BETWEEN THE DER AND  
DFR ABBREVIATIONS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

6.3.6

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
873		DER DIV I MANUALLY OUT OF SERVICE DER DIV II MANUALLY OUT OF SERVICE	

100-100000

# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 101.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE "1" AND "I" USED IN MANY OF THE LABELS ARE IDENTICAL AND CANNOT BE DISTINGUISHED FROM EACH OTHER.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

TERMINE IN THE LABELING STUDY IF THERE ARE LABELS WHERE THE "I" AND "1" ARE USED TOGETHER, THEREBY CAUSING CONFUSION. IF USED TOGETHER, PROVIDE A NEW LABEL. DISCRIMINATE THE "I" FROM THE "1" IN ACCORDANCE WITH HF MANUAL GUIDANCE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

6.1.1

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

LABELS(GENERIC)

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100  
100  
100  
100

# HUMAN ENGINEERING DISCREPANCY

HEE NUMBER: 91.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE SIX RECORDERS ARE LABELED INCONSISTENTLY. THREE ARE LABELED ABOVE THE RECORDERS AND THREE ARE LABELED BELOW THE RECORDERS.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

HERE THIS CONDITION EXISTS, THERE WAS INSUFFICIENT ROOM BETWEEN THE RECORDERS TO INSTALL THE LABELS. INVESTIGATE IN THE LABELING STUDY THE POSSIBILITY OF PROVIDING THE LABEL ON THE COMPONENT FOR BETTER ASSOCIATION.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

6.2.1.A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
873		DRYWELL EQUIP DRAINS LOCK RATE	4
873		DRYWELL UNIT COOLER TEMP RECORDERS	2





# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 237.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

LABELS ON THE CITED CHART RECORDERS ARE OBSCURED. THE LABEL IS PLACED CLOSELY BELOW THE RECORDER AND THE OVERHANG OF THE RECORDER OBSCURES THE LABEL.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

DURING THE LABELING STUDY, DETERMINE A STANDARD PLACEMENT FOR THESE RECORDER LABELS WHICH WILL ENHANCE READABILITY. THESE LABELS COULD BE PLACED ON THE RECORDERS, ABOVE, OR TO THE SIDE. UPDATE THE HF MANUAL WITH THE NEW CONVENTION. ASSESS RECORDERS IN THE CONTROL ROOM BASED ON THE ESTABLISHED CONVENTION AND INSTALL NEW LABELS IN THE APPROPRIATE LOCATIONS AS NEEDED.

IMPLEMENTATION: FUEL LOAD

*Refuel*

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

6.2.4.B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
603		REACTOR PRESS TURBINE STEAM FLOW	
603		REACTOR STEAM FLOW FEEDWATER FLOW	



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 274.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

SOME LABELS ON CONTROLS ARE OBSCURED DURING CONTROL ACTUATION  
BECAUSE OF THEIR LOCATION DIRECTLY BELOW THE CONTROL.

## COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

## EXPLANATION

IDENTIFY IN THE LABELING STUDY THE CONTROLS WHICH HAVE LABELS  
OBSCURED BECAUSE OF THEIR LOCATION DIRECTLY BELOW THE CONTROL.  
PROVIDE NEW LOCATION FOR LABELS AS NEEDED IN ACCORDANCE WITH HF  
MANUAL GUIDANCE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

6.2.4.C  
6.3.7.B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 74.03  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/30/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THIS HED DEALS WITH PROBLEMS ASSOCIATED WITH DISPLAY SELECTORS. ONE CASE DEALS WITH AN INAPPROPRIATE CONTROL TYPE (CITED IN 9.1.2.C.(1)). ANOTHER EXAMPLE CITES NON-CONFORMANCE BETWEEN DISPLAY AND CONTROL POSITIONS/LABELS (9.1.2.C.(2.3.)). THE FINAL TYPE OF EXAMPLE COVERS DISPLAYS WHICH READ "ZERO", AND NOT OFF-SCALE, WHEN NOT SELECTED OR POWERED.

## COMMENTS

THE FIRST EXAMPLE IS DERIVED FROM HAVING A PUSH-BUTTON SELECTOR FOR THE POST-ACCIDENT CHART RECORDER. A TWO POSITION ROTARY SELECTOR SWITCH IS MORE APPROPRIATE. THE SECOND EXAMPLE COVERS INCORRECT POSITION SEQUENCE AND/OR LABEL SEQUENCE. THIS PROBLEM OCCURS ON THE ELECTRICAL DISTRIBUTION PANEL. THE FINAL EXAMPLE CITES METERS WHICH READ A "ZERO" VALUE WHEN NOT SELECTED OR NOT POWERED. THIS IS A PROBLEM AS "ZERO" IS A POSSIBLE OPERATING PARAMETER.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

INSTALL RED AND BLUE DOTS TO SIGNIFY PEN COLORS FOR THE RECORDERS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

9.1.2.C(1-4)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
603	2423	IRM/APRM SEL SWITCHES	

11 22 11 11 11

HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 275.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

ADMINISTRATIVE PROCEDURES ARE NOT IN PLACE FOR THE PERIODIC  
CLEANING OF LABELS.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

EXPLANATION

ESTABLISH A PROCEDURE FOR THE CLEANING OF LABELS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

6.2.4.D

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 93.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

LABELS ARE NOT SECURELY MOUNTED ON THE CONTROL BOARDS.

COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

DURING LABELING STUDY, ENSURE LABELS ARE SECURELY INSTALLED.  
LABELS NOT SECURELY INSTALLED WILL BE REMOVED AND SECURELY  
INSTALLED.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

6.2.2.A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
824		"GROUP 11"	
873		REACTOR BUILDING DRYWELL DRN & COOLING	



APPENDIX E  
Label Annunciators (6 HEDs)



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# HUMAN ENGINEERING DISCREPANCY

HEM NUMBER: 156.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT ON THE EMERGENCY CORE COOLING SYSTEM PANEL H13-P603 THE ALARM "DIV 1 SCRAM PUMP VOL HIGH LEVEL" HAS 2 WINDOWS WHERE ONLY ONE IS NECESSARY. THE SECOND MAY BE MISLABELED.

## COMMENTS

ANNUNCIATORS SHOULD ONLY BE ESTABLISHED TO ENSURE COMPLIANCE WITH TECH SPECIFICATIONS AND TO ALLOW THE OPERATOR TO MONITOR STATUS OF THE PLANT AND RESPOND TO OUT-OF-TOLERANCE CONDITIONS EFFECTIVELY.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

ONE LEGEND IS "DIV 1 SCRAM DUMP VOL HIGH LEVEL" WHILE THE SECOND IS "DIV 1 SCRAM DUMP VOL HIGH LEVEL SCRAM". THESE ARE DIFFERENT BUT SHOULD BE LABELED DIFFERENTLY TO EMPHASIZE THE DIFFERENCE. IN THE LABELING/ANNUNCIATOR STUDY, PROVIDE A NEW LEGEND FOR ONE OR BOTH OF THESE ANNUNCIATORS TO ELIMINATE CONFUSION AND BETTER DESCRIBE THEIR FUNCTION.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B3.24

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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H13-P603

1960-1961

# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 188.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT ANNUNCIATOR SYSTEM IS IN DISARRAY. NO CONSISTENCY EXISTS ON WHAT IS ALARMED. IT SEEMS THAT EACH DESIGN ENGINEER PULLED OUT OF HIS HAT WHAT PARAMETERS WOULD BE ANNUNCIATED. EX "APRM A-B" UPSALE ALARM COMMON. APRM IS IN AND B ARE IN DIFFERENT RPS CHANNELS. NO ANNUNCIATORS EXIST FOR APRMS C, D, E, F (SEE REFERENCE BELOW FOR MORE).

## COMMENTS

PLANT PARAMETERS SELECTED FOR INCLUSION IN THE ANNUNCIATOR WARNING SYSTEM AND THE LIMITS OF ALARM SETPOINTS FOR THOSE PARAMETERS SHOULD BE ESTABLISHED TO ENSURE COMPLIANCE WITH TECHNICAL SPECIFICATIONS AND TO ALLOW THE OPERATOR TO MONITOR THE STATUS OF THE PLANT AND RESPOND TO OUT-OF-TOLERANCE CONDITIONS EFFECTIVELY.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

PROVIDE NEW ANNUNCIATOR TILE ENTITLED "APRM UPSCALE" AND "APRM DOWNSCALE" TO REPLACE CURRENT TILES 603208 AND 603214. ALSO PERFORM AN ANNUNCIATOR STUDY TO IMPROVE OTHER POSSIBLY CONFUSING LEGENDS.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

C2.8

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

IN THE COURT OF THE COMMONS



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 194.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT CONTROL ROOM PANEL 2CEC PNL 852, GEN TO STA AND SWYD ANNUNCIATOR PANEL HAS SEVERAL WINDOWS SHOWING 765 KV LINE VOLTAGE. THE LINE VOLTAGE IS PRESENTLY 345 KV. THIS IS REFLECTED BY THE PANEL MIMICS AND SWITCH DESIGNATORS.

## COMMENTS

VISUAL TILES SHOULD BE ACCURATE, SPECIFIC AND UNAMBIGUOUS.

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

## EXPLANATION

INSTALL CORRECT ANNUNCIATOR TILES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

CG.3

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

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HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 55.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE VERTICAL AND HORIZONTAL AXES OF ANNUNCIATOR PANELS ARE NOT  
LABELED WITH ALPHANUMERICS FOR READY COORDINATE DESIGNATION OF A  
PARTICULAR VISUAL TILE.

COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

PROVIDE A LOCATION DESIGNATION FOR EASY REFERENCE TO ANNUNCIATOR TILES.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

3.3.3.C(1)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 193.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE NOMENCLATURE AND ABBREVIATIONS FOR THE ANNUNCIATORS SHOULD BE STANDARDIZED. CURRENTLY THEY ARE INCONSISTENT FROM WINDOW TO WINDOW.

COMMENTS

VISUAL TILE LEGENDS SHOULD BE SPECIFIC AND UNAMBIGUOUS. WORDING SHOULD BE CONCISE, SHORT MESSAGES. ABBREVIATION AND ACRONYMS SHOULD BE CONSISTENT WITH THOSE USED ELSEWHERE IN THE CONTROL ROOM.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

PERFORM A LABELING STUDY WHICH INCLUDES THE ANNUNCIATOR LEGEND INFORMATION TO SELECT PREFERRED ABBREVIATIONS AND ACRONYMS AND CHANGE THE WORDING ON LEGENDS BY INSTALLING NEW TILES TO CORRECT INCONSISTENCIES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

CS.1

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 60.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

ALL ANNUNCIATOR LEGENDS ARE NOT PERMANENTLY ENGRAVED.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

PERFORM AN ANNUNCIATOR STUDY TO IDENTIFY INAPPROPRIATELY ENGRAVED  
LEGENDS AND REPLACE WITH APPROPRIATE LEGENDS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

3.3.5.C(1)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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APPENDIX F  
Modify Meter/Recorder Faces (26 HEDs)



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 88.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE SCALES ON THE FOLLOWING RECORDERS CONTAIN GREATER THAN NINE GRADUATIONS BETWEEN MAJOR NUMERALS.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

WHERE THERE ARE GREATER THAN NINE GRADUATIONS BETWEEN MAJOR NUMERALS, REPLACE THE SCALES IN ACCORDANCE WITH THE HF MANUAL.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

5.1.5.A.1  
5.4.1.C

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
602		RECIRC PUMPS SUCTION TEMPERATURES	19
870		DRYWELL & SUPPRESSION TEMPERATURE	19
870		DRYWELL UNIT COOLER TEMP	24
870		DRYWELL UNIT COOLER TEMP	24
870		SBGT FILTER TRAIN A	19
871		(UNLABELED)	14
871		C.R. EMER FILTR *FLT2A DIFF PRESS	19
871		CONTROL ROOM EMER FLTR 2B DIFF PRESS	19
875		DRYWELL & SUPPRESSION CHAMBER TEMP	19
875		DRYWELL & SUPPRESSION CHAMBER TEMP	19



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 241.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/19/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE GUIDELINE STATES THAT NO MORE THAN 9 GRADUATIONS SHOULD SEPARATE MAJOR NUMERALS ON DISPLAY METERS. THE CITED METER ON THE REMOTE SHUTDOWN PANEL HAS 15 GRADUATIONS BETWEEN NUMERALS.

## COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

CHANGE THE METER SO THAT THERE ARE 9 GRADUATIONS BETWEEN MAJOR NUMERALS, AND IS CONSISTENT WITH THE MAIN CONTROL ROOM INDICATORS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

5.1.5.A(1)(RSDP)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
405	2RSS/PI102		



# HUMAN ENGINEERING DISCREPANCY

REPORT NUMBER: 243.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/19/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE CITED DISPLAYS ON THE REMOTE SHUTDOWN PANEL DO NOT MEET THE GUIDELINE FOR SUCCESSIVE VALUES FOR UNIT GRADUATIONS. THE CITED SCALES HAVE NUMERALS OF 3,6,9,12...MULTIPLIED BY SOME FACTOR OF 10.

## COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

CHANGE METER FACES SO THAT THEY ARE CONSISTENT WITH HF GUIDELINES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

5.1.5.C(RSDP)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
405	2RSS/PI108		
405	RSS/PI109		
405	RSS/PI110		
405	RSS/PI111		





# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 926.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE SCALE DIVISIONS ON THE DISPLAY FOR RHR HX INLET TEMPERATURE RECORDER ARE NOT ADEQUATE. THE PRESENT DISPLAY HAS DIVISIONS OF 20 DEG-F. SME'S FROM TASK ANALYSIS HAVE SUGGESTED THAT DIVISIONS OF 2.0 DEG-F ARE MORE ADEQUATE.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

SCALES WILL BE MODIFIED TO READ IN DIVISIONS OF 5 DEG-F (NOT 2) AS 20 DEG-F IS TOO WIDE FOR DIVISIONS, AND 5 DEG-F WILL BE ADEQUATE FOR ALL OPERATIONS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0003, TASK 0028, A.S. 15

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	27-004-001	RHR HX-IN-TEMP-RECORDER	



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 928.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE SCALE DIVISIONS ON THE DISPLAY FOR SLC PUMP DISCHARGE PRESSURE ARE INADEQUATE. PRESENT DIVISIONS ARE 30 PSI(G). SME'S IN TASK ANALYSIS HAVE SUGGESTED UNITS OF 25 PSIG AS BEING MORE APPROPRIATE.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

THESE SCALES WILL BE MODIFIED TO HAVE DIVISIONS OF 20 PSIG, AS 20 IS MORE APPROPRIATE FOR DIVISIONS FROM A HUMAN FACTOR STAND-POINT THAN 25.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0004, TASK 0013, A.S. 04

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	14-008-000	C41-R600A	
601	14-009-000		



# HUMAN ENGINEERING DISCREPANCY

HE# NUMBER: 979.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THE METER SCALE FOR SBGTS FILTER TRAIN HEATER INLET/OUTLET TEMPERATURE HAS INADEQUATE DIVISIONS. THE CURRENT METER HAS DIVISIONS OF 4.8 DEG-F. THE SME SUGGESTED DIVISIONS OF 2 DEG-F.

## COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

## EXPLANATION

PROVIDE NEW SCALE IN ACCORDANCE WITH HF PRINCIPLES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #09, TASK 02, A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
870	11-002	FLT TRAIN HTR IN/OUT	
871	11-002	FLT TRAIN HTR IN/OUT	



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 901.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT METER RANGES FOR THE REACTOR PRESSURE VESSEL (RPV) LEVEL HAVE INADEQUATE SCALES AND DIVISIONS.

## COMMENTS

PRESENT METERS HAVE SCALES OF 0 TO 60 INCHES, IN DIVISIONS OF 5.0 INCHES. TASK ANALYSIS REQUIREMENTS LIST A NEED OF A RANGE OF 0 TO 200 IN DIVISIONS OF 2.0 INCHES.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

SCALES WILL BE DEVELOPED INCORPORATING THE NEW ZERO REFERENCE LINE. BAND WIDTH WILL BE SET CONSISTENT WITH NORMAL OPERATING CONDITIONS. ACTUAL BAND WIDTH WILL BE DETERMINED AFTER PARAMETER ANALYSIS.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY	PROC #0002, TASK 0014, A.S. 01
VERIFICATION OF SUITABILITY	PROC #0016, TASK 0016, A.S. 02
VERIFICATION OF SUITABILITY	PROC #0002, TASK 0015, A.S. 01
VERIFICATION OF SUITABILITY	PROC #0002, TASK 0018, A.S. 01
VERIFICATION OF SUITABILITY	PROC #0010, TASK 0026, A.S. 01
VERIFICATION OF SUITABILITY	PROC #0002, TASK 0011, A.S. 06
VERIFICATION OF SUITABILITY	PROC #0010, TASK 0012, A.S. 01
VERIFICATION OF SUITABILITY	PROC #0003, TASK 0018, A.S. 06
VERIFICATION OF SUITABILITY	PROC #0001, TASK 0001, A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	29-018-000	RPV LVL	
603	11-002-000	NARROW RANGE LVL C33-R606A	
603	11-002-000	RPV/LVL	
603	11-002-000	RPV/LVL	





603	11-003-000	RPV/LVL
603	11-004-000	C33-R606C
603	11-004-000	REACTOR LEVEL
603	11-004-000	RPV LVL
603	11-006-000	RPV LEVEL



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 911.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED A NEED FOR INDICATION OF REACTOR LEVEL-NARROW RANGE. THE PRESENT RX LEVEL INDICATIONS DO NOT SATISFY THE REQUIREMENTS OF A NARROW RANGE INDICATION.

## COMMENTS

A NARROW RANGE INDICATION OF 150 TO 205 INCHES SHOULD BE AVAILABLE. THE PRESENT DISPLAYS OF 0 TO 60 INCHES ARE NOT ADEQUATE. THE DIVISIONS OF THE NARROW RANGE DISPLAY SHOULD BE 1 INCH. THIS HED SHOULD BE TIED TO HED: 901.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

SCALES WILL BE DEVELOPED INCORPORATING THE NEW ZERO REFERENCE LINE. BAND WIDTH WILL BE SET CONSISTENT WITH NORMAL OPERATING CONDITIONS. ACTUAL BAND WIDTH WILL BE DETERMINED AFTER PARAMETER ANALYSIS.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY	PROC 0002, TASK 0014, A.S. 01
VERIFICATION OF SUITABILITY	PROC 0002, TASK 0018, A.S. 01
VERIFICATION OF SUITABILITY	PROC 0002, TASK 0015, A.S. 01
VERIFICATION OF SUITABILITY	PROC 0003, TASK 0019, A.S. 06
VERIFICATION OF SUITABILITY	PROC 0002, TASK 0011, A.S. 06
VERIFICATION OF SUITABILITY	PROC 0003, TASK 0019, A.S. 05
VERIFICATION OF SUITABILITY	PROC 0003, TASK 0018, A.S. 06
VERIFICATION OF SUITABILITY	PROC #0002, TASK 0006, A.S. 01

PAN	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	29-018-000	RPV LVL	
603	11-002-000	C33-R606A	
603	11-003-000		



603	11-004-000	REACTOR LEVEL
603	11-004-000	RPV LVL
603	29-003-000	RPV LVL



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 912.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE DISPLAY RANGE FOR REACTOR LEVEL-FUEL ZONE IS NOT ADEQUATE ON THE PRESENT INDICATORS. THE DISCREPANCY LIES IN THE PLACEMENT OF THE ZERO-REFERENCE LINE, THEREBY RESULTING IN THE LOW RANGES OF THE PRESENT DISPLAYS NOT BEING ADEQUATE.

## COMMENTS

ALL DISPLAYS SHOULD BE MODIFIED TO PROVIDE ADEQUATE RANGE INFORMATION. IT MIGHT ALSO BE HELPFUL TO HAVE THESE DISPLAYS IN INCHES AND FEET.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

THE SCALE RANGE WILL BE EXPANDED TO INCLUDE A NEW LOWER RANGE OF -170 INCHES TO AN UPPER RANGE OF 60 INCHES. DIVISIONS OF 2 INCHES WILL BE USED.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY  
VERIFICATION OF SUITABILITY

PROC 0003, TASK 0002, A.S. 05  
PROC# 0002, TASK 0006, A.S. 4

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	29-018-000		
603	11-005-000	FUEL ZONE	
603	11-005-000	REACTOR LEVEL	
603	11-006-000	REACTOR LEVEL	





# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 914.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE UPPER RANGE OF THE FEEDWATER FLOW INDICATOR IS INADEQUATE. THE PRESENT UPPER RANGE IS 4.25 X 10 (6) LBM/HR. TASK ANALYSIS HAS SUGGESTED AN UPPER RANGE OF 15 X 10 (6) LBM/HR.

## COMMENTS

ASSESSMENT CATEGORY: 2D

DISPOSITION: FIX

## EXPLANATION

APPROPRIATE MODIFICATIONS WILL BE IMPLEMENTED. GENERAL ELECTRIC CORP. WILL REVIEW THE REQUIREMENTS FOR THE UPPER RANGE ON THESE METERS AND WILL MAKE RECOMMENDATIONS BASED ON THAT REVIEW.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC # 0002, TASK 0008, A.S. 05

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
603	11-013-000	FEEDWATER FLOW	
603	11-014-000	FEEDWATER FLOW	



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 919.00  
 UTILITY: NMP

ORIGINATOR: DKB  
 PLANT: NMP

DATE: 5/15/1985  
 UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE INDICATORS FOR LPCS DISCHARGE PRESSURE HAVE AN INADEQUATE UPPER RANGE. PRESENT DISPLAYS HAVE AN UPPER RANGE OF 500 PSIG. SME'S DURING TASK ANALYSIS HAVE SUGGESTED AN UPPER RANGE OF 750 PSIG.

## COMMENTS

THE UPPER RANGE OF THESE DISPLAYS SHOULD BE DETERMINED FROM MAXIMUM PUMP DISCHARGE PRESSURE.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

GENERAL ELECTRIC CORP. WILL DETERMINE THE MAXIMUM LPCS PUMP HEADER PRESSURE, AND ANY SCALE MODIFICATIONS WILL BE BASED ON THIS REVIEW.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY  
 VERIFICATION OF SUITABILITY

PROC 0002, TASK 0012, A.S. 04  
 PROC #0002, TASK 0013, A.S. 02

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	19-012-000	LPCS DISCH PRESS	



HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 994.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE UPPER RANGE AND SCALE DIVISIONS FOR RHS-P1B AMMETER ARE INADEQUATE. CURRENTLY UPPER RANGE IS 30 AMPS WITH DIVISIONS OF 15. THE SME HAS SUGGESTED AN UPPER RANGE OF 60 AMPS WITH 5 AMP DIVISIONS.

COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

PROVIDE APPROPRIATE SCALE.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #020, TASK 014, A.S. 07

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	12-009	RHS-P1B CURRENT	



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# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 922.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE RANGE, DIVISIONS, AND UNITS FOR THE DISPLAY OF CONDENSER VACUUM PRESSURE IS INADEQUATE. SUGGESTED RANGE IS FROM -30 TO 0, WITH DIVISIONS OF 2.0, WITH UNITS OF INCHES-OF-MERCURY (VACUUM UNITS).

## COMMENTS

IT IS POSSIBLE THAT THE SCALE MAY RUN FROM 0 TO 30, WITH THE UNDERSTANDING THAT READINGS ARE IN VACUUM UNITS AND ARE NEGATIVE PRESSURE.

ASSESSMENT CATEGORY: 2D

DISPOSITION: FIX

## EXPLANATION

DISPLAYS WILL BE CHANGED TO READ IN INCHES-OF-HG (VACUUM). THE SCALE WILL BE MODIFIED TO BE CONSISTENT WITH PROCEDURES, HAVING A LOW RANGE OF 0, INDICATING NO VACUUM, TO AN UPPER RANGE OF 30 INDICATING A PERFECT VACUUM.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0003, TASK 0011, A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
851	13-018-000	MAIN CONDENSER VAC	
851	13-019-000	2CNM-CND1B	
851	13-020-000	MAIN CONDENSER VAC	

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# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 174.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE CONDENSER AIR REMOVAL GAUGE FOR CONDENSER VACUUM READS "PSIG INCHES HG VAC 0 TO 10 INCHES." VACUUM IS NORMALLY EITHER MEASURED AS "INCHES OF HG" OR "PSIA"-POUNDS PER SQUARE INCH ABSOLUTE. IF THE UNITS OF MEASUREMENT WERE INCHES OF MERCURY (HG) VACUUM ONE WOULD EXPECT A GAUGE WITH A RANGE OF 0-28 INCHES. ZERO WOULD BE NO VACUUM WHILE 28 WOULD BE NEAR FULL VACUUM. IF THE UNITS OF MEASUREMENT WERE POUNDS PER SQUARE INCH ABSOLUTE (PSIG) ONE WOULD EXPECT A SCALE OF 10 TO 0 PSIG. ON THIS SCALE 14.7 WOULD BE NO VACUUM AND 0 PSID WOULD BE FULL VACUUM. THE COMBINATION "PSIG INCHES HG VAC, 0 TO 10 INCHES" DOES NOT MAKE ANY SENSE.

## COMMENTS

SCALES SHOULD BE GRADUATED AND NUMBERED SO THAT READINGS ARE FACILITATED IN A DIRECT AND PRACTICAL WAY TO THE OPERATOR'S TASKS.

ASSESSMENT CATEGORY: 2D

DISPOSITION: FIX

## EXPLANATION

PROVIDE APPROPRIATE SCALE ACCORDING TO HF MANUAL.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B6.11

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840.

# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 941.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE SCALE RANGE ON THE RX BUILDING INSIDE/OUTSIDE DIFFERENTIAL PRESSURE IS INADEQUATE. THE PRESENT METER HAS A LOW RANGE OF 0 INCHES OF WATER. SME'S SUGGEST THE LOWER RANGE OF THE SCALE SHOULD INDICATE A NEGATIVE (-)20 INCHES OF WATER.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

THIS SCALE WILL BE MODIFIED SO THAT BOTH POSITIVE AND NEGATIVE VALUES MAY BE READ. THE NEW RANGE WILL BE (-)20 TO (+)20 INCHES-OF-WATER.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0011, TASK 0001, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME          | OTHER |
|-------|------------------------|----------------------------|-------|
| 870   | 21-003-000             | RX BLDG IN/OUT DIFF PRESS. |       |



# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 952.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS INDICATED A NEED FOR A LOWER RANGE OF -170 INCHES, AND TRENDING INFORMATION FOR FUEL ZONE LEVEL DISPLAYS. AT PRESENT THE METERS ONLY HAVE A LOWER RANGE OF -160 INCHES.

## COMMENTS

ALL DISPLAYS SHOULD BE MODIFIED TO PROVIDE ADEQUATE RANGE INFORMATION. IT MIGHT ALSO BE HELPFUL TO HAVE THESE DISPLAYS IN INCHES AND FEET.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

THE SCALE RANGE WILL BE EXPANDED TO INCLUDE A NEW LOWER RANGE OF -170 INCHES TO AN UPPER RANGE OF 60 INCHES. DIVISIONS OF 2 INCHES WILL BE USED. TRENDING INFORMATION IS PRESENTLY AVAILABLE ON THE RECORDERS ON PANEL 601. THEREFORE THE HED REFERENCE TO LACK OF TRENDING INFORMATION IS INVALID.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0016, TASK 016, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME         | OTHER |
|-------|------------------------|---------------------------|-------|
| 603   | 11-005-000             | FUEL ZONE LEVEL SP-603-01 |       |
| 603   | 11-006-000             |                           |       |



# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 978.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE METER FOR SUPPRESSION SPRAY HEADER FLOW IS INADEQUATE. THE CURRENT METER IS IN UNITS OF GPH WITH A RANGE OF 0-500 IN DIVISIONS OF 20. THE SME DURING TASK ANALYSIS SUGGESTED THAT A METER IN UNITS OF GPM, WITH A RANGE OF 0-1000, IN DIVISIONS OF 5 IS NEEDED.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

INSTALL APPROPRIATE SCALE.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY  
VERIFICATION OF SUITABILITY

PROC #08, TASK 05, A.S. 02  
PROC #08, TASK 05, A.S. 04

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME      | OTHER |
|-------|------------------------|------------------------|-------|
| 601   | 12-014                 | SUPP SPRAY HEADER FLOW |       |
| 601   | 18-011                 | SUPP SPRAY HEADER FLOW |       |

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# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 984.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE PEN RECORDERS FOR REACTOR WATER LEVEL ARE INADEQUATE. THE CURRENT RECORDERS HAVE A RANGE OF 0-180 IN DIVISIONS OF 10. THE SME HAS SUGGESTED A RANGE OF -100 - 60 IN DIVISIONS OF 5.

## COMMENTS

CURRENT RECORDER HAS INADEQUATE LOWER RANGE AND DIVISIONS. THE INADEQUATE LOWER RANGE MAY BE THE RESULT OF AN INADEQUATE ZERO REFERENCE LINE FOR REACTOR WATER LINE.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

PROVIDE PROPER RANGE PER ENGINEERING DIRECTIONS.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### VERIFICATION OF SUITABILITY

PROC #016, TASK 018, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME            | OTHER |
|-------|------------------------|------------------------------|-------|
| 603   | 21-012                 | REACTOR WATER LEVEL RECORDER |       |



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 207.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE MULTIPLIER FOR THE METER IS VERY DIFFICULT TO SEE.

## COMMENTS

ASSESSMENT CATEGORY: 2D

DISPOSITION: FIX

## EXPLANATION

CHANGE THE METER FROM A RANGE OF 0-12.5 X 10 TO A RANGE OF 0-125.  
ALSO OTHER CASES SIMILAR TO THIS METER WILL BE IDENTIFIED AND A  
DETERMINATION WILL BE MADE AS TO ITS SIGNIFICANCE. IF NECESSARY,  
THESE DISPLAYS TOO WILL BE CHANGED.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VALIDATION

1.6

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME  | OTHER |
|-------|------------------------|--------------------|-------|
| 603   |                        | REACTOR POWER APRM |       |



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 216.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

SUPPRESSION POOL LEVEL UNITS ARE LABELED AS "FEET" WHEN THE APPROPRIATE LABEL UNIT IS "FT ELEVATION".

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

METER UNITS WILL BE CHANGED TO READ "FEET ELEVATION".

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VALIDATION

5.6

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME      | OTHER |
|-------|------------------------|------------------------|-------|
| 601   |                        | SUPPRESSION POOL LEVEL |       |
| 601   |                        | SUPPRESSION POOL LEVEL |       |
| 601   |                        | SUPPRESSION POOL LEVEL |       |



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 932.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT UNITS FOR SUPPRESSION POOL LEVEL SHOULD BE IN ELEVATION-FT RATHER THAN IN FEET.

## COMMENTS

REFER ALSO TO HED #216

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

SEE AS HED 216. THE METER UNITS WILL BE CHANGED TO READ "FEET ELEVATION"

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

|                             |                                |
|-----------------------------|--------------------------------|
| VERIFICATION OF SUITABILITY | PROC 0006, TASK 0001, A.S. 01  |
| VERIFICATION OF SUITABILITY | PROC 0005, TASK 0006, A.S. 01  |
| VERIFICATION OF SUITABILITY | PROC #0005, TASK 0005, A.S. 01 |

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME  | OTHER |
|-------|------------------------|--------------------|-------|
| ----- | -----                  | -----              | ----- |
| 601   | 19-007-000             | SUPP. POOL LEVEL-A |       |
| 601   | 19-008-000             | SUPP. POOL LEVEL-A |       |





# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 916.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT UNITS FOR PRESSURE ARE OFTEN LABELLED IN PSI WHEN PSIG ARE THE UNITS IMPLIED. THIS MAY BE INCONSISTENT BETWEEN NSSS AND BOP.

## COMMENTS

A SET CONVENTION SHOULD BE ESTABLISHED TO DISPLAY UNITS OF PRESSURE. PSIG SHOULD BE LABELLED CONSISTENTLY ON ALL APPROPRIATE PRESSURE METERS, AS PSIG IS A MORE ACCURATE DEFINITION THAN PSI.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

LABELLING FOR THESE PRESSURE METERS WILL BE REVISED TO BE CONSISTENT THROUGHOUT THE CONTROL ROOM.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

|                             |                                |
|-----------------------------|--------------------------------|
| VERIFICATION OF SUITABILITY | PROC 0020, TASK 0015, A.S. 01  |
| VERIFICATION OF SUITABILITY | PROC 0021, TASK 0009, A.S. 03  |
| VERIFICATION OF SUITABILITY | PROC 0002, TASK 0012, A.S. 04  |
| VERIFICATION OF SUITABILITY | PROC 0001, TASK 0003, A.S. 01  |
| VERIFICATION OF SUITABILITY | PROC 0002, TASK 0011, A.S. 04  |
| VERIFICATION OF SUITABILITY | PROC 0004, TASK 0013, A.S. 04  |
| VERIFICATION OF SUITABILITY | PROC 0007, TASK 0005, A.S. 02  |
| VERIFICATION OF SUITABILITY | PROC 0003, TASK 0002, A.S. 06  |
| VERIFICATION OF SUITABILITY | PROC 0018, TASK 0007, A.S. 01  |
| VERIFICATION OF SUITABILITY | PROC 0009, TASK 0001, A.S. 03  |
| VERIFICATION OF SUITABILITY | PROC 0020, TASK 0013, A.S. 04  |
| VERIFICATION OF SUITABILITY | PROC 0016, TASK 0030, A.S. 02  |
| VERIFICATION OF SUITABILITY | PROC #0002, TASK 0010, A.S. 05 |

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

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|     |            |                                 |
|-----|------------|---------------------------------|
| 601 | 13-002-000 | DRYWELL PRESS                   |
| 601 | 13-002-000 | DRYWELL PRESS B                 |
| 601 | 14-005-000 | HPCS DISCH PRESS                |
| 601 | 14-008-000 | SLC PUMP DISCH PRESS            |
| 601 | 14-009-000 | SLC PUMP DISCH PRESS            |
| 601 | 17-000-000 | 9                               |
| 601 | 17-009-000 | RCIC PUMP DISCH PRESS           |
| 601 | 19-002-000 | DRYWELL PRESS                   |
| 601 | 19-012-000 | E21-R614                        |
| 601 | 19-012-000 | LPCS DISCH PRESS                |
| 601 | 28-001-000 | POST ACCIDENT VESSEL PRESS REC. |
| 603 | 11-001-000 | C33-R605                        |
| 603 | 11-001-000 | REACTOR PRESS                   |



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 233.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

NEEDED TRANSFORMATIONS ON DISPLAYS ARE NOT CLEARLY LABELED. IN ONE CASE DYNO TAPE IS USED TO INDICATE A X10 TRANSFORMATIONS AND IN ANOTHER A NOTE IS ATTACHED TO THE METER TO INDICATE A X2 TRANSFORM.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

THESE TWO DISPLAYS WILL BE PROPERLY LABELED DURING LABELING STUDY.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

5.1.4.F

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | E12-R602B              |                   |       |
| 601   | RHS-P1A                | CURRENT           |       |

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# HUMAN ENGINEERING DISCREPANCY

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REPORT NUMBER: 234.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

-----

DISPLAY INFORMATION IS NOT PROVIDED BY PRINTING ON THE FACE OF THE DISPLAY OR BY A LABEL ADJACENT TO THE DISPLAY.

## COMMENTS

-----

TEMPORARY DYNO TAPE IS USED TO PROVIDE DISPLAY INFORMATION ON SOME METERS. ON FOXBORO CONTROLLER HORIZONTAL METERS THERE IS A PLASTIC BAND THAT BLOCKS THE DISPLAY IDENTIFIER "OUTPUT".

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

-----

DURING LABELING STUDY, ALL DISPLAYS AND CONTROLLERS WILL BE CHECKED FOR PROPER LABELING.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

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## EXPLANATORY INFORMATION

-----

## CHECKLIST

5.1.4.A(1)(2)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME  | OTHER |
|-------|------------------------|--|-------|
| ----- | -----                  | -----  | ----- |
| 601   |                        | CHART RECORDERS<br>FOXBORO CONTROLLERS<br>(NO OPEN, CLOSED, DEMAND, OR OTHER |       |
| 601   | E12-R602B              |  |       |
| 601   | E21-R614               |  |       |
| 601   | RCS PIC                | DISCH PRESS  |       |

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# HUMAN ENGINEERING DISCREPANCY

HEB NUMBER: 982.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS SHOWN THAT THE METERS FOR SUPP POOL LEVEL ARE CURRENTLY IN UNITS OF FEET. DURING TASK ANALYSIS THE SME STATED A NEED FOR A METER FOR SUPPRESSION POOL LEVEL WITH UNITS OF INCHES.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

PLACE A TICK MARK AT CORRESPONDING TECH SPEC LIMITS.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## VERIFICATION OF SUITABILITY

PROC #010, TASK 01, A.S. 04

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | 13-004                 | SUPP POOL LEVEL B |       |
| 601   | 19-007                 | SUPP POOL LEVEL A |       |



APPENDIX G  
Utilize/Modify Mimics (8 HEDs)

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# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 182.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT SERVICE WATER AND RHR WILL PROBABLY BE HARD TO OPERATE. THERE ARE INHERENT DESIGN PROBLEMS AND THERE ARE LIKELY TO BE TRANSIENT PROBLEMS WITH BOTH. THE RESIDUAL HEAT REMOVAL SYSTEM IS CONFUSING TO LOOK AT ON THE PANEL.

## COMMENTS

CONTROLS AND DISPLAYS SHOULD BE PLACED WITHIN THE CONTROL ROOM AT LOCATIONS WHICH PROMOTE EFFICIENT PROCEDURES, SAFE OPERATIONS AND MAXIMUM OPERATOR AWARENESS OF THE CURRENT SYSTEM CONDITION.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

PROVIDE ENHANCED RHR MIMICS BASED ON THE LATEST ENGINEERING DRAWINGS TO REDUCE OPERATING CONFUSION. PROVIDE SIMULATOR AND CLASSROOM. TRAINING WILL PROVIDE SUFFICIENT EXPERIENCE TO SAFELY OPERATE THE SYSTEM.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

BB.2

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

2000-01-01

# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 259.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THERE ARE NO MAJOR PANEL LABELS PLACED ABOVE DISPLAYS AND CONTROLS ON THE REMOTE SHUTDOWN PANEL.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

SYSTEM/SUBSYSTEM LABELING HAS BEEN APPLIED TO THE REMOTE SHUTDOWN PANELS. TO FURTHER ENHANCE GROUPING AND IDENTIFICATION OF COMPONENTS, MIMIC THE SYSTEM FLOWS OF THE RHR SYSTEM ON THE REMOTE SHUTDOWN PANEL. THE RSP PROCEDURE HAS BEEN REVIEWED AND IT CLEARLY DELINEATES EACH CONTROL OPERATION NEEDED FOR THE PANEL OPERATION.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

6.2.1.B (RSDP)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

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# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 98.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

COMPONENT REPRESENTATION ON MIMIC LINES ARE NOT IDENTIFIED.

## COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

## EXPLANATION

DETERMINE APPROPRIATE LABELS AND MIMIC REPRESENTATIONS AS NEEDED  
IDENTIFY MIMIC COMPONENTS, AND PROVIDE NEW INFORMATION IN  
ACCORDANCE WITH HF MANUAL GUIDANCE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

6.6.3.B.6

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME    | OTHER |
|-------|------------------------|----------------------|-------|
| 852   | 13.8 KV                | BUS 003 BREAKER 3-13 |       |
| 852   | 2ATX-XS1               |                      |       |
| 852   | 2ATX-XS3               |                      |       |
| 852   | 2NJS-X1E               |                      |       |
| 852   | 2NJS-X1F               |                      |       |
| 852   | 2NJS-X3E               |                      |       |
| 852   | 2NJS-X3F               |                      |       |
| 852   | EJS-US3                | BREAKER CONTROL 3-9B |       |
| 852   | EJS-X1A                |                      |       |
| 852   | EJS-X1B                |                      |       |
| 852   | EJS-X2                 |                      |       |
| 852   | EJS-X3A                |                      |       |
| 852   | EJS-X3B                |                      |       |
| 852   | NJS US3                |                      |       |
| 852   | NJS-US1                |                      |       |
| 852   | NJS-US10               |                      |       |
| 852   | NJS-US1X3C             |                      |       |



|     |            |         |
|-----|------------|---------|
| 852 | NJS-US2    |         |
| 852 | NJS-US2X3D |         |
| 852 | NJS-US3X3B |         |
| 852 | NJS-US4    |         |
| 852 | NJS-US4X3A |         |
| 852 | NJS-US7X16 |         |
| 852 | NJS-US7X3G |         |
| 852 | NJS-US8X1H |         |
| 852 | NJS-US8X3H |         |
| 852 | NJS-US9    |         |
| 852 | NJS600VUS5 |         |
| 852 | NNS 4160   | BUS 011 |
| 852 | NNS 4160V  | BUS 015 |
| 852 | NNS 4160V  | BUS 014 |



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 183.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE PRIMARY CONTAINMENT ISOLATION MIMIC IS VERY CONFUSING. IT CONTAINS TOO MUCH INFORMATION. THERE ARE SOME BOILING WATER REACTOR PLANTS WITH SAME DESIGN THAT HAVE MUCH MORE READABLE MIMIC.

## COMMENTS

PROPERLY DESIGNED MIMICS SHOULD DECREASE THE OPERATOR'S DECISION-MAKING LOAD.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

PROVIDE A LABELING GUIDE OF THE MIMICS WHICH CAN BE USED AS A REFERENCE IN THE CONTROL ROOM TO BE INSTALLED ADJACENT TO THE MIMIC AS PER THE ENGINEERING DRAWING.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

88.5

PANEL

EQUIPMENT  
ID NUMBER

EQUIPMENT  
NAME

OTHER



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 269.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

MIMICS IN THE CONTROL ROOM ARE NOT LABELED ADEQUATELY. FLOW DIRECTIONS, ORIGIN POINTS, AND DESTINATIONS ARE NOT LABELED.

## COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

## EXPLANATION

VIEW THE MIMICS WHICH HAVE BEEN INSTALLED SINCE THE SURVEY AND ENSURE THAT MIMIC COMPONENTS, FLOW DIRECTIONS AND ORIGIN POINTS ARE PROPERLY LABELED. PROVIDE APPROPRIATE LABELING AND INFORMATION, AS NECESSARY.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

|           |           |
|-----------|-----------|
| CHECKLIST | 6.6.3.B.3 |
| CHECKLIST | 6.6.3.B.5 |
| CHECKLIST | 6.6.3.B.4 |

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |
|       | GENERIC                |                   |       |





HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 206.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 3/14/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

RED IS USED FOR SOME MIMICS AS WELL AS FOR DEMARCATION LINES FOR  
EMERGENCY CONTROLS.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

EXPLANATION

DEVELOP A COLOR CODING STANDARD FOR NMP-2 AND DETERMINE  
DISCREPANCIES TO HUMAN ENGINEERING GUIDELINES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

6.6.3.A.1

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

11-11-11

HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 270.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

MIMIC LINES DEPICTING FLOW OF THE SAME CONTENTS ARE COLORED  
DIFFERENTLY THROUGHOUT THE CONTROL ROOM.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

EXPLANATION

COLOR CODING CONVENTIONS WILL BE ESTABLISHED AND MODIFICATIONS TO  
THE CONTROL PANELS WILL BE IMPLEMENTED ACCORDING TO THESE  
GUIDELINES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

6.6.3.A.4

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 271.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

FLOW PATHS FOR MIMICS ARE NOT CONSISTENT WITH THE CONTROL ROOM  
COLOR CODING CONVENTION. RED IS USED FOR MIMICS AS WELL AS FOR  
DEMARCATATION OF EMERGENCY CONTROLS.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

EXPLANATION

SAME AS HED 270. COLOR CODING CONVENTIONS WILL BE ESTABLISHED  
AND MODIFICATIONS TO THE CONTROL PANELS WILL BE IMPLEMENTED  
ACCORDING TO THESE GUIDELINES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

6.6.3.A.1

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



APPENDIX H  
Initiate Computer Modifications (17 HEDs)





HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 31.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/20/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE ANGLE BETWEEN THE OPERATOR'S ACTUAL LINE OF SIGHT AND THE PLANE OF THE DISPLAY SCREEN IS LESS THAN 45 DEG IN THE HORIZONTAL DIRECTION (E.G. FOR THE CONTROL OPERATOR CONSOLE THE ANGLE AT THE ALARM CRT IS 41 DEG AND AT THE ALARM RESPONSE CRT IS 27 DEG).

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

EXPLANATION

CONSIDER THE OPERATORS VIEWING OF THE DISPLAY SCREEN IN THE CENTER DESK STUDY. WHERE INFORMATION CANNOT BE ADEQUATELY VIEWED, RECOMMEND APPROPRIATE MODIFICATIONS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.2.3.B

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 32.00  
 UTILITY: NMP

ORIGINATOR: RCM  
 PLANT: NMP

DATE: 12/20/1984  
 UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE ALARM CRT (49 DEG) AND THE ALARM RESPONSE CRT (62 DEG) IS  
 LOCATED AT AN ANGLE GREATER THAN 35 DEG TO THE LEFT OF THE  
 OPERATORS ACTUAL LINE OF SIGHT.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

CONSIDER THE OPERATORS VIEWING OF THE DISPLAY SCREEN IN THE  
 CENTER DESK STUDY. WHERE INFORMATION CANNOT BE ADEQUATELY  
 VIEWED, RECOMMEND APPROPRIATE MODIFICATIONS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

7.2.3.C.1.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

H2



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 33.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/20/1984  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE BOTTOM OF THE 3 CRT'S AT THE CONTROL OPERATORS CONSOLE ARE GREATER THAN 40 DEG (43 DEG) BELOW THE 5TH PERCENTILE FEMALES LINE OF SIGHT WHEN SEATED (EYE HEIGHT=51.6").

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

CONSIDER THE OPERATORS VIEWING OF THE DISPLAY SCREEN IN THE CENTER DESK STUDY. WHERE INFORMATION CANNOT BE ADEQUATELY VIEWED, RECOMMEND APPROPRIATE MODIFICATIONS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

7.2.3.C.B.1.B

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 10.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/18/1984  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE COMPUTER SYSTEM PROVIDES THE CORRECT RESPONSE TO EACH TYPE OF QUERY LISTED IN EXHIBIT 7-2 OF NUREG-0700 SECTION 6, BUT NOT ALWAYS WITHIN THE RECOMMENDED RESPONSE TIME. FOR EXAMPLE, ALARM CATEGORY SUMMARIES MAY TAKE UPWARDS OF 15 SECONDS SINCE THE ENTIRE ALARM DATA BASE MUST BE SEARCHED.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

THERE IS NO IMMEDIATE NEED FOR THE INFORMATION; HOWEVER; THE OPERATOR SHOULD BE MADE AWARE THAT THE SYSTEM IS WORKING AND PROCESSING HIS REQUEST. PROVIDE A MESSAGE TO THE OPERATOR WHEN RESPONSE TIME EXCEEDS THREE SECONDS FOR THE REQUEST BEING PROCESSED.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

7.1.7.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |





HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 11.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/18/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

WHEN RESPONSE TIME FOR QUERIES EXCEEDS 3 SECONDS, NO DELAY  
MESSAGE IS PRESENTED.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

EXPLANATION

THERE IS NO IMMEDIATE NEED FOR THE INFORMATION; HOWEVER; THE  
OPERATOR SHOULD BE MADE AWARE THAT THE SYSTEM IS WORKING AND  
PROCESSING HIS REQUEST. WHEN RESPONSE TIME EXCEEDS THREE SECONDS  
PROVIDE A MESSAGE TO THE OPERATOR TO INDICATE THAT THE  
REQUEST IS BEING PROCESSED.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.1.7.B

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 23.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/19/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

ORGANIZATION AND SEPARATION OF INFORMATION SUBGROUPS OF PLANT  
PROCESS COMPUTER (E.G., SYSTEMS) IS NOT APPARENT TO THE OPERATOR  
THROUGH THE USE OF BLANK SPACES, LINES OR SOME OTHER FORM OF  
VISIBLE DEMARCATION.

COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

PROVIDE A PHYSICAL DEMARCATION OF INFORMATION SUBGROUPS TO  
ENHANCE READABILITY OF CRT PRESENTED INFORMATION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.2.5.C

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME      | OTHER |
|-------|------------------------|------------------------|-------|
|       |                        | PLANT PROCESS COMPUTER |       |



HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 281.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/25/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

WHEN PRINTERS ARE USED TO RECORD TABULAR DATA THE TABLE COLUMNS ARE NOT SEPARATED INTO GROUPS. THE GUIDELINE STATES THAT LONG TABLES SHOULD BE DIVIDED INTO GROUPS OF FIVE BY SPACES. NO DIVIDERS ARE PROVIDED TO SEPARATE LONG TABLES.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

EXPLANATION

MODIFY THE PRINT PROGRAM TO DIVIDE THE TABULAR DATA INTO GROUPS OF FIVE OR LESS AND SEPARATE BY SPACES.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.3.3.D(2)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

[illegible]

# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 13.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/18/1984  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

SOME ALPHA-NUMERIC CHARACTERS ARE NOT EASILY READABLE BY THE OPERATOR UNDER ALL CONTROL ROOM LIGHTING CONDITIONS (E.G. IT IS DIFFICULT TO DIFFERENTIATE BETWEEN THE "C" AND THE "O").

## COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

## EXPLANATION

DURING THE REVIEW OF THE COMPUTER ABBREVIATIONS AND POINT ID DESCRIPTIONS, ANALYZE CONTENT TO ENSURE THAT THE "C" AND "O" CHARACTERS ARE NOT THE PRIMARY DISCRIMINATION BETWEEN VALID INPUT AND OUTPUT STRINGS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

7.2.1.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |





HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 14.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/19/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

NO SPECIAL PRECAUTIONS HAVE BEEN TAKEN TO INSTALL CRT SCREENS IN ORDER TO MINIMIZE OR ELIMINATE REFLECTED GLARE AT NORMAL OPERATOR VIEWING ANGLES.

COMMENTS

ANTI-GLARE SCREENS ARE AVAILABLE. HOWEVER, THE IMPACT OF THE USE OF THESE SCREENS ON CHARACTER LUMINANCE MUST BE CONSIDERED.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

PERFORM A SEPARATE ASSESSMENT OF THE CRT LIGHTING AND GLARE DURING THE ENVIRONMENTAL SURVEY TO BE PERFORMED IN OCTOBER 1985.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.2.1.B

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

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HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 15.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/19/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THERE IS CONSIDERABLE DISTORTION ON THE CRTS, WHICH RESULTS IN  
CHARACTER DISPLACEMENT, IN THE UPPER RIGHT CORNER OF THE SCREEN.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

ELIMINATE DISTORTION ON CRTS EITHER BY REPAIR OR REPLACEMENT.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.2.1.E

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



# HUMAN ENGINEERING DISCREPANCY

-----

HED NUMBER: 198.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

-----

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT PRINTERS CANNOT BE READ AT TIMES BECAUSE OF BLACK PAPER GUIDE. SUGGEST CHECK WITH GENERAL ELECTRIC TO SEE IF A CLEAR GUIDE IS AVAILABLE.

## COMMENTS

-----

INFORMATION SHOULD BE AVAILABLE TO OPERATOR IN A TIMELY AND UNAMBIGUOUS MANNER.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

-----

ENHANCE THE READABILITY OF INFORMATION WHICH SCROLLS BEHIND THE BLACK GUIDE BY EITHER 1.) ADJUSTING THE MARGIN SO THAT PRINTED MESSAGES DO NOT SCROLL BEHIND THE GUIDE OR 2.) MODIFY OR REPLACE THE GUIDE SO THAT THE INFORMATION CAN BE READ THROUGH THE GUIDE IN PLACE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

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## EXPLANATORY INFORMATION

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OPERATOR SURVEY

E3.4

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

H12



100-100-100

# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 311.00  
UTILITY: NMP

ORIGINATOR: VJF  
PLANT: NMP

DATE: 6/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

NEITHER COLOR CODING NOR THE USE OF PATTERNS WHICH NOTICEABLY DISTORT ARE USED EFFECTIVELY TO INDICATE THE APPROACH TO UNSAFE CONDITIONS AND TO INDICATE UNSAFE CONDITIONS.

## COMMENTS

THE TREND GRAPHS ON THE SECONDARY SPDS DISPLAYS ARE NOT COLOR CODED IN SUCH A WAY TO INDICATE THE APPROACH TO OR NEARING OF AN ALARM SETPOINT. ALARM SETPOINTS ARE ALSO NOT PROVIDED. CONSIDERATION SHOULD BE GIVEN TO COLOR CODING THE TREND GRAPHS GREEN, YELLOW, AND RED, TO INDICATE NORMAL, WARNING, AND ALARM.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

PROVIDE COLOR CODED ALARM LIMITS ON THE GRAPHS TO READILY INDICATE TO THE OPERATOR THE APPROACH OF AN UNSAFE CONDITION.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

SDPS REVIEW  
SDPS REVIEW

4.4.3.B.2  
4.4.3.B.1

PANEL  
EQUIPMENT  
ID NUMBER

EQUIPMENT  
NAME

OTHER

SPDS





HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 312.00  
UTILITY: NMP

ORIGINATOR: VJF  
PLANT: NMP

DATE: 6/10/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THERE ARE NO LIMIT MARKS FOR EACH PARAMETER ON THE SECONDARY TREND GRAPHS TO ASSIST OPERATOR DETECTION AND RECOGNITION OF UNSAFE OPERATING CONDITIONS.

COMMENTS

CONSIDERATION SHOULD BE GIVEN TO PROVIDING LIMIT MARKS REPRESENTING ALARM SETPOINTS OF PARAMETERS DISPLAYED ON ALL FOUR SECONDARY DISPLAYS. THE DISPLAY OF LIMIT MARKS ON THE SECONDARY SPDS DISPLAYS WOULD REDUCE RELIANCE UPON OPERATORS MEMORY IN DETERMINING ACCEPTABLE AND UNACCEPTABLE RANGES OF THE PARAMETERS.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

EXPLANATION

SAME AS HEO 311. PROVIDE COLOR CODED ALARM LIMITS ON THE GRAPHS TO READILY INDICATE TO THE OPERATOR THE APPROACH OF AN UNSAFE CONDITION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST  
SDPS REVIEW

7.2.4.A.1  
4.4.3.B.2

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        | SPDS              |       |

H14



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 192.02  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT RARELY DOES THE COMPUTER EASILY IDENTIFY WHAT IS WRONG.

## COMMENTS

WHEN MULTI-INPUT ANNUNCIATORS ARE USED, AN ALARM PRINTOUT CAPABILITY IS PROVIDED. THE SPECIFICS OF THE ALARM ARE PRINTED ON AN ALARM TYPER WITH SUFFICIENT SPEED AND BUFFER STORAGE TO COMPUTER ALL ALARM DATA.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

ENSURE COMPUTER PRINTOUT FOR MULTIPLE INPUT ANNUNCIATORS PROVIDES SPECIFIC PROBLEM IDENTIFICATION TO THE OPERATOR.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

C4.8

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

10-2  
10-3  
10-4  
10-5  
10-6  
10-7

10-8  
10-9

10-10  
10-11

10-12  
10-13  
10-14

# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 5.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/18/1984  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE PROCESS COMPUTER DOES NOT CURRENTLY CONTAIN A SEQUENTIAL FILE OF OPERATOR ENTRIES, AVAILABLE UPON OPERATOR REQUEST.

## COMMENTS

THERE WILL BE IMPLEMENTED A "HISTORICAL RECORDING AND RETRIEVAL" SYSTEM WHICH TRACKS ALL CHANGES IN THE DATA BASE WHETHER OPERATOR INITIATED OR NOT. THIS SYSTEM WILL NOT, HOWEVER, BE AVAILABLE TO THE OPERATORS. THE USE OF A COMMAND LOG WOULD SEEM TO BE OF MOST UTILITY IN SYSTEMS WHERE EXPLICIT COMMANDS MUST BE TYPED BY THE USER. THE NMP-2 SYSTEM RELIES ALMOST EXCLUSIVELY ON MENUS AND FUNCTION KEYS.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

PROVIDE A COMMAND LOG OF EXPLICIT COMMANDS WHICH MUST BE TYPED BY THE USER. MAKE THIS AVAILABLE TO THE OPERATORS IN A USABLE FORM SO THAT SPECIFIC COMMANDS CAN BE EASILY ACCESSED.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

7.1.3.E

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

10 15 20 25 30

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 202.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED USE OF COMPUTER IS LIMITED AT THIS TIME. COMPUTER IS AN OLDER VERSION AND IT REQUIRES THE OPERATOR TO PUSH TWO BUTTONS AT THE SAME TIME FOR COMPUTER TO PROCESS REQUEST. THIS COULD BE A PROBLEM IN ABNORMAL CONDITIONS.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

EXPLANATION

REMOVE THE ENABLE BUTTON.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

E6.2

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|





APPENDIX I  
Utilize Color Coding on  
Displays/Controls (11 HEDs)



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HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 61.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE BLUE BACKGROUND SHADING IDENTIFYING ANNUNCIATOR CONTROL STATIONS IS NOT PRESENT ON THIS ANNUNCIATOR CONTROL STATION.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

EXPLANATION

PROVIDE SHADING AS SHOWN ON CURRENT DESIGN DRAWINGS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

3.4.2.B(2)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

873



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 142.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THERE IS NO WAY TO DISCRIMINATE BETWEEN THROTTLE AND SEAL IN VALVES. COLOR CODING THROTTLE VALVES OPERATING SWITCHES IS RECOMMENDED.

## COMMENTS

THE RELATIVE ADVANTAGES AND DISADVANTAGES OF DIFFERENT CODING METHODS SHOULD BE DETERMINED. SIZE, SHAPE AND COLOR ARE TYPICAL METHODS. IF COLOR IS USED IT SHOULD CONTRAST WITH PANEL BACKGROUND. IT IS IMPORTANT FOR OPERATORS TO KNOW THE TYPE OF CONTROL THEY ARE OPERATING.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

PROVIDE A POSITIVE MEANS TO DISTINGUISH BETWEEN THROTTLEABLE AND SEAL IN VALVES. MAKE THIS CONVENTION A PART OF THE HF MANUAL AND MARK ALL VALVES ACCORDINGLY.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B2.5

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 226.01  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THERE IS NO INDICATION OF A THROTTLE VALVE FOR FV-114.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

PROVIDE A POSITIVE MEANS TO DISTINGUISH BETWEEN THROTTLEABLE AND  
SEAL IN VALVES. MAKE THIS CONVENTION A PART OF THE HF MANUAL AND  
MARK ALL VALVES ACCORDINGLY.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VALIDATION

20.10

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   |                        | FV-114            |       |



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HUMAN ENGINEERING DISCREPANCY

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HED NUMBER: 288.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/29/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

-----

IRM RANGE SWITCHES ARE CURRENTLY ALL RED. THEY ARE NOT COLOR  
CODED TO INDICATE CORRESPONDING RECORDER PEN.

COMMENTS

-----

ASSESSMENT CATEGORY: 2D

DISPOSITION: FIX

EXPLANATION

-----

COLOR CODE SWITCHES TO MATCH RECORDER PEN COLOR.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

-----

EXPLANATORY INFORMATION

-----

OPERATOR SURVEY

11-052

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                | OTHER |
|-------|------------------------|----------------------------------|-------|
| ----- | -----                  | -----                            | ----- |
| 603   |                        | IRM RANGE SWITCHES AND RECORDERS |       |



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 904.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE SCALE ON THE APRM/IRM RECORDERS MAY NOT HAVE ADEQUATE UPPER RANGES. A RANGE OF 0-120 IS REQUIRED, AND THE RECORDERS PRESENTLY HAVE ONE SCALE OF 0-40.

## COMMENTS

THESE ARE DUAL SCALE RECORDERS AND WHILE ONE SCALE IS SUFFICIENT WITH A RANGE OF 0-125, CONFUSION OFTEN EXISTS AS TO WHICH SCALE TO USE. A METHOD OF DIFFERENTIATING THE SCALES NEEDS TO BE DEVELOPED.

ASSESSMENT CATEGORY: 2D

DISPOSITION: FIX

## EXPLANATION

COLOR CODING WILL BE USED TO DIFFERENTIATE APPROPRIATE RECORDER SCALES. CONTROL KNOBS ON APRM/IRM CONTROLS WILL BE MODIFIED TO BE CONSISTENT WITH PEN COLOR. A LABEL WILL BE ADDED TO INDICATE THAT ODD CONTROL SETTINGS WILL USE THE 0-40 SCALE, WHILE EVEN CONTROL SETTINGS WILL USE THE 0-125 SCALE.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

|                             |                                |
|-----------------------------|--------------------------------|
| VERIFICATION OF SUITABILITY | PROC #0002, TASK 0005, A.S. 01 |
| VERIFICATION OF SUITABILITY | PROC #0002, TASK 0005          |
| VERIFICATION OF SUITABILITY | PROC #0002, TASK 0006, A.S. 01 |
| VERIFICATION OF SUITABILITY | PROC #0002, TASK 0005, A.S. 02 |
| VERIFICATION OF SUITABILITY | PROC #0001, TASK 0008, A.S. 07 |
| VERIFICATION OF SUITABILITY | PROC #0001, TASK 0007, A.S. 02 |
| VERIFICATION OF SUITABILITY | PROC #0001, TASK 0006, A.S. 01 |

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME        | OTHER |
|-------|------------------------|--------------------------|-------|
| 603   | 11-002-000             | REACTOR LVL NARROW RANGE |       |
| 603   | 11-004-000             | REACTOR LVL NARROW RANGE |       |
| 603   | 22-018-000             | REACTOR POWER APRM       |       |

IS



|     |            |                    |
|-----|------------|--------------------|
| 603 | 22-018-01  | IRM LEVEL          |
| 603 | 22-018-02  | POWER APRM LEVEL   |
| 603 | 22-018-02  | POWER LEVEL IRM    |
| 603 | 22-019-000 | REACTOR POWER APRM |
| 603 | 22-019-01  | POWER LEVEL IRM    |
| 603 | 22-019-02  | APRM LEVEL         |
| 603 | 22-019-02  | POWER LEVEL IRM    |
| 603 | 24-001-00  | REACTOR POWER APRM |
| 603 | 24-001-01  | POWER LEVEL IRM    |
| 603 | 24-001-02  | APRM LEVEL         |
| 603 | 24-001-02  | POWER LEVEL IRM    |
| 603 | 24-002-00  | REACTOR POWER APRM |
| 603 | 24-002-001 | POWER LEVEL IRM    |
| 603 | 24-002-02  | APRM LEVEL         |



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 151.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT IN CONSIDERING THE "SAFETY/RELIEF" VERSUS "ADS SAFETY RELIEF" VALVES THE OPERATOR WOULD PREFER ADS VALVES TO STAND OUT, I.E. UNIQUE NAMEPLATE COLORING FOR ADS SAFETY RELIEF VALVE.

## COMMENTS

CODING SHOULD BE USED TO HELP OPERATORS DISTINGUISH BETWEEN SIMILAR BUT DIFFERENT CONTROLS. LOCATIONS, SHAPE, COLOR, ETC. CODING ARE POSSIBLE TECHNIQUES.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

DURING A LABELING AND DEMARCATION STUDY, DETERMINE THE BEST USE OF EITHER COLOR CODING, DEMARCATION, OR RELOCATION OF SWITCHES TO DIFFERENTIATE THESE GROUPS OF SAFETY RELATED VALVES.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B3.17

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        |                   |       |





# HUMAN ENGINEERING DISCREPANCY

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HED NUMBER: 153.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

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RESPONSE TO THE OPERATOR SURVEY INDICATED THAT AUTO  
DEPRESSURIZATION SYSTEM SAFETY RELIEF VALVE CONTROL  
SWITCHES/INDICATORS SHOULD BE SEPARATED FROM THE OTHER SAFETY  
RELIEF VALVE SWITCHES AT PANEL H13-7601.

## COMMENTS

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MULTIPLE CONTROLS RELATED TO THE SAME FUNCTION SHOULD BE GROUPED  
TOGETHER.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

-----

DURING A LABELING AND DEMARCATION STUDY, DETERMINE THE BEST USE  
OF EITHER COLOR CODING, DEMARCATION, OR RELOCATION OF SWITCHES TO  
DIFFERENTIATE THESE GROUPS OF SAFETY RELATED VALVES. PROVIDE  
RECOMMENDATIONS TO OPERATIONS AND PLANT MANAGEMENT FOR REVIEW AND  
PERFORM NECESSARY ENHANCEMENT OR MODIFICATION.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

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## EXPLANATORY INFORMATION

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OPERATOR SURVEY

B3.20

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

H13-7601



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 160.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY REVEALED THAT ON PANEL 852 THE ELECTRICAL INDICATIONS AND CONTROLS ARE SOMEWHAT CROWDED. THERE IS A NEED FOR A QUICK AND EASY IDENTIFICATION OF THE RELATIONSHIP OF THE POWER BOARD TO THE METERS NEEDED. LABELING NEEDS TO BE CLARIFIED.

## COMMENTS

SEPARATION OF CONTROLS AND OF DISPLAYS SHOULD CONFORM TO THAT RECOMMENDED FOR TYPES OF CONTROLS AND DISPLAYS IN CHECKLIST GUIDELINES. RELATED CONTROLS AND DISPLAYS SHOULD BE EASILY IDENTIFIED AS BEING ASSOCIATED. THE ASSOCIATION OF CONTROLS AND DISPLAYS SHOULD BE READILY APPARENT.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

ADD COLOR CODING AND DEMARCATION TO ENHANCE THE RELATIONSHIPS BETWEEN THE POWER BOARD AND THE METERS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B4.5

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

852



HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 104.00  
UTILITY: NMP

ORIGINATOR: RK  
PLANT: NMP

DATE: 1/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

ZONE MARKINGS ON DISPLAYS ARE NOT USED.

COMMENTS

A SYSTEM OF ZONE MARKINGS SHOULD BE USED TO INDICATE WHEN  
DISPLAYS ARE READING IN OPERATING RANGE, UPPER LIMITS, LOWER  
LIMITS, OR DANGER RANGE. THIS CAN BE DONE BY COLOR BANDING  
DISPLAYS FOR DIFFERENT RANGES.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

INVESTIGATE WHICH PARAMETERS SHOULD BE ZONE BANDED IN A ZONE  
BANDING SURVEY. SET UP A PROGRAM TO DETERMINE APPROPRIATE  
BANDING RANGES DURING HOT TESTING AND STARTUP. USE THE COLOR  
BANDING SCHEME AND APPLICATION TECHNIQUES PROVIDED IN THE HF  
MANUAL.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

5.2.3.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

ALL DISPLAYS



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 137.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT GREEN/YELLOW/RED BANDS SHOULD BE MARKED ON ALL CONTROL ROOM METER SCALES TO INDICATED NORMAL OPERATING BANDS/CAUTION BANDS/ALARM BANDS.

## COMMENTS

USE OF COLOR AS A CODING MEDIUM IN CONTROL ROOMS CAN AID IN PERCEPTION OF WARNING SIGNALS. IT SHOULD BE REDUNDANT WITH SCALE INDICATIONS. RED, GREEN AND AMBER ARE RESERVED FOR FOLLOWING STATUS INDICATIONS. RED=UNSAFE, DANGER, IMMEDIATE OPERATOR ACTION REQUIRED, OR CRITICAL PARAMETER OUT OF TOLERANCE. GREEN=SAFE, NO OPERATION REQUIRED, OR PARAMETER WITHIN TOLERANCE. AMBER (YELLOW)=HAZARD, POTENTIALLY UNSAFE, CAUTION, ATTENTION REQUIRED, OR MARGINAL VALUE OF PARAMETER EXISTS.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

INVESTIGATE WHICH PARAMETERS SHOULD BE ZONE BANDED IN A ZONE BANDING SURVEY. SET UP A PROGRAM TO DETERMINE APPROPRIATE BANDING RANGES DURING HOT TESTING AND STARTUP. USE THE COLOR BANDING SCHEME AND APPLICATION TECHNIQUES PROVIDED IN THE HF MANUAL.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

A3.27

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        |                   |       |

27 21 18 13 12



HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 277.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

COLOR CODING IS NOT CONSISTENT THROUGHOUT THE CONTROL ROOM.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

EXPLANATION

FORM COLOR CODING SURVEY (LABELING STUDY), ESTABLISH COLOR CODING CONVENTIONS, AND IMPLEMENT MODIFICATIONS TO CONTROL PANELS USING THE CONVENTIONS AS GUIDELINES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

5.1.6.D

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



APPENDIX J

Operator Training and Operational Procedures  
Development/Usage (19 HEDs)



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 47.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

NO PROCEDURE IS IN PLACE TO INSTRUCT THE OPERATORS WITH THE  
PROPER WAY TO SPEAK ON THE ANNOUNCING SYSTEM.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

PROVIDE TRAINING ON THE USE OF STANDARD TERMS AND MESSAGES FOR  
EFFECTIVE COMMUNICATION.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

2.1.6.D

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



23

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 79.01  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

ORDERING (AND LABELING) OF COMPONENTS DOES NOT CONFORM WITH  
ALPHABETIC AND/OR NUMERIC-LEFT TO RIGHT, TOP TO BOTTOM SEQUENCE.

COMMENTS

THERE ARE TWO NMP-2 CONVENTIONS:

1. VERTICAL PANELS-LEFT TO RIGHT, TOP TO BOTTOM
2. BENCH BOARDS-LEFT TO RIGHT, FRONT TO BACK (BOTTOM TO TOP)

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

TRAIN THE OPERATORS IN THE TWO NMP-2 CONVENTIONS AND PROPERLY  
LABEL ALL METERS AND CONTROLS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

8.2.2.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|





# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 37.02  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE FOLLOWING ANNUNCIATOR BOXES ARE OUTSIDE OF THE 45 DEG OBLIQUE ANGLE BETWEEN LINE OF SIGHT AND ANNUNCIATOR ACKNOWLEDGE STATION.

## COMMENTS

ANNUNCIATOR TILES CANNOT BE SEEN FROM ACKNOWLEDGE STATIONS. THE NUMBERS IN PARENTHESIS REPRESENT THE DEVIATION FROM THE 45 DEG ANGLE (IN INCHES).

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

RESOLVE THE DISCREPANCY THROUGH TRAINING. INSTRUCT OPERATORS TO IDENTIFY ANNUNCIATORS BEFORE ACKNOWLEDGING VIA BUTTON.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

1.2.2.E(2)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 602   | 3                      | ENTIRE BOX        | 35"   |



HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 53.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

IN CASE OF FLASHER FAILURE OF AN ALARMED ANNUNCIATOR TILE, THE  
TILE LIGHT DOES NOT ALWAYS ILLUMINATE AND BURN STEADILY.

COMMENTS

THE OPERATOR HAS NO KNOWLEDGE OF ALARMED CONDITIONS DURING  
FLASHER FAILURE.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

THERE IS A TEST CIRCUIT THAT TESTS THE OPERATION OF THE  
FLASHER. THIS IS PERFORMED AT LEAST ONCE A SHIFT. THE COMPUTER  
IS A BACKUP MEANS OF OBTAINING ALARM INFORMATION IF A FLASHER  
FAILURE WERE TO OCCUR. OPERATORS WILL RECEIVE TRAINING ON THE  
IDENTIFICATION AND PROPER RESPONSE OF A FLASHER FAILURE.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

3.3.2.C

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

-----

HED NUMBER: 59.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

-----

TILE LEGENDS FOR ANNUNCIATORS DO NOT ADDRESS SPECIFIC CONDITIONS.  
FOR EXAMPLE, ONE ALARM IS USED FOR HIGH-LOW, ETC.

## COMMENTS

-----

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

-----

TRAIN OPERATORS TO USE THE ANNUNCIATORS AS A HIERARCHICAL  
INFORMATION SYSTEM IN CONJUNCTION WITH THE COMPUTER WHICH  
PROVIDES SPECIFIC ALARM INFORMATION.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

-----

EXPLANATORY INFORMATION

-----

CHECKLIST

3.3.4.C

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 187.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

IN RESPONSE TO THE OPERATOR SURVEY FOUR OPERATORS COMMENTED ON THE CONFUSION POSSIBLE FROM TOO MANY DIFFERENT ALARMS DURING A MAJOR ACCIDENT. THEY STATED EACH PANEL SHOULD HAVE A DIFFERENT ALARM TONE SO OPERATOR DOES NOT HAVE TO SEARCH FOR THE ALARM.

COMMENTS

THE OPERATOR SHOULD BE ABLE TO IDENTIFY THE WORK STATION OR THE SYSTEM WHERE THE AUDITORY ALERT SYSTEM ORIGINATED.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

THERE ARE DIFFERENT TONES WITH DIRECTIONAL CUES FOR THE OPERATORS. PROVIDE APPROPRIATE TRAINING FOR THE OPERATORS TO UNDERSTAND CODING SCHEME.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

C2.4

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

1950

1951

1952

1953



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 79.03  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

ORDERING (AND LABELING) OF COMPONENTS DOES NOT CONFORM WITH  
ALPHABETIC AND/OR NUMERIC-LEFT TO RIGHT, TOP TO BOTTOM SEQUENCE.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

EMPHASIS OF THIS DESIGN CONVENTION IS ON THE DIVISION  
ASSOCIATION AND NOT ON THE EMERGENCY DIESEL GENERATOR NUMBERING.  
TRAINING TO EMPHASIZE THE INCONSISTENT NUMBERING AND THE RELIANCE  
ON THE DIVISION FOR LOG SET REFERENCE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

8.2.2.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                | OTHER |
|-------|------------------------|----------------------------------|-------|
| 852   |                        | EDG CONTROL/DISPLAY LAYOUT 1-2-3 |       |



12



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12  
12  
12  
12



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 159.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT DIVISIONAL NOMENCLATURE IS SOMETIMES BAD SUCH AS DIV. 1 IS 101, DIV. 2 IS 103 AND DIV. 3 IS ENS 102. SOME MIMICS ARE TOO CLOSE TOGETHER.

## COMMENTS

LABELS SHOULD BE CONSISTENT WITHIN THE CONTROL ROOM IN THE USE OF WORDS, ACRONYMS, ABBREVIATIONS AND PART/SYSTEM NUMBERS. THERE SHOULD BE NO MISMATCH BETWEEN NOMENCLATURE USED IN PROCEDURES AND THAT PRINTED ON THE LABELS. OVERLAPPING OF MIMIC LINES SHOULD BE AVOIDED.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

THERE IS SOME CONFUSION IN THE POOR CHOICE OF NUMBERING, HOWEVER, THERE ARE TOO MANY INSTANCES AND PLACES WHERE THIS EXISTS FOR A RENUMBERING. THE DIVISION RELATIONSHIP IS MOST IMPORTANT TO THE CONTROL ROOM OPERATION. THE OPERATOR TRAINING CURRICULUM WILL ADDRESS THE NUMBERING SCHEME DISCREPANCY AND EMPHASIZE THE DIVISIONAL IMPORTANCE TO OPERATIONS.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B4.4

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 195.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE ANNUNCIATOR CALLS A DIESEL THE "DIV 2 NUMBER 3" DIESEL. THE DIESELS SHOULD BE DESIGNATED BY EITHER DIVISION OR NUMBER BUT NEVER BOTH ON THE SAME ANNUNCIATOR WINDOW.

COMMENTS

VISUAL TILE LEGENDS SHOULD BE SPECIFIC AND UNAMBIGUOUS. WORDING SHOULD BE CONCISE, SHORT MESSAGES.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

THE ANNUNCIATOR SHOULD USE ROMAN NUMERALS FOR THE DIVISIONS TO HELP ELIMINATE THE CONFUSION. OPERATOR TRAINING WILL EMPHASIZE THE POTENTIAL CONFUSION IN DISCUSSING THIS SYSTEM.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

C6.8

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 170.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT ALL THE BREAKER SWITCHES COULD BE INADVERTENTLY ACTIVATED DUE TO THE CONFUSING LAYOUT OF THE ELECTRICAL DISTRIBUTION MIMIC. THE MIMIC IS THE MIRROR IMAGE OF THE ACTUAL EQUIPMENT LOCATIONS IN THE SWITCHYARD.

COMMENTS

ACCIDENTAL ACTIVATION OF CONTROLS SHOULD BE MINIMIZED BY USE OF METHODS SUCH AS PROPER LOCATION, FIXED PROTECTIVE STRUCTURES, MOVABLE COVERS OR GUARDS, INTERLOCKING CONTROLS, RESISTANCE TO MOVEMENT, SEQUENTIAL ACTIVATION, CHOICE OF ACTION.

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

IDENTIFY THE DISCREPANCY BETWEEN THE MIMIC LOCATIONS AND THE EQUIPMENT LOCATIONS IN THE YARD. ADDRESS THE DISCREPANCY THROUGH TRAINING AWARENESS OF THE POTENTIAL CONFUSION.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

B5.12

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

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# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 186.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE ELECTRICAL DISTRIBUTION MIMIC CAN BE CONFUSING WHEN IN A HURRY. THE BREAKER SWITCH POSITIONS ARE OPPOSITE TO THE INDICATORS (180 DEGREES OUT TO MIRROR IMAGE). IN OTHER WORDS THE MIMIC FOR PANEL 852 AND THE 115 KV MIMIC IS 115 DEGREES OUT OF LOCATION AS YOU LOOK IN YARD (MIRROR IMAGE).

## COMMENTS

MIRROR IMAGING SHOULD NOT BE USED. ANY FUNCTIONAL GROUPS SHOULD BE REPLICATED.

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

## EXPLANATION

IDENTIFY THE DISCREPANCY BETWEEN THE MIMIC LOCATIONS AND THE EQUIPMENT LOCATIONS IN THE YARD. ADDRESS THE DISCREPANCY THROUGH TRAINING AWARENESS OF THE POTENTIAL CONFUSION.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B8.12

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 852   |                        |                   |       |



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 248.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 4/19/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

NO PROVISIONS HAVE YET BEEN MADE TO PROVIDE THE WORKSPACE IN THE REMOTE SHUTDOWN PANEL AREA, FOR USING OR PLACING PROCEDURES OR OTHER REFERENCE MATERIALS.

## COMMENTS

AT PRESENT THE RSDP AREA PROVIDES NO BENCHES, TABLES, ROLLING CARTS, ETC. FOR LAYING OUT PROCEDURES FOR REFERENCE DURING THEIR USE.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

THE RSDP AREA WILL BE PROVIDED WITH THE NECESSARY EQUIPMENT SO AS TO PERFORM THIS FUNCTION.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

1.2.6

| PANEL    | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|----------|------------------------|-------------------|-------|
| RSDP-405 | GENERIC                |                   |       |

to be in the

# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 204.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED A NEED FOR PROCEDURE RACKS WITH COLOR CODE FOR DIFFERENT AREAS SUCH AS RED FOR EMERGENCY PROCEDURES, YELLOW FOR RAD. PROTECTION, ETC.

## COMMENTS

REFERENCE DOCUMENTS KEPT IN THE CONTROL ROOM SHOULD BE HIGHLY ACCESSIBLE. COLOR CODING AS SUGGESTED WOULD ENHANCE ACCESSIBILITY.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

PROVIDE COLOR CODED BINDERS OR TABS TO DIFFERENTIATE SETS OF DOCUMENTS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

G1.1

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        |                   |       |



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# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 205.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY THAT ANNUNCIATOR PROCEDURES SHOULD BE CONSIDERED AND LOCATED AT EACH PANEL BELOW THE ALARM WINDOWS UNDER THE HORIZONTAL BENCHBOARDS TO PROVIDE OPERATORS WITH A SUMMARY OF ALARM SETPOINTS AND THE CAUSE AS WELL AS IMMEDIATED ACTIONS OR REFERENCE PROCEDURES TO CORRECT THE ABNORMAL CONDITION.

## COMMENTS

REFERENCE DOCUMENTS IN THE CONTROL ROOM SHOULD BE HIGHLY ACCESSIBLE. OPERATING PROCEDURES SHOULD BE STORED SEPARATELY FROM OTHER REFERENCE DOCUMENTS.

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

THE ALARM RESPONSE SECTIONS OF THE OPERATING PROCEDURES WILL BE SEGREGATED AND LOCATED BY PANEL.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

G2.4

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        |                   |       |





HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 283.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 6/ 6/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

DURING HISTORICAL REVIEW IT WAS FOUND THAT AT THE SUSQUEHANNA STATION THE CONTROLS FOR OUTSIDE AIR MAKEUP DAMPER WERE PLACED IN THE 100% CLOSED POSITION DURING SURVEILLANCE TESTING INSTEAD OF 100% OPEN. THIS CAUSED 'B' TRAIN OF STANDBY GAS TREATMENT SYSTEM TRIP SHORTLY AFTER STARTING.

COMMENTS

OPERATING PROCEDURES WILL PREVENT THIS OCCURRENCE.

ASSESSMENT CATEGORY: 1B

DISPOSITION: FIX

EXPLANATION

ENSURE SURVEILLANCE TEST PROCEDURE PROVIDES FOR PROPER POSITIONING OF OUTSIDE AIR MAKEUP DAMPERS.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

HISTORICAL REVIEW

LER 83-089/03

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

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HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 285.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

IT WAS FOUND DURING HISTORICAL REVIEW THAT AT SUSQUEHANNA STATION  
CHANNEL GAINS WERE INADVERTENTLY ADJUSTED DURING STARTUP TESTING.  
"D" AVERAGE POWER RANGE MONITOR WAS MADE INOPERABLE.

COMMENTS

ASSESSMENT CATEGORY: 1B

DISPOSITION: FIX

EXPLANATION

ENSURE THAT SURVEILLANCE TEST PROCEDURES CONTAIN ADEQUATE  
INSTRUCTIONS ON THE ADJUSTMENT OF POTENTIOMETERS.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

HISTORICAL REVIEW

LER 83-009/03

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
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HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 284.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 6/11/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

IT WAS FOUND DURING HISTORICAL REVIEW THAT AT LASALLE STATION A SUPPRESSION POOL CHART RECORDER WAS TURNED OFF DURING PAPER CHANGING. IT WAS LATER DISCOVERED NOT TO BE PRINTING.

COMMENTS

ASSESSMENT CATEGORY: 1B

DISPOSITION: FIX

EXPLANATION

OPERATORS WILL SIGN CHARTS AT THE BEGINNING OF EACH SHIFT, A NON-MOVING CHART OR A SWITCH ON THE OFF POSITION WILL BE NOTED.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

HISTORICAL REVIEW

LER 83-068/03

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 286.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 7/25/1982  
UNIT: 2

DESCRIPTION OF DISCREPANCY

DURING HISTORICAL REVIEW, IT WAS FOUND THAT AT LASALLE STATION DURING STARTUP TESTING DUE TO AN ERROR IN THE COMPUTER PROGRAM WHICH CALCULATED HEATUP RATE FOR CRT DISPLAYS, THE DISPLAYED HEATING RATE WAS ONE HALF ACTUAL VALVE. OPERATOR FAILED TO NOTE THE DISCREPANCY FROM OTHER CONTROL ROOM INDICATIONS.

COMMENTS

ASSESSMENT CATEGORY: 1A

DISPOSITION: FIX

EXPLANATION

THE APPROPRIATE PROCEDURE FOR REACTOR HEATUP/COOLDOWN WILL REQUIRE TRENDING AND MONITORING OF MULTIPLE HEATUP OR COOLDOWN TEMPERATURE INDICATORS.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

HISTORICAL REVIEW

LER 82-073/03

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|





APPENDIX K  
Modify Communications Systems (7 HEDs)

of 1998

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HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 44.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THERE ARE AREAS OF THE PLANT WHERE WALKIE-TALKIE'S CANNOT TRANSMIT. A REPEATER SYSTEM IS NEEDED.

COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

INSTALL A LEAK CABLE SYSTEM TO RESOLVE THIS PROBLEM.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

2.1.4.B(1)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

100-1-1414

# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 46.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE ANNOUNCING SYSTEM DOES NOT PROVIDE RAPIDLY INTELLIGIBLE MESSAGES.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: FIX

## EXPLANATION

THIS CONDITION WILL BE EVALUATED IN AN AUDITORY STUDY TO BE CONDUCTED AFTER THE PERMANENT SYSTEM IS INSTALLED.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

2.1.6.A(1)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 146.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT CURRENTLY TOO MANY TELEPHONES ARE LOCATED TOGETHER WITH POOR ABILITY TO DIFFERENTIATE WHICH ONE IS RINGING. THIS COULD BE A SERIOUS PROBLEM IN AN EMERGENCY.

## COMMENTS

VISUAL CODING SHOULD BE USED IN ADDITION TO AUDITORY RINGING TO HELP OPERATORS TELL WHICH PHONE IN A BANK OF TELEPHONES IS RINGING. A FLASHING LIGHT ON THE RINGING TELEPHONE WOULD LOCALIZE THE ACTIVE PHONE.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

## EXPLANATION

WHEN THE COMMUNICATION PHONES ARE INSTALLED, DETERMINE IF THE PROBLEM OF DISCRIMINATING BETWEEN PHONES IS PRESENT. IF PROBLEM IS PRESENT, INSTALL EMERGENCY PHONES WITH LIGHTS WHICH BLINK TO INDICATE PHONE IS RINGING.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

B3.7

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
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HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 42.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

PROCEDURES ARE NOT IN PLACE TO GIVE PRIORITY FOR PROVIDING  
TRANSMISSION OF EMERGENCY MESSAGES FROM THE CONTROL ROOM BY ANY  
OF THE COMMUNICATIONS SYSTEMS.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

ADMINISTRATIVELY PRIORITIZE CHANNELS FOR OPERATORS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

2.1.1.C(1)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 48.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

CONTROL ROOM INPUTS TO THE PLANT ANNOUNCING SYSTEM DO NOT HAVE PRIORITY OVER OTHER INPUT. THE CONTROL ROOM INPUT SHOULD BE CAPABLE OF INTERRUPTING AN ANNOUNCEMENT IN PROGRESS, OR OF BYPASSING QUEUED ANNOUNCEMENTS.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

ADMINISTRATIVELY PRIORITIZE CHANNELS FOR OPERATORS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

2.1.6.F

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

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# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 196.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT CURRENT PAGING SYSTEM IS INADEQUATE. OPERATIONS IN CONTROL ROOM SHOULD HAVE AN OVERRIDE CAPABILITY.

## COMMENTS

CONTROL ROOM INPUTS TO THE PLANT ANNOUNCING SYSTEM SHOULD HAVE PRIORITY OVER ANY OTHER INPUT. THE CONTROL INPUT SHOULD BE CAPABLE OF INTERRUPTING AN ANNOUNCEMENT IN PROGRESS, OR OF BYPASSING QUERRED ANNOUNCEMENTS.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

SAME AS HEO. 42.00.  
ADMINISTRATIVELY PRIORITIZE CHANNELS FOR OPERATORS.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

OPERATOR SURVEY

D2.2

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
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# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 41.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

PERIODIC TESTING IS NOT PERFORMED ON ALL COMMUNICATION SYSTEMS TO ENSURE THAT THE SYSTEMS ARE OPERABLE.

## COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

## EXPLANATION

ESTABLISH A PROCEDURE FOR PERIODIC TESTING OF COMMUNICATION SYSTEMS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

2.1.1.B

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |





APPENDIX L  
Cross Index of HEDs



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| 8.00  | D19 |
| 10.00 | H5  |
| 11.00 | H6  |
| 13.00 | H9  |
| 14.00 | H10 |
| 15.00 | H11 |
| 23.00 | H7  |
| 31.00 | H1  |
| 32.00 | H2  |
| 33.00 | H3  |
| 35.00 | B18 |
| 36.00 | B20 |
| 37.01 | A21 |
| 37.02 | J3  |
| 37.03 | A22 |
| 39.02 | D1  |
| 40.00 | J12 |
| 41.00 | K7  |
| 42.00 | K4  |
| 44.00 | K1  |
| 46.00 | K2  |
| 47.00 | J1  |
| 48.00 | K5  |
| 51.00 | D2  |
| 52.00 | B12 |
| 53.00 | J4  |
| 54.00 | B13 |
| 55.00 | E4  |
| 57.00 | B14 |
| 58.00 | B8  |
| 59.00 | J5  |



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| 69.00      | B3          |
| 72.00      | B5          |
| 74.03      | D48         |
| 76.00      | D24         |
| 77.00      | D36         |
| 79.01      | J2          |
| 79.03      | J7          |
| 83.02      | C2          |
| 83.13      | D33         |
| 88.00      | F2          |
| 91.00      | D45         |
| 93.00      | D50         |
| 95.00      | D15         |
| 96.00      | D3          |
| 97.00      | D4          |
| 98.00      | G3          |
| 99.00      | D43         |
| 100.00     | D38         |
| 101.00     | D44         |
| 102.01     | F1          |
| 103.00     | D40         |
| 104.00     | I9          |
| 106.00     | B21         |
| 107.00     | D11         |
| 108.00     | B11         |
| 112.00     | A23         |
| 121.00     | B4          |
| 122.00     | A1          |



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| 126.00 | A4  |
| 128.00 | A5  |
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| 133.00 | A16 |
| 137.00 | I10 |
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| 163.00 | D41 |
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| 166.00 | D21 |
| 169.00 | D13 |
| 170.00 | J10 |
| 171.00 | D17 |
| 174.00 | F15 |
| 175.00 | D42 |
| 182.00 | G1  |
| 183.00 | G4  |
| 184.00 | B7  |





| <u>HED</u> | <u>PAGE</u> |
|------------|-------------|
| 185.00     | D35         |
| 186.00     | J11         |
| 187.00     | J6          |
| 188.00     | E2          |
| 192.02     | H15         |
| 193.00     | E5          |
| 194.00     | E3          |
| 195.00     | J9          |
| 196.00     | K6          |
| 198.00     | H12         |
| 199.00     | D22         |
| 200.00     | H4          |
| 202.00     | H17         |
| 203.01     | B19         |
| 204.00     | J14         |
| 205.00     | J15         |
| 206.00     | G6          |
| 207.00     | F20         |
| 208.00     | D12         |
| 211.00     | A2          |
| 212.00     | A3          |
| 215.00     | D14         |
| 216.00     | F21         |
| 219.00     | A7          |
| 220.00     | A12         |
| 225.00     | A27         |
| 226.01     | I3          |
| 232.00     | A13         |
| 233.00     | F24         |
| 234.00     | F25         |
| 235.00     | A17         |
| 237.00     | D46         |
| 238.00     | B1          |



HEDPAGE

|        |     |
|--------|-----|
| 239.00 | B2  |
| 240.00 | D16 |
| 241.00 | F3  |
| 243.00 | F4  |
| 248.00 | J13 |
| 256.00 | D5  |
| 257.00 | D37 |
| 259.00 | G2  |
| 260.00 | D6  |
| 261.00 | D25 |
| 262.00 | D23 |
| 266.00 | D7  |
| 268.00 | D34 |
| 269.00 | G5  |
| 270.00 | G7  |
| 271.00 | G8  |
| 274.00 | D47 |
| 275.00 | D49 |
| 277.00 | I11 |
| 280.00 | D8  |
| 281.00 | H8  |
| 282.00 | B15 |
| 283.00 | J16 |
| 284.00 | J18 |
| 285.00 | J17 |
| 286.00 | J19 |
| 287.00 | B22 |
| 288.00 | I4  |
| 290.00 | D32 |
| 291.00 | C1  |
| 292.01 | B16 |
| 292.02 | B17 |
| 309.00 | A18 |



HEDPAGE

|        |     |
|--------|-----|
| 311.00 | H13 |
| 312.00 | H14 |
| 901.00 | F8  |
| 904.00 | I5  |
| 907.00 | D28 |
| 911.00 | F9  |
| 912.00 | F10 |
| 914.00 | F11 |
| 916.00 | F23 |
| 917.00 | D26 |
| 919.00 | F12 |
| 922.00 | F14 |
| 924.00 | D27 |
| 926.00 | F5  |
| 928.00 | F6  |
| 931.00 | A8  |
| 932.00 | F22 |
| 933.00 | D29 |
| 936.00 | D30 |
| 941.00 | F16 |
| 942.00 | A14 |
| 946.00 | A28 |
| 947.00 | D31 |
| 949.00 | A25 |
| 950.00 | A15 |
| 952.00 | F17 |
| 958.00 | A10 |
| 970.00 | A19 |
| 972.00 | A20 |
| 978.00 | F18 |
| 979.00 | F7  |
| 982.00 | F26 |
| 984.00 | F19 |
| 993.00 | A26 |
| 994.00 | F13 |

7,450 D

3.3.1



APPENDIX M  
Invalid/No Fix  
Human Engineering Observations

11-11-11





# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 1.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/18/1984  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

WHEN OPERATOR REQUESTS ARE PROCESSED AND RESULT IN PERMANENT CHANGES TO EXISTING DATA (E.G. POINT ID ALARM LIMITS), THE COMPUTER SYSTEM DOES NOT PRINT OUT THE CHANGES.

## COMMENTS

THERE WILL BE A "HISTORICAL RECORDING AND RETRIEVAL" SYSTEM WHICH WILL PROVIDE A COMPLETE HISTORY OF THE DATA BASE.

## ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

THE OPERATOR DOES NOT MAKE PERMANENT CHANGES TO EXISTING DATA SUCH AS PROGRAMS OR LIMITS. THERE IS ALSO A HISTORICAL RECORDING AND RETRIEVAL SYSTEM WHICH PROVIDES A LISTING OF EACH DATA BASE. THIS CAN BE REQUESTED.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## CHECKLIST

7.1.1.D

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 2.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/18/1984  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

SOME INDIVIDUAL INPUT WORDS WHICH MUST BE TYPED (I.E. POINT ID'S) EXCEED 7 CHARACTERS (E.G. THEY MAY BE UP TO 8 CHARACTERS IN LENGTH).

## COMMENTS

POINT ID'S ARE COMPRISED OF A 3 CHARACTER SYSTEM DESIGNATOR (WHICH IS CONSISTENT WITH PLANT CONVENTIONS), A 1 CHARACTER VARIABLE TYPE (E.G. T FOR TEMPERATURE), A 1 CHARACTER POINT TYPE (E.G. C FOR CALCULATED), AND A 2-3 DIGIT UNIQUE IDENTIFYING NUMBER. WHEN 3 DIGITS ARE USED THE LENGTH EXCEEDS 7 CHARACTERS. IT WOULD BE POSSIBLE TO SHORTEN THE LENGTH OF POINT ID'S BY USING A 2 CHARACTER SYSTEM DESIGNATOR INSTEAD OF THE CURRENT 3 CHARACTER SYSTEM DESIGNATOR. HOWEVER, THIS CHANGE WOULD SACRIFICE CONSISTENCY WITH PLANT CONVENTIONS.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE OPERATORS ARE NOT INPUTTING A SERIES OF POINTS FOR DISPLAYS AND THIS TASK IS PERFORMED INFREQUENTLY. THIS CONDITION DOES NOT ADVERSELY AFFECT OPERATIONS.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

7.1.2.B

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 4.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/18/1984  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

SOME PROCESSES, INITIATED BY THE OPERATOR VIA MENU SELECTION, DO NOT DISPLAY THE MENU OPTION TEXT WHILE PROCESSING OCCURS. AN EXAMPLE OF THIS PROBLEM IS IN THE "SUMMARY OF SYSTEM VARIABLES SERVICE ROUTINES" MENU.

## COMMENTS

THE PROBLEM RESULTS FROM USING A GENERIC SUBROUTINE TO SELECT A RANGE OF POINT ID'S. THIS GENERIC SUBROUTINE DOES NOT DISPLAY THE MENU OPTION WHICH INVOKED IT. THE MENU OPTION IS DISPLAYED AFTER THE POINT ID RANGE HAS BEEN SELECTED.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

IN SOME CASES A MENU OPTION LIST IS NOT PROVIDED. HOWEVER, A MENU OPTION LIST CAN BE REQUESTED IN THESE INSTANCES IF NEEDED.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

7.1.3.C

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 6.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/18/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THERE IS NO DEFINITE INDICATION (E.G. SNAP, FEEL, AUDIBLE CLICK, RELEASE OF RESISTANCE) TO PROVIDE POSITIVE KEY ACTUATION FEEDBACK TO THE OPERATOR.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THE FEEDBACK TO THE OPERATOR IS VIA THE CRT DISPLAY WHICH DISPLAYS THE CHARACTER. OPERATORS ARE NOT TOUCH TYPISTS AND THIS IS SUFFICIENT FEEDBACK FOR THEIR PURPOSES.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.1.4.F

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



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HUMAN ENGINEERING DISCREPANCY

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HEAD NUMBER: 7.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/18/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

-----

CONTROL ROOM KEYBOARDS CONTAIN KEYS OTHER THAN THOSE USED BY THE OPERATORS.

COMMENTS

-----

THESE OTHER KEYS HAVE NOT BEEN ETCHED WITH A LABEL AND PRODUCE NO ACTION WHEN DEPRESSED. DEPRESSING ONE OF THESE KEYS PRODUCES AN INTERRUPT TO THE DISPLAY GENERATOR AND THE COMPUTER. THE INTERRUPT SERVICE ROUTINE FOR THESE KEYS CONTAINS ONLY A NON-OPERATIONAL INSTRUCTION.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

-----

THE BLANK KEYS PROVIDE EXPANSION CAPABILITY. THERE IS NO DETRIMENTAL EFFECT WHEN THE KEYS ARE DEPRESSED AND POSE NO PROBLEM TO THE OPERATORS.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

-----

EXPLANATORY INFORMATION

-----

CHECKLIST

7.1.4.1

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



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



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 9.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/18/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

BOTH THE PROCESS CONTROL COMPUTER AND SPDS KEYBOARDS ARE LOCATED IN THE CONTROL ROOM; THE LAYOUT OF FUNCTION KEYS IS DIFFERENT FOR THE TWO KEYBOARDS.

COMMENTS

OBVIOUSLY, DIFFERENT FUNCTIONS ARE REQUIRED BY THE TWO SYSTEMS. WHERE POSSIBLE, SIMILAR FUNCTIONS SHOULD BE PLACED ON FUNCTION KEYS LOCATED IN THE SAME LOCATION ON BOTH KEYBOARDS.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

AT PRESENT THERE ARE NO SIMILAR FUNCTION KEYS ON THE TWO KEYBOARDS.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.1.5.D.4

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

252

HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 12.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/18/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

DATA POINT ID'S ARE NOT INDEXED BY PROGRAM NAME.

COMMENTS

IT SEEMS REASONABLE THAT THE OPERATORS NEED NOT BE CONCERNED WITH THE SPECIFIC PROGRAM NAMES WHICH ACCESS SPECIFIC POINT ID'S. MOREOVER, VIRTUALLY ALL PROGRAMS WHICH DEAL WITH POINT ID'S MAY ACCESS ALL OF THE POINT ID'S. THE RESULTING CROSS-INDEX WOULD NOT BE INFORMATIVE.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

IT SEEMS REASONABLE THAT THE OPERATORS NEED NOT BE CONCERNED WITH THE SPECIFIC PROGRAM NAMES WHICH ACCESS SPECIFIC POINT IDs. MOREOVER; VIRTUALLY ALL PROGRAMS WHICH DEAL WITH POINT IDs MAY ACCESS ALL OF THE POINT IDs. THE RESULTING CROSS-INDEX WOULD NOT BE INFORMATIVE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.1.7.B.1.B

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

100

# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 16.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/19/1984  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE REGENERATION RATE FOR THE MONITORS USED IN THE CONTROL ROOM IS SUCH THAT FLICKER IS READILY PERCEPTIBLE. THIS IS MOST DISTURBING WHEN SOLID AREAS OF COLOR ARE DISPLAYED AND NOT NEARLY AS DISTURBING WHEN A RELATIVELY SMALL AMOUNT OF ALPHANUMERICS ARE PRESENTED.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE OPERATORS ARE NOT INTERFACING WITH THE CRTs FOR EXTENDED PERIODS OF TIME AND THE FLICKER IS NOT A PROBLEM IN READING THE DISPLAYED INFORMATION. OPERATOR INTERVIEWS HAVE CONFIRMED THAT THIS WAS NOT A PROBLEM.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## CHECKLIST

7.2.1.G

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

201 12 18



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 17.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/18/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

STRINGS OF 5 OR MORE CHARACTERS (I.E. THE POINT ID'S) ARE NOT  
DISPLAYED IN GROUPS OF 3-4 CHARACTERS EACH.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THE OPERATORS ARE NOT INPUTTING A SERIES OF POINTS FOR DISPLAYS  
AND THIS TASK IS PERFORMED INFREQUENTLY. THIS CONDITION DOES NOT  
ADVERSELY AFFECT OPERATIONS.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.2.4.C.1

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 18.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/19/1984  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

WHEN PRESENTED IN TABULAR FORM, NUMERIC DATA IS NOT RIGHT  
JUSTIFIED WITH DECIMAL POINTS ALIGNED (E.G. ALARM DISPLAY AND  
SINGLE POINT DATA SERVICES DISPLAYS).

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

OPERATORS ARE NOT MAKING COMPARISONS BETWEEN DISPLAYED FIELDS  
WHICH ARE NOT ALIGNED (I.E.; MISALIGNED FIELDS OCCUR WHEN ONE  
DATA FIELD IS INTEGER AND THE OTHER A DECIMAL). AFTER START-UP;  
MOST FIELDS WILL BE INTEGER WHICH WILL IMPROVE THE APPEARANCE OF  
THE DISPLAYED INFORMATION.

## IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

## CHECKLIST

7.2.4.J.2

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 19.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/19/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

PERIODS ARE NOT PLACED AFTER ITEM SELECTION DESIGNATORS.

COMMENTS

ITEM DESIGNATORS ARE SEPARATED FROM THEIR CORRESPONDING TEXT BY  
EQUAL ("=") SIGNS.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THERE IS NO OPERATOR CONFUSION ASSOCIATED WITH THIS CONDITION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.2.4.K

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 20.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/19/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

IN MOST CASES, TIME IS DISPLAYED AS HH:MM:SS OR HH:MM:SS.  
HOWEVER, ON THE ALARM DISPLAY THE TIME IS DISPLAYED AS HHMMSS. A  
COLON SHOULD BE USED BETWEEN THE HOUR AND MINUTES FOR CLARITY.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

OPERATOR INTERVIEWS HAVE CONFIRMED THAT THE ALARM DISPLAY IS NOT  
SIGNIFICANTLY DIFFERENT FROM OTHER DISPLAYS. OPERATORS WILL BE  
TRAINED IN DISPLAY DIFFERENCES.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.2.4.L.2

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



11



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 21.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/19/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

DATES ARE NOT DISPLAYED AS MM:DD:YY BUT AS MM-DD-YY INSTEAD.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THERE IS NO OPERATOR CONFUSION ASSOCIATED WITH THIS CONDITION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.2.4.C.3

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 22.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/19/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

LABELS ON COMPUTER CRTS ARE NOT HIGHLIGHTED OR OTHERWISE  
ACCENTUATED TO FACILITATE OPERATOR SCANNING AND RECOGNITION.

COMMENTS

CONSISTENT LABEL LOCATION AND SEPARATION FROM TABULAR DATA MAKE  
IDENTITY OF LABELS CLEAR.

ASSESSMENT CATEGORY: 3D

DISPOSITION: NO FIX

EXPLANATION

CURRENT DATA DISPLAY FORMAT IS FAMILIAR TO THE OPERATORS AND IS  
UTILIZED BY THE OPERATORS WITH LITTLE OR NO READING DIFFICULTY  
WITHOUT THE USE OF HIGHLIGHTING.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.2.4.P.2.1

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 24.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/19/1984  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

EQUAL PROBABILITY MENU OPTIONS ARE NOT PRESENTED IN ALPHABETICAL ORDER(E.G., SUMMARY OF SYSTEM VARIABLES DISPLAY). THE ALPHABETICAL ORDER WOULD ASSIST THE OPERATOR IN QUICKLY SELECTING DESIRED OPTION.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

OPERATORS DO NOT INTERFACE WITH THE OPTION LISTS FREQUENTLY ENOUGH FOR THIS TO BE AN EFFECTIVE AID. ALSO THERE ARE GENERALLY ONLY A FEW OPTIONS AVAILABLE (9 MAX) AND LITTLE TIME WOULD BE GAINED.

## IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

## CHECKLIST

7.2.5.E

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



1. 2. 3.

4.

5.

HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 25.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/19/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

WHEN DIRECTIONS TO THE OPERATOR ACCOMPANY A LIST OF OPTIONS, SUCH DIRECTIONS DO NOT PRECEDE PRESENTATION OF THE LIST.

COMMENTS

ONCE OPERATORS ARE EXPERIENCED WITH THESE INSTRUCTIONS THE IMPORTANCE OF THE INSTRUCTIONS WILL BE REDUCED. AT THAT POINT IT WILL BE OPTIMAL TO HAVE THE MENU OPTIONS PRESENTED FIRST SINCE THEY WILL BE MORE QUICKLY SCANNED BY THE OPERATOR.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THE OPERATORS INTERFACE WITH THE OPTION LISTS SO INFREQUENTLY THAT THERE IS LITTLE TO BE GAINED FROM SUCH A CHANGE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.2.5.J

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

100-158103



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 26.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/19/1984  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

FEEDBACK MESSAGES ARE NOT PROVIDED TO THE OPERATOR TO INDICATE CHANGES IN THE STATUS OF THE COMPUTER SYSTEM FUNCTIONING.

## COMMENTS

AN INDIRECT INDICATION IS THE DISPLAY OF TIME IN THE UPPER RIGHT PORTION OF THE SCREEN. IF THE PROCESSOR IS ACTIVE, SYSTEM TIME CONTINUES TO UPDATE. THERE ARE ALSO ANNUNCIATORS WHICH PROVIDE THESE FEEDBACK MESSAGES.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THERE IS NO IMMEDIATE NEED FOR THE INFORMATION; HOWEVER; THE OPERATOR SHOULD BE MADE AWARE THAT THE SYSTEM IS WORKING AND PROCESSING HIS REQUEST. WHEN RESPONSE TIME EXCEEDS THREE SECONDS PROVIDE A MESSAGE TO THE OPERATOR TO INDICATE THAT THE REQUEST IS BEING PROCESSED.

## IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

## CHECKLIST

7.2.6.1

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



HUMAN ENGINEERING DISCREPANCY

HEM NUMBER: 27.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/19/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

WHEN A DISPLAYED MESSAGE OR DATUM IS SELECTED AS AN OPTION OR  
INPUT TO THE SYSTEM, THE SUBJECT ITEM IS NOT POSITIVELY  
IDENTIFIED TO INDICATE ACKNOWLEDGEMENT BY THE SYSTEM.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

THE SYSTEM ACKNOWLEDGES THE INPUT VIA A SCREEN COLOR CHANGE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.2.6.J

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



# HUMAN ENGINEERING DISCREPANCY

HEM NUMBER: 28.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/19/1984  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

WHEN SYSTEM FUNCTIONING REQUIRES THE OPERATOR TO STAND BY, SUCH AS WHEN THE COMPUTER IS SEARCHING FOR REQUESTED DATA, PERIODIC FEEDBACK IS NOT PROVIDED TO THE OPERATOR TO INDICATE NORMAL SYSTEM OPERATION AND THE REASON FOR THE DELAY.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THERE IS ONLY ONE CASE WHERE THE RESPONSE TIME EXCEEDS THREE SECONDS. THIS IS NOT CONSIDERED TO BE A PROBLEM.

## IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.2.6.K

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

100-1000

HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 29.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/19/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

WHEN A PROCESS OR SEQUENCE IS COMPLETED BY THE SYSTEM, NO POSITIVE INDICATION IS PRESENTED TO THE OPERATOR CONCERNING THE OUTCOME OF THE PROCESS AND REQUIREMENTS FOR SUBSEQUENT OPERATOR ACTIONS.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

OPERATOR TASKS AND REQUESTS ON THE COMPUTER INVOLVE THE DISPLAY OF PARAMETER DATA AND DO NOT LEND THEMSELVES TO THIS TYPE OF DESIGN CRITERIA. FOR CASES WHERE CONTROL ACTIONS ARE INVOLVED, FEEDBACK IS PROVIDED.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.2.6.L

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|





HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 30.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/19/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

HIGHLIGHTING IS NOT USED FOR DISPLAYED DATA ITEMS OR MESSAGES WHICH ARE IMPORTANT TO DECISION MAKING OR ACTION REQUIREMENTS (E.G., THE MESSAGES FOR MULTI-PAGE ACTIONS ARE NOT ALWAYS PHYSICALLY SEPARATED FROM THE DATA LISTING ON THE ALARM LIST).

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

FOR THE CRT DISPLAYED INFORMATION, THERE ARE NO OPERATOR ACTIONS. THIS IS A LISTING ONLY. THE IMPORTANT ALARM INFORMATION IS PRINTED OUT OR APPEARS ON ANNUNCIATORS.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.2.7.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

04/02/2000

HUMAN ENGINEERING DISCREPANCY

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HEAD NUMBER: 34.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 12/20/1984  
UNIT: 2

DESCRIPTION OF DISCREPANCY

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MOST ALL STATIC DISPLAY INFORMATION (E.G., MENU OPTIONS, DESCRIPTIVE LABELS) ARE GREEN. THIS DIMINISHES THE USE OF GREEN AS AN INDICATION OF NORMAL CONDITIONS.

COMMENTS

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ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

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INDICATION OF NORMAL CONDITIONS IS NEVER EMBEDDED IN TEXT. THERE IS NO POTENTIAL FOR A SUBSTITUTION ERROR BECAUSE OF THE DIFFERENT CONTEXTS OF THE GREEN COLOR USES. THE DISPLAYS DO NOT OPERATE IN A "GREEN BOARD" CONCEPT SO THAT EQUIPMENT POSITIONS MUST BE INDIVIDUALLY OBSERVED FOR PROPER POSITION. THEREFORE, THERE IS A MINIMUM OF INTERFERENCE CAUSED AS A RESULT OF THE GREEN TEXT AND THIS POSES NO CONCEPTUAL PROBLEMS FOR THE OPERATORS.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

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EXPLANATORY INFORMATION

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CHECKLIST

7.2.7.L.2

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 37.04  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE FOLLOWING ANNUNCIATOR BOXES ARE OUTSIDE OF THE 45 DEG OBLIQUE  
ANGLE BETWEEN LINE OF SIGHT AND ANNUNCIATOR ACKNOWLEDGE STATION.

## COMMENTS

ANNUNCIATOR TILES CANNOT BE SEEN FROM ACKNOWLEDGE STATIONS. THE  
NUMBERS IN PARENTHESIS REPRESENT THE DEVIATION FROM THE 45 DEG  
ANGLE (IN INCHES).

ASSESSMENT CATEGORY: 3C

DISPOSITION: NO FIX

## EXPLANATION

THESE ANNUNCIATORS CAN BE READ FROM THE RESPECTIVE  
ACKNOWLEDGE BUTTONS.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## CHECKLIST

1.2.2.E(2)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 851   | 1                      | ENTIRE BOX        | 42"   |
| 851   | 4                      | 3 COLUMNS         |       |
| 851   | 5                      | ENTIRE BOX        | 40"   |
| 852   | 1                      | ENTIRE BOX        | 43"   |
| 852   | 2                      | 4 COLUMNS         |       |
| 852   | 5                      | 1 COLUMN          |       |
| 852   | 6                      | ENTIRE BOX        | 39"   |



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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 37.05  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE FOLLOWING ANNUNCIATOR BOXES ARE OUTSIDE OF THE 45 DEG OBLIQUE  
ANGLE BETWEEN LINE OF SIGHT AND ANNUNCIATOR ACKNOWLEDGE STATION.

## COMMENTS

ANNUNCIATOR TILES CANNOT BE SEEN FROM ACKNOWLEDGE STATIONS. THE  
NUMBERS IN PARENTHESIS REPRESENT THE DEVIATION FROM THE 45 DEG  
ANGLE (IN INCHES).

ASSESSMENT CATEGORY: 3C

DISPOSITION: NO FIX

## EXPLANATION

THE OPERATOR MUST REFER TO BACK PANEL INFORMATION TO RESPOND TO  
THESE ANNUNCIATORS AND WILL THEREFORE HAVE TO READ AND UNDERSTAND  
MESSAGE.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

1.2.2.E(2)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 870   | 2                      | 9 COLUMNS         |       |
| 870   | 3                      | ENTIRE BOX        |       |
| 871   | 1                      | 2 COLUMNS         |       |
| 871   | 4                      | 8 COLUMNS         |       |
| 871   | 5                      | ENTIRE BOX        |       |
| 871   | 6                      | ENTIRE BOX        |       |
| 873   | 1                      | ENTIRE BOX        |       |
| 873   | 2                      | ENTIRE BOX        |       |
| 873   | 3                      | 1 COLUMN          |       |



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# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 38.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

CONTROLS ON VERTICAL PANELS ARE LOCATED OUT OF THE 34"-70"  
ENVELOPE RECOMMENDED BY NUREG-0700.

## COMMENTS

CONTROLS ARE NOT IN THE REACH RADIUS OF 95% MALE WITHOUT BENDING AND  
STOOPING.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

ALL THE CONTROLS ARE LOCATED WITHIN THE EXTENDED REACH OF THE 5TH  
PERCENTILE FEMALE AND 95TH PERCENTILE MALE CAN BEND AND STOOP TO  
REACH. THIS IS AN INCONVENIENCE BUT NOT INTOLERABLE AND HAS NO  
AFFECT ON SAFETY.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## CHECKLIST

1.2.5.A(1)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                    | OTHER |
|-------|------------------------|--------------------------------------|-------|
| 824   |                        | GROUP 1 DRAIN VALVES MASTER SWITCH   | 28"   |
| 824   |                        | GROUP II DRAIN VALVES MASTER SWITCH  | 28"   |
| 824   |                        | GROUP III DRAIN VALVES MASTER SWITCH | 28"   |
| 824   |                        | REHEATER STM BLANKETING OVERRIDE     | 22"   |
| 824   |                        | TURBINE SHELL/CHEST WARMING          | 28"   |
| 824   | AOV102                 |                                      | 28"   |
| 824   | AOV127                 |                                      | 28"   |
| 824   | AOV209                 |                                      | 28"   |
| 824   | AOV4B                  |                                      | 28"   |
| 824   | AOV81A                 |                                      | 22"   |
| 824   | AOV81B                 |                                      | 22"   |
| 824   | AOV81C                 |                                      | 22"   |
| 824   | AOV82A                 |                                      | 22"   |



|     |        |     |
|-----|--------|-----|
| 824 | AOV82B | 22" |
| 824 | AOV83A | 22" |
| 824 | AOV83B | 22" |
| 824 | AOV84A | 22" |
| 824 | AOV84B | 22" |
| 824 | AOV86A | 22" |
| 824 | AOV86B | 22" |
| 824 | AOV88A | 28" |
| 824 | AOV88B | 28" |
| 824 | MOV 1  | 28" |
| 824 | MOV 2  | 28" |
| 824 | MOV147 | 28" |

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# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 39.01  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE DISPLAYS ARE LOCATED OUT OF THE 41"-80" ENVELOPE RECOMMENDED BY NUREG-0700.

## COMMENTS

THE DISPLAYS ARE LOCATED ABOVE THE EYEHEIGHT OF THE 5% FEMALE.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE DISPLAYS CAN BE READ BY THE 5TH PERCENTILE FEMALE AND ARE EASILY READABLE BY ALL NMP-2 OPERATORS.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## CHECKLIST

1.2.5.B

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 824   | MSS-AOV109             |                   | 87"   |
| 824   | MSS-AOV180             |                   | 87"   |
| 824   | MSS-AOV201             |                   | 83"   |
| 824   | MSS-AOV203             |                   | 89"   |
| 824   | MSS-MOV9A              |                   |       |
| 824   | MSS-MOV9B              |                   | 87"   |



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 39.03  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE DISPLAYS ARE LOCATED OUT OF THE 41"-80" ENVELOPE RECOMMENDED BY NUREG-0700.

COMMENTS

THE DISPLAYS ARE LOCATED ABOVE THE EYEHEIGHT OF THE 5% FEMALE.

ASSESSMENT CATEGORY: 3C

DISPOSITION: NO FIX

EXPLANATION

THE PATTERN OF THIS DISPLAY IS WELL KNOWN BY THE OPERATORS ALTHOUGH THE HEIGHT IS NOT OPTIMUM FOR READING THE ELEMENTS OF THE DISPLAY THEY ARE RECOGNIZABLE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

1.2.5.B

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 603   |                        | ROD DISPLAY       |       |





HUMAN ENGINEERING DISCREPANCY

HEX NUMBER: 43.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

PROCEDURES ARE NOT PROVIDED FOR HANDLING COMMUNICATIONS DURING  
AN EMERGENCY.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

THE EMERGENCY PLAN PROVIDES PROCEDURES FOR HANDLING  
COMMUNICATIONS.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

2.1.1.C(2)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 45.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

A SUPPLY OF BATTERIES FOR THE OPERATOR'S WALKIE-TALKIES IS NOT  
STORED IN AN ACCESSIBLE AND WELL MARKED SPACE.

COMMENTS

CURRENTLY STORED IN SHIFT SUPERVISOR'S OFFICE.

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

BATTERIES ARE CURRENTLY AVAILABLE IN THE CONTROL ROOM.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

2.1.4.E(1)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 49.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

A SEPARATE FIRST OUT PANEL FOR THE TURBINE-GENERATOR SYSTEM IS NOT AVAILABLE.

COMMENTS

THIS PANEL SHOULD BE SIMILAR IN FUNCTION TO THE REACTOR SYSTEM PANEL.

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

THERE CURRENTLY IS A TURBINE-GENERATOR FIRST OUT CAPABILITY.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

3.1.3.B

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 50.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

A LOGICAL PRIORITIZATION IS NOT APPLIED TO THE ANNUNCIATOR SYSTEM. A PRIORITY SYSTEM SHOULD BE APPLIED SUCH THAT OPERATORS CAN DIFFERENTIATE THE MOST IMPORTANT OR SERIOUS ALARMS FROM LESS IMPORTANT ONES.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: NO FIX

EXPLANATION

THE PRESENT DESIGN UTILIZES A RED BORDER FOR HIGH PRIORITY/SCRAM ANNUNCIATORS AND YELLOW FOR BYPASS-INOP.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

3.1.4

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



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HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 56.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE NUMBER OF ALARM TILES AND THE MATRIX DENSITY IS NOT KEPT LOW.  
A MAXIMUM OF 50 TILES PER MATRIX IS RECOMMENDED BY NUREG-0700.

COMMENTS

15 ANNUNCIATOR BOXES CONTAIN 60 TILES EACH.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THE BOXES IN QUESTION CONTAIN 60 TILES WHICH IS WELL WITHIN A  
REASONABLE DENSITY TO ELIMINATE CONFUSION WITH LOCATION AND  
REFERENCE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

3.3.3.D(1)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                       | OTHER |
|-------|------------------------|---|-------|
| 870   |                        | EMER RECIRC TEST DAMPR 2HVR*AOD34A INOP |       |



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 62.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

ROUND PUSHBUTTONS REQUIRE 52 OUNCES OF PRESSURE FOR OPERATION.  
NUREG-0700 RECOMMENDS A MAXIMUM OF 40 OUNCES.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THESE RESISTANCES ARE WITHIN REASONABLE VALUES FOR OPERATION.  
OPERATORS DO NOT REPORT ANY PROBLEMS WITH NEW OPERATION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

4.3.2.D

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 65.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE LEGEND MESSAGES ON THE FOLLOWING PUSHBUTTONS CONTAIN MORE THAN THE RECOMMENDED THREE LINES OF LETTERING. ALL CONTAIN 4 LINES OF PRINT.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

FOUR LINES OF PRINT ARE CONSIDERED ACCEPTABLE PROVIDED THEY ARE OF THE APPROPRIATE SIZE TO BE EASILY READ.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## CHECKLIST

4.3.3.B(5)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                   | OTHER |
|-------|------------------------|-------------------------------------|-------|
| 602   |                        | CCP ISOL V MOV94A INOP              |       |
| 602   |                        | CCP ISOL V MOV94B INOP              |       |
| 602   |                        | H2 ANALYZER OUT ISOL V SOV65B INOP  |       |
| 602   |                        | LOOP A HYDR FLUID CLOSE SOV65A INOP |       |
| 602   |                        | LOOP A HYDR FLUID CLOSE SOV65B INOP |       |
| 602   |                        | LOOP A HYDR FLUID DRAIN PILOT       |       |
|       |                        | SOV66A INOP                         |       |
| 602   |                        | LOOP A HYDR FLUID OPEN SOV67A INOP  |       |
| 602   |                        | LOOP A HYDR FLUID OPEN SOV67B INOP  |       |
| 602   |                        | LOOP A HYDR FLUID PILOT SOV66A INOP |       |
| 601   |                        | LOOP B HYDR FLUID DRAIN PILOT       |       |
|       |                        | SOV608B INOP                        |       |
| 602   |                        | LOOP B HYDR FLUID PILOT SOV66A INOP |       |
| 602   |                        | MNST LINE DR VLV 2MSS*MOV208 INOP   |       |
| 602   |                        | MNSTM LINE DR VLV 2MSS*MOV111 INOP  |       |
| 602   |                        | MSIV TRIP UNIT A                    |       |



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|-----|--|-----|
| 602 | IN CAL OR GRTOSO FAILURE                 |     |
|     | MSIV TRIP UNIT B                         |     |
| 602 | IN CAL OR GROSSO FAILURE                 |     |
|     | MSIV TRIP UNIT C                         |     |
|     | IN CAL OR GROSSO FAILURE                 |     |
| 602 | MSIV TRIP UNIT D                         |     |
|     | IN CAL OR GROSSO FAILURE                 |     |
| 602 | OUTBN MSIV UPST DR V 2MSS*MOV208 INOP    |     |
| 602 | RBCL CW ISOL MOV5B INOP                  |     |
| 602 | RBCL CW ISOL V MOV21A INOP               |     |
| 602 | RBCL CW ISOL V MOV21B INOP               |     |
| 602 | RBCL CW ISOL V MOV4A INOP                |     |
| 602 | RBCL CW ISOL V MOV5A INOP                |     |
| 602 | RBCL CW ISOL V MOV5B INOP                |     |
| 602 | RWCU PMP SUCT ISOL VLV 2CWS*MOV112 INOP  |     |
| 602 | RWCU RTN ISL VLV                         |     |
|     | 2CWS*MOV200A INOP                        |     |
| 603 | A UPSC TR OR INOP/UPSC ALARM             |     |
| 603 | ALARM SET HI/ALARM SET INT               | 2   |
| 603 | ALARM SET LO/PUSH TO SET UP              | 2   |
| 603 | B UPSC TR OR INOP/UPSC ALARM             |     |
| 603 | C UPSC TR OR INOP/UPSC ALARM             |     |
| 603 | D UPSC TR OR INOP/UPSC ALARM             |     |
| 603 | E UPSC TR OR INOP/UPSC ALARM             |     |
| 603 | F UPSC TR OR INOP/UPSC ALARM             |     |
| 603 | FDW INLET SHUTOFF V 2FNS*MOV21A INOP     |     |
| 603 | FDW INLET SHUTOFF V 2FNS*MOV21B INOP     |     |
| 603 | G UPSC TR OR INOP/UPSC ALARM             |     |
| 603 | H UPSC TR OR INOP/UPSC ALARM             |     |
| 603 | INSERT BLOCK/WITHDRAW BLOCK              |     |
| 603 | OUT OF SEQUENCE/SYSTEM INITIAL           | 17F |
| 603 | RPS A MANUALLY OUT OF SERVICE            |     |
| 603 | RPS B MANUALLY OUT OF SERVICE            |     |
| 603 | UPSC TR OR INOP/UPSC ALARM               | 3   |
| 603 | UPSC TR OR INOP/UPSC ALARM               | 3   |
| 603 | UPSC TRIP/UPSC AL OR INOP                | 4   |
| 842 | HIGH EXH HD TEMP-22 VDC LOST             |     |
| 842 | NO EHC DC INPUT PWR/LOAD UNBALANCE       |     |
| 842 | SHAFT PMP DIS LOW PR FAST CLSG DV'S      |     |
| 842 | SPD SIS LOST/MA TRIP BUTTON              |     |
| 851 | ELECTRICAL MALFUNCTION/PMG MALFUNCTION   |     |
| 852 | CSH DG CLR VLV *MOV94B INOP              |     |
| 852 | CSH DG CLR VLV *MOV94R INOP              |     |
| 852 | CSH DG CLR VLV *MOV95A INOP              |     |
| 852 | CSH DG CLR VLV *MOV95B INOP              |     |
| 852 | DG NEUT BRKR ACB103-NI INOP              |     |
| 852 | DG NEUT BRKR ACB103-NI INOP              |     |
| 852 | DIV I DSL GEN CLR *MOV66A INOP           |     |
| 852 | DIV II DSL GEN CLR *MOV66B INOP          |     |
| 852 | DS FUEL OIL X FOR P (MAN OUT OF SERVICE) |     |
| 852 | DSL ENG CONT CKT CHANNEL A INOP          |     |
| 852 | DSL ENG CONT CKT CHANNEL B INOP          |     |
| 852 | EMER DG 1 AIR START SYS MNL OUT OF SVCE  |     |
| 852 | EMER DG 3 AIR START SYS MAN OUT OF SVCE  |     |
| 852 | EMER SW DIV II BLOCK DG (TRIP IN LOCA)   |     |
| 852 | EMER SWGR DIV 1 BLOCK DSL GEN            |     |
|     | TRIP ON LOCAL                            |     |
| 870 | *AOD117*AOD120*AOD142 INOP               |     |
| 870 | A/C FAN DISCH DMPR 2HVC*AOD6A INOP       |     |
| 870 | A/C FAN DISCH DMPR 2HVC*MOD12A INOP      |     |
| 870 | AIR EXHAUST DAMPER 2HVP*MOD1C INOP       |     |
| 870 | AIR RECIRC DAMPER 2HVP*MOD6A             |     |
| 870 | AIR RECIRC DAMPER 2HVP*MOD6A             |     |



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870 AIR RECIRC DAMPER 2HVP\*MOD6C INOP  
870 BAT RM A EXH FAN 2HVC\*FN4A  
870 BLDG SPLY ISOL DAMPR 2HVR\*AOD9A  
870 BSMT CABLE SPRDR AREA 2HVC\*UC106 INOP  
870 CHILL WTR MANUALLY OUT OF SERVICE INOP  
870 CHILLED WTR CIRC PUMP 2HVK\*P1A INOP  
870 CHILLED WTR TEMP 2HVK\*TV22A INOP  
870 CHILLED WTR TEMP VALVE 2HVK\*TV21A INOP  
870 CONT BLDG CHILLER 2HVK\*CHL 1A INOP  
870 CONT RM A/C MANUALLY OUT OF SERVICE INOP  
870 CONTROL RM A/C FAN 2HVC\*ACU1A INOP  
870 CROSS BLEED PIPE VALVE \*MOV28A INOP  
870 DECAY HEAT FLTR 1A V 2GTS\*MOV4A INOP  
870 EL261 MANUALLY OUT OF SERVICE INOP  
870 ELEC TUNNEL NORTH UC 2HVC\*UC104 INOP  
870 EMER RECIRC INLET DAMPR 2HVR\*AOD6A INOP  
870 FILTER 1A DISCH VALVE 2GTS\*MOV3A INOP  
870 FILTER 1A ELEC HTR 2GTS\*CH1A INOP  
870 FILTER 1A INLET PRESS 2GTS\*PV5A INOP  
870 FILTER 1B INLET PRESS 2GTS\*PV5B INOP  
870 FILTER ELEC HTR 2GTS\*CH1A INOP  
870 GEN AREA EXH ISOL DAMPR  
2HVR\*AODA&P INOP  
870 INLET AIR ISOL DMPR 2HVC\*AOD61A INOP  
870 INLET VALVE 2GTS\*MOV1A INOP  
870 OUTSIDE AIR DAMPER 2HVP\*AOD4A INOP  
870 OUTSIDE AIR DAMPER 2HVP\*AOD4C INOP  
870 OUTSIDE AIR DAMPPER 2HVP\*AOD4C INOP  
870 OUTSIDE AIR ISOLATION V 2HVC\*MOV1A INOP  
870 REFUEL FL A VENT EXH 2HVR\*AOD10A INOP  
870 RELAY RM A/C FAN 2HVC\*ACU2A INOP  
870 RELAY RM MANUALLY OUT OF SERVICE INOP  
870 REMOTE SHTDN RM A/C 2HVC\*ACU3A INOP  
870 REMOTE SHUTDOWN RM A  
MANUALLY OUT OF SERVICE  
870 SMK RMVL FN12 SUCT \*AOD120\*AOD142 INOP  
870 SMK RMVL FN9 SUCT \*AOD182 INOP  
870 SMK RMVL MKUP AIR \*AOD169 INOP  
870 SMOKE REMOVAL DMPR 2HVY\*AOD34A INOP  
870 SPEC FLTR MANUALLY OUT OF SERVICE INOP  
870 STBY SWGR A/C EQUIP RM 2HVC\*UC103A INOP  
870 STBY SWGR RM MKUP AIR FAN  
2HVC\*FN11A INOP  
870 STBY SWGR ROOM 2HVC\*AC101A INOP  
870 SWP BAY MANAULLY OUT OF SERVICE  
871 A/C FAN DISCH DMPR 2HVC\*AOD6B INOP  
871 A/C FAN DISCH DMPR 2HVC\*MOD12B INOP  
871 AIR EXH DAMPER 2HVP\*MOD2A INOP  
871 AIR EXH DAMPER 2HVP\*MOD2B INOP  
871 AIR EXHAUST DAMPER 2HVP\*MOD1D INOP  
871 AIR RECIRC DAMPER 2HVP\*MOD6B  
871 AIR RECIRC DAMPER 2HVP\*MOD6B  
871 AIR RECIRC DAMPER 2HVP\*MOD6C INOP  
871 AIR RECIRC DAMPER 2HVP\*MOD7A INOP  
871 BAT RM B EXH FAN 2HVC\*FN4B  
871 BLDG SLPY ISOL DAMPR 2HVR\*AOD9B  
871 BLDG SPLY ISOL DMPR 2HVR \*AOD18 INOP  
871 BSMT CABLE SPRDR AREA 2HVC\*UC107 INOP  
871 CHILLED WTR CIRC PUMP 2HVK\*P1B INOP  
871 CHILLED WTR TEMP VALVE 2HVK\*TV21B INOP  
871 CHILLED WTR TEMP 2HVK\*TV22A INOP  
871 CONT BLDG CHILLER 2HVK\*CHL 1B INOP  
871 CONTROL RM A/C FAN 2HVC\*ACU1B INOP



871 CROSS BLEED PIPE VALVE \*MOV28B INOP  
871 DECAY HEAT FLTR 1B V 2GTS\*MOV4B INOP  
871 ELEC TUNNEL NORTH UC 2HVC\*UC105 INOP  
871 EMER RECIRC INLET DAMPR 2HVR\*AOD6B INOP  
871 EMER RECIRC TEST DAMPR 2HVR\*AOD34A INOP  
871 FILTER 1B DISCH VALVE 2GTS\*MOV3A INOP  
871 FILTER 1B ELEC HTR 2GTS\*CH1B INOP  
871 FILTER 1B INLET PRESS 2GTS\*PV5B INOP  
871 FILTER 1B INLET VALVE 2GTS\*MOV2A INOP  
871 FILTER ELEC HTR 2GTS\*CH1B INOP  
871 HPCS SWGR RM UNIT COOLER 2VC\*UC102 INOP  
871 INLET AIR ISOL DMPR 2HVC\*AOD61B INOP  
871 INLET VALVE 2GTS\*MOV1B INOP  
871 MKUP AIR FAN SUCT DMPR 2HVC\*AOD54B INOP  
871 OUTSIDE AIR DAMPER 2HVP\*AOD4B INOP  
871 OUTSIDE AIR DAMPER 2HVP\*AOD4B INOP  
871 OUTSIDE AIR DAMPER 2HVP\*AOD4D INOP  
871 OUTSIDE AIR DAMPER 2HVP\*AOD5A INOP  
871 OUTSIDE AIR DAMPER 2HVP\*MOD7B INOP  
871 OUTSIDE AIR ISOLATION V 2HVC\*MOV1B INOP  
871 REFUEL FL B VENT EXH 2HVR\*AOD10B INOP  
871 RELAY RM A/C FAN 2HVC\*ACU2B INOP  
871 REMOTE SHTDN RM A/C 2HVC\*ACU3B INOP  
871 REMOTE SHUTDOWN RM B  
871 MANUALLY OUT OF SERVICE  
871 ROOM 2 EXH FAN 2HVP\*FN2A INOP  
871 ROOM 2 EXH FAN 2HVP\*FNB INOP  
871 SMK RMVL FN10 SUCT \*AOD192 INOP  
871 SMK RMVL FN14 SUCT \*AOD179 INOP  
871 SMK RMVL MKUP AIR \*AOD177 INOP  
871 SMOKE REMOVAL DMPR 2HVY\*AOD34B INOP  
871 STBY SWGR A/C EQUIP RM 2HVC\*UC103B INOP  
871 STBY SWGR RM MKUP AIR FAN  
871 2HVC\*FN11B INOP  
871 STBY SWGR ROOM 2HVC\*AC101B INOP  
873 CCP TO SFC HX INL V MOV14A INOP  
873 CCP TO SFC HX RTN V MOV18A INOP  
873 COOL WATER BLOOCK V SOOV10A INOP  
873 COOL WATER DRAIN V SOV11A INOP  
873 H2 ANALYZER INLET ISOL V SOV64A INOP  
873 H2 ANALYZER OUT ISOL V SOV65A INOP  
873 SFC FILTER INLET VALVE AOV18A INOP  
873 SFC FILTER INLET ISOL V AOV153 INOP  
873 SFC H.E. DISCH CROSSOVER  
873 CONN 25FC\*HV37A INOP  
873 SFC SURGE TK CROSSOVER V HV6A INOP  
873 SWP TO SFC HX INL V MOV17A INOP  
873 SWP TO SFC HX OUT V MOV18A INOP  
875 CCP TO SFC HX INL V MOV14B INOP  
875 COOL WATER BLOCK V SOV10B INOP  
875 COOL WATER DRAIN SOV11B INOP  
875 H2 ANALYZER OUT ISOL V SOV65B INOP  
875 SFC FILTER INLET VALVE AOV19A INOP  
875 SFC FLTR INL ISOL VALVE \*AOV154 INOP  
875 SFC H.E. DISCH CROSSOVER CONN  
875 25FC\*HV37B INOP  
875 SFC SURGE TK CROSSOVER V HV6A INOP  
875 SFC SURGE TK CROSSOVER V HV6B INOP  
875 SUPPR CHAM SMPY V SOV65AB INOP  
875 SWP TO SFC HX INL V MOV17B INOP



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HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 67.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

BARRIERS ARE NOT USED WHEN LEGEND PUSHBUTTONS ARE SIDE BY SIDE.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

THERE IS A PLASTIC BARRIER WHICH IS NOT EASILY SEEN BETWEEN THE  
PUSHBUTTON ON THE MASTER SPECIALTIES.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

4.3.3.D(1)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



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# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 68.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

EACH CONTROL IS NOT RECOGNIZABLE IN TERMS OF ITS FUNCTION.  
CONTROLS SHOULD BE CODED (BY SHAPE OR COLOR) TO DIFFERENTIATE BY  
FUNCTION.

## COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: NO FIX

## EXPLANATION

ALTHOUGH SHAPE CODING IS A RECOGNIZED AID IT IS NOT NECESSARY IN  
THE NMP-2 CONTROL ROOM FOR THE FOLLOWING REASONS:

1. LOW DENSITY PANELS
2. ADEQUATE LABELING
3. EFFECTIVE DEMARCATION
4. THE CONTROL ARRANGEMENT SUPPORTS THE OPERATOR'S  
PERCEPTION OF ACTIONS NECESSARY FOR OPERATION  
OF THE SYSTEMS.
5. MIMICS FURTHER CLARIFY COMPONENT'S ROLE IN SYSTEM.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

4.1.1.C(1)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        | GENERIC           |       |



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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 70.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE CODING SYSTEM FOR CONTROLS IS NOT CONSISTENT THROUGHOUT THE CONTROL ROOM.

COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: NO FIX

EXPLANATION

ALTHOUGH SHAPE CODING IS A RECOGNIZED AID IT IS NOT NECESSARY IN THE NMP-2 CONTROL ROOM FOR THE FOLLOWING REASONS:

1. LOW DENSITY PANELS
2. ADEQUATE LABELING
3. EFFECTIVE DEMARCATION
4. THE CONTROL ARRANGEMENT SUPPORTS THE OPERATOR'S PERCEPTION OF ACTIONS NECESSARY FOR OPERATION OF THE SYSTEMS.
5. MIMICS FURTHER CLARIFY COMPONENT'S ROLE IN SYSTEM.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

4.2.2  
4.4.1.B

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



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HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 71.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

52 OUNCES OF RESISTENCE IS REQUIRED FOR ROUND PUSHBUTTONS. THIS  
EXCEEDS THE MAXIMUM OF 40 OUNCES RECOMMENDED BY NUREG-0700.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THESE RESISTANCES ARE WITHIN REASONABLE VALUE FOR OPERATION.  
OPERATORS DO NOT REPORT ANY PROBLEMS WITH NEW OPERATION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

4.3.2.D

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

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# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 73.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/30/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

GROUPS OF DISPLAYS RELATED TO CERTAIN CONTROLS ARE LOCATED A SIGNIFICANT DISTANCE AWAY FROM THE CONTROLS. THIS MAY CAUSE THE OPERATOR DIFFICULTY IN READING THE DISPLAYS FROM THE AREA OF THE CONTROLS.

## COMMENTS

THIS HED OCCURS ON PANEL 601. THE LEVEL METERS FOR SUPPRESSION POOL LEVEL A ARE LOCATED A SIGNIFICANT DISTANCE FROM THE SUPPRESSION POOL LINE-UP VALVE CONTROLS. NO PARALLAX OCCURS, BUT IT IS DIFFCULT FOR THE OPERATOR TO READ THE METERS FROM THE WORK AREA AROUND THE CONTROLS. THE METERS ARE LOCATED ON THE LEFT "HALF" OF 601, AND THE CONTROLS ARE LOCATED IN THE MIMIC ON THE RIGHT "HALF" OF 601. \*THE USE OF ANY ONE OF THESE VALVES COULD AFFECT THE READINESS ON THE LISTED SUPPRESSION POOL LEVEL METERS.

## ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

THERE ARE REDUNDANT SUPPRESSION POOL LEVELS A AND B LOCATED AT BOTH WORK STATIONS.

## IMPLEMENTATION:

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

9.1.2.B(2)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                     | OTHER |
|-------|------------------------|---------------------------------------|-------|
| 601   | 2CMS-L19A              | SUPP POOL LVL A METER ID#1907         |       |
| 601   | 2CMS-L111A             | SUPP. POOL LUL A METER ID #-1908      |       |
| 601   | FV37B                  | RHR B HX TO SUPP POOL ID#3307         | *     |
| 601   | FV38B                  | RHR B TO SUPP POOL ID#3301            | *     |
| 601   | FV38C                  | LPCI C TEST FLOW TO SUPP POOL ID#2301 | *     |
| 601   | MOV111                 | HPCS TEST RTN TO SUPP POOL ID#3413    | *     |



# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 74.01  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/30/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THIS HED DEALS WITH PROBLEMS ASSOCIATED WITH DISPLAY SELECTORS. ONE CASE DEALS WITH AN INAPPROPRIATE CONTROL TYPE (CITED IN 9.1.2.C.(1)). ANOTHER EXAMPLE CITES NON-CONFORMANCE BETWEEN DISPLAY AND CONTROL POSITIONS/LABELS (9.1.2.C.(2.3.)). THE FINAL TYPE OF EXAMPLE COVERS DISPLAYS WHICH READ "ZERO", AND NOT OFF-SCALE, WHEN NOT SELECTED OR POWERED.

## COMMENTS

THE FIRST EXAMPLE IS DERIVED FROM HAVING A PUSH-BUTTON SELECTOR FOR THE POST-ACCIDENT CHART RECORDER. A TWO POSITION ROTARY SELECTOR SWITCH IS MORE APPROPRIATE. THE SECOND EXAMPLE COVERS INCORRECT POSITION SEQUENCE AND/OR LABEL SEQUENCE. THIS PROBLEM OCCURS ON THE ELECTRICAL DISTRIBUTION PANEL. THE FINAL EXAMPLE CITES METERS WHICH READ A "ZERO" VALUE WHEN NOT SELECTED OR NOT POWERED. THIS A PROBLEM AS "ZERO" IS A POSSIBLE OPERATING PARAMETER.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE ASSOCIATION OF THE SWITCH POSITION AND RELATED DISPLAYS IS FROM LEFT-TO-RIGHT AND POSITION SEQUENCE IS LEFT-TO-RIGHT. THERE IS NO POTENTIAL CONFUSION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

9.1.2.C(1-4)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME       | OTHER |
|-------|------------------------|-------------------------|-------|
| (?)   |                        | EXHAUST HOOD TEMP SEL-2 |       |





# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 74.02  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/30/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THIS HED DEALS WITH PROBLEMS ASSOCIATED WITH DISPLAY SELECTORS. ONE CASE DEALS WITH AN INAPPROPRIATE CONTROL TYPE (CITED IN 9.1.2.C.(1)). ANOTHER EXAMPLE CITES NON-CONFORMANCE BETWEEN DISPLAY AND CONTROL POSITIONS/LABELS (9.1.2.C.(2.3.)). THE FINAL TYPE OF EXAMPLE COVERS DISPLAYS WHICH READ "ZERO", AND NOT OFF-SCALE, WHEN NOT SELECTED OR POWERED.

## COMMENTS

THE FIRST EXAMPLE IS DERIVED FROM HAVING A PUSH-BUTTON SELECTOR FOR THE POST-ACCIDENT CHART RECORDER. A TWO POSITION ROTARY SELECTOR SWITCH IS MORE APPROPRIATE. THE SECOND EXAMPLE COVERS INCORRECT POSITION SEQUENCE AND/OR LABEL SEQUENCE. THIS PROBLEM OCCURS ON THE ELECTRICAL DISTRIBUTION PANEL. THE FINAL EXAMPLE CITES METERS WHICH READ A "ZERO" VALUE WHEN NOT SELECTED OR NOT POWERED. THIS IS A PROBLEM AS "ZERO" IS A POSSIBLE OPERATING PARAMETER.

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

THIS SWITCH IS NOT USED TO CHANGE CHART SPEED BUT RATHER TO RESET TO THE NORMAL SPEED AFTER AUTO SPEED CHANGE.

IMPLEMENTATION:

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

9.1.2.C(1-4)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME   | OTHER |
|-------|------------------------|---------------------|-------|
| 601   | 1216                   | POST ACC. MONITOR B |       |



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# HUMAN ENGINEERING DISCREPANCY

HEADLINE NUMBER: 74.04  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/30/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THIS HED DEALS WITH PROBLEMS ASSOCIATED WITH DISPLAY SELECTORS. ONE CASE DEALS WITH AN INAPPROPRIATE CONTROL TYPE (CITED IN 9.1.2.C.(1)). ANOTHER EXAMPLE CITES NON-CONFORMANCE BETWEEN DISPLAY AND CONTROL POSITIONS/LABELS (9.1.2.C.(2.3.)). THE FINAL TYPE OF EXAMPLE COVERS DISPLAYS WHICH READ "ZERO", AND NOT OFF-SCALE, WHEN NOT SELECTED OR POWERED.

## COMMENTS

THE FIRST EXAMPLE IS DERIVED FROM HAVING A PUSH-BUTTON SELECTOR FOR THE POST-ACCIDENT CHART RECORDER. A TWO POSITION ROTARY SELECTOR SWITCH IS MORE APPROPRIATE. THE SECOND EXAMPLE COVERS INCORRECT POSITION SEQUENCE AND/OR LABEL SEQUENCE. THIS PROBLEM OCCURS ON THE ELECTRICAL DISTRIBUTION PANEL. THE FINAL EXAMPLE CITES METERS WHICH READ A "ZERO" VALUE WHEN NOT SELECTED OR NOT POWERED. THIS IS A PROBLEM AS "ZERO" IS A POSSIBLE OPERATING PARAMETER.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE METERS WHEN SELECTED SHOULD HAVE A NON-ZERO READING. WHEN NOT SELECTED, THEY READ ZERO. THERE IS CLEARLY A DISTINCTION BETWEEN SELECTED AND NONSELECTED METERS BECAUSE THE PARAMETERS INVOLVED WILL BE NON-ZERO ENTITIES.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## CHECKLIST

9.1.2.C(1-4)

| PAGE | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME      | OTHER |
|------|------------------------|------------------------|-------|
| 842  |                        | BYPASS VLV TEST METERS |       |
| 842  |                        | CV TEST METERS-3       |       |
| 842  |                        | IV TEST METER-3        |       |



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# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 75.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/30/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

SOME DISPLAY/CONTROL PAIR ARRANGEMENTS ARE "INCONSISTENT" IN LAYOUT. (I.E. METERS IN HORIZONTAL ROWS, CORRESPONDING CONTROLS IN VERTICAL COLUMNS.

## COMMENTS

THIS HED IS CLOSELY TIED TO THE HED LISTED FOR SEC. 8.2.1.(3). THE PRIMARY CAUSE OF THIS, BEING THE VERTICAL METERS ARE LAID OUT IN ROWS ACROSS THE PANEL TOP WHILE THE CONTROLS RELATED TO THESE METERS AND LAID-OUT IN COLUMNS.

ASSESSMENT CATEGORY: 3D

DISPOSITION: NO FIX

## EXPLANATION

THE OPERATORS ARE THOROUGHLY TRAINED TO THIS CONVENTION WHICH USES SEQUENTIAL ORDER,

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## CHECKLIST

9.2.2.A(2)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



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# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 78.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/30/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

CASES EXIST WHERE SETS OF RELATED CONTROLS AND DISPLAYS DO NOT HAVE CONSISTENT LAYOUTS. (H=HORIZONTAL LAYOUT, V=VERTICAL LAYOUT).

## COMMENTS

IN MOST CASES THIS HED IS A RESULT OF THE NON-STANDARD ALPHABETIC/NUMERIC ORDERING WHICH IS CITED IN SECTION 8.2.2.A. (HEO 75.00) THE PROBLEM RESULTS FROM CONTROL BEING ARRANGED BY COLUMNS AND DISPLAYS BEING ARRANGED IN ROWS.

ASSESSMENT CATEGORY: 3D

DISPOSITION: NO FIX

## EXPLANATION

THE OPERATORS ARE THOROUGHLY TRAINED TO THIS CONVENTION WHICH USES SEQUENTIAL ORDER.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

8.2.1.A(3)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 79.02  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

ORDERING (AND LABELING) OF COMPONENTS DOES NOT CONFORM WITH  
ALPHABETIC AND/OR NUMERIC-LEFT TO RIGHT, TOP TO BOTTOM SEQUENCE.

## COMMENTS

SEVERAL INSTANCES OCCUR WHERE COMPONENTS OF CONTROLS AND/OR  
DISPLAYS ARE ARRANGED IN WAYS VIOLATING THE STANDARD ALPHABETIC  
AND/OR NUMERIC READING ORDER, (LEFT-TO-RIGHT, TOP-TO-BOTTOM).

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

FOR PANEL 849 THE ALPHABETIC OR NUMERICAL SEQUENCE IS  
INCONSEQUENTIAL FOR SWITCH OPERATION AND IS NON-SAFETY RELATED.  
THE COMPONENTS ON PANEL 849 ARE NOT GROUPED ACCORDING TO A MIMIC.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

8.2.2.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                     | OTHER |
|-------|------------------------|---------------------------------------|-------|
| 824   |                        | AUX STM/MSIC (SL'S WRONG ALPHA ORDER) |       |
| 849   | 758NL/W                | 2FPL-AOV118                           |       |
| 849   | 759NL/W                | 2FPL-AOV119                           |       |
| 849   | 760NL/W                | 2FPL-AOV120 (LOW PRESS CO2)           |       |
| 849   | MOV9 A&D               | FIRE PROTEC./TURB BLDG.-(HORIZONTAL)  |       |
| 849   | MOV9 B&E               | FIRE PROTEC./TURB BLDG.-(HORIZONTAL)  |       |
| 849   | MOV9 C&F               | FIRE PROTEC./TURB BLDG.-(HORIZONTAL)  |       |



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 79.04  
UTILITY: NMP

ORIGINATOR: DK  
PLANT: NMP

DATE: 7/12/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

ORDERING (AND LABELING) OF COMPONENTS DOES NOT CONFORM TO THE NMP-2 CONVENTION FOR BENCHBOARDS; LEFT TO RIGHT, FRONT TO BACK (BOTTOM TO TOP).

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

LOCATING THE SWITCHES IS NOT REQUIRED SINCE THERE IS NO OPERATIONAL SEQUENCE ASSOCIATED WITH THESE CONTROLS. OPERATORS WILL BE TRAINED TO THESE ANOMOLIES.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

8.2.2.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME    | OTHER |
|-------|------------------------|----------------------|-------|
| 601   | AOV35A                 | SAMPLE LINE          |       |
| 601   | AOV35B                 | SAMPLE LINE          |       |
| 601   | AOV36A                 | SAMPLE LINE          |       |
| 601   | AOV36B                 | SAMPLE LINE          |       |
| 601   | SOV35A                 | SAMPLE LINE OVERRIDE |       |
| 601   | SOV35B                 | SAMPLE LINE OVERRIDE |       |
| 601   | SOV36A                 | SAMPLE LINE OVERRIDE |       |
| 601   | SOV36B                 | SAMPLE LINE OVERRIDE |       |



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 80.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE LAYOUT OF CERTAIN PANELS RESULTS IN A MIRROR IMAGE EFFECT.

## COMMENTS

THE LAYOUTS CITED HERE ARE NOT "TRUE" MIRROR IMAGES, BUT RESULT IN THE PERCEPTION OF A MIRROR IMAGE. ONLY TWO EXAMPLES ARE CITED. THE CENTER SECTION OF THE UPPER VERTICAL SURFACE OF PANEL 603, AND THE ELECTRIC BUS LAYOUT/MIMIC ON PANEL 852 ARE EXAMPLES OF A MIRROR IMAGE EFFECT. THE EXAMPLE CITED ON PANEL 852 SHOULD BE REVIEWED CAREFULLY, AS THERE MAY BE A VALID REASON FOR THE CURRENT LAYOUT.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THIS IS NOT A TRUE MIRROR IMAGE. THE COMPONENT GROUPS ARE MIRRORED BUT THE COMPONENTS WITHIN THE GROUPS ARE REPEATED (NOT MIRRORED). THIS RESULTS IN NO CONFUSION TO THE OPERATORS.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

8.2.3.B  
8.3.3

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME         | OTHER |
|-------|------------------------|---------------------------|-------|
| 603   |                        | AREA AROUND CORE GRID MAP |       |
| 852   |                        | ELECTRIC BUS LAYOUT/MIMIC |       |



622





# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 81.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

CASES EXIST WHERE THE ACTIVATION OF ONE CONTROL MAY RESULT IN THE INADVERTENT ACTUATION OF AN ADJACENT CONTROL.

## COMMENTS

THIS HED IS PRIMARILY CONCERNED WITH THE ARRAYS OF THE LEGEND PUSHBUTTONS LOCATED IN THE CONTROL ROOM. THE PROBLEM ARISES DUE TO A LACK OF "BARRIERS" BETWEEN THE LEGEND AND THE PUSHBUTTON. THIS LACK OF A BARRIER RESULTS IN THE POSSIBLE ACTUATION OF ADJACENT CONTROLS. THIS HED MUST BE REVIEWED CAREFULLY, AS THE FUNCTIONS OF THE LEGEND PUSHBUTTONS ARE NOT CLEARLY DEFINED AT THIS TIME. IT IS POSSIBLE THAT THEY WILL BE USED ONLY AS STATUS LIGHTS, WITH THE PUSHBUTTON FUNCTION SERVING AS A "LAMP TEST" TYPE SWITCH.

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

THERE ARE BARRIERS WHICH PROVIDE ASSURANCE THAT TWO PUSHBUTTONS ARE NOT ACTUATED TOGETHER.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

8.3.1.B

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME            | OTHER |
|-------|------------------------|------------------------------|-------|
| 601   |                        | ALL YELLOW LEGEND P/B ARRAYS |       |
| 602   |                        | ALL YELLOW LEGEND P/B ARRAYS |       |
| 603   |                        | ALL YELLOW LEGEND P/B ARRAYS |       |
| 852   |                        | ALL LEGEND P/B ARRAYS        |       |
| 870   |                        | ALL LEGEND P/B ARRAYS        |       |
| 871   |                        | ALL LEGEND P/B ARRAYS        |       |



2



123

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# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 82.01  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

SEVERAL DISPLAY GROUPS DEVIATE FROM THE PREFERRED HORIZONTAL ORIENTATION.

## COMMENTS

MOST OF THE EXAMPLES OF THIS HED COVER GROUPS OF EDGEWISE POINTER MOVEMENT AND ARE STACKED VERTICALLY ON THE PANELS. ONE EXAMPLE DEALS WITH THE MAIN VENDOR PANEL ON PANEL 602. THIS PANEL CONTAINS SEVERAL COLUMNS OF VERTICAL STATUS LIGHTS. FOUR OF THE METER GROUPS ON PANEL 602 EXAMPLE HAVE NOT BEEN INSTALLED YET.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE VERTICAL ORIENTATION OF THESE METERS ENHANCE AND NOT DETRACT FROM RECOGNITION OF THE GROUPING.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

8.3.2.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                       | OTHER |
|-------|------------------------|---|-------|
| 602   |                        | RECIRC LOOP FLOW CONTROL METERS (2/GRP) | (5X)  |



121

# HUMAN ENGINEERING DISCREPANCY

HEM NUMBER: 82.02  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

SEVERAL DISPLAY GROUPS DEVIATE FROM THE PREFERRED HORIZONTAL ORIENTATION.

## COMMENTS

MOST OF THE EXAMPLES OF THIS HED COVER GROUPS OF EDGEWISE POINTER MOVEMENT AND ARE STACKED VERTICALLY ON THE PANELS. ONE EXAMPLE DEALS WITH THE MAIN VENDOR PANEL ON PANEL 602. THIS PANEL CONTAINS SEVERAL COLUMNS OF VERTICAL STATUS LIGHTS. FOUR OF THE METER GROUPS ON PANEL 602 EXAMPLE HAVE NOT BEEN INSTALLED YET.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE COMPONENTS ARE IN A MIMIC ARRANGEMENT AND ARE NOT DESIRED IN A VERTICAL ORIENTATION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## CHECKLIST

8.3.2.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                 | OTHER |
|-------|------------------------|-----------------------------------|-------|
| 602   |                        | STATUS LIGHTS (MAIN VENDOR PANEL) |       |



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 82.03  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

SEVERAL DISPLAY GROUPS DEVIATE FROM THE PREFERRED HORIZONTAL ORIENTATION.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THESE METERS REPRESENT THE PHYSICAL RELATIONSHIP OF THE LPRM ARRANGEMENT IN THE CORE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

8.3.2.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME           | OTHER |
|-------|------------------------|-----------------------------|-------|
| 603   |                        | LPRM LEVEL METERS (4/GROUP) | 4X    |





HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 82.04  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

SEVERAL DISPLAY GROUPS DEVIATE FROM THE PREFERRED HORIZONTAL ORIENTATION.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THESE RECORDER ARRANGEMENTS ARE VERTICAL AND EASILY RECOGNIZED AS A GROUP.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

8.3.2.A

| PANEL   | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                                    | OTHER |
|---------|------------------------|--|-------|
| 870/871 |                        | DRYWELL/SUPPRESSION POOL TEMP RECORDERS<br>(3/PANEL) |       |

24

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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 83.01  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

STRINGS OF GREATER THAN 5 SIMILAR COMPONENTS EXIST IN VARIOUS LOCATIONS. ALSO, WHERE THESE STRINGS DO EXIST AND HAVE A VALID REASON FOR EXISTING, THERE ARE CASES WHERE NO DEMARCATION OR OTHER FORM OF ENHANCEMENT EXIST TO "BREAK" UP THE STRING.

## COMMENTS

THERE ARE CASES AT NMP-2 WHERE STRINGS OF GREATER THAN 5 SIMILAR COMPONENTS EXIST. IN MOST CASES SOME FORM OF DEMARCATION LINES AND/OR SPACING EXISTS TO HELP "BREAK UP" THESE STRINGS. MOST EXAMPLES DEAL WITH ROWS AND/OR MATRICES OF STATUS LIGHTS OR LEGEND PUSHBUTTONS. FOR EXAMPLES WHERE DEMARCATION LINES/SPACING EXIST, THESE EXAMPLES ARE NOT LISTED. HOWEVER, FOR CASES OF COMPONENTS>5, WITH NO DEMARCATION LINES, THESE EXAMPLES ARE CITED.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THIS IS A MATRIX OF STATUS LIGHTS WHICH ILLUMINATE TO ATTRACT THE OPERATOR'S ATTENTION. THERE IS NO CONFUSION WITH THE READING OF THE SI LIGHTS WHEN ILLUMINATED.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

8.3.2.C(1)  
8.3.2.C(2)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                | OTHER |
|-------|------------------------|----------------------------------|-------|
| 601   |                        | LPCS SYSTEM (10X4)PB MATRIX      | 10    |
| 601   |                        | RCIC SYSTEM (10X4 PB MATRIX)     | 8     |
| 601   |                        | RHR-C SYSTEM (10X4 PB MATRIX) PB | 10    |
| 824   |                        | SCAVENGING STEAM SYSTEM T/B'S    | 6     |
| 824   |                        | SCAVENGING STEAM SYSTEM T/B'S    | 6     |



# HUMAN ENGINEERING DISCREPANCY

HEM NUMBER: 83.03  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

STRINGS OF GREATER THAN 5 SIMILAR COMPONENTS EXIST IN VARIOUS LOCATIONS. ALSO, WHERE THESE STRINGS DO EXIST AND HAVE A VALID REASON FOR EXISTING, THERE ARE CASES WHERE NO DEMARCATION OR OTHER FORM OF ENHANCEMENT EXIST TO "BREAK" UP THE STRING.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THIS IS A MATRIX HOWEVER IT USES A "OFF NORMAL" CONCEPT. IF ANY IN THE MATRIX ARE LIT, THEN THE PROBLEM MUST BE INVESTIGATED. THIS ELIMINATES THE CONFUSION FACTOR OF LOCATION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

8.3.2.C(1)  
8.3.2.C(2)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT.<br>NAME                       | OTHER |
|-------|------------------------|--|-------|
| 602   |                        | CONT EFV POSN (0-180 DEG) (7X11 MATRIX)  |       |
| 602   |                        | CONT EFV POSN (180-369 DEG) (7X11MATRIX) |       |
| 842   |                        | FIRST TURBINE STATUS LIGHT               | 12    |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 83.04  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

STRINGS OF GREATER THAN 5 SIMILAR COMPONENTS EXIST IN VARIOUS LOCATIONS. ALSO, WHERE THESE STRINGS DO EXIST AND HAVE A VALID REASON FOR EXISTING, THERE ARE CASES WHERE NO DEMARCATION OR OTHER FORM OF ENHANCEMENT EXIST TO "BREAK" UP THE STRING.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THIS PANEL IS ARRANGED IN A MIMIC WHICH ENHANCES RECOGNITION AND LOCATION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

8.3.2.C(1)  
8.3.2.C(2)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                      | OTHER |
|-------|------------------------|--|-------|
| 602   |                        | NSSS STATUS LIGHT PANEL (4 VERT. COL.) |       |





# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 83.05  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

STRINGS OF GREATER THAN 5 SIMILAR COMPONENTS EXIST IN VARIOUS LOCATIONS. ALSO, WHERE THESE STRINGS DO EXIST AND HAVE A VALID REASON FOR EXISTING, THERE ARE CASES WHERE NO DEMARCATION OR OTHER FORM OF ENHANCEMENT EXIST TO "BREAK" UP THE STRING.

## COMMENTS

THERE ARE CASES AT NMP-2 WHERE STRINGS OF GREATER THAN 5 SIMILAR COMPONENTS EXIST. IN MOST CASES SOME FORM OF DEMARCATION LINES AND/OR SPACING EXISTS TO HELP "BREAK UP" THESE STRINGS. MOST EXAMPLES DEAL WITH ROWS AND/OR MATRICES OF STATUS LIGHTS OR LEGEND PUSHBUTTONS. FOR EXAMPLES WHERE DEMARCATION LINES/SPACING EXIST, THESE EXAMPLES ARE NOT LISTED. HOWEVER, FOR CASES OF COMPONENTS>5, WITH NO DEMARCATION LINES, THESE EXAMPLES ARE CITED.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE COMPONENTS ARE STATUS LIGHTS THAT LIGHT UP TO GET THE OPERATORS ATTENTION. THE MESSAGES ARE DIFFERENT AND DEMARCATION IS NOT NEEDED TO DISCRIMINATE THE COMPONENTS.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

8.3.2.C(2)  
8.3.2.C(1)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                  | OTHER |
|-------|------------------------|------------------------------------|-------|
| 603   |                        | APRM/RBM FLOW A ALARM MATRIX       | 7     |
| 603   |                        | APRM/RBM FLOW B ALARM MATRIX       | 7     |
| 603   |                        | SRM/IRM DETECTOR POS. (4X7 MATRIX) | 7     |
| 852   |                        | EMERG POWER DIV 1 (7X3 PB MATRIX)  | 7     |
| 852   |                        | EMERG POWER DIV 2 (7X3 PB MATRIX)  | 7     |



HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 83.06  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

STRINGS OF GREATER THAN 5 SIMILAR COMPONENTS EXIST IN VARIOUS LOCATIONS. ALSO, WHERE THESE STRINGS DO EXIST AND HAVE A VALID REASON FOR EXISTING, THERE ARE CASES WHERE NO DEMARCATION OR OTHER FORM OF ENHANCEMENT EXIST TO "BREAK" UP THE STRING.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THERE IS SUFFICIENT SPACE BETWEEN THE COMPONENTS IN THIS INSTANCE TO BREAK UP THE STRING EFFECT.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

8.3.2.C(2)  
8.3.2.C(1)

| PANEL   | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                       | OTHER |
|---------|------------------------|---|-------|
| 609/611 |                        | (MULTIPLE ROWS) NIMS BIN COMPONENT RACK |       |
| 609/611 |                        | KEY SWITCH                              | 6     |



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 83.07  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

STRINGS OF GREATER THAN 5 SIMILAR COMPONENTS EXIST IN VARIOUS LOCATIONS. ALSO, WHERE THESE STRINGS DO EXIST AND HAVE A VALID REASON FOR EXISTING, THERE ARE CASES WHERE NO DEMARCATION OR OTHER FORM OF ENHANCEMENT EXIST TO "BREAK" UP THE STRING.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE COMPONENTS HAVE SUFFICIENT SPACE BETWEEN THEM TO BREAK UP ANY STRING EFFECT. THERE IS NO CONFUSION WHEN OPERATING THIS EQUIPMENT.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

8.3.2.C(1)  
8.3.2.C(2)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                | OTHER |
|-------|------------------------|----------------------------------|-------|
| 631   |                        | H13-P618/DV 2RHR B&C RELAY       |       |
| 631   |                        | H13-P631/AUTO DEPR. SYS. B RELAY | 7     |
| 631   |                        | H13-P631/AUTO DEPR. SYS. B RELAY | 7     |



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 83.08  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

STRINGS OF GREATER THAN 5 SIMILAR COMPONENTS EXIST IN VARIOUS LOCATIONS. ALSO, WHERE THESE STRINGS DO EXIST AND HAVE A VALID REASON FOR EXISTING, THERE ARE CASES WHERE NO DEMARCATION OR OTHER FORM OF ENHANCEMENT EXIST TO "BREAK" UP THE STRING.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE COMPONENTS ARE READ TO DETERMINE A PATTERN AND THEREFORE THIS IS A GOOD DESIGN FEATURE. THEY ARE NOT READ INDIVIDUALLY.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

8.3.2.C(2)  
8.3.2.C(1)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME    | OTHER |
|-------|------------------------|----------------------|-------|
| 619   |                        | JET PUMP INSTR. RACK | 10    |
| 619   |                        | JET PUMP INSTR. RACK | 10    |





# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 83.09  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

STRINGS OF GREATER THAN 5 SIMILAR COMPONENTS EXIST IN VARIOUS LOCATIONS. ALSO, WHERE THESE STRINGS DO EXIST AND HAVE A VALID REASON FOR EXISTING, THERE ARE CASES WHERE NO DEMARCATION OR OTHER FORM OF ENHANCEMENT EXIST TO "BREAK" UP THE STRING.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE COMPONENTS ARE IN A MIMIC ARRANGEMENT WHICH AIDS IN THE OPERATOR'S DISCRIMINATION OF AN INDIVIDUAL COMPONENT.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

8.3.2.C(1)  
8.3.2.C(2)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME        | OTHER |
|-------|------------------------|--------------------------|-------|
| 824   |                        | AUX STM/MISC DRAINS (PB) | 12    |
| 824   |                        | AUX STM/MISC DRAINS (PB) | 10    |



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 83.10  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

STRINGS OF GREATER THAN 5 SIMILAR COMPONENTS EXIST IN VARIOUS LOCATIONS. ALSO, WHERE THESE STRINGS DO EXIST AND HAVE A VALID REASON FOR EXISTING, THERE ARE CASES WHERE NO DEMARCATION OR OTHER FORM OF ENHANCEMENT EXIST TO "BREAK" UP THE STRING.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE COMPONENTS ARE WELL LABELED AND DO NOT PRESENT A STRING EFFECT. THESE ARE READ IN AN "OFF NORMAL" FASHION AND THEREFORE SHOULD BE LOCATED IN CLOSE PROXIMITY AND SHOWN HAVING A RELATIONSHIP.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

8.3.2.C(1)  
8.3.2.C(2)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME               | OTHER |
|-------|------------------------|---------------------------------|-------|
| 842   |                        | SERVO-VALVE CURRENT (VP) METERS | 6     |
| 842   |                        | SERVO-VALVE CURRENT (VP) METERS | 7     |
| 851   |                        | GLAND SEAL STEAM METERS         | 6     |



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 83.11  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

STRINGS OF GREATER THAN 5 SIMILAR COMPONENTS EXIST IN VARIOUS LOCATIONS. ALSO WHERE THESE STRINGS DO EXIST AND HAVE A VALID REASON FOR EXISTING, THERE ARE CASES WHERE NO DEMARCATION OR OTHER FORM OF ENHANCEMENT EXIST TO "BREAK" UP THE STRING.

## COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

THESE COMPONENTS HAVE DEMARCATION APPLIED TO BREAK UP THE STRING.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

|           |            |
|-----------|------------|
| CHECKLIST | 8.3.2.C(2) |
| CHECKLIST | 8.3.2.C(1) |

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                     | OTHER |
|-------|------------------------|---------------------------------------|-------|
| 851   |                        | CIRC WATER SYSTEM PUMP CURRENT METERS | 6     |
| 871/8 |                        | CONTROL BLDG HVAC (PB)                | 14    |
| 871/8 |                        | CONTROL BLDG HVAC (PB)                | 14    |
| 871/8 |                        | DIESEL GEN BLDG HVAC (2 ROWS)         | 11    |
| 871/8 |                        | DIESEL GEN BLDG HVAC (2 ROWS)         | 6     |
| 871/8 |                        | RX BLDG VENT (COLUMN)                 | 6     |
| 871/8 |                        | RX BLDG VENT (COLUMN)                 | 6     |
| 871/8 |                        | SMALL J-HANDLE                        | 7     |
| 875   |                        | PRIMARY CONT. PURGE DIV. II (PB)      | 6     |
| 875   |                        | PRIMARY CONT. PURGE DIV. II (PB)      | 7     |
| 875   |                        | PRIMARY CONT. PURGE DIV. II (PB)      | 6     |
| 875   |                        | PRIMARY CONT. PURGE DIV. II (PB)      | 11    |
| 875   |                        | PRIMARY CONT. PURGE DIV. II (PB)      | 11    |
| 875   |                        | PRIMARY CONT. PURGE DIV. II (PB)      | 6     |
| 875   |                        | PRIMARY CONT. PURGE DIV. II (PB)      | 7     |

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# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 83.12  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

STRINGS OF GREATER THAN 5 SIMILAR COMPONENTS EXIST IN VARIOUS LOCATIONS. ALSO, WHERE THESE STRINGS DO EXIST AND HAVE A VALID REASON FOR EXISTING, THERE ARE CASES WHERE NO DEMARCATION OR OTHER FORMS OF ENHANCEMENT EXIST TO "BREAK" UP THE STRING.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE PUSHBUTTONS ARE PROPERLY LABELED AND LIGHT UP TO PROVIDE FEEDBACK TO THE OPERATOR. THE OPERATOR DOES NOT HAVE TO READ A SEPARATE LABEL BUT RATHER ONLY THE LABEL ON THE PUSHBUTTON. THERE IS NO CONFUSION IN THEIR OPERATION AND THEY REPRESENT ONLY A STRING OF SIX COMPONENTS.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

8.3.2.C(2)  
8.3.2.C(1)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME               | OTHER |
|-------|------------------------|---------------------------------|-------|
| 851   |                        | CLG TWR DE-ICING (2 ROWS T/B'S) | 6     |
| 851   |                        | SPEED SELECTOR (P/B'S)(VP)      | 6     |





# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 84.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

SEVERAL MATRICES OF SIMILAR COMPONENTS EXIST WHERE NO FORM OF SINGLE COMPONENT IDENTIFICATION SYSTEM EXISTS. (LABELING OF COORDINATE AXES, DEMARCATION LINES, ETC.)

## COMMENTS

SEVERAL MATRICES OF LEGEND P/B'S EXIST (STATUS LIGHTS ALSO) WHICH DO NOT HAVE LABELED COORDINATE AXES OR DEMARCATION LINES TO AID IN IDENTIFICATION OF INDIVIDUAL COMPONENTS. IN MOST CASES THE MATRIX IS SMALL ENOUGH THAT THESE REQUIREMENTS CAN BE IGNORED. HOWEVER ENOUGH EXAMPLES DO EXIST WHERE LABELING OF AXES WOULD BE USEFUL. DEMARCATION LINES WILL PROBABLY NOT BE NEEDED.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE COMPONENTS ARE STATUS LIGHTS WHICH LIGHT UP TO ATTRACT THE OPERATORS ATTENTION. WHEN LIT, THE OPERATOR HAS NO PROBLEM IN LOCATING AND READING THE LEGEND.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

8.3.2.D.1  
8.3.2.D.2

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                               | OTHER |
|-------|------------------------|---|-------|
| 601   |                        | LPCS-SYSTEM (10X4 PB)                           |       |
| 601   |                        | RCIC SYSTEM (8X4 PB)                            |       |
| 601   |                        | RHR-C SYSTEM (10X4 PB)                          |       |
| 602   |                        | CONT EFV POSN(0-180 DEG)(7X11)                  |       |
| 602   |                        | CONT EFV POSN(180-360 DEG)(7X11)                |       |
| 603   |                        | SRM/IRM DETECTOR POS (4X7 PB)                   |       |
| 603   | RX-CNTRL-V             | CONTROL ROD VP P/B GRID MAP (LOWER BENCH BOARD) |       |

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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 85.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

LOCKS ON KEY-OPERATED CONTROLS ARE ORIENTED SO THAT THE SWITCH IS "OFF" (OR "SAFE") WHEN THE KEY IS IN A POSITION OTHER THAN VERTICAL.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THESE KEYS ARE FOR TWO POSITION SWITCHES AND ARE ORIENTED AT 45 DEG LEFT AND 45 DEG RIGHT. THIS IS CONSISTENT WITH THE ORIENTATION OF ROTARY HANDLES FOR TWO POSITION SWITCHES AND THIS CONSISTENCY SHOULD BE MAINTAINED. THERE IS NO CONFUSION IN THE OPERATION OF THESE SWITCHES WITH REGARD TO KEY ENTRY AND REMOVAL.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

4.4.3.D

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

KEY LOCK CONTROLS



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 86.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE FOLLOWING METERS ARE IN UNITS OF INCHES OF WATER. THE OPERATOR MUST CONVERT TO INCHES OF MERCURY TO EFFECTIVELY USE THE METERS.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

THESE METERS ARE NOW IN PSIA WHICH IS THE CORRECT UNITS FOR THE PARAMETER.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

5.1.2.B

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME          | OTHER |
|-------|------------------------|----------------------------|-------|
| 851   |                        | CRS PRESS A AT HP TURB EXH |       |
| 851   |                        | OFF GAS SYS PRESS IN       |       |
| 851   |                        | RHR COND INTMD ST PRESS    |       |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 87.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/21/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THERE ARE THREE EMERGENCY DIESEL GENERATOR METERS. THE SCALES ON THE METERS ASSOCIATED WITH DIESEL GENERATOR 1 AND 3 RANGE FROM 0-14 WHILE THE METER ASSOCIATED WITH DIESEL GENERATOR 2 HAS A SCALE RANGING FROM 0-11.

## COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

THE SCALES ARE DIFFERENT BECAUSE THE DIESELS ARE NOT THE SAME SIZE. THERE IS NO COMPARISON MADE BETWEEN THE INFORMATION ON THE METER.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

5.1.5.D

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        | EMER DSL GEN 1    |       |
|       |                        | EMER DSL GEN 2    |       |
|       |                        | EMER DSL GEN 3    |       |





# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 89.01  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

A SPEED ADJUSTMENT IS NOT AVAILABLE ON THE FOLLOWING RECORDERS.  
A HIGH PAPER SPEED OPTION SHOULD BE PROVIDED TO RUN OUT RECORDS  
FOR DETACHMENT. A LOWER SPEED SHOULD BE AVAILABLE TO PERMIT  
ADJUSTMENT OF THE TIME SCALE SO THAT RATE-OF-CHANGE INFORMATION  
CAN BE INDICATED.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE COMPONENTS DO NOT NEED TWO RECORDER SPEEDS BECAUSE OF THE  
NATURE OF THE PARAMETERS BEING RECORDED. A FINER RECORDER SPEED  
IS NOT NEEDED.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

5.4.1.1

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                    | OTHER |
|-------|------------------------|--------------------------------------|-------|
| 602   |                        | RECIRC PUMPS SUCTION TEMPERATURE     |       |
| 602   |                        | TOTAL RECIRC FLOW                    |       |
| 603   |                        | CRD PUMP DISCH                       |       |
| 842   |                        | BEARING DRAIN A THRUST BEARING TEMPS |       |
| 842   |                        | BEARING METAL TEMPS                  |       |
| 842   |                        | TURBINE TEMPERATURE                  |       |
| 851   |                        | 6TH PT HTR OUTLET COND & Ø2/PH       |       |
| 851   |                        | CIRC WTR SYS RETURN WTR COND PP      |       |
| 851   |                        | CND DEMIN COND IN/OUT. & Ø2 OUT      |       |
| 851   |                        | INL CNDCT HIGH/OUT CNDCT HIGH        |       |
| 851   |                        | MS RHTR 1A STEAM SUPPLY TEMP         |       |
| 851   |                        | MS RHTR 1B STEAM SUPPLY TEMP         |       |
| 852   |                        | 345KV LIVE MAN GEN VOLTS             |       |



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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 89.02  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

A SPEED ADJUSTMENT IS NOT AVAILABLE ON THE FOLLOWING RECORDERS.  
A HIGH PAPER SPEED OPTION SHOULD BE PROVIDED TO RUN OUT RECORDS  
FOR DETACHMENT. A LOWER SPEED SHOULD BE AVAILABLE TO PERMIT  
ADJUSTMENT OF THE TIME SCALE SO THAT RATE-OF-CHANGE INFORMATION  
CAN BE INDICATED.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: INVALID

## EXPLANATION

RECORDER HAS TWO SPEED CAPABILITY.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

5.4.1.1

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 851   |                        | TREND RECORDER    |       |

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HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 90.00  
UTILITY: NMP

ORIGINATOR: RCM  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

LABELS ARE PLACED BELOW EVERY METER AND INDICATOR IN THE CONTROL ROOM.

COMMENTS

LABELS SHOULD BE PLACED ABOVE THE PANEL ELEMENTS THEY DESCRIBE.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THE CONVENTION FOR LABELING DISPLAYS IS TO PROVIDE THE LABEL BELOW THE INDICATORS. THIS PROVIDES AN EASIER READING OF THE LABEL FOR INDICATORS WHICH ARE GENERALLY LOCATED ABOVE EYE LEVEL. THERE IS NO CONFUSION ON THE PART OF THE OPERATORS IN THE LABEL ASSOCIATION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

6.2.1.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

DISPLAYS (GENERIC)





HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 92.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE LABELS FOR THESE CONTROLS ARE PLACED BELOW THE CONTROL.

COMMENTS

ALL LABELS SHOULD BE PLACED ABOVE THE PANEL ELEMENTS THEY DESCRIBE.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THESE COMPONENTS ARE CONSIDERED HAVING BOTH CONTROL AND INDICATOR FUNCTIONS. THE COMPONENTS ARE HIGHER ON THE PANEL AND THE LABELS ARE PLACED FOR OPTIMUM VIEWING. THERE IS NO CONFUSION AS TO THE LABEL ASSOCIATION WITH THE COMPONENT.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

6.2.1.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                  | OTHER |
|-------|------------------------|------------------------------------|-------|
| 842   |                        | TURBINE SUP INSTR VIBR PHASE ANGLE |       |
| 842   |                        | TURBINE VIBRATION PHASE ANGLE REF  |       |
| 842   |                        | VOLTAGE AT SHAFT                   |       |



# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 94.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

ROMAN NUMERALS ARE USED ON THE FOLLOWING LABELS.

## COMMENTS

ROMAN NUMERALS SHOULD NOT BE USED BECAUSE THEY CAN BE MISTAKEN FOR LETTERS (E.G. I,C,V)

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THIS NOMENCLATURE IS A GE STANDARD. ALL TRAINING HANDBOOKS AND MAINTENANCE HANDBOOKS USE THIS NOMENCLATURE. IT IS CONSISTENTLY USED THROUGHOUT THE CONTROL ROOM AND CANNOT BE CONFUSED WITH OTHER LETTERS BECAUSE OF THE CONTEXT AND OPERATOR FAMILIARITY.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

6.3.4.E

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                      | OTHER |
|-------|------------------------|--|-------|
| 603   |                        | DIVISION I                             |       |
| 603   |                        | DIVISION II                            |       |
| 824   |                        | GROUP I                                |       |
| 824   |                        | GROUP I DRAIN VALVES MASTER SWITCH     |       |
| 824   |                        | GROUP II                               |       |
| 824   |                        | GROUP II DRAIN VALVES MASTER SWITCH    |       |
| 824   |                        | GROUP III                              |       |
| 824   |                        | GROUP III DRAIN VALVES MASTER SWITCH   |       |
| 841   |                        | BOP DIV I ISOL OUT FILE/LOSS OF POWER  |       |
| 842   |                        | BOP DIV II OUT ISOL FILE/LOSS OF POWER |       |
| 842   |                        | BOP DIV III ISOL OUT FILE/LOSS OF PWR  |       |
| 851   |                        | BREATHING AIR DIV I DIV II             |       |
| 851   |                        | INSTRUMENT AIR DIV I DIV II            |       |
| 851   |                        | SERVICE AIR DIV I DIV II               |       |



|     |  |
|-----|--|
| 852 | DEGRADED BUS VOLT DETECT INOP DIV I    |
| 852 | DEGREDADED BUS VOLT DETECT INOP DIV II |
| 852 | DIV I DSL GEN CLR-MOV66A INOP          |
| 852 | DIV I ENDMER SDDSL GEN INOP            |
| 852 | DIV II DSL CLR MOV66B INOP             |
| 852 | DIV II EMER DSL GEN INOP               |
| 852 | DIV II HPCS DSL GEN INOP               |
| 852 | DIV III EWS MANUALLY OUT OF SERVICE    |
| 852 | EMER 4KV-DIV I                         |
| 852 | EMER 4KV-DIV II                        |
| 852 | EMER DC SYS DIV I INOP                 |
| 852 | EMER DC SYS DIV I MNL INOP             |
| 852 | EMER DC SYS DIV II INOP                |
| 852 | EMER DC SYS DIV II MNL INOP            |
| 852 | EMER SWGR DIV I BLOCK DG TRIP ON LOCA  |
| 852 | EMER SWGR DIV II BLOCK DG TRIP ON LOCA |
| 873 | DER DIV I MANUALLY OUT OF SERVICE      |
| 873 | DER DIV I MANUALLY OUT OF SERVICE      |
| 873 | DER DIV II MANUALLY OUT OF SERVICE     |
| 873 | DFR DIV II MANUALLY OUT OF SERVICE     |
| 875 | SFC DIV II MANUALLY OUT OF SERVICE     |



1. 100%



100%



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 102.02  
UTILITY: NMP

ORIGINATOR: RK  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

NO MORE THAN NINE GRADUATIONS SHOULD SEPARATE MAJOR NUMERALS ON A DISPLAY. MORE THAN NINE GRADUATIONS REQUIRES GREATER PROCESSING BY THE OPERATOR TO DETERMINE AN EXACT DISPLAY VALUE.

## COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: NO FIX

## EXPLANATION

THESE METERS ARE BACKUP METERS TO THE MAIN INDICATIONS IN THE FRONT PANELS. THEY ARE PRIMARILY USED DURING SURVEILLANCE TESTING. THE SCALES AND METERS ARE VENDOR SUPPLIED AND REPLACEMENT SCALES ARE NOT AVAILABLE. THERE IS LITTLE CONFUSION ASSOCIATED WITH READING THESE METERS DURING TESTING.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## CHECKLIST

5.1.5.A(1)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 608   |                        | % POWER VOLTS     |       |
| 618   |                        | % POWER VOLTS     |       |





# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 102.03  
UTILITY: NMP

ORIGINATOR: RK  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

NO MORE THAN NINE GRADUATIONS SHOULD SEPARATE MAJOR NUMERALS ON A DISPLAY. MORE THAN NINE GRADUATIONS REQUIRES GREATER PROCESSING BY THE OPERATOR TO DETERMINE AN EXACT DISPLAY VALUE.

## COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: NO FIX

## EXPLANATION

THESE METERS ARE VENDOR COMPONENTS. THEIR REPLACEMENT IS NOT CONSIDERED NECESSARY BECAUSE THEY ARE EASILY READABLE BY OPERATORS, AND THEY HAVE OPERATOR ACCEPTANCE.

## IMPLEMENTATION:

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

5.1.5.A(1)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME             | OTHER |
|-------|------------------------|-------------------------------|-------|
| 601   |                        | COND AIR RMVL STM PRESS       |       |
| 601   |                        | CONTAINMENT DRYWELL PRESS A   |       |
| 601   |                        | E22-R601                      |       |
| 601   |                        | E51-R601                      |       |
| 601   |                        | E51-R602                      |       |
| 601   |                        | E51-R604                      |       |
| 601   |                        | PUMP PRESS                    |       |
| 601   |                        | SUPPR CHAMBER PRESS           |       |
| 601   |                        | SUPPRESSION POOL PRESS NORMAL |       |
| 601   |                        | SVC WTR P1B DISCH PRESS       |       |
| 601   |                        | SVC WTR P1C DISCH PRESS       |       |
| 601   |                        | SVC WTR P1D DISCH PRESS       |       |
| 601   |                        | SVC WTR P1E DISCH PRESS       |       |
| 601   |                        | SVC WTR P2F DISCH PRESS       |       |
| 601   |                        | SVCE WTR P1A DISCH PRESS      |       |



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| 601 | SVCE WTR PID DISCH PRESS                 |
| 603 | 4KV EMER BUS 103 FEED TO STUB BUS MSS    |
|     | 015                                      |
| 603 | ALT FEED TO 4KV EMER BUS 102 FROM NORM   |
|     | BUS NNS 017                              |
| 603 | EMER DIESEL CONCENTR 2 FREQ              |
| 603 | EMER DIESEL GEN 1 RPM                    |
| 603 | EMER DIESEL GEN 1 VARS                   |
| 603 | EMER DSL GEN 2 EXITER FIELD VOLTS 015    |
| 603 | G-38-R600                                |
| 603 | INCOMING VOLTS                           |
| 603 | PRIM FEED TO 4KV EMER BUS 102 FROM NORM  |
|     | BUS NNS 017                              |
| 603 | RUNNING VOLTS                            |
| 851 | ALT CLR CLD AIR TEMP                     |
| 851 | CLN STM REBLR STM PRESS                  |
| 851 | CNDS BSTR P2A CURRENT                    |
| 851 | CNDS BSTR P2B CURRENT                    |
| 851 | CNDS BSTR P2C CURRENT                    |
| 851 | CNDS BSTR P2D CURRENT                    |
| 851 | FD WTR CYCLE CLEAN UP FLOW               |
| 851 | HYDR SEAL OIL BRG 10 PRESS               |
| 851 | HYDR SEAL OIL BRG 9 PRESS                |
| 851 | INSTR AIR HDR PRESS                      |
| 851 | MACHINE GAS PRESS                        |
| 851 | REBLR DISCH PRESS A                      |
| 851 | REBLR DISCH PRESS B                      |
| 852 | 115KV FEED FROM JAF ENERGY CENTER LIVE   |
|     | KILOVOLTS                                |
| 852 | 4KV EMER BUS 101 FEED TO STUB BUS MSS014 |
| 852 | ALT FEED TO 4KV EMER BUS 103 FROM NORM   |
|     | BUS NNS 018                              |
| 852 | ALT FEED TO 4KV EMER BUS 103 FROM NORM   |
|     | BUS NNS 017                              |
| 852 | EMER DIESEL CONCENTR 3 FREQ              |
| 852 | EMER DIESEL GEN 3 RPM                    |
| 852 | EMER DIESEL GEN 3 VARS                   |
| 852 | EMERR DSL GEN 3 EXCITER FIELD VOLTS      |
| 852 | INCOMING VOLTS                           |
| 852 | MAIN GEN FREQ                            |
| 852 | PRIM FEED TO 4KV EMER BUS 101 FROM NORM  |
|     | BUS NNS 017                              |
| 852 | PRIM FEED TO 4KV EMER BUS 101 FROM NORM  |
|     | BUS NNS 018                              |
| 852 | RUNNING VOLTS                            |



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 105.00  
UTILITY: NMP

ORIGINATOR: RK  
PLANT: NMP

DATE: 1/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

NUMERALS ON CIRCULAR METERS ARE CONCEALED BY POINTER.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THE METERS CAN BE ACCURATELY READ WITHOUT ANY PROBLEM. THESE ARE  
STANDARD GE CIRCULAR METERS WHICH DO NOT PRESENT ANY CONFUSION OR  
DIFFICULTY IN READING FOR THE OPERATOR.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

5.2.2.A(1)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

ALL CIRCULAR (ROTARY) METERS



HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 109.00  
UTILITY: NMP

ORIGINATOR: RK  
PLANT: NMP

DATE: 1/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

DUAL BULBS OR DUAL FILAMENT LIGHT ASSEMBLIES ARE NOT USED.

COMMENTS

DUAL BULBS OR DUAL FILAMENT LIGHTS ARE RECOMMENDED TO REDUCE BULB FAILURE.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

DUAL BULBS ARE NOT NECESSARY IN THE FOLLOWING CASES:

1. ANNUNCIATORS HAVING TEST FUNCTION

2. INOP LIGHTS HAVING TEST FUNCTION

AND

3. LIGHTS THAT ARE CONTINUALLY ILLUMINATED, EITHER INDIVIDUALLY OR IN PAIRS.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

5.3.1.A(1)  
5.3.1.A(1)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

BULBS AND ANNUNCIATORS





# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 110.00  
UTILITY: NMP

ORIGINATOR: RK  
PLANT: NMP

DATE: 1/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE SIZE OF GRADUATION MARKS IS INSUFFICIENT FOR THE VIEWING DISTANCE FROM WHICH THEY ARE OBSERVED. FOR THE VERTICAL METERS THE MAJOR, INTERMEDIATE, AND MINOR GRADUATION MARKS ARE ALL SMALLER THAN RECOMMENDED. THE SPACING BETWEEN GRADUATION MARKS IS ALSO LESS THAN RECOMMENDED. FOR THE CIRCULAR METERS ALL GRADUATIONS ARE THE SAME LENGTH, THIS LENGTH IS SUFFICIENT FOR SMALL AND INTERMEDIATE SIZE GRADUATIONS. THE VIEWING DISTANCE IS ASSUMED TO BE APPROXIMATELY THREE FEET.

## COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: NO FIX

## EXPLANATION

THE GE 185 METERS ARE USED FOR VALVE POSITION ONLY, THE ACTUAL PROCESS VARIABLE IS INDICATED BY LARGE 180 METERS. THE 185 METERS AND FOXBORO CONTROLLERS DO NOT HAVE TO BE READ ACCURATELY, ON THE FOXBORO CONTROLLERS THE COMPARISON OF THE RELATIVE POSITION OF TWO POINTERS IS ALL THAT IS IMPORTANT.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

5.1.5.B  
5.1.5.C

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

|     |  |                                       |  |
|-----|--|---------------------------------------|--|
| 60  |  | ALL GE METERS AND FOXBORO CONTROLLERS |  |
| 601 |  | E22-R601                              |  |
| 601 |  | E51-R601                              |  |
| 601 |  | E51-R602                              |  |
| 601 |  | E51-R604                              |  |
| 601 |  | E51-R604                              |  |
| 601 |  | SVCE WTR P1A DISCH PRESS              |  |



|     |   |
|-----|---|
| 601 | SVCE WTR P1B DISCH PRESS                              |
| 601 | SVCE WTR P1C DISCH PRESS                              |
| 601 | SVCE WTR P1D DISCH PRESS                              |
| 601 | SVCE WTR P1E DISCH PRESS                              |
| 601 | SVCE WTR P1F DISCH PRESS                              |
| 602 | G33-R600  |
| 603 | C33-603B  |
| 603 | C33-603C  |
| 603 | C33-603D  |
| 603 | C33-604B  |
| 603 | C33-R603A   |
| 603 | C33-R604A   |
| 603 | C51-601A  |
| 603 | C51-601B  |
| 603 | C51-601C  |
| 603 | C51-601D  |
| 603 | LPRM LEVEL  |
| 618 | % POWER VOLTS   |
| 618 | % POWER VOLTS   |
| 618 | TEMP MONITOR  |
| 851 | 115KV FEED FROM JAF ENERGY CENTER LIVE<br>KILOVOLTS   |
| 851 | ALT CLR CLD AIR TEMP                                  |
| 851 | CIRC WATER OK P1A CURRENT                             |
| 851 | CIRC WATER OK P1B CURRENT                             |
| 851 | CIRC WTR OK P1C CURRENT                               |
| 851 | CIRC WTR OK P1D CURRENT                               |
| 851 | CIRC WTR OK P1E CURRENT                               |
| 851 | CIRC WTR OK P1F CURRENT                               |
| 851 | CLN STM REBLR STM PRESS                               |
| 851 | CNDS BSTR P2A CURRENT                                 |
| 851 | CNDS BSTR P2B CURRENT                                 |
| 851 | CNDS BSTR P2C CURRENT                                 |
| 851 | CNDS BSTR P2D CURRENT                                 |
| 851 | COND AIR RMVL STM PRESS                               |
| 851 | EMC FLUID SUPPLY PRESS                                |
| 851 | FD WTR CYCLE CLEAN UP FLOW                            |
| 851 | HYDR SEAL OIL BRG 10 PRESS                            |
| 851 | HYDR SEAL OIL BRG 9 PRESS                             |
| 851 | INCOMING VOLTS  |
| 851 | INSTR AIR HDR PRESS                                   |
| 851 | INSTR AIR HDR PRESS                                   |
| 851 | MACHINE GAS PRESS                                     |
| 851 | MAIN GEN FREQ   |
| 851 | PRESSURE SETPOINT A                                   |
| 851 | REBLR DISCH PRESS A                                   |
| 851 | REBLR DISCH PRESS B                                   |
| 851 | RUNNING VOLTS   |
| 851 | SPEED   |
| 852 | 4KV EMER BUS 101 FEED TO STUB<br>BUS MSS 014          |
| 852 | 4KV EMER BUS 102 FEED TO 600V EMER MCC<br>201         |
| 852 | 4KV EMER BUS 103 FEED TO STUB BUS MSS<br>015          |
| 852 | ALT FEED TO 4KV EMER BUS 101 FROM NORM<br>BUS NNS 016 |
| 852 | ALT FEED TO 4KV EMER BUS 103 FROM NORM<br>BUS NNS 017 |
| 852 | EMER DIESEL CONCENTR 2 FREQ                           |
| 852 | EMER DIESEL CONCENTR 3 FREQ                           |
| 852 | EMER DIESEL GEN 1 RPM                                 |
| 852 | EMER DIESEL GEN 1 VARS                                |



|     |   |
|-----|---|
| 852 | EMER DIESEL GEN 3 RPM                   |
| 852 | EMER DIESEL GEN 3 VOLTS                 |
| 852 | EMER DSL GEN 2 EXCITER FIELD VOLTS      |
| 852 | INCOMING VOLTS                          |
| 852 | PRIM FEED TO 4KV EMER BUS 101 FROM NORM |
|     | BUS NNS 017                             |
| 852 | PRIM FEED TO 4KV EMER BUS 102 FROM NORM |
|     | BUS NNS 017                             |
| 852 | PRIM FEED TO 4KV EMER BUS 103 FROM NORM |
|     | BUS NNS 016                             |
| 852 | RUNNING VOLTS                           |
| 871 | HEATER WALL TEMP                        |
| 871 | HT EXCH OUT TEMP B                      |
| 871 | HTR OUTLET GAS TEMP                     |
| 871 | INLET TEMP                              |
| 871 | REACT CHMBR SHELL TEMP                  |
| 871 | SURGE TK OUT TEMP B                     |



# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 111.00  
UTILITY: NMP

ORIGINATOR: RK  
PLANT: NMP

DATE: 1/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

SUCCESSIVE GRADUATIONS INDICATED BY NUMERAL UNIT VALUES ARE NOT THE PREFERRED VALUES. THE FOLLOWING PROGRESSIONS ARE PREFERRED:

1,2,3,4,5  
2,4,6,8,10  
5,10,15,20

OR THESE VALUES MULTIPLIED BY SOME POWER OF 10. THESE VALUES MAKE FOR EASIEST DISPLAY READING.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THEIR REPLACEMENT IS NOT CONSIDERED NECESSARY BECAUSE THEY ARE EASILY READABLE BY OPERATORS, AND THEY HAVE OPERATOR ACCEPTANCE.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## CHECKLIST

5.1.5.C

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME        | OTHER |
|-------|------------------------|--------------------------|-------|
| 601   |                        | E22-R601                 |       |
| 601   |                        | E51-R601                 |       |
| 601   |                        | E51-R601                 |       |
| 601   |                        | E51-R604                 |       |
| 601   |                        | E51-R604                 |       |
| 601   |                        | SVCE WTR P1A DISCH PRESS |       |
| 601   |                        | SVCE WTR P1B DISCH PRESS |       |
| 601   |                        | SVCE WTR P1C DISCH PRESS |       |
| 601   |                        | SVCE WTR P1D DISCH PRESS |       |
| 601   |                        | SVCE WTR P1E DISCH PRESS |       |
| 601   |                        | SVCE WTR P1F DISCH PRESS |       |
| 602   |                        | G33-R600                 |       |

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|     |  |
|-----|--|
| 603 | C33-603B                                 |
| 603 | C33-603C                                 |
| 603 | C33-R603A                                |
| 603 | C33-R603D                                |
| 603 | C33-R604A                                |
| 603 | C33-R604B                                |
| 603 | C51-R601A                                |
| 603 | C51-R601B                                |
| 603 | C51-R601C                                |
| 603 | C51-R601D                                |
| 603 | LPRM LEVEL                               |
| 618 | % POWER VOLTS                            |
| 618 | % POWER VOLTS                            |
| 618 | TEMP MONITOR                             |
| 851 | 115KV FEED FROM JAF ENERGY CENTER LIVE   |
| 851 | ALT CLR CLD AIR TEMP                     |
| 851 | CIRC WATER OK P1A CURRENT                |
| 851 | CIRC WATER OK P1B CURRENT                |
| 851 | CIRC WTR OK P1C CURRENT                  |
| 851 | CIRC WTR OK P1E CURRENT                  |
| 851 | CIRC WTR OK P1F CURRENT                  |
| 851 | CIRC WTR P1D CURRENT                     |
| 851 | CLN STM REBLR STM PRESS                  |
| 851 | CNDS BSTR P2A CURRENT                    |
| 851 | CNDS BSTR P2B CURRENT                    |
| 851 | CNDS BSTR P2C CURRENT                    |
| 851 | CNDS BSTR P2D CURRENT                    |
| 851 | COND AIR RMVL STM PRESS                  |
| 851 | EMC FLUID SUPPLY PRESS                   |
| 851 | FD WTR CYCLE CLEAN UP FLOW               |
| 851 | HYDR SEAL OIL BRG 10 PRESS               |
| 851 | HYDR SEAL OIL BRG 9 PRESS                |
| 851 | INCOMING VOLTS                           |
| 851 | INSTR AIR HDR PRESS                      |
| 851 | INSTR AIR HDR PRESS                      |
| 851 | MACHINE GAS PRESS                        |
| 851 | MAIN GEN FREQ                            |
| 851 | PRESSURE SETPOINT A                      |
| 851 | REBLR DISCH PRESS A                      |
| 851 | REBLR DISCH PRESS B                      |
| 851 | RUNNING VOLTS                            |
| 851 | SPEED                                    |
| 852 | 4KV EMER BUS 101 FEED TO STUB BUS MSS014 |
| 852 | 4KV EMER BUS 102 FEED TO 600V EMER       |
|     | MCC201                                   |
| 852 | 4KV EMER BUS 103 FEED TO STUB BUS MSS015 |
| 852 | ALT FEED TO 4KV EMER BUS 101 FROM NORM   |
|     | BUS NNS 016                              |
| 852 | ALT FEED TO 4KV EMER BUS 103 FROM NORM   |
|     | BUS NNS 017                              |
| 852 | EMER DIESEL CONCENTR 2 FREQ              |
| 852 | EMER DIESEL CONCENTR 3 FREQ              |
| 852 | EMER DIESEL GEN 1 RPM                    |
| 852 | EMER DIESEL GEN 1 VARS                   |
| 852 | EMER DIESEL GEN 3 RPM                    |
| 852 | EMER DIESEL GEN 3 VOLTS                  |
| 852 | EMER DSL GEN 2 EXCITER FIELD VOLTS       |
| 851 | INCOMING VOLTS                           |
| 852 | PRIM FEED TO 4KV EMER BUS 101 FROM NORM  |
|     | BUS NNS 017                              |
| 852 | PRIM FEED TO 4KV EMER BUS 102 FROM NORM  |
|     | BUS NNS 017                              |
| 852 | PRIM FEED TO 4KV EMER BUS 103 FROM NORM  |



|     |                        |
|-----|------------------------|
| 852 | BUS NNS 016            |
| 871 | RUNNING VOLTS          |
| 871 | HEATER WALL TEMP       |
| 871 | HT EXCH OUT TEMP B     |
| 871 | HTR OUTLET GAS TEMP    |
| 871 | INLET TEMP             |
| 871 | REACT CHMBR SHELL TEMP |
| 871 | SURGE TK OUT TEMP B    |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 113.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 5/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

IN RESPONSE TO THE OPERATOR SURVEY, THREE OPERATORS REPORTED THAT THERE SHOULD BE A CONTROL ROOM CONTROL FOR CONDENSATE DEMINERALIZER BYPASS VALVE TO BE USED DURING NORMAL OPERATIONS AND START-UP OPERATIONS, IF REQUIRED. IT SHOULD BE ON THE FRONT PANEL GIVING THE OPERATOR CONDENSATE AND FEEDWATER CONTROL. THIS WOULD ENABLE THE OPERATOR TO MAINTAIN NORMAL CONDENSATE FLOW WHEN EITHER THERE IS DEMINERALIZER CLOGGING OR IT IS OUT OF SERVICE. CURRENTLY THE CONTROL IS IN THE TURBINE BUILDING, WHERE IT IS RELATIVELY INACCESSIBLE.

## COMMENTS

OPERATORS SHOULD NOT HAVE TO LEAVE THE PRIMARY OPERATING AREA TO ATTEND TO CONTROL ROOM INSTRUMENTATION ON THE BACK PANELS OR IN OTHER LOCATIONS DURING OPERATIONAL SEQUENCES IN WHICH CONTINUOUS MONITORING OR THE TIMING OF CONTROL ACTIONS MAY BE CRITICAL.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE MANUAL ACTIVATION OF THIS VALVE IS FOR TEST PURPOSES ONLY.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

A1.6

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 114.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 5/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

IN RESPONSE TO THE OPERATOR SURVEY THREE OPERATORS INDICATED THAT THE REACTOR BUILDING SUPPLY AND EXHAUST FAN CONTROLLERS NEED TO BE IN THE CONTROL ROOM. THE REASON IS THAT IN THE EVENT THEY ISOLATE AN OPERATOR MUST BE DISPATCHED TO THE REACTOR BUILDING. ALSO, ONE CANNOT GET IN RX BUILDING IF THERE IS A MALFUNCTION.

## COMMENTS

CONTROL ROOM INSTRUMENTATION AND EQUIPMENT SHOULD INCLUDE ALL CONTROLS AND DISPLAYS NEEDED FOR (1) DETECTION OF ABNORMAL CONDITIONS AND (2) BRINGING THE PLANT TO A SAFE SHUTDOWN.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THERE IS THE CAPABILITY TO ISOLATE REACTOR BUILDING AND STARTUP THE STANDBY GAS TREATMENT WHICH PUTS THE PLANT INTO A SAFE CONDITION. THE MODIFICATION IS A "NICE TO HAVE" CONDITION FOR RETURNING TO NORMAL OPERATION. THE CONCERN OF ACCESS TO THE REACTOR BUILDING WILL BE PRECLUDED WITH AUTO TRIP.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

A1.7

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|





# HUMAN ENGINEERING DISCREPANCY

HEM NUMBER: 115.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 5/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

IN RESPONSE TO THE OPERATOR SURVEY THREE OPERATORS INDICATED THAT THE TURBINE BUILDING SUPPLY AND EXHAUST FAN CONTROLLERS NEED TO BE IN THE CONTROL ROOM. IF THERE ARE CONTROLLERS IN THE CONTROL ROOM ONE DOES NOT HAVE TO DISPATCH AN AUXILIARY OPERATOR THERE AND DEPEND ON THE COMMUNICATION SYSTEM TO FIND OUT WHAT HE IS DOING.

## COMMENTS

CONTROL ROOM INSTRUMENTATION AND EQUIPMENT SHOULD INCLUDE ALL CONTROLS AND DISPLAYS NEEDED FOR 1) DETECTION OF ABNORMAL CONDITIONS AND 2) BRINGING THE PLANT TO A SAFE SHUTDOWN. CONTROLS SHOULD BE SELECTED TO ENSURE EASE OF OPERATION AND TO MINIMIZE OPERATOR ERRORS.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE CONTROL CAPABILITY IS NOT NEEDED IN THE CONTROL ROOM FOR SAFE OPERATION OF THE PLANT. THE COMMUNICATION SYSTEM ALLOWS THE CONTROL ROOM OPERATOR TO DISPATCH A PLANT OPERATOR TO PERFORM THIS FUNCTION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

A1.8

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 116.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 5/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT SEVERAL CONTROLS FOR THE REACTOR RECIRCULATION SYSTEM ARE LOCATED REMOTELY (E.G. RX RECIRC SYSTEM THERMAL INTERLOCK BYPASS SWITCHES). SHOULD THE NEED ARISE TO OPERATE ANY ONE OF THESE CONTROLS, WHICH IS LIKELY DURING PLANT START-UP OR SHUTDOWN, WOULD INVOLVE SENDING AN AUXILIARY OPERATOR TO CLIMB SOME 12 FLIGHTS OF STAIRS AS WELL AS WALKING LENGTH OF CONTROL BUILDING. THE CONTROLS SHOULD BE IN THE CONTROL ROOM.

## COMMENTS

CONTROL ROOM INSTRUMENTATION AND EQUIPMENT SHOULD INCLUDE ALL CONTROLS AND DISPLAYS NEEDED FOR (1) DETECTION OF ABNORMAL CONDITIONS, AND (2) BRINGING THE PLANT TO A SAFE SHUTDOWN.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE CONTROL CAPABILITY IS NOT NEEDED IN THE CONTROL ROOM FOR SAFE OPERATION OF THE PLANT. THE COMMUNICATION SYSTEM ALLOWS THE CONTROL ROOM OPERATOR TO DISPATCH A PLANT OPERATOR TO PERFORM THIS FUNCTION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

A1.9

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 117.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 5/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE MOV FOR THE AIR EJECTOR INNER CONDENSER IS IN THE PLANT ABOVE THE AIR EJECTOR ROOM. IT SHOULD BE IN THE CONTROL ROOM WITH THE OTHER AIR EJECTOR MOV.

## COMMENTS

CONTROL ROOM INSTRUMENTATION AND EQUIPMENT SHOULD INCLUDE ALL CONTROLS AND DISPLAYS NEEDED FOR 1) DETECTION OF ABNORMAL CONDITIONS AND 2) BRINGING THE PLANT TO A SAFE SHUTDOWN CONDITION.

## ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

THERE IS NOT A SWITCH IN THE CONTROL ROOM TO ALLOW STEAM THROUGH THE SJAE SO THAT THE STEAM AND CONDENSATE WILL NECESSARILY HAVE TO BE ESTABLISHED AT THE LOCAL PANELS. THIS IS NOT A SAFETY RELATED ISSUE AND CONTROL CAPABILITY IS NOT NEEDED IN THE CONTROL ROOM.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

A1.10

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 118.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 5/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE CONDENSATE PUMP'S SUCTION AND DISCHARGE VALVES ARE CONTROLLED LOCALLY. WHEN THERE IS A LEAK, THE OPERATOR NEEDS A CONTROL IN THE CONTROL ROOM.

## COMMENTS

CONTROL ROOM INSTRUMENTATION AND EQUIPMENT SHOULD INCLUDE ALL THE CONTROLS AND DISPLAYS NEEDED FOR (1) DETECTION OF ABNORMAL CONDITIONS AND (2) BRINGING THE PLANT TO A SAFE SHUTDOWN.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

DURING A LEAK CONDITION, THE OPERATOR MUST DISPATCH SOMEONE TO THE LOCAL AREA TO DETERMINE THE SOURCE OF THE LEAK. THERE IS MORE THAN ONE PUMP AND MANY LINES WHICH COULD DEVELOP LEAKS. THE OPERATOR WOULD NOT KNOW IF THE LEAK WERE ISOLATED EVEN IF THE ISOLATIONS COULD BE SHUT REMOTELY. THERE IS NO SAFETY CONCERN AND NO NEED FOR THIS CONTROL CAPABILITY IN THE CONTROL ROOM.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

A1.11

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |





# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 119.01  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 5/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

IN RESPONSE TO THE OPERATOR SURVEY SEVERAL OPERATORS INDICATED THAT THE ELECTRO-HYDRAULIC CONTROL SYSTEM COULD BE BETTER ORGANIZED. CONTROLS ARE ON VERTICAL PANEL AND SHOULD BE ON BENCH BOARD (PANEL 851). IN PRESENT LOCATION OPERATOR COULD INADVERTENTLY ACTIVATE CONTROLS ON HORIZONTAL SECTION.

## COMMENTS

CONTROLS SHOULD BE SELECTED AND LOCATED TO ENSURE EASE OF OPERATION AND TO MINIMIZE OPERATOR ERRORS. MOREOVER, CONTROLS AND DISPLAYS SHOULD BE ASSIGNED TO WORK STATIONS TO MINIMIZE OPERATOR MOVEMENTS. THIS ASSIGNMENT SHOULD CONSIDER EMERGENCY PROCEDURES. FINALLY, CONTROLS AND DISPLAYS SHOULD BE ASSIGNED TO PANELS IN FUNCTIONAL GROUPS RELATED TO SYSTEM STRUCTURE.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THERE ARE NO SAFETY RELATED CONTROLS LOCATED BELOW THE EHC PANEL TO INADVERTENTLY ACTUATE. THE PANEL CAN BE EASILY REACHED AND OPERATED BY ALL OPERATORS AND PRESENTS NO GREATER POTENTIAL FOR INADVERTENT ACTUATION THAN OTHER CONTROLS ON THE VERTICAL SECTIONS.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

A1.13

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 119.02  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 5/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

IN RESPONSE TO THE OPERATOR SURVEY SEVERAL OPERATORS INDICATED THAT THE VALVE TEST IS 30 FEET AWAY FROM EHC PANEL. TO DO TESTING IT WILL TAKE THREE OPERATORS-ONE AT PANEL 851, ONE AT VALVE TEST PANEL, ONE AT 603 PANEL. VALVE TEST PANEL FOR TURBINE STOP VALVE, TURBINE CONTROL VALVES AND BYPASS VALVES SHOULD BE LOCATED TOGETHER.

## COMMENTS

CONTROLS SHOULD BE SELECTED AND LOCATED TO ENSURE EASE OF OPERATION AND TO MINIMIZE OPERATOR ERRORS. MOREOVER, CONTROLS AND DISPLAYS SHOULD BE ASSIGNED TO WORK STATIONS TO MINIMIZE OPERATOR MOVEMENTS. THIS ASSIGNMENT SHOULD CONSIDER EMERGENCY PROCEDURES. FINALLY, CONTROLS AND DISPLAYS SHOULD BE ASSIGNED TO PANELS IN FUNCTIONAL GROUPS RELATED TO SYSTEM STRUCTURE.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

TESTING AND OPERATIONS INVOLVING THESE CONTROLS CAN BE EFFECTIVELY ACCOMPLISHED USING THE PRESENT COMPLIMENT OF CONTROL ROOM OPERATORS.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

A1.13

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 120.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 6/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE COMPUTER CRT CONSOLE HAS AN ANNUNCIATOR SILENCE SWITCH ON ITS RIGHT HAND SIDE. OPERATOR REPORTED IT SHOULD BE TAKEN OFF BECAUSE IT MAKES IT TOO EASY FOR AN OPERATOR TO SILENCE AN ANNUNCIATOR WITHOUT ADDRESSING THE ALARM CONDITION. IN PRACTICE THE ANNUNCIATOR SHOULD BE SILENCED AT THE PANEL WHERE THE ALARM OCCURS. THIS PRACTICE FORCES THE OPERATOR TO GO TO THE PANEL, LOOK THE ANNUNCIATOR SQUARE IN THE FACE, AND THINK ABOUT IT WHILE HE IS ACKNOWLEDGING IT.

## COMMENTS

HUMAN FACTORS GUIDELINES SPECIFY THAT ACKNOWLEDGEMENT OF AN ANNUNCIATOR SHOULD ONLY BE POSSIBLE AT THE WORK STATION WHERE THE ALARM ORIGINATED.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE BUTTON PROVIDES A SILENCE FUNCTION ONLY. THE ANNUNCIATOR MUST BE ACKNOWLEDGED AT THE APPROPRIATE PANEL.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

A2.3

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



14.0



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# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 123.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 8/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED A NEED FOR A CHART RECORDER OF COOLING TOWER BASIN LEVEL RUNNING CONTINUOUSLY. THIS WOULD ENABLE THE OPERATOR TO MONITOR AND CORRECT FOR LONG TERM TRENDS. THE AMOUNT OF WATER (VOLUME) REMOVED FROM THE CIRCULATING WATER SYSTEM IS CONTROLLED AUTOMATICALLY BY THE CIRCULATING WATER BLOWDOWN VALVE, BASED ON COOLING TOWER BASIN LEVEL. THE OPERATOR COULD MANUALLY FINE TUNE ADDITION OF SERVICE WATER TO MEET COMBINED BLOWDOWN BASES AND EVAPORATION LOSSES.

## COMMENTS

CONTROL ROOM INSTRUMENTATION AND EQUIPMENT SHOULD INCLUDE ALL CONTROLS AND DISPLAYS NEEDED FOR DETECTION OF 1) ABNORMAL CONDITIONS, AND 2) BRINGING PLANT TO A SAFE SHUTDOWN. ALSO VISUAL DISPLAYS IN THE CONTROL ROOM SHOULD GIVE THE OPERATORS ALL THE INFORMATION ABOUT SYSTEM STATUS AND PARAMETER VALVES THAT IS NEEDED TO MEET TASK REQUIREMENTS IN EMERGENCY SITUATIONS.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

RECORDING CAPABILITY OF THIS PARAMETER IS NOT NEEDED IN THE CONTROL ROOM FOR SAFE OPERATION OF THE PLANT.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

A3.5

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        |                   |       |





# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 124.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT IN THE EVENT OF A CONDENSER TUBE LEAK THE OPERATOR NEEDS TO BE ABLE TO MONITOR CONDUCTIVITY TRENDS IN EACH WATER BOX. THIS WOULD MAKE IT POSSIBLE FOR THE OPERATOR TO QUICKLY IDENTIFY A CONDENSER TUBE LEAK AND CLOSE ITS CIRCULATING WATER ISOLATION VALVES. THIS WOULD MINIMIZE THE SPREAD OF CHLORIDE TO THE CONDENSATE/FEEDWATER SYSTEM AND POSSIBLY PREVENT CHLORIDE INTRUSION INTO THE REACTOR PRESSURE CONTROL.

## COMMENTS

VISUAL DISPLAYS PROVIDED IN THE CONTROL ROOM SHOULD GIVE OPERATORS ALL THE INFORMATION ABOUT SYSTEM STATUS AND PARAMETER VALVES NEEDED TO MEET TASK REQUIREMENTS IN EMERGENCY SITUATIONS.

## ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

FEEDWATER CONDENSATE AND REACTOR COOLANT SYSTEM CONDUCTIVITY INDICATION IS AVAILABLE IN THE CONTROL ROOM.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

A3.7

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



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HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 127.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THERE WERE NO BEARING LIFT PUMP PRESSURE GAUGES. IN FACT THERE ARE NO OIL PUMP PRESSURE GAUGES EXCEPT ON TURNING GEAR OIL PUMP AND EHC PUMPS.

COMMENTS

CONTROL ROOM INSTRUMENTATION AND EQUIPMENT SHOULD INCLUDE ALL CONTROLS AND DISPLAYS NEEDED FOR (1) DETECTION OF ABNORMAL CONDITIONS, (2) BRINGING THE PLANT TO A SAFE SHUTDOWN CONDITION. THE RECOMMENDED GAUGES WOULD PROVIDE CRITICAL INDICATIONS.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THERE ARE BEARING OIL PUMP PRESSURE INDICATIONS AND CONTROL OIL PRESSURE INDICATIONS AVAILABLE, AND THESE ARE SUFFICIENT FOR THE CONTROL ROOM. THERE ARE BACKUP ANNUNCIATORS FOR OTHER INDICATIONS OF LOW OIL PRESSURE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

A3.10

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 129.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED A NEED FOR AN  
INDICATION OF WHICH ROD IS SELECTED ON THE FOUR-ROD DISPLAY.

## COMMENTS

VISUAL DISPLAYS PROVIDED IN THE CONTROL ROOM SHOULD GIVE  
OPERATORS ALL THE INFORMATION ABOUT SYSTEM STATUS AND PARAMETER  
VALVES THAT IS NEEDED TO MEET TASK REQUIREMENTS IN EMERGENCY  
SITUATIONS.

## ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

A BACKLIT INDICATOR TILE (LEGEND LIGHT) CURRENTLY IS AVAILABLE TO  
PROVIDE THIS INFORMATION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

A3.13

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 132.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY STATED A NEED FOR VALVE POSITION INDICATING METERS (RATHER THAN JUST RED OR GREEN LIGHT) FOR THE REACTOR RECIRCULATION SYSTEM PUMP SUCTION AND DISCHARGE VALVE. SINCE THESE LINES ARE A MAJOR CONCERN (DBA-LDCA) POSITION METERS ON THE VALVES COULD BE USEFUL IN DETERMINING LEAKAGE THROUGH A BROKEN PIPE SHOULD THE VALVE DRIVE MOTOR FAIL, OR AC POWER TO THE VALVE FAIL, WHEN ATTEMPTING TO ISOLATE THE LEAK.

## COMMENTS

VISUAL DISPLAY OF ACTUAL SYSTEM/EQUIPMENT STATUS SHOULD BE DISPLAYED FOR ALL IMPORTANT PARAMETERS AND PARTICULARLY THESE ASSOCIATED WITH EMERGENCY OPERATIONS.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

BASED ON THE ACCIDENT CITED, IT HAS BEEN DETERMINED THAT NO OPERATIONAL ADVANTAGE WOULD BE GAINED BY PROVIDING INDICATION OF THE ACTUAL VALVE POSITION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

A3.16

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |





# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 134.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE RESIDUAL HEAT REMOVAL SYSTEM, REACTOR CORE ISOLATION COOLING SYSTEM, AND LOW PRESSURE CORE SPRAY KEEP FULL PUMP FLOWS, BUT NEED FLOW INDICATORS TO COMPLIMENT LEVEL INDICATORS.

## COMMENTS

CONTROL ROOM INSTRUMENTATION AND EQUIPMENT SHOULD INCLUDE ALL CONTROLS AND DISPLAYS NEEDED FOR 1) DETECTION OF ABNORMAL CONDITIONS, AND 2) BRINGING THE PLANT TO A SAFE SHUTDOWN CONDITION. MOREOVER VISUAL DISPLAYS PROVIDED IN THE CONTROL ROOM SHOULD GIVE OPERATORS ALL INFORMATION ABOUT SYSTEM STATUS AND PARAMETER VALUES THAT IS NEEDED TO MEET TASK REQUIREMENTS IN EMERGENCY SITUATIONS.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

AT PRESENT, ALL ECCS SYSTEMS HAVE SYSTEM PRESSURE INDICATIONS WHICH, IN ADDITION TO LEVEL INDICATIONS, PROVIDE SUFFICIENT INDICATION OF ECCS SYSTEM STATUS.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

A3.19

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 135.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE ALL RODS IN  
LIGHT ON PANEL 603 SHOULD BE ON THE FRONT PANEL.

COMMENTS

INFORMATION CRITICAL TO THE SAFE AND RELIABLE OPERATION OF THE  
PLANT IN EMERGENCY SITUATIONS SHOULD BE LOCATED IN THE OPERATOR'S  
PRIMARY OPERATING AREA.

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

THERE IS CURRENTLY AN INDICATION OF ALL RODS IN ON PANEL 603.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

A3.20

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 603   |                        |                   |       |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 136.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT FOR 1/2  
ISOLATION/RPS TRIPS THERE IS CURRENTLY NO SURE WAY OF DETECTION.

## COMMENTS

VISUAL DISPLAYS SHOULD PROVIDE THE CR OPERATORS WITH ALL THE  
INFORMATION ABOUT SYSTEM STATUS AND PARAMETER VALUES THAT IS  
NEEDED TO MEET TASK REQUIREMENTS IN EMERGENCY SITUATIONS.

## ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

HALF SCRAM INDICATION CURRENTLY EXISTS ON THE ANNUNCIATOR AND  
MSIV HALF TRIP INDICATION EXISTS ON PANEL 602 VIA MSIV INDICATING  
LIGHT ARRAY.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

A3.24

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



168

# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 139.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT OFF GAS-CONDENSER ISOLATION VALVE SHOULD BE MANUALLY THROTTLED, NOT SEALED-IN OPEN/SHUT. THE OPERATOR WOULD HAVE BETTER CONTROL IF IT WERE THROTTLEABLE.

## COMMENTS

CONTROLS SHOULD BE SELECTED TO ENSURE EASE OF OPERATION AND TO MINIMIZE OPERATOR ERRORS. EACH CONTROL SHOULD BE ADEQUATE FOR THE FUNCTION IT PERFORMS AND IT SHOULD BE ADJUSTABLE WITH THE REQUIRED LEVEL OF PRECISION.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

ACCORDING TO OPERATIONS PERSONNEL AND THE TASK ANALYSIS DATABASE, THERE IS NO NEED FOR A THROTTLEABLE CAPABILITY FOR THIS FUNCTION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

B1.3

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



1974



1974

1974





# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 140.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE FOLLOWING SHOULD BE THROTTLEABLE; HIGH PRESSURE CORE SPRAY, LOW PRESSURE CORE SPRAY, LOW PRESSURE COOLANT INJECTION VALVES.

## COMMENTS

THESE ARE ALL IMPORTANT SYSTEMS FOR PLANT SAFETY. EACH CONTROL SHOULD BE SELECTED TO ENSURE EASE OF OPERATION AND TO MINIMIZE OPERATOR ERRORS. EACH CONTROL SHOULD BE ADJUSTABLE WITH THE REQUIRED LEVEL OF PRECISION TO ADEQUATELY PERFORM ITS FUNCTIONS.

## ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

THESE VALUES ARE CALLED OUT IN THE EOPS AS ADJUSTABLE. HOWEVER, THE FUNCTION THAT IS INVOLVED IS IN LEVEL CONTROL. THESE VALVES ARE PRESET TO PROVIDE THE PROPER FLOW FOR THEIR INTENDED EMERGENCY FUNCTIONS BUT IN THIS CASE ALL NORMAL LEVEL CONTROL CAPABILITY IS LOST. CONTROL LEVEL CAN BE MADE BY LIFTING THE LEADS TO CANCEL THE SEAL IN THEREBY PROVIDING A THROTTLEABLE VALVE. THIS PROCESS WILL BE DESCRIBED IN THE EOP AND WILL BE ADEQUATELY ADDRESSED IN EOP TRAINING. IT WOULD NOT BE AN ENHANCEMENT TO MAKE THESE VALVES THROTTLEABLE BECAUSE IT WOULD DEFEAT THE OTHER EMERGENCY PRESET FUNCTIONS OF THESE VALVES.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

B1.4

PANEL

EQUIPMENT  
ID NUMBER

EQUIPMENT  
NAME

OTHER



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 141.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE RESIDUAL HEAT REMOVAL SYSTEM INJECTION VALVES SHOULD BE ABLE TO BE THROTTLED SHUT FROM CONTROL ROOM. CURRENTLY SEAL IS OPEN SHUT. SHOULD BE SEAL IN OPEN ONLY, THROTTLEABLE CLOSE. THIS WOULD MAKE EOPS MORE EFFECTIVE AFTER CORE COVERAGE IS ACHIEVED.

## COMMENTS

THIS IS A SYSTEM IMPORTANT IN PLANT SAFETY. EACH CONTROL SHOULD BE SELECTED TO ENSURE EASE OF OPERATION AND TO MINIMIZE OPERATOR ERRORS. EACH CONTROL SHOULD BE ADJUSTABLE WITH THE REQUIRED LEVEL OF PRECISION TO ADEQUATELY PERFORM ITS FUNCTIONS.

ASSESSMENT CATEGORY: 3D

DISPOSITION: NO FIX

## EXPLANATION

IT IS NOT DESIRABLE TO HAVE THE INJECTION VALVES THROTTLEABLE. PRESENTLY, WE CAN SHUT HEAT EXCHANGER OUTLET VALVES AND THROTTLE WITH BYPASS VALVES, BUT IF COOLING IS DESIRED FOR INJECTION WATER, PROCEDURE CALLS FOR LIFTING SEAL-IN TO ACCOMPLISH THIS.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

B1.6

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
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# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 144.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT FOR THE TURBINE STOP VALVE TESTING PANEL TO TEST THE VALVES IS 20 FEET AWAY FROM ANOTHER PANEL WHERE THE OPERATOR WATCHES A POSITION INDICATION OF THE VALVES. THE EHC SYSTEM CURRENTS (ON TURBINE PANEL) SHOULD BE NEAR THE TURBINE CONTROL SECTION OF EHC. WHEN OPERATING OR TESTING TURBINE VALVES, SERVO CURRENT FLUCTUATIONS IS THE (FIRST) BEST INDICATION TO AN OPERATOR THAT HIS ACTION IS AFFECTING THE SYSTEM.

## COMMENTS

CONTROLS AND DISPLAYS SHOULD BE PLACED WITHIN THE CONTROL ROOM AT LOCATIONS WHICH PROMOTE EFFICIENT PROCEDURES, SAFE OPERATIONS AND MAXIMUM OPERATOR AWARENESS OF THE CURRENT SYSTEM CONDITION.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

WHILE THIS OPERATION IS NOT OPTIMAL, IT WAS WALKED THROUGH ON THE SIMULATOR AND DETERMINED THAT IT CAN BE ACCOMPLISHED EFFECTIVELY. IT IS A TEST PROCEDURE AND HAS NO PLANT SAFETY CONCERN OR TIME CRITICALITY INVOLVED. SINCE IT IS SCHEDULED FOR PERFORMANCE PRIOR TO SHIFT COVERAGE, SUFFICIENT PERSONNEL ARE AVAILABLE FOR ITS ACCOMPLISHMENT.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

B3.4

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        |                   |       |



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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 145.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE SOURCE RANGE MONITORS, AVERAGE POWER RANGE MONITORS, BYPASS AND ALARM LIGHTS ARE ON BACK PANELS-NOT FRONT-SO OPERATOR MUST GO BACK TO CHECK PRIOR TO GOING OUT OF BYPASS.

## COMMENTS

CONTROLS AND DISPLAYS SHOULD BE ASSIGNED TO WORK STATIONS SO AS TO MINIMIZE OPERATOR MOVEMENTS. THIS ASSIGNMENT SHOULD CONSIDER EMERGENCY PROCEDURES.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THERE ARE SOURCE RANGE AND POWER RANGE INDICATIONS ON THE FRONT PANELS. THESE INDICATIONS MUST BE VERIFIED WITH THE INFORMATION ON THE BACK PANEL PRIOR TO GOING OUT OF BYPASS AS A STANDARD PROCEDURE. THERE IS NO SAFETY CONCERN NOR TIME CRITICAL CONCERN AND THE INDICATIONS ARE VERY ACCESSIBLE TO THE CONTROL ROOM. SUFFICIENT PERSONNEL ARE AVAILABLE DURING THIS OPERATION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

B3.6

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 147.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT IN AN EMERGENCY THE DIESEL GENERATORS SUPPORT THE ECCS AND THERE IS NO WAY ONE OPERATOR COULD EFFECTIVELY MONITOR AND CONTROL BOTH.

COMMENTS

CONTROLS AND DISPLAYS SHOULD BE PLACED WITHIN THE CONTROL ROOM AT LOCATIONS WHICH PROMOTE EFFICIENT PROCEDURES, SAFE OPERATIONS AND MAXIMUM OPERATOR AWARENESS OF THE CURRENT SYSTEM CONDITION.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THE EOP WERE VALIDATED AS PART OF THE DCRDR. IT WAS SHOWN THAT CURRENT SHIFT STAFFING IS ADEQUATE TO MONITOR THESE FUNCTIONS DURING EMERGENCY OPERATION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

B3.8

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



145

# HUMAN ENGINEERING DISCREPANCY

HEX NUMBER: 148.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT PANEL 2CECPNL603 HAS THE REDUNDANT REACTIVITY CONTROL SYSTEM. THIS SYSTEM IS AN EMERGENCY SYSTEM AND SHOULD BE OVER ON THE ECCS PANEL ALONGSIDE THE S/B LIQUID CONTROL SYSTEM ON PANEL 3CECPNL601.

## COMMENTS

CONTROLS AND DISPLAYS SHOULD BE ASSIGNED TO WORK STATIONS SO AS TO MINIMIZE OPERATOR MOVEMENTS. THIS ASSIGNMENT SHOULD CONSIDER EMERGENCY PROCEDURES.

## ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

THE REDUNDANT REACTIVITY CONTROL SYSTEM HAS A GREATER RELATIONSHIP WITH ROD CONTROL AND SHOULD BE LOCATED ON PANEL 603 AS IT IS CURRENTLY.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

B3.9

| PANEL      | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|------------|------------------------|-------------------|-------|
| 2CECPNL601 |                        |                   |       |
| 2CECPNL603 |                        |                   |       |



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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 149.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE TOP SHEAR VALVE CL/CKT ABNORMAL IS AN ISOLATION SYSTEM INDICATION AND IS ON PANEL 2CECPNL603. IT SHOULD BE OVER ON PANEL 2CECPNL602 ALONG WITH THE NUCLEAR STEAM SUPPLY SHUTOFF (CONTAINMENT ISOLATION) EQUIPMENT.

## COMMENTS

CONTROLS AND DISPLAYS SHOULD BE ASSIGNED TO WORK STATIONS SO AS TO MINIMIZE OPERATOR MOVEMENTS. THIS ASSIGNMENT SHOULD CONSIDER EMERGENCY PROCEDURES.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE ANNUNCIATOR HAS SEVERAL IMPLICATIONS OTHER THAN CONTAINMENT ISOLATION IN THE EVENT THE SHEAR VALVE ISOLATES. IT ALSO INDICATES:

1. LOSS OF CONTINUITY OF PRIMER
2. SQUIB VALVE FIRED
3. SHEAR VALVE MONITOR CIRCUIT ABNORMAL

ITS CURRENT LOCATION REFLECTS THESE OTHER ASSOCIATIONS WHICH ARE THE MORE LIKELY OCCURENCES FOR THIS ANNUNCIATOR.

## IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

B3.10

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

2CECPNL602  
2CECPNL603



HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 158.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE CCS (TURBINE BUILDING CLOSED LOOP COOLING SYSTEM WHICH MAY BE SERVICE WATER) AMPERAGE READING IS INAPPROPRIATELY LOCATED.

COMMENTS

A VISUAL DISPLAY THAT WILL BE MONITORED DURING CONTROL MANIPULATION SHOULD BE LOCATED SUFFICIENTLY CLOSE SO THAT THE OPERATOR CAN READ IT CLEARLY AND WITHOUT PARALLAX FROM A NORMAL OPERATION POSTURE.

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

THE AMPERAGE READING IS PROPERLY LOCATED. OPERATOR FAMILIARITY WITH THIS SYSTEM WILL BE ENHANCED AS TRAINING ON THESE SYSTEMS PROGRESSES.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

B3.27

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 161.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

IN RESPONSE TO THE OPERATOR SURVEY FIVE OPERATORS REPORTED THE MAIN TURBINE CONTROLS ARE POORLY ARRANGED. THE TURBINE CONTROL PANEL IS ON VERTICAL PANEL WHEREAS LIFT PUMPS AND OIL PUMPS ARE ON HORIZONTAL SECTION AND MUST BE REACHED OVER BY OPERATOR WHEN DOING START-UP. TURBINE VALVE TEST BUTTONS ARE AT PANEL H13-P824 AND SHOULD BE AT PANEL H13-P851 FOR VALVE SURVEILLANCES.

## COMMENTS

CONTROLS SHOULD BE MOUNTED BELOW DISPLAYS. MOREOVER CONTROLS AND DISPLAYS SHOULD BE LOCATED SO THAT THEIR RELATIONSHIP IS APPARENT. OPERATORS SHOULD NOT HAVE TO LEAVE THEIR PRIMARY AREA IN AN EMERGENCY IN ORDER TO OPERATE CONTROLS AND OBSERVE THE RELATED DISPLAYS.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE CONTROLS ON THIS BOARD CAN BE EASILY OPERATED BY ALL NMP-2 OPERATORS AND FALL WITHIN THE REACH RANGE OF THE 5TH PERCENTILE FEMALE. THERE IS NO CONCERN OF INADVERTENT ACTUATION IN REACHING OVER THE J HANDLE PUMPS. THE TESTING FUNCTIONS CAN BE ADEQUATELY CARRIED OUT BY THE CONTROL ROOM CREW WHEN SCHEDULED TO BE COMPLETED.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY  
OPERATOR SURVEY

B4.6  
B4.17

PANEL  
EQUIPMENT  
ID NUMBER

EQUIPMENT  
NAME

OTHER

H13-P824  
H13-P851



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 162.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THE EMERGENCY RESET  
TIMER SHOULD BE CLOSER TO THE REACTOR PANEL.

## COMMENTS

DURING AN EMERGENCY THE REACTOR PANEL MAY BE AN OPERATORS PRIMARY  
AREA. CONTROLS NEEDED DURING THE EMERGENCY SHOULD BE  
LOCATED SO THE OPERATOR DOES NOT HAVE TO LEAVE HIS PRIMARY  
OPERATING AREA.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE EMERGENCY RESET TIMER REFERRED TO THE DESCRIPTION IS THE ADS  
TIMER WHICH SHOULD BE LOCATED IN CLOSE PROXIMITY TO THE ADS  
VALVES.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

B4.8

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HEM NUMBER: 167.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT REACTOR DRAIN VALVES TO DRY WELL EQUIPMENT DRAIN TANK SHOULD BE KEYLOCKED (THROTTLEABLE). IF SOMEONE INADVERTENTLY OPERATED REACTOR DRAIN VALVE CONTROLS (2) YOU COULD DRAIN REACTOR DOWN.

## COMMENTS

KEY-OPERATED CONTROLS ARE USED ONLY WHEN SYSTEM REQUIREMENTS DICTATE THAT THE FUNCTION BEING CONTROLLED SHOULD BE SECURED AGAINST ACTIVATION BY UNAUTHORIZED PERSONNEL. THIS IS SUCH A SITUATION.

ASSESSMENT CATEGORY: 3C

DISPOSITION: NO FIX

## EXPLANATION

ONLY AUTHORIZED PERSONNEL ARE PERMITTED IN THE CONTROL ROOM. ALL VALVE OPERATIONS WILL BE PERFORMED ONLY BY TRAINED OPERATORS. NO ACTUATION BY UNAUTHORIZED PERSONNEL IS PROBABLE.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

B5.7

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 168.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT ON THE REACTOR MANUAL CONTROL SYSTEM THE ROD IN/ROD OUT BUTTONS CAN BE CONFUSED EASILY.

## COMMENTS

CONTROLS SHOULD BE LOCATED AND ORIENTED SO THAT THE OPERATOR IS NOT LIKELY TO STRIKE OR MOVE THEM ADCIDENTALLY IN ANY IDENTIFIED SEQUENCE OF CONTROL MOVEMENTS.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE BUTTONS ARE CLEARLY LABELED AND CONFORM TO HF CONVENTIONS. THERE IS NO SIGNIFICANT CONSEQUENCE SHOULD THE BUTTONS BE CONFUSED.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

B5.8

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
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# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 172.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR MULTIPOINT PRINTING RECORDERS ARE DIFFICULT TO READ SUCH AS THE RESIDUAL TEST REMOVAL SYSTEM TEMPERATURE RECORDER WITH SEVEN POINTS. IT IS ALSO POORLY LOCATED. IT SHOULD BE NEAR RHR SYSTEM. AS OF NOW IT TAKES TWO OPERATORS TO USE IT. ALSO SHOULD HAVE NARROW RANGE RX LEVEL RECORDER LOCATED ABOVE THE RWCV REJECT TO CONDENSER/RADWASTE-PRESENT ARRANGEMENT IS POOR. THE RELIEF VALVE TEMPERATURE RECORDER HAS 24 POINTS, 18 RELIEF VALVES AND OTHER THINGS. THE RESPONSE IS VERY SLOW AND THUS NOT VERY USEFUL AND THERE IS NO OTHER RECORDING OF THIS INFORMATION. IT COULD GO TO THE COMPUTER.

## COMMENTS

GRAPHIC RECORDERS SHOULD BE LOCATED WITHIN THE PRIMARY OPERATING AREA IF THEY MUST BE VERIFIED AND ATTENDED BY THE OPERATOR. PENS, MARKS AND PAPER SHOULD PROVIDE CLEAR, DISTINCT AND RELIABLE MARKING THAT IS READILY READABLE.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE RHR SYS TEMP RECORDER IS ADJACENT TO THE WORKSTATION OF THE RHR SYS AND CANNOT BE LOCATED CLOSER DUE TO LACK OF SPACE. THE NEEDED INFORMATION CAN BE READ EFFECTIVELY. THE NARROW RANGE LEVEL RECORDER IS ADDRESSED IN HEO 0122. THE RELIEF VALVE TEMPERATURE RECORDER IS BACKED UP BY AN ANNUNCIATOR WHICH ACTUATES ON RELIEF VALVE TEMPERATURE. THE SPDS WILL PROVIDE INDICATIONS OF RELIEF VALVE TEMPERATURE.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

B6.4

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 173.01  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY REVEALED THAT INDICATORS ON THE CRT ARE TOO SMALL.

## COMMENTS

ALPHA-NUMERIC AND GRAPHIC CHARACTERS SHOULD BE READABLE BY THE OPERATOR UNDER ALL CONTROL ROOM LIGHTING CONDITIONS. VISUAL ANGLE OF SYMBOLS SHOULD SUBTEND NO LESS THAN 20 MINUTE ARC AT THE REQUIRED VIEWING DISTANCE. PRESENTED INFORMATION SHOULD BE PRESENTED IN A DIRECTLY USABLE FORM WITH MINIMAL REQUIREMENTS FOR DECODING, TRANSPOSING AND INTERPOLATING.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE CRT DISPLAY IS ADEQUATE. THE OPERATORS STATE THAT THERE IS NO PROBLEM READING THE DISPLAY.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

B6.10

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 173.02  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY REVEALED THAT TYPERS SHOULD HAVE DIFFERENT COLORED PRINTING HEADS TO SEPARATE THE BULL FROM THE HITS-RED FOR REACTOR POSITION SYSTEM, HITS-BLACK FOR ALARM TROUBLE.

## COMMENTS

ALPHA-NUMERIC AND GRAPHIC CHARACTERS SHOULD BE READABLE BY THE OPERATOR UNDER ALL CONTROL ROOM LIGHTING CONDITIONS. VISUAL ANGLE OF SYMBOLS SHOULD SUBTEND NO LESS THAN 20 MINUTES ARC AT THE REQUIRED VIEWING DISTANCE. PRESENTED INFORMATION SHOULD BE PRESENTED IN A DIRECTLY USABLE FORM WITH MINIMAL REQUIREMENTS FOR DECODING, TRANSPOSING AND INTERPOLATING.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE FIX IS NOT NECESSARY FOR THE FOLLOWING REASONS:

1. OPERATOR IS ALERTED TO THE PROBLEM BY ANNUNCIATORS.
2. THE CRT DISPLAYS DIFFERENT COLORS FOR RSP TRIPS AND REGULAR ALARMS.
3. THE PRINTER IS USED FOR RECORD PURPOSES.
4. PRINTED INFORMATION IS NOT TIME CRITICAL.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

B6.10

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        |                   |       |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 176.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

IN RESPONSE TO THE OPERATOR SURVEY FOUR OPERATORS STATED A NEED FOR BATTERY GROUND INDICATIONS. THE OPERATOR SHOULD NOT HAVE TO GO TO THE BACK PANEL 852 TO DETERMINE TROUBLE. THE INDICATORS SHOULD BE ON FRONT PANEL.

## COMMENTS

OPERATORS SHOULD NOT HAVE TO LEAVE THE PRIMARY OPERATING AREA TO ATTEND TO CONTROL ROOM INSTRUMENTATION ON BACK PANELS DURING OPERATIONAL SEQUENCES IN WHICH CONTINUOUS MONITORING ON THE TIMING OF CONTROL ACTIONS MAY BE CRITICAL.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE BATTERY CONTROLS AND INDICATORS ARE LOCATED TOGETHER ON THE REAR OF PANEL 852. THIS IS VERY ACCESSIBLE TO THE CONTROL ROOM. SINCE THE EQUIPMENT MUST BE USED TOGETHER, IT IS MORE IMPORTANT TO GROUP THE EQUIPMENT ON THIS BACK PANEL THAN TO LOCATE SOME EQUIPMENT ON THE FRONT AND OTHERS ON THE BACK PANEL.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

B7.1

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 852   |                        |                   |       |



111



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 177.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT NEUTRON INSTRUMENTATION ALARM STATUS LIGHTS SHOULD BE ON FRONT PANEL. NEUTRON MONITORING SHOULD BE CLOSER TO THE FRONT.

## COMMENTS

OPERATORS SHOULD NOT HAVE TO HAVE THE PRIMARY OPERATING AREA TO ATTEND TO CONTROL ROOM INSTRUMENTATION ON BACK PANELS DURING OPERATIONAL SEQUENCES IN WHICH CONTINUOUS MONITORING OR THE TIMING OF CONTROL ACTIONS MAY BE CRITICAL.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THERE ARE SOURCE RANGE AND POWER RANGE INDICATIONS ON THE FRONT PANELS. THESE INDICATIONS MUST BE VERIFIED WITH THE INFORMATION ON THE BACK PANEL PRIOR TO GOING OUT OF BYPASS AS A STANDARD PROCEDURE. THERE IS NO SAFETY CONCERN NOR TIME CRITICAL CONCERN AND THE INDICATIONS ARE VERY ACCESSIBLE TO THE CONTROL ROOM. SUFFICIENT PERSONNEL ARE AVAILABLE DURING THIS OPERATION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY  
OPERATOR SURVEY

B7.2

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



191

192

# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 178.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE DRY WELL LEAKAGE CHART RECORDERS ARE ON BACK PANEL AND SHOULD BE ON A FRONT PANEL.

## COMMENTS

OPERATORS SHOULD NOT HAVE TO LEAVE THE PRIMARY OPERATING AREA TO ATTEND TO CONTROL ROOM INSTRUMENTATION ON BACK PANELS DURING OPERATIONS SEQUENCES IN WHICH CONTINUOUS MONITORING OR THE TIMING OF CONTROL ACTIONS MAY BE CRITICAL.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THIS EQUIPMENT IS LOCATED DIRECTLY BEHIND PANEL 601 MAKING IT VERY ACCESSIBLE TO THE CONTROL ROOM. IT IS PRIMARILY NEEDED FOR LONG TERM TRENDING INFORMATION AND THE EQUIPMENT IS ROUTINELY CHECKED. THERE ARE SUMMARY ANNUNCIATORS WHICH DIRECT THE OPERATOR TO THE NEED FOR OBSERVING THIS EQUIPMENT.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

B7.4

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 179.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE REACTOR BUILDING VENT CONTROL FOR CONTROL OF BUILDING PRESSURES SHOULD BE ON FRONT PANEL.

COMMENTS

OPERATORS SHOULD NOT HAVE TO LEAVE THE PRIMARY AREA TO ATTEND TO CONTROL ROOM INSTRUMENTATION ON BACK PANELS DURING OPERATIONAL SEQUENCES IN WHICH CONTINUOUS MONITORING OR THE TIMING OF CONTROL ACTIONS IS CRITICAL.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THERE IS THE CAPABILITY TO ISOLATE REACTOR BUILDING AND STARTUP THE STANDBY GAS TREATMENT WHICH PUTS THE PLANT INTO A SAFE CONDITION. THE MODIFICATION IS A "NICE TO HAVE" CONDITION FOR RETURNING TO NORMAL OPERATION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

B.7.6

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 180.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE CONTAINMENT PURGE CONTROLS SHOULD BE ON FRONT PANEL. OPERATOR SHOULD NOT HAVE TO GO TO BACK PANELS TO ADD OR BLEED NITROGEN.

## COMMENTS

OPERATORS SHOULD NOT HAVE TO LEAVE THE PRIMARY OPERATING AREA TO ATTEND TO CONTROL ROOM INSTRUMENTATION ON THE BACK PANELS DURING OPERATIONAL SEQUENCES IN WHICH CONTINUOUS MONITORING OR THE TIMING OF CONTROL ACTIONS MAY BE CRITICAL.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THIS INFORMATION IS NOT OF A CRITICAL NATURE AND IS PROPERLY LOCATED ON A BACKPANEL. THERE IS NO TIME CRITICAL OPERATION INVOLVED WITH THE EQUIPMENT.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

B7.7

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |





HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 181.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT CHART RECORDERS FOR VESSEL METAL TEMPERATURES SHOULD BE ON FRONT PANEL. THIS INFORMATION SHOULD BE READILY ACCESSIBLE FOR TECHNICAL SPECIFICATION COMPLIANCE DURING HEATUP AND TRENDS ARE IMPORTANT.

COMMENTS

OPERATORS SHOULD NOT HAVE TO LEAVE THE PRIMARY OPERATING AREA TO ATTEND TO CONTROL ROOM INSTRUMENTATION ON BACK PANELS DURING OPERATIONAL SEQUENCES IN WHICH CONTINUOUS MONITORING OR THE TIMING OF CONTROL ACTIONS MAY BE CRITICAL.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THIS INFORMATION IS USED PRIMARILY DURING STARTUP WHEN THERE ARE SUFFICIENT OPERATORS AVAILABLE TO MAN THIS STATION. IN ADDITION, THE INFORMATION IS AVAILABLE FOR TRENDING PURPOSES ON THE PLANT COMPUTER.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

B7.8

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 189.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT WHEN THE COMPUTER IS OUT OR THE PRINTER IS OUT THERE IS NO WAY OF KNOWING WHAT IS THE PRECISE CAUSE OF AN ALARM ON A MULTIPLE ANNUNCIATOR. THE SEQUENCE OF ALARMS IS ON THE COMPUTER AND IF IT IS DOWN AND OUT ONE DOES NOT KNOW THE SEQUENCE.

## COMMENTS

WHEN MULTI-INPUT ANNUNCIATORS ARE USED, AN ALARM PRINTOUT CAPABILITY IS PROVIDED. THE SPECIFICS OF THE ALARM ARE PRINTED ON AN ALARM TYPER WITH SUFFICIENT SPEED. A BUFFER STORAGE CAPTURES ALL ALARM DATA.

ASSESSMENT CATEGORY: 3C

DISPOSITION: NO FIX

## EXPLANATION

THIS IS CONSIDERED HIGHLY UNLIKELY SINCE THERE IS A CRT PRINTER AND REDUNDANT COMPUTERS. OPERATORS CAN USE CONTROL ROOM INSTRUMENTATION, SPDS, AND ERF INFORMATION AND OBSERVATIONS WITHIN THE PLANT TO ASSESS ALARM CONDITIONS WHEN THE PLANT COMPUTER IS OUT OF SERVICE.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

C4.2

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 190.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT WHEN DESIGN BASIS ACCIDENT RECOMBINER SYSTEM IS INOPERABLE IT HAS 7 (VALVES) CAUSES BUT ONLY ONE COMPUTER PRINTOUT. STANBY GAS TREATMENT SYSTEM MAY BECOME INOPERABLE FROM ANY OF 7 CAUSES BUT HAS ONLY ONE COMPUTER PRINTOUT. OPERATOR WILL HAVE TO LOOK OTHER PLACES FOR CAUSES.

## COMMENTS

WHEN MULTI-INPUT ANNUNCIATORS ARE USED, AN ALARM PRINTOUT CAPABILITY IS PROVIDED. THE SPECIFICS OF THE ALARM SHOULD BE PRINTED ON AN ALARM TYPER WITH SUFFICIENT SPEED AND BUFFER STORAGE TO CAPTURE ALL ALARM DATA.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE MULTIPLE INPUT ALARMS ARE SUPPORTED BY INFORMATION ON BACK PANEL 873 AND 875. THE OPERATOR IS REQUIRED BY THE RESPONSE PROCEDURE TO REVIEW THIS INFORMATION SO THAT THE OPERATOR MUST GO TO THE BACK PANELS ANYWAY. THE PANELS ARE LOCATED WITHIN TO THE CONTROL ROOM AND ADEQUATELY SUPPORT THE OPERATOR'S NEED DURING THE ABNORMAL CONDITION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

C4.3

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



2.5  
1.0  
1.0  
1.0  
1.0  
1.0  
1.0

1.0 1.0 1.0

1.0

1.0

1.0

HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 191.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT ANNUNCIATOR 851229, INSTRUMENT AIR TROUBLE, HAS LOW PRESS AND LOW LOW PRESSURE AS AN INPUT. THESE SHOULD BE SEPARATE. THERE ARE 13 INPUTS TO ANNUNCIATOR.

COMMENTS

THE LOSS OF LOW LOW AIR PRESSURE IS CRITICAL SINCE IT INDICATES LOSS OF INSTRUMENT AIR. THIS IS CRITICAL TO PLANT SAFETY AND OPERATIONS AND SHOULD BE A SPECIFIC ANNUNCIATOR WITHOUT POTENTIAL FOR AMBIGUITY.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THIS MULTIPLE ALARM INPUT IS SUPPORTED BY INFORMATION ON PANEL 851. THE RESPONSE PROCEDURE DIRECTED THE OPERATOR TO THIS INFORMATION FOR DETERMINING CORRECT RESPONSE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

C4.6

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



21  
22  
23

24





# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 192.01  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT FOR ONE ANNUNCIATOR, "US1-9 UNDER VOLATAGE" BRINGS UP 9 POINTS WHICH SAY "US1-9 UNDERVOLTAGE." THIS ILLUSTRATES THAT WHEN A MULTIPLE INPUT ANNUNCIATOR ALARMS.

## COMMENTS

WHEN MULTI-INPUT ANNUNCIATORS ARE USED, AN ALARM PRINTOUT CAPABILITY IS PROVIDED. THE SPECIFICS OF THE ALARM ARE PRINTED ON AN ALARM TYPER WITH SUFFICIENT SPEED AND BUFFER STORAGE TO COMPUTER ALL ALARM DATA.

## ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

THERE ARE COMPUTER PRINTOUT POINTS WHICH IDENTIFY THE SPECIFIC ALARM INFORMATION NEEDED FOR OPERATOR RESPONSE.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

C4.8

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



11

12



13

14

15



# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 197.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT FOLLOWING SCRAM, THE TYPER USED TO SEPARATE THE RPS TRIPS AND REGULAR ALARM SHOULD PRINTOUT IN DIFFERENT COLORS. NOW THEY PRINT IN ONE COLOR, BLACK. THIS MAKES IT HARD TO PICK OUT IMPORTANT INFORMATION.

## COMMENTS

ALPHA-NUMERIC AND GRAPHIC CHARACTERS SHOULD BE READABLE BY OPERATOR. VISUAL ANGLE OF LETTERS AND SYMBOLS SHOULD SUBTEND 20 MINUTES OF ARC. PRINTED INFORMATION SHOULD BE PRESENTED IN A DIRECTLY USABLE FORM WITH MINIMAL REQUIREMENTS FOR DECODING, TRANSPOSING OR INTERPOLATING.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

SAME AS HEO 173.02. THE FIX IS NOT NECESSARY FOR THE FOLLOWING REASONS:

1. OPERATOR IS ALERTED TO THE PROBLEM BY ANNUNCIATORS,
2. THE CRT DISPLAYS DIFFERENT COLORS FOR RSP TRIPS AND REGULAR ALARMS,
3. THE PRINTER IS USED FOR RECORD PURPOSES,
4. PRINTED INFORMATION IS NOT TIME CRITICAL.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

E3.1

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 201.00  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THERE ARE MANY COMPUTER POINTS WHICH DUPLICATE THE ANNUNCIATORS, EG. "MAKE UP WATER SYSTEM TROUBLE". WHICH IS BOTH ANNUNCIATOR AND COMPUTER POINT. THESE TYPE COMPUTER ALARMS DO NOT EXPAND ON THE INFORMATION TO THE OPERATOR. PRESENTLY JUST A NUISANCE TO OPERATORS SINCE THEY NEED TO SEND SOMEONE TO LOCAL PANEL OUTSIDE CR TO DETERMINE CAUSE.

## COMMENTS

COMPUTER SYSTEMS SHOULD PRESENT INFORMATION ON PLANT STATUS AND ALARM INFORMATION TO OPERATORS IN ADDITION TO WHAT IS AVAILABLE ON THE ANNUNCIATORS.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE ALARMS REFERENCE LOCAL PANELS AND BACK PANEL INSTRUMENTATION WHICH MUST BE OBSERVED AS A CONDITION OF THE RESPONSE PROCEDURE. TOO MUCH INFORMATION IS NEEDED TO PROVIDE THE OPERATOR WITH THE REQUIRED DETAIL TO FULLY RESPOND TO EVERY ANNUNCIATOR IN THE CONTROL ROOM. PROVIDING ADDITIONAL DETAILS OF THE SPECIFIC CONDITION WOULD NOT ENHANCE THE SITUATION SINCE THE LOCAL PANEL INSTRUMENTS MUST BE OBSERVED AS A CONDITION OF THE RESPONSE.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

E5.3

EQUIPMENT  
ID NUMBER

EQUIPMENT  
NAME

OTHER



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 203.02  
UTILITY: NMP

ORIGINATOR: RD  
PLANT: NMP

DATE: 3/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT NO CHART RECORDERS ARE OPERATIONAL AND CHART RECORDERS ARE OPERATIONAL AND CONSTRUCTION ELECTRICIAN HAS TO CHANGE ANY BULBS. THERE ARE CURRENTLY NO PRINTS, PROCEDURES, ETC. IN THE CONTROL ROOM.

## COMMENTS

SPARE PARTS, OPERATING EXPENDABLES AND ANY TOOLS THAT ARE NEEDED BY OPERATING PERSONNEL WILL BE STORED IN A SUITABLE, DESIGNATED SPACE IN THE CONTROL ROOM. OTHER TYPES OF DOCUMENTS TO BE KEPT IN CONTROL ROOM IN AN ORGANIZED MANNER ARE PLANT SCHEMATICS, CHECK OFF SHEETS, EMERGENCY PLANS, TECHNICAL MANUALS AND STATION AND GENERAL ADMINISTRATIVE ORDERS.

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

PRINTS AND PROCEDURES ARE AVAILABLE IN THE CONTROL ROOM.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

OPERATOR SURVEY

F2.5

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|





HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 209.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THERE IS NO RPV LEVEL AT PANEL 851 FOR FEEDBACK PURPOSES WHEN  
DEPRESSURIZING THE RPV USING MAIN TURBINE BYPASS VALVES.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THE INFORMATION PRESENTED ON PANEL 603 IS SUFFICIENT SINCE THE  
DATA ARE NOT TIME CRITICAL.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VALIDATION

3.2

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 210.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THERE IS NO RPV PRESSURE AT PANEL 601 FOR FEEDBACK PURPOSES WHEN  
USING SRV'S.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

THERE IS A POST ACCIDENT MONITOR RPV PRESSURE ON PANEL 601.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VALIDATION

3.16

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 213.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE USE OF A KEYLOCK SWITCH FOR REACTOR SCRAM BYPASS. IS NOT  
NEEDED.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

THERE IS A NEED FOR A KEYLOCK SWITCH ON THE REACTOR SCRAM BYPASS.  
BYPASS OF A REACTOR SCRAM REQUIRES POSITIVE OPERATOR ACTION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VALIDATION

4.35

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME    | OTHER |
|-------|------------------------|----------------------|-------|
| 603   |                        | REACTOR SCRAM BYPASS |       |

2

1

1/2

# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 214.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THERE IS NO INDICATION AVAILABLE FOR BOTH SETS OF VENT AND DRAIN VALVES FOR THE SCRAM DISCHARGE VOLUME.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

DISPLAY IS DIRECTLY FROM BOTH VALVES BY INDICATION "OPEN" WHEN BOTH VALVES ARE OPEN AND "CLOSED" WHEN EITHER VALVE IS CLOSED. THIS IS ACCEPTABLE FOR PLANT SAFETY OPERATION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VALIDATION

4.43

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME            | OTHER |
|-------|------------------------|------------------------------|-------|
| 603   |                        | SCRAM DISCHARGE VOLUME DRAIN |       |
| 603   |                        | SCRAM DISCHARGE VOLUME VENT  |       |





HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 217.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

RPV LEVELS ARE PROVIDED IN ELEVATION WHEN A MORE APPROPRIATE  
MEASURE WOULD BE FROM A ZERO REFERENCE POINT.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

TEST ACCIDENT RECORDERS PRESENTLY HAVE A SCALE OF -18' TO 0 TO  
18'. THIS RANGE INDICATES A REFERENCE POINT OF ZERO.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VALIDATION

5.6

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   |                        | RPV LVL           |       |



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 218.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

OPERATORS MUST LEAVE PRIMARY OPERATING AREA TO OPERATE AVAILABLE DRYWELL COOLING.

COMMENTS

BACK PANEL IS WITHIN CONTROL AREA.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

DRYWELL COOLING CONTROLS ARE INFREQUENTLY USED AND THEREFORE ARE PROPERLY LOCATED AT THE BACK PANEL.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VALIDATION

7.2

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME    | OTHER |
|-------|------------------------|----------------------|-------|
| 873   |                        | DRYWELL COOLING FANS |       |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 221.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

RHR TO DRYWELL SPRAY MOVS(15B,25B) ARE NOT THROTTLEABLE VALVES.  
TASK IS TO THROTTLE DRYWELL SPRAY (720 GPM).

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

TO A SPECIAL PROCEDURE TO ADJUST DRYWELL SPRAY IN THE EOPS.  
CHANGE TO THE EXISTING CONTROL IS NOT NECESSARY.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### VALIDATION

7.9

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME      | OTHER |
|-------|------------------------|------------------------|-------|
| 601   |                        | RHR B TO DRYWELL SPRAY |       |
| 601   |                        | RHR B TO DRYWELL SPRAY |       |



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 222.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

OPERATOR MUST LEAVE PRIMARY OPERATING AREA TO OBSERVE TEMPERATURE FOR SBT  
SUCTION AND OPERATE SBT.

COMMENTS

AVAILABLE ON PANELS 870 AND 871.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THESE DISPLAYS AND CONTROLS ARE PROPERLY LOCATED AND DO NOT  
REQUIRE A LARGE AMOUNT OF TIME TO OBSERVE OR OPERATE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VALIDATION

9.3

VALIDATION

9.2

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|





HUMAN ENGINEERING DISCREPANCY

-----

HE NUMBER: 223.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

-----

THERE IS NO WIDE RANGE LEVEL INDICATION FOR SUPPRESSION POOL B.

COMMENTS

-----

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

-----

CHANNEL B WIDE RANGE SUPPRESSION POOL LEVEL INDICATION IS PROVIDED  
PANEL 898.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

-----

EXPLANATORY INFORMATION

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VALIDATION

9.5

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |
| 601   |                        | SUPP POOL LVL     |       |



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 224.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THERE ARE NO AREA TEMPERATURES AVAILABLE IN THE CONTROL ROOM TO  
OBSERVE IF ANY AREA TEMP IS GREATER THAN NORMAL.

COMMENTS

THERE ARE SELECTED ANNUNCIATORS WHICH WILL PROVIDE NECESSARY  
INFORMATION.

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

THERE ARE AREA TEMPERATURE INDICATIONS ON PANELS 632 AND 642.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VALIDATION

11.2

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



100

100

# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 226.02  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THROTTLE IS NEEDED TO THROTTLE LPCS INJECTION FLOW.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE VALUES ARE CALLED OUT IN THE EOPS AS ADJUSTABLE, HOWEVER, THE FUNCTION THAT IS INVOLVED IS IN LEVEL CONTROL. THESE VALVES ARE PRESET TO PROVIDE THE PROPER FLOW FOR THEIR INTENDED EMERGENCY FUNCTIONS BUT IN THIS CASE ALL NORMAL LEVEL CONTROL CAPABILITY IS LOST (THESE ARE FAR DOWN THE LIST OF OPTIONS). A FINAL ATTEMPT TO CONTROL LEVEL CAN BE MADE BY LIFTING THE LEADS TO CANCEL THE SEAL IN THEREBY PROVIDING A THROTTLEABLE VALVE. THIS PROCESS WILL BE DESCRIBED IN THE EOP AND WILL BE ADEQUATELY ADDRESSED IN EOP TRAINING. IT WOULD NOT BE AN ENHANCEMENT TO MAKE THESE VALVES THROTTLEABLE BECAUSE IT WOULD DEFEAT THE OTHER EMERGENCY PRESET FUNCTIONS OF THESE VALVES.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VALIDATION

20.10

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   |                        | FV-114            |       |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 227.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/ 9/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THERE IS NO THROTTLE CAPABILITY FOR MOV 104 NEEDED TO THROTTLE  
LPCS INJECTION FLOW.

## COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

THESE VALUES ARE CALLED OUT IN THE EOPS AS ADJUSTABLE, HOWEVER,  
THE FUNCTION THAT IS INVOLVED IS IN LEVEL CONTROL. THESE VALVES  
ARE PRESET TO PROVIDE THE PROPER FLOW FOR THEIR INTENDED  
EMERGENCY FUNCTIONS BUT IN THIS CASE ALL NORMAL LEVEL CONTROL  
CAPABILITY IS LOST (THESE ARE FAR DOWN THE LIST OF OPTIONS). A  
FINAL ATTEMPT TO CONTROL LEVEL CAN BE MADE BY LIFTING THE LEADS  
TO CANCEL THE SEAL IN THEREBY PROVIDING A THROTTLEABLE VALVE.  
THIS PROCESS WILL BE DESCRIBED IN THE EOP AND WILL BE ADEQUATELY  
ADDRESSED IN EOP TRAINING. IT WOULD NOT BE AN ENHANCEMENT TO  
MAKE THESE VALVES THROTTLEABLE BECAUSE IT WOULD DEFEAT THE OTHER  
EMERGENCY PRESET FUNCTIONS OF THESE VALVES.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VALIDATION

20.10

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   |                        | MOV 104           |       |





# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 228.00  
UTILITY: NMP

ORIGINATOR: RK  
PLANT: NMP

DATE: 4/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

DURING ANALYSIS OF THE WALK THROUGH VALIDATION VIDEOTAPES IT WAS OBSERVED THE OPERATORS FREQUENTLY LEFT THE PRIMARY OPERATING AREA TO PERFORM TASKS AT THE BACK PANELS.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

SAME AS HEOs 218 AND 222. THE DISPLAYS AND CONTROLS ARE INFREQUENTLY USED AND THEREFORE ARE PROPERLY LOCATED.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## VALIDATION

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 229.00  
UTILITY: NMP

ORIGINATOR: RK  
PLANT: NMP

DATE: 4/12/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

DURING VALIDATION FILM ANALYSIS IT WAS OBSERVED THAT THE CONTROL/DISPLAY RELATIONSHIP WAS VIOLATED ON PANEL 601. DURING A LOCA SCENARIO THE OPERATOR WAS MONITORING CONTAINMENT PARAMETER ON PANEL 601, HE MANIPULATED A CONTROL WHILE LOOKING AT A DISPLAY LOCATED FAR TO HIS RIGHT.

## COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

DURING THIS SEQUENCE, THE OPERATOR ONLY SILENCED ALARMS ON PANEL 601. HE WAS LOOKING AT PRESSURE AND LEVEL METERS TO PROVIDE FEEDBACK TO THE SECOND OPERATOR.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### VALIDATION

TAPE 1 1:14

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 230.00  
UTILITY: NMP

ORIGINATOR: RK  
PLANT: NMP

DATE: 4/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE FILM ANALYSIS OF THE VALIDATION WALK THROUGH SHOWED THAT THE OPERATOR'S TASK ASSIGNMENTS ARE UNCERTAIN. ONE OPERATOR USUALLY MONITORED ONE SECTION OF THE CONTROL PANELS BUT AT TIMES DURING THE SCENARIOS HE LEFT THOSE PANELS, CONVERSED WITH THE OTHER OPERATOR, AND PERFORMED TASKS AT PANELS THAT APPEARED TO BE ASSIGNED TO THE OTHER OPERATOR. THEN THE OPERATOR HAD TO WALK BACK TO THE PANELS THAT WERE ASSIGNED TO HIM TO MONITOR STATUS.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE SYSTEMS AND SYSTEM COMPONENTS ARE LAYED OUT IN A LOGICAL, ORGANIZED FASHION WHICH SUPPORTS EMERGENCY OPERATIONS. THE OPERATORS IN QUESTION WERE IN TRAINING AND HAVE NOT YET ORIENTED THEMSELVES TO THE EOPS AND PANEL LAYOUTS. IT IS NORMAL THAT THE OPERATORS WOULD "TRADE OFF" TASKS AT CERTAIN PANELS DEPENDING UPON THE SCENARIO. ADDITIONALLY, THE VALIDATION SCENARIOS WERE PERFORMED USING ONLY TWO OPERATORS WHILE OTHER OPERATORS WILL BE AVAILABLE DURING A REAL EMERGENCY.

## IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

## VALIDATION

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 231.00  
UTILITY: NMP

ORIGINATOR: RK  
PLANT: NMP

DATE: 2/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

A CRITERION FOR TASK PERFORMANCE USED DURING VALIDATION WAS THAT CONTROL ROOM LAYOUT MINIMIZED OPERATOR MOVEMENTS. DURING VALIDATION FILM ANALYSIS OF EACH SCENARIO, IT WAS OBSERVED THAT ALOT OF MOVEMENT WAS REQUIRED OF THE OPERATORS. TWO OPERATORS COVER THE ENTIRE CONTROL ROOM. ONE OPERATOR APPEARS TO HAVE RESPONSIBILITY FOR PANEL 601 AND THE OTHER OPERATOR FOR PANELS 851, 852, 602, AND 603. EACH OPERATOR INTERMITTENTLY GOES TO THE BACK PANELS AS REQUIRED. THIS IS ALOT OF AREA FOR EACH OPERATOR TO COVER. DURING THE SCENARIOS THEY WOULD WALK BACK AND FORTH IN FRONT OF THEIR WORKSTATIONS TO PERFORM CONTROL FUNCTIONS AND TO MONITOR DISPLAYS.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE SYSTEMS AND SYSTEM COMPONENTS ARE LAYED OUT IN A LOGICAL, ORGANIZED FASHION WHICH SUPPORTS EMERGENCY OPERATIONS. THE OPERATORS IN QUESTION WERE IN TRAINING AND HAVE NOT YET ORIENTED THEMSELVES TO THE EOPS AND PANEL LAYOUTS. IT IS NORMAL THAT THE OPERATORS WOULD "TRADE OFF" TASKS AT CERTAIN PANELS DEPENDING UPON THE SCENARIO. ADDITIONALLY, THE VALIDATION SCENARIOS WERE PERFORMED USING ONLY TWO OPERATORS WHILE OTHER OPERATORS WILL BE AVAILABLE DURING A REAL EMERGENCY.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## VALIDATION

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

5.78



# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 235.01  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE CHARACTER HEIGHT OF THE LETTERING ON SOME DISPLAYS DOES NOT  
SUBTEND THE MINIMUM SPECIFIED VISUAL ANGLE OF 15 MINUTES.

## COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: NO FIX

## EXPLANATION

NAME AS HEO 110. THE GE 185 METERS ARE USED FOR VALVE POSITION  
ONLY. THE ACTUAL PROCESS VARIABLE IS INDICATED BY LARGE 180  
METERS. THE 185 METERS AND FOXBORO CONTROLLERS DO NOT HAVE TO BE  
READ ACCURATELY, ON THE FOXBORO CONTROLLERS THE COMPARISON OF THE  
RELATIVE POSITION OF TWO POINTERS IS ALL THAT IS IMPORTANT.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

5.1.3.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME       | OTHER |
|-------|------------------------|-------------------------|-------|
| 601   |                        | FOXBORO CONTROLLERS     |       |
| 842   |                        | SERVO VALVE CURRENTS    |       |
| 851   |                        | ALL FOXBORO CONTROLLERS |       |
| 873   |                        | ALL FOXBORO CONTROLLERS |       |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 235.02  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE CHARACTER HEIGHT OF THE LETTERING ON SOME DISPLAYS DOES NOT  
SUBTEND THE MINIMUM SPECIFIED VISUAL ANGLE OF 15 MINUTES.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE METERS ARE READABLE FROM THE NORMAL OPERATING STATION AT  
WHICH THE OPERATOR WILL UTILIZE THE INFORMATION.

## IMPLEMENTATION:

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

## CHECKLIST

5.1.3.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                            | OTHER |
|-------|------------------------|--|-------|
| 601   |                        | HPCS TEST RTN TO CND STM TANK MOV110         |       |
| 601   |                        | HPCS TEST RTN TO CND STM TANK MOV112         |       |
| 601   |                        | RHR HT EXCH B VENT MOV26B                    |       |
| 601   |                        | RHR HT EXCH B VENT MOV27B                    |       |
| 602   |                        | RECIRC LOOP A FLOW CONTROL (5 METERS)        |       |
| 602   |                        | RECIRC LOOP B FLOW CONTROL (5 METERS)        |       |
| 603   |                        | FEEDWATER B TO LV10B                         |       |
| 603   |                        | FEEDWATER BIAS C TO LV10C                    |       |
| 603   |                        | HI PRESS LOW FLOW FD WTR A CNTL VLV<br>LV55A |       |
| 603   |                        | HI PRESS LOW FLOW FD WTR B CNTL VLV<br>LV55B |       |
| 603   |                        | LOW PRESS LOW FLOW FD WTR COND VLV           |       |
| 851   |                        | COMBINED INTERMEDIATE VALVE POSITION         |       |
| 851   |                        | CONTROL VALVE POSITION                       |       |
| 851   |                        | MAIN STOP VALVE POSITION                     |       |
| 852   |                        | COND HWL CNDS DR OFF LV POSN                 |       |







1

2

3

4

5

# HUMAN ENGINEERING DISCREPANCY -----

HE NUMBER: 236.00  
 UTILITY: NMP

ORIGINATOR: BK  
 PLANT: NMP

DATE: 4/29/1985  
 UNIT: 2

## DESCRIPTION OF DISCREPANCY -----

THE CHARACTER HEIGHT OF THE SWITCH POSITION IDENTIFICATION LABELS FOR MANY J-HANDLES IS TOO SMALL. THE CHARACTER HEIGHT GUIDELINE SPECIFIES A MINIMUM VISUAL ANGLE OF 15 MIN. THESE SWITCH POSITION LABELS ARE VERY SMALL AND DIFFICULT TO READ.

## COMMENTS -----

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION -----

POSITIONS CAN BE READILY OBSERVED. J HANDLES FOR VALVES ARE LIMITED TO BREAKERS AND PUMPS, AND OPERATION OF THESE SWITCHES IS CONSISTENT THROUGHOUT THE CONTROL ROOM.

## IMPLEMENTATION:

## SOURCE OF DISCREPANCY -----

## EXPLANATORY INFORMATION -----

## CHECKLIST

6.4.1.A(1)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                      | OTHER |
|-------|------------------------|--|-------|
| ----- | -----                  | -----                                  | ----- |
| 602   |                        | LOW FREQ MG SET GEN BRKR 2A            |       |
| 602   |                        | LOW FREQ MG SET GEN BRKR 2B            |       |
| 602   |                        | RECIR PUMP 1A MOTOR A BRKR 5A          |       |
| 602   |                        | RECIRC PUMP 1B MOTOR B BRKR 5B         |       |
| 603   |                        | 1ELEMENT/3 ELEMENT FEEDWATER CONTROL   |       |
| 851   |                        | 345KV MOD MDS 1                        |       |
| 851   |                        | BREATHING AIR COMPRESSOR 1             |       |
| 851   |                        | CIRC WTR PUMP 1A                       |       |
| 851   |                        | CIRC WTR PUMP 1B                       |       |
| 851   |                        | CIRC WTR PUMP 1C                       |       |
| 851   |                        | CIRC WTR PUMP 1D                       |       |
| 851   |                        | CIRC WTR PUMP 1E                       |       |
| 851   |                        | CIRC WTR PUMP 1F                       |       |
| 851   |                        | CLN STM REBLR 1A START-UP DRAIN SOV37A |       |





|     |   |
|-----|---|
| 851 | CLN STM REBLR 1A START-UP DRAIN SOV37B    |
| 851 | CLN STM REBLR 1A STARTUP VENT VLV SOV36A  |
| 851 | CLN STM REBLR 1A -STARTUP VENT VLV SOV36B |
| 851 | COND AIR REMOVAL PUMP 1A                  |
| 851 | COND AIR REMOVAL PUMP 1B                  |
| 851 | CONDENSATE XFR PUMP 1B                    |
| 851 | CONDENSATE XFR PUMP A                     |
| 851 | EHC FLUID PUMP 1A                         |
| 851 | EHC FLUID PUMP 1B                         |
| 851 | EMER SEAL OIL PUMP 2                      |
| 851 | GEN STATOR WATER PUMP 1A                  |
| 851 | GEN STATOR WATER PUMP 1B                  |
| 851 | INSTRUMENT AIR COMPRESSOR 1A              |
| 851 | INSTRUMENT AIR COMPRESSOR 1B              |
| 851 | INSTRUMENT AIR COMPRESSOR 1C              |
| 851 | INSTRUMENT AIR COMPRESSOR SELECTOR        |
| 851 | LIFT PUMP 6A                              |
| 851 | LIFT PUMP 6A                              |
| 851 | LIFT PUMP 6B                              |
| 851 | LIFT PUMP 6C                              |
| 851 | LIFT PUMP 6D                              |
| 851 | LIFT PUMP 6E                              |
| 851 | LIFT PUMP 6F                              |
| 851 | LIFT PUMP 6G                              |
| 851 | LIFT PUMP 6H                              |
| 851 | LOAD TOP CHARGER NORM STA SER XFMR        |
| 851 | LOAD TOP CHARGER RES STA SER XFMR 1A      |
| 851 | LOAD TOP CHARGER RES STA SER XFMR 1B      |
| 851 | RBCLCW COOLING PUMP 2CCP-P2A              |
| 851 | RBCLCW COOLING PUMP 2CCP-P2B              |
| 851 | TURNING GEAR OIL PUMP 3                   |
| 851 | TURNING GEAR OIL PUMP 4                   |
| 851 | TURNING GEAR OIL PUMP 5                   |
| 852 | 4TH PT HTR DRAIN PUMP 1A                  |
| 852 | 4TH PT HTR DRAIN PUMP 1B                  |
| 852 | 4TH PT HTR DRAIN PUMP 1C                  |
| 852 | BREAKER 1-1                               |
| 852 | BREAKER 1-14                              |
| 852 | BREAKER 1-16                              |
| 852 | BREAKER 1-3                               |
| 852 | BREAKER 1-3B                              |
| 852 | BREAKER 1-4                               |
| 852 | BREAKER 1-5                               |
| 852 | BREAKER 1-9B                              |
| 852 | BREAKER 101-11                            |
| 852 | BREAKER 101-14                            |
| 852 | BREAKER 101-2                             |
| 852 | BREAKER 103-1                             |
| 852 | BREAKER 103-13                            |
| 852 | BREAKER 103-8                             |
| 852 | BREAKER 11-3                              |
| 852 | BREAKER 13-10                             |
| 852 | BREAKER 13-6                              |
| 852 | BREAKER 14-1                              |
| 852 | BREAKER 14-2                              |
| 852 | BREAKER 14-4                              |
| 852 | BREAKER 14-8                              |
| 851 | BREAKER 15-1                              |
| 852 | BREAKER 15-3                              |
| 852 | BREAKER 15-7                              |
| 852 | BREAKER 15-8                              |
| 852 | BREAKER 16-2                              |
| 852 | BREAKER 16-2                              |



852 BREAKER 17-2  
852 BREAKER 18-2  
852 BREAKER 2-1  
852 BREAKER 2-5  
852 BREAKER 3-1  
852 BREAKER 3-13  
852 BREAKER 3-14  
852 BREAKER 3-16  
852 BREAKER 3-3  
852 BREAKER 3-3B  
852 BREAKER 3-6  
852 BREAKER 3-9B  
852 BREAKER 5-3B  
852 BREAKER 5-8B  
852 BREAKER 6-3B  
852 BREAKER 6-7B  
852 CND BSTR PUMP 2A  
852 CND BSTR PUMP 2B  
852 CND BSTR PUMP 2C FROM BUS 001  
852 CND BSTR PUMP 2C FROM BUS 003  
852 CONDENSATE PUMP 1A  
852 CONDENSATE PUMP 1B  
852 CONDENSATE PUMP 1C FROM BUS 011  
852 CONDENSATE PUMP 1C FROM BUS 013  
852 EMER DIESEL GEN 1 NEUTRAL BREAKER 101-N1.  
852 EMER DSL GEN 1 GOVERNOR  
852 EMER DSL GEN 1 OUTPUT BREAKER 101-1  
852 EMER DSL GEN 1 START  
852 EMER DSL GEN 1 VOLTAGE REGULATOR  
852 EMER DSL GEN 2 GOVERNOR  
852 EMER DSL GEN 2 MAN TRANS LOCAL REMOTE  
852 EMER DSL GEN 2 START  
852 EMER DSL GEN 2 VOLTAGE REGULATOR  
852 EMER DSL GEN 3 GOVERNOR  
852 EMER DSL GEN 3 OUTPUT BREAKER 103-14  
852 EMER DSL GEN 3 START  
852 EMER DSL GEN 3 VOLTAGE REGULATOR  
852 REAC FW PUMP 1A  
852 REAC FW PUMP 1B  
852 REAC FW PUMP 1C FROM BUS 001  
852 REAC FW PUMP 1C FROM BUS 003  
852 VOLTMETER (8 STAR SELECTOR SW)



11

# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 242.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/19/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE METERS ON THE REMOTE SHUTDOWN PANEL DO NOT COMPLY WITH  
SPECIFIED GUIDELINE FOR GRADUATION HEIGHT.

## COMMENTS

ALL METERS FAIL THE SAME GUIDELINE BUT THE DISPLAY GRADUATIONS  
ARE NOT DIFFICULT TO READ AND INTERPRET.

## ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

THE OBSERVATION ASSUMED A 30" READING DISTANCE WHICH IS NOT THE  
CASE FOR THE REMOTE SHUTDOWN PANEL. THIS IS A VERTICAL PANEL  
WHICH ALLOWS OPERATORS TO GET UP NEXT TO ALL METERS. ALL METERS  
CAN BE EASILY READ FROM THE NORMAL OPERATING POSITION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## CHECKLIST

5.1.5.B(RSDP)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

|     |  |                    |  |
|-----|--|--------------------|--|
| 405 |  | ALL DISPLAY METERS |  |
|-----|--|--------------------|--|



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 244.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 4/19/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

A POSSIBILITY OF OBSTRUCTED OPERATOR MOVEMENT AND COMMUNICATION EXISTS AT THE REMOTE SHUTDOWN PANEL. THIS WILL BE DEPENDENT ON OPERATOR POPULATION AT THE REMOTE SHUTDOWN PANEL DURING EMERGENCY OPERATIONS.

## COMMENTS

DUE TO LIMITED WALK SPACE, IT IS POSSIBLE THAT OPERATOR MOVEMENT MAY BE RESTRICTED AT TIME DEPENDING ON OPERATOR POPULATION DENSITY. STUDY TO DETERMINE OPERATOR DENSITY SHOULD BE MADE, AND RECOMMENDATIONS TO RESTRICT ACCESS TO THIS PANEL SHOULD BE ENFORCED BASED ON THE STUDY.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

OPERATIONS WILL CONTROL ACCESS TO THE REMOTE SHUTDOWN PANEL DURING ITS USE.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## CHECKLIST

1.1.3.D(RSDP)

| PANEL    | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME      | OTHER |
|----------|------------------------|------------------------|-------|
| RSDP-405 | GENERIC                | WORKSHOP CONSIDERATION |       |





HUMAN ENGINEERING DISCREPANCY

-----

HEL NUMBER: 245.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 4/19/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

-----

THE DISTANCE BETWEEN THE FRONT OF THE RSD PANEL AND THE NEAREST WALL IS LESS THAN THE MINIMUM SEPARATION DISTANCE OF 50 INCHES.

COMMENTS

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THE SEPERATION DISTANCE BETWEEN THE FRONT OF THE REMOTE SHUTDOWN PANEL AND THE ROOM WALL IS 45 11/16 INCHES, THIS IS LESS THAN THE MINIMUM 50" REQUIREMENT.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

-----

THIS PANEL IS NOT NORMALLY MANNED; THEREFORE THE SPACE IS CONSIDERED SUFFICIENT FOR OPERATION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

-----

EXPLANATORY INFORMATION

-----

CHECKLIST

1.1.3.F (RSDP)

| PANEL    | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME       | OTHER |
|----------|------------------------|-------------------------|-------|
| -----    | -----                  | -----                   | ----- |
| RSDP-405 | GENERIC                | WORKSPACE CONSIDERATION |       |



# HUMAN ENGINEERING DISCREPANCY

HEI NUMBER: 246.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 4/19/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

SOME CONTROLS ON THE REMOTE SHUTDOWN PANEL ARE NOT PLACED  
WITHIN THE RECOMMENDED ZONE OF 34 TO 70 INCHES.

## COMMENTS

TWO CONTROLS (1307,1702) ARE PLACED AT A HEIGHT OF 70 INCHES.  
SIX CONTROLS (3202,3204,3303,3304,3603,3604) ARE PLACED AT 30  
INCHES. THIS VIOLATES THE CRITERIA OF PLACING ALL CONTROLS  
WITHIN 34 TO 70 INCHES.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THIS PANEL IS NOT NORMALLY MANNED AND THE SELECTOR IS REACHABLE BY 5  
PERCENTILE (EXTENDED REACH) AT 70 INCHES.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

1.2.5.A(1) (RSDP)

| PANEL    | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME   | OTHER |
|----------|------------------------|---------------------|-------|
| RSDP-405 | 1307                   | TEMP METER SELECTOR |       |
| RSDP-405 | 1702                   | TEMP METER SELECTOR |       |
| RSDP-405 | 3202                   | KEY-LOCK J-HANDLE   |       |
| RSDP-405 | 3204                   | KEY-LOCK J-HANDLE   |       |
| RSDP-405 | 3303                   | KEY-LOCK J-HANDLE   |       |
| RSDP-405 | 3304                   | KEY-LOCK J-HANDLE   |       |
| RSDP-405 | 3603                   | KEY-LOCK J-HANDLE   |       |
| RSDP-405 | 3604                   | KEY-LOCK J-HANDLE   |       |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 247.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 4/19/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

SEVERAL CONTROLS ON THE REMOTE SHUTDOWN PANEL ARE LOCATED OUTSIDE THE 34 TO 53 INCH PREFERRED PLACEMENT ZONE.

## COMMENTS

ALL CONTROLS ON THE RSD PANEL MAY BE CONSIDERED TO BE EMERGENCY RELATED. EMERGENCY RELATED CONTROLS SHOULD BE LOCATED BETWEEN 34 TO 53 INCHES ABOVE THE FLOOR. IN ADDITION TO THE CONTROLS CITED IN THE HED FOR SEC 1.2.5.A(1), THE TOP MAJOR ROW OF CONTROLS IS > 53 INCHES (59-62").

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

ALL CONTROLS ARE REACHABLE BY 5 PERCENTILE OPERATOR.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

1.2.5.A(2)

| PANEL    | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                  | OTHER |
|----------|------------------------|------------------------------------|-------|
| RSDP-405 | GENERIC                | TOP ROW OF CONTROLS, P/B'S AND J'S |       |



HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 249.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 4/19/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

SOME CONTROLS WHICH ARE RECESSED/SHIELDED ARE NOT ENTIRELY  
CONTAINED WITHIN THE ENVELOPE DESCRIBED BY THE RECESS OR BARRIER.

COMMENTS

THE P/B'S ON THE REMOTE SHUTDOWN PANEL ARE NOT COMPLETELY  
RECESSED INTO THEIR PROTECTIVE HOUSING.

ASSESSMENT CATEGORY: 3D

DISPOSITION: NO FIX

EXPLANATION

THE SWITCHES PROTRUDE ONLY 1/32 OF AN INCH. NO SWITCH CONTACT COULD  
INADVERTENTLY BE MADE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

4.1.2.B (RSDP)

| PANEL    | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME   | OTHER |
|----------|------------------------|---------------------|-------|
| RSDP-405 |                        | BLACK P/B'S ON RSDP |       |





# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 250.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 4/19/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

SOME DISCRETE CONTROL SELECTORS DO NOT USE A CONTROL KNOB OF APPROPRIATE SHAPE.

## COMMENTS

THE TEMP METER SELECTOR SWITCHES DO NOT USE A CONTROL KNOB OF RECOMMENDED SHAPE. THE PRESENT KNOB IS A LARGE OVAL WHICH COVERS THE POSITION INDICATION MARKERS BECAUSE OF ITS SITE. HENCE WHEN OPERATING FROM STRAIGHT AHEAD (LINE OF SIGHT) THE POSITION MARKS ARE OBSCURED FROM THE OPERATOR.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE TEMP METER SELECTOR SWITCH IS NOT UTILIZED VERY OFTEN AND THE SWITCH IS APPROPRIATE FOR USE. CAN BE READ WITH SLIGHT CHANGE OF VISUAL ANGLE (MOVEMENT OF HEAD).

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

4.2.2.E.3 (RSDP)

| PANEL    | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME   | OTHER |
|----------|------------------------|---------------------|-------|
| RSDP-405 | 1307                   | TEMP METER SELECTOR |       |
| RSDP-405 | 1702                   | TEMP METER SELECTOR |       |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 251.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 4/19/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

KEY CONTROLS ON THE RSDP EXIST WHERE THE KEY WHEN INSERTED DOES NOT POINT UP OR FORWARD.

## COMMENTS

KEY CONTROLS HAVE TEETH POINTING 45 DEG DOWN FROM HORIZONTAL, WHEN IN THE OFF POSITION. KEY IS AT A 45 DEG ANGLE WHEN CONTROL IS OFF. IT SHOULD BE 0 DEG OR 90 DEG.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE 45 DEG. - 45 DEG. SWITCH POSITION IS DESIRED BECAUSE IT IS CONSISTENT WITH RCIC RESET LOGIC IN CR - 2 POSITION SWITCHES WHETHER KEYLOCKED OR NOT ARE 45 DEG. - 45 DEG.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

CHECKLIST  
CHECKLIST

4.4.3.B (RSDP)  
4.4.3.D (RSDP)

| PANEL    | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                    | OTHER |
|----------|------------------------|--------------------------------------|-------|
| RSDP-405 | 2205                   | DIV I ISOL SIGNAL SEAL IN AND RESET  |       |
| RSDP-405 | 2216                   | DIV II ISOL SIGNAL SEAL IN AND RESET |       |



HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 252.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 4/19/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

CONTROLS KNOBS FOR ROTARY SELECTOR SWITCHES ARE GREATER THAN THE  
MAX 1 INCH WIDTH.

COMMENTS

THE OVAL CONTROL KNOBS FOR THE TEMP METER INPUT SELECTOR SWITCHES  
ARE 1.5" WIDE, WHICH VIOLATE THE 1" MAX WIDTH CRITERIA.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THE CONTROL KNOB WIDTH IS APPROPRIATE FOR OPERATION. DURING  
OPERATOR INTERVIEWS IT WAS STATED THAT CONTROL KNOBS WERE  
ACCEPTABLE. KNOBS ARE NOT TOO WIDE FOR PROPER GRIP, AND  
RESISTENCE IS WITHIN STANDARD.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

4.4.5.E(2) (RSDP)

| PANEL    | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME           | OTHER |
|----------|------------------------|-----------------------------|-------|
| RSDP-405 | 1307                   | TEMP METER SELECTOR CONTROL |       |
| RSDP-405 | 1702                   | TEMP METER SELECTOR CONTROL |       |



# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 253.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 4/19/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

DISPLAYS WHICH MAY NEED TO BE OBSERVED IN A SPECIFIED SEQUENCE ARE NOT GROUPED TOGETHER ON THE REMOTE SHUTDOWN PANEL.

## COMMENTS

THE GROUPING OF METERS AND CHART RECORDER AT THE TOP OF EACH HALF OF THE REMOTE SHUTDOWN PANEL ARE INCONSISTENT. THESE METERS AND RECORDER HAVE IDENTICAL PURPOSES ON EACH BOARD, I.E., 1 SET FOR EACH TRAIN. THEREFORE IF THEY ARE GROUPED INCONSISTENTLY, THEN AT LEAST ONE GROUP MUST NOT BE IN SEQUENCE.

ASSESSMENT CATEGORY: 3C

DISPOSITION: NO FIX

## EXPLANATION

DURING AN EMERGENCY, IT IS ASSUMED THAT ONLY ONE SET OF THE DISCREPANT INSTRUMENTS WILL BE USED. THEREFORE, THERE WILL BE NO CONFUSION TO THE OPERATOR.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

|           |                   |
|-----------|-------------------|
| CHECKLIST | 9.2.2.D (RSDP)    |
| CHECKLIST | 8.2.1.A(1) (RSDP) |
| CHECKLIST | 8.2.3.A (RSDP)    |
| CHECKLIST | 8.2.4.A (RSDP)    |
| CHECKLIST | 8.2.2.B (RSDP)    |

| PANEL    | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|----------|------------------------|-------------------|-------|
| RSDP-405 | 1205                   | METER             | L-H   |
| RSDP-405 | 1301                   | CHART RECORDER    | L-H   |
| RSDP-405 | 1301                   | METER             | L-H   |
| RSDP-405 | 1302                   | METER             | L-H   |
| RSDP-405 | 1303                   | METER             | L-H   |
| RSDP-405 | 1304                   | METER             | L-H   |
| RSDP-405 | 1305                   | CHART RECORDER    | L-H   |





|          |      |                |     |
|----------|------|----------------|-----|
| RSDP-405 | 1601 | METER          | R-H |
| RSDP-405 | 1602 | CHART RECORDER | R-H |
| RSDP-405 | 1603 | METER          | R-H |
| RSDP-405 | 1604 | METER          | R-H |
| RSDP-405 | 1605 | METER          | R-H |
| RSDP-405 | 1606 | METER          | R-H |



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 254.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 4/19/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

A RELATED SET OF CONTROLS AND DISPLAYS ON THE REMOTE SHUTDOWN  
PANEL IS LAID OUT INCONSISTENTLY.

## COMMENTS

THE CONTROLS/DISPLAY FOR SERVICE WATER PUMPS ARE LAID OUT  
INCONSISTENTLY. THE CONTROLS ARE LAID OUT VERTICALLY WHILE THE  
METERS (DISPLAYS) ARE LAID OUT HORIZONTALLY.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE TOP TO BOTTOM AND LEFT TO RIGHT CONVENTION FOR ASSOCIATION IS  
MAINTAINED THEREBY LOWERING THE POTENTIAL FOR CONFUSION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## CHECKLIST

8.2.1.A(3) (RSDP)

| PANEL    | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME      | OTHER |
|----------|------------------------|------------------------|-------|
| RSDP-405 | 1201                   | SW PUMP FLOW METER     |       |
| RSDP-405 | 1202                   | SW PUMP FLOW METER     |       |
| RSDP-405 | 1203                   | FW PUMP FLOW METER     |       |
| RSDP-405 | 1501                   | SW PUMP FLOW METER     |       |
| RSDP-405 | 1502                   | SW PUMP FLOW METER     |       |
| RSDP-405 | 1503                   | SW PUMP FLOW METER     |       |
| RSDP-405 | 2102                   | SW PUMP CONTROL SWITCH |       |
| RSDP-405 | 2103                   | SW PUMP CONTROL SWITCH |       |
| RSDP-405 | 2104                   | SW PUMP CONTROL SWITCH |       |
| RSDP-405 | 2502                   | SW PUMP CONTROL SWITCH |       |
| RSDP-405 | 2503                   | SW PUMP CONTROL SWITCH |       |
| RSDP-405 | 2504                   | SW PUMP CONTROL SWITCH |       |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 255.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 4/19/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

SOME COMPONENTS ON THE REMOTE SHUTDOWN PANEL ARE LAID OUT IN NON-STANDARD READING ORDER. LEFT-TO-RIGHT, TOP-TO-BOTTOM, ALPHABETIC OR NUMERIC.

## COMMENTS

THE NUCLEAR BOILER MANUAL RELIEF SOV'S ARE LAID OUT IN REVERSE NUMERIC ORDER (PSV137, PSV127, PSV129, PSV121).

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THERE IS NO REQUIREMENT FOR SEQUENCE OF OPERATION OR ORDERLY ARRANGEMENT. ALL SWITCHES WILL BE CLEARLY LABELED.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

8.2.2.A (RSDP)

| PANEL    | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|----------|------------------------|-------------------|-------|
| RSDP-405 |                        | 2MSS-PSV121B      |       |
| RSDP-405 |                        | 2MSS-PSV127A      |       |
| RSDP-405 |                        | 2MSS-PSV129B      |       |
| RSDP-405 |                        | 2MSS-PSV137A      |       |



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 258.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

LABELS ON THE REMOTE SHUTDOWN PANEL ARE PLACED BELOW THE METERS THAT THEY DESCRIBE. THE GUIDELINE STATES THAT LABELS SHOULD BE ABOVE THE ASSOCIATED EQUIPMENT.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

NMP-2 CONVENTION IS TO PLACE THE LABEL BELOW THE METER.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

6.2.1.A (RSDP)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 405   | ALL METERS             |                   |       |





HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 263.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

ROMAN NUMERALS ARE USED ON THE REMOTE SHUTDOWN PANEL LABELS.  
DIVISION I AND DIVISION II ARE LABELED AS SUCH.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THIS NOMENCLATURE IS A GE STANDARD. ALL TRAINING HANDBOOKS AND  
MAINTENANCE HANDBOOKS USE THIS NOMENCLATURE. IT IS CONSISTENTLY  
USED THROUGHOUT THE CONTROL ROOM AND CANNOT BE CONFUSED WITH  
OTHER LETTERS BECAUSE OF THE CONTEXT AND OPERATOR FAMILIARITY.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

6.3.4.E (RSDP)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 264.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

OVAL CONTROL HANDLES ON THE REMOTE SHUTDOWN PANEL BLOCK CONTROL  
POSITION IDENTIFICATION LABELS.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

ME AS HED 250. CAN BE READ BY MOVING HEAD TO DIFFERENT VISUAL ANGLE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

6.3.8.C (RSDP)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                    | OTHER |
|-------|------------------------|--------------------------------------|-------|
| 405   |                        | SUPPRESSION POOL TEMP METER TRANSFER |       |



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 265.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

TWO CABINET ACCESS DOORS ON THE REMOTE SHUTDOWN PANEL ARE NOT LABELED TO IDENTIFY WHAT IS BEHIND THE DOORS.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

SINCE THIS IS THE ONLY PANEL IN THE ROOM, THERE IS LITTLE CHANCE FOR CONFUSION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

6.3.9.A (RSDP)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

1

2

3

4

5

6

HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 267.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/22/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE TEMPERATURE SELECTABLE METER ON THE REMOTE SHUTDOWN PANEL  
READS ZERO WHEN TURNED OFF, IT SHOULD DISPLAY OFF SCALE WHEN NOT  
IN OPERATION.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

SINCE A TEMPERATURE OF ZERO IS NOT A PLAUSABLE READING, AN  
INOPERABLE METER CAN BE CONCLUDED FROM A ZERO DISPLAY.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

9.1.2.C(4) (RSDP)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|





HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 272.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

A REVIEW PROCEDURE IS NOT IN PLACE FOR THE CONTROL OF TEMPORARY LABELS.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

NPC DOES NOT USE TEMPORARY LABELS, HOWEVER SHOULD THE NEED ARISE, APPROPRIATE CONTROLS WILL BE IMPLEMENTED.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

6.5.2.B

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



1  
2  
3  
4  
5

6



7

8

9  
10  
11



HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 273.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/23/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

TAG-OUTS ARE NOT DESIGNED TO PHYSICALLY PREVENT ACTUATION OF A CONTROL.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

TES PLACED ON CONTROL SWITCHES ARE NOT INTENDED TO PREVENT ACTUATION OF THE EQUIPMENT. THEY ARE FOR REFERENCE PURPOSES ONLY. ACTUAL DISABLING IS AT THE MOTOR BREAKER OR THE FUSE BLOCK.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

6.5.1.G

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

200 1 100 100 100

100 100 100

100 100 100

# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 308.00  
UTILITY: NMP

ORIGINATOR: VJF  
PLANT: NMP

DATE: 6/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE PRIMARY SPDS DISPLAY DOES NOT INCLUDE FUNCTIONAL INFORMATION TO ASSIST THE OPERATOR IN RAPIDLY EVALUATING RADIOACTIVITY CONTROL. THE SPDS IS REQUIRED AS PER NUREG-0737 SUPPLEMENT 1, AND NUREG-0800 TO INCLUDE RADIOACTIVITY LEVELS AS PART OF THE MINIMUM INFORMATION TO BE PROVIDED TO THE PLANT OPERATORS.

## COMMENTS

CONSIDERATION SHOULD BE GIVEN TO PROVIDING RADIOACTIVITY INFORMATION ON THE TOP LEVEL SPDS DISPLAY AS WELL AS ON A SECONDARY SPDS DISPLAY IN THE MANNER DESCRIBED IN THE BWR/OWNERS DYNAMIC SCREENING DOCUMENT.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THERE ARE DEDICATED CONTROL ROOM ANNUNCIATORS WHICH DRAW ATTENTION TO THE DRMS AND GEMS PARAMETERS THAT WOULD FULFILL THE SAME FUNCTION.

## IMPLEMENTATION:

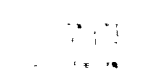
### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

SDPS REVIEW

4.2.1.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        | SPDS              |       |



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 276.00  
UTILITY: NMP

ORIGINATOR: CFW  
PLANT: NMP

DATE: 1/24/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

IN THE CONTROL ROOM THE MAXIMUM LATERAL SPREAD OF CONTROLS AND  
DISPLAYS AT SINGLE OPERATOR WORK LOCATION EXCEEDS THE 72 INCH  
NUREG-0700 RECOMMENDATION.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

THE WORKSTATION IS DEFINED AS THE SYSTEM/SUBSYSTEM BOUNDARIES AND  
CONTAIN THE CONTROLS AND DISPLAYS NEEDED TO PERFORM SPECIFIC  
TASKS. COMPONENTS WHICH ARE NEEDED AT A WORKSTATION TO PERFORM A  
TASK AND ARE NOT LOCATED WITHIN THE WORKSTATION BOUNDARIES HAVE  
BEEN IDENTIFIED THROUGH ANALYSIS AND VALIDATION STUDIES. THE  
SYSTEM/SUBSYSTEM BOUNDARIES WHICH ARE IDENTIFIED IN THE  
HIERARCHICAL LABELING SCHEME ARE LESS THAN 72 INCHES IN LATERAL  
SPREAD.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

1.2.2.F

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



11 11 11



11 11 11





# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 278.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/25/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE CHARACTERS ON CONTROL PANEL LABELS ARE NOT GRADUATED IN SIZE IN ACCORDANCE WITH THE GUIDELINE. LABEL CHARACTERS ARE TO BE GRADUATED WITH SYSTEM LABELS 25% LARGER THAN COMPONENT LABELS, WHICH ARE TO BE 25% LARGER THAN POSITION IDENTIFIERS. THE CONTROL PANEL LABELS ARE GRADUATED BY SIZE BUT NOT BY THE APPROPRIATE RATIOS.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

LABELS THAT ARE GRADUATED BY SIZE ARE SUFFICIENT FOR IDENTIFICATION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## CHECKLIST

6.1.2.B(1)(2)(3)(4)

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

GENERIC

100-100000

100-100000

100-100000

HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 279.00  
UTILITY: NMP

ORIGINATOR: BK  
PLANT: NMP

DATE: 4/25/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE PLACEMENT OF LABELS ON THE CONTROL PANELS IS NOT IN ACCORDANCE WITH THE GUIDELINES. LABELS FOR MANY CONTROLS AND DISPLAYS ARE PLACED BELOW THE ASSOCIATED CONTROL/DISPLAY.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

CONVENTION IS TO HAVE LABELS FOR DISPLAYS BELOW AND FOR CONTROLS ABOVE THE COMPONENT.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

6.2.1.B

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        | GENERIC           |       |

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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 289.00  
UTILITY: NMP

ORIGINATOR: DFT  
PLANT: NMP

DATE: 4/29/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

IRM RECORDERS ON THE RIGHT OF THE ROD SELECT DISPLAY CANNOT BE READ. THE MOVEMENT OF THESE RECORDERS IS FROM RIGHT TO LEFT, THE LATEST DATA RECORDED ON THE RIGHT CANNOT BE EASILY READ WHEN STANDING TO THE LEFT.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE RECORDERS CAN BE READ BY SLIGHTLY CHANGING THE VISUAL ANGLE (MOVING THE HEAD).

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

OPERATOR SURVEY

11-052

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 603   |                        | IRM RECORDERS     |       |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 913.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT IT MAY BE DESIRABLE TO HAVE KEY-LOCK SWITCHES OR KEY-LOCK CAPABILITY FOR THE CRD PUMPS.

## COMMENTS

THIS SHOULD BE REVIEWED TO DETERMINE THE JUSTIFICATION FOR A KEY-LOCK CONTROL. MINIMIZING THE NUMBER OF KEY-LOCKS IS DESIRABLE.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

ADEQUATE JUSTIFICATION DOES NOT EXIST FOR PROVIDING A KEY-LOCK TO THIS PUMP. A KEY-LOCK WOULD INHIBIT NORMAL OPERATION. IF ONE CRD PUMP IS LOST, STARTING A SECOND-CRD PUMP BECOMES A TIME CRITICAL OPERATION. A KEY SWITCH FUNCTION COULD INTERFERE WITH THIS TIME RESTRAINT ON THIS OPERATION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0002, TASK 0008, A.S. 01-04-03

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 603   | 35-015-000             | CDR PUMP FLOW     |       |
| 603   | 35-016-000             | CDR PUMP FLOW     |       |





HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 310.00  
UTILITY: NMP

ORIGINATOR: VJF  
PLANT: NMP

DATE: 6/10/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE TIME DELAY FROM WHEN THE SENSOR SIGNAL IS SAMPLED TO WHEN IT IS DISPLAYED IS GREATER THAN THE RECOMMENDED TWO SECONDS. ALL SPDS DISPLAYS ARE UPDATED EVERY FIVE SECONDS.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THE UPDATE IS ADEQUATE. THE SPDS IS NOT REQUIRED FOR IMMEDIATE RESPONSE BY THE OPERATOR.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

SDPS REVIEW

4.4.2.B.2

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        | SPDS              |       |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 313.01  
UTILITY: NMP

ORIGINATOR: VJF  
PLANT: NMP

DATE: 6/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

IT IS DIFFICULT TO ACCURATELY DETERMINE THE MAGNITUDE OF PARAMETERS SHOWN ON TREND GRAPHS BECAUSE THE SCALES ARE INDICATED TO THE LEFT OF EACH GRAPH, WHILE THE MOST RECENT VALUES ARE PLOTTED ON THE RIGHT.

## COMMENTS

LOCATE THE SCALES ON THE RIGHT HAND SIDE OF THE TREND GRAPHS WHERE THE MOST RECENT TREND VALUE IS DISPLAYED.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THERE IS NO NEED TO RELOCATE THE SCALES TO THE RIGHT SIDE SINCE THE MOST RECENT TREND IS INDICATED IN THE CURRENT VALVE BLOCK.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

|             |           |
|-------------|-----------|
| SDPS REVIEW | 4.4.4.A.3 |
| CHECKLIST   | 7.2.4.A.1 |
| CHECKLIST   | 7.2.5.A.1 |

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        | SPDS              |       |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 313.02  
UTILITY: NMP

ORIGINATOR: VJF  
PLANT: NMP

DATE: 6/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

ONLY MAXIMUM AND MINIMUM SCALE VALUES ARE INDICATED ON TREND GRAPHS.

## COMMENTS

CONSIDERATION SHOULD BE GIVEN TO PROVIDING INTERMEDIATE VALUES ON THE SCALES.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE TIME HISTORY IS FOR TRENDING ONLY. THE PRESENT VALUE IS THE ONLY VALUE NEEDED FOR IMMEDIATE ASSESSMENT. IT IS DISPLAYED IN UPPER RIGHT HAND CORNER.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

SDPS REVIEW  
CHECKLIST  
CHECKLIST

4.4.4.A.3  
7.2.4.A.1  
7.2.5.A.1

PANEL

EQUIPMENT  
ID NUMBER

EQUIPMENT  
NAME

OTHER

SPDS



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 314.00  
UTILITY: NMP

ORIGINATOR: VJF  
PLANT: NMP

DATE: 6/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

BASED UPON A REVIEW OF THE SPDS CRTS IN THE UNIT 2 SIMULATOR, THERE APPEARS TO BE CONSIDERABLE GLARE ON THE CRT SCREENS FROM THE LIGHTED CEILING WHICH INTERFERES WITH THE READABILITY OF THE DISPLAYS.

## COMMENTS

CONSIDERATION SHOULD BE GIVEN TO USING ALUMINUM PARABOLIC LOUVERS IN THE CEILING OF THE UNIT 2 CONTROL ROOM TO REDUCE THE REFLECTION OF THE CEILING ON THE CRTS.

## ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

THERE IS NO SPDS INSTALLED IN THE SIMULATOR.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

## CHECKLIST

7.2.1.B

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        | SPDS              |       |



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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 315.00  
UTILITY: NMP

ORIGINATOR: VJF  
PLANT: NMP

DATE: 6/10/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

WHEN SYSTEM FUNCTIONING REQUIRES THE OPERATOR TO STAND BY, SUCH AS WHEN THE COMPUTER IS SEARCHING FOR REQUESTED DATA, PERIODIC FEEDBACK IS NOT PROVIDED TO THE OPERATOR TO INDICATE NORMAL SYSTEM OPERATION AND THE REASON FOR THE DELAY.

## COMMENTS

CONSIDERATION SHOULD BE GIVEN TO PROVIDING FEEDBACK MESSAGES ACKNOWLEDGING A DELAY IN PROCESSING A REQUEST TO ENSURE THAT THE OPERATOR IS AWARE OF SYSTEM STATUS AT ALL TIMES.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE GENERATION OF DISPLAYS TAKES LESS THAN 4 RECORDS. THIS IS NOT CONSIDERED SIGNIFICANT.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

7.2.6.K

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

SPDS



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 316.00  
UTILITY: NMP

ORIGINATOR: VJF  
PLANT: NMP

DATE: 6/11/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

FEEDBACK MESSAGES ARE NOT PROVIDED TO THE OPERATOR TO INDICATE  
CHANGES IN THE STATUS OF THE COMPUTER SYSTEM FUNCTIONING.

COMMENTS

THE ONLY INDICATION OF A CHANGE IN COMPUTER SYSTEM FUNCTIONING IS  
WHEN THE TIME DISPLAY DOES NOT CHANGE AFTER 5 SECONDS.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

A PURPLE CURSOR INDICATES SYSTEM INOPERABILITY. THE OPERATOR  
WILL BE TRAINED TO THIS CONVENTION. THE PRESENT DESIGN REQUIRES  
AN ALARM TO EVALUATE WHEN THE SPDS, DRMS, AND GERMS INFORMATION  
IS NOT AVAILABLE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.2.6.1

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 317.00  
UTILITY: NMP

ORIGINATOR: VJF  
PLANT: NMP

DATE: 6/10/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE TIME SCALE DISPLAY IN THE TREND GRAPHS ARE CONFUSING, AND ARE NOT REFLECTIVE OF REAL TIME DISPLAYS (E.G. HH:MM:SS).

COMMENTS

CONSIDERATION SHOULD BE GIVEN TO DISPLAYING TIME IN ACTUAL VALUES (HH:MM:SS).

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THE SCALE IS IN UNITS OF TIME, RELATIVE TO THE CURRENT TIME. THIS IS APPROPRIATE FOR THE OPERATORS NEEDS. THERE IS ALSO AN INDICATION OF CURRENT TIME.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

CHECKLIST

7.2.4.A.1

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        | SPDS              |       |

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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 326.00  
UTILITY: NMP

ORIGINATOR: VJF  
PLANT: NMP

DATE: 6/11/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

USE OF LAVENDER ON THE TREND AND VIDEO GRAPHS ARE DIFFICULT TO READ. CONTRAST BETWEEN THE COLOR LAVENDER AND THE BLACK BACKGROUND IS MINIMAL.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE LAVENDER DISPLAY HAS A LOW FREQUENCY OF USE. CONTRAST IS ADEQUATE FOR CLOSE VIEWING DISTANCE. IN ADDITION, THERE IS A NUMERICAL VALUE DISPLAYED TO SUPPLEMENT THE TREND DISPLAY.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### CHECKLIST

7.2.1.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME    | OTHER |
|-------|------------------------|----------------------|-------|
|       |                        | SPDS<br>ERF DISPLAYS |       |

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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 327.00  
UTILITY: NMP

ORIGINATOR: VJF  
PLANT: NMP

DATE: 6/19/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

THE DRMS DOES NOT CONTAIN A PRIMARY OR TOP LEVEL DISPLAY PROVIDING FUNCTIONAL INFORMATION OF RADIOACTIVITY LEVELS.

## COMMENTS

WHILE THE DRMS CONTAINS SPECIFIC AND USEFUL INFORMATION ASSESSING RADIOACTIVITY CONTROL, CONSIDERATION SHOULD BE GIVEN TO PROVIDING TOP LEVEL SUMMARY PAGE ASSESSING THE SAFETY STATUS OF THE PLANT IN THE CONTEXT OF RADIOACTIVITY. THIS IMPORTANT FEATURE WILL HELP THE DRMS GAIN ACCEPTANCE AS AN ADJUNCT TO THE SPDS, ESPECIALLY SINCE THE SPDS DOES NOT CONTAIN INFORMATION ASSESSING RADIOACTIVITY CONTROL.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

BASED ON THE BWROG SIMULATOR EVALUATION, BAR CHARTS ARE MORE APPROPRIATE THAN TREND GRAPHS FOR RADIOACTIVE RELEASE. THE DRMS DOES PROVIDE BAR CHART INFORMATION.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

SDPS REVIEW  
SDPS REVIEW

4.1.1.A  
4.2.1.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|       |                        | DRMS              |       |



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 328.00  
UTILITY: NMP

ORIGINATOR: VJF  
PLANT: NMP

DATE: 6/19/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

THE TIME DELAY FROM WHEN THE SENSOR SIGNAL IS SAMPLED TO WHEN IT IS DISPLAYED IS GREATER THAN 2 SECONDS.

COMMENTS

DISPLAYS ARE UPDATED ANYWHERE FROM 5 SECONDS TO 15 SECONDS.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THIS PARAMETER IS NOT TIME CRITICAL. 13 SECONDS IS NOT CONSIDERED SIGNIFICANT TO AN OPERATOR RESPONSE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

SDPS REVIEW  
CHECKLIST

4.4.2.B.2  
7.1.7.A

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

DRMS



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 902.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT DISPLAY DIVISIONS FOR THE RPV VERTICAL PRESSURE METERS ARE NOT ADEQUATE.

## COMMENTS

AT PRESENT THE VERTICAL RPV PRESSURE METERS HAVE RANGES OF 0 TO 1200 PSI IN DIVISIONS OF 20 PSI. TASK ANALYSIS REQUIREMENTS CITE A NEED FOR DIVISIONS OF 10 PSI.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

GE HAS DETERMINED THAT 20 PSI IS ADEQUATE. IN ADDITION, THERE IS A DIGITAL PRESSURE INDICATOR WHICH PROVIDES RESOLUTION TO 1 PSI. THIS CAN BE READ FROM THE WORK STATION IN QUESTION. THE PROCESS COMPUTER CAN ALSO PROVIDE THIS SAME ACCURACY.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0001, TASK 0002, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 903.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THE NEED FOR A NARROW RANGE DRYWELL PRESSURE DISPLAY. THE EXISTING DW PRESSURE DISPLAYS DO NOT HAVE ADEQUATE DIVISIONS.

## COMMENTS

AT PRESENT CONTAINMENT DRYWELL PRESSURE METERS HAVE A RANGE OF 0 TO 200 PSI IN DIVISIONS OF 5 PSI. TASK ANALYSIS REQUIREMENTS CITE THE NEED FOR A RANGE OF 0 TO 60, BUT IN DIVISIONS OF .5 PSI. THIS IS EQUIVILENT TO ASKING FOR A NARROW RANGE METER.

ASSESSMENT CATEGORY: 2C

DISPOSITION: NO FIX

## EXPLANATION

NO CORRECTIVE ACTION IS JUSTIFIED AS SUFFICIENT INSTRUMENTATION EXISTS FOR NARROW RANGE MEASUREMENTS AT NORMAL OPERATING CONDITIONS. THE PRESENT NARROW RANGE DISPLAY, CAPABLE OF BEING USED FOR THIS TASK, HAS A RANGE OF (-)5 TO (+)5 PSI IN DIVISIONS OF 0.5 PSI.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### VERIFICATION OF SUITABILITY

PROC #0001, TASK 0003, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | 11-002-000             | DRYWELL PRESS     |       |
| 601   | 19-003-000             | DRYWELL PRESS     |       |

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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 905.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THE NEED FOR TRENDING INFORMATION/FEEDBACK FOR REACTOR THERMAL POWER. THE PRESENT DIGITAL INDICATIONS AND METER INDICATIONS ARE INADEQUATE FOR PROVIDING TRENDING INFORMATION.

## COMMENTS

SOME FORM OF CHART RECORDER IS NEEDED TO PROVIDE TRENDING INFORMATION ON REACTOR THERMAL POWER.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

OTHER INDICATIONS EXIST, OTHER THAN THE DIGITAL METER, FOR PROVIDING TRENDING INFORMATION OF REACTOR POWER. (MWTH) THIS CAN BE OBTAINED IN UNITS OF PCT (%) FROM THE APRM/IRM CHART RECORDERS. THESE RECORDERS PROVIDE A DIRECT TRAVEL REFLECTION OF REACTOR THERMAL POWER.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0001, TASK 0009, A.S. 03

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME            | OTHER |
|-------|------------------------|------------------------------|-------|
| 603   | 14-002-000             | REACTOR THERMAL POWER (MWTH) |       |

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# HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 906.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT DISPLAY UPPER RANGE AND LEVEL OF FEEDBACK ARE INADEQUATE FOR SUPPRESSION POOL LEVEL. PRESENT DISPLAY HAS AN UPPER RANGE OF 220 FT. TASK ANALYSIS HAS SUGGESTED A NEED FOR AN UPPER RANGE OF 240 FT. ALSO TRENDING INFORMATION IS DESIRED.

## COMMENTS

NOTE, REQUIREMENTS FROM THIS TA STATEMENT ASK FOR A RANGE OF 175 TO 240. DISCREPANCY OCCURS ON THE UPPER RANGE.

ASSESSMENT CATEGORY: 2E

DISPOSITION: NO FIX

## EXPLANATION

REG. GUIDE 1.97 REQUIRES BWR SUPPRESSION POOL INDICATION FROM ECCS SUCTION LINES TO 5 FEET ABOVE NORMAL LEVEL OF 200 FT (205 FT). THE PRESENT UPPER RANGE OF 220 FEET IS MORE THAN ADEQUATE. A CHART RECORDER FOR SUPPRESSION POOL LEVEL EXISTS ON THE POST-ACCIDENT PANEL. THIS IS A BACK-PANEL (THE FIRST BACK PANEL TO THE OPERATORS RIGHT). OBTAINING RECORDINGS FROM THIS PANEL ARE NOT CRITICAL FOR PLANT OPERATIONS. THEREFORE ADEQUATE NEED DOES NOT EXIST FOR JUSTIFYING PLACING A DEDICATED SUPPRESSION POOL RECORDER ON THE FRONT PANEL.

IMPLEMENTATION: FUEL LOAD

## SOURCE OF DISCREPANCY

## EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY  
VERIFICATION OF SUITABILITY

PROC #0003, TASK 0008, A.S. 01  
PROC# 0002, TASK 0003, A.S. 04

| MODEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | 19-001-00              | SUFF POOL A LEVEL |       |



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# HUMAN ENGINEERING DISCREPANCY

HEX NUMBER: 908.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT A KEY-LOCK SWITCH IS DESIRED FOR USE ON THE VALVE CONTROLLING STEAM SUPPLY TO THE TURBINE (MOV-120). AT PRESENT THIS VALVE DOES NOT HAVE A KEY-LOCK FUNCTION.

## COMMENTS

THIS REQUIREMENT SHOULD BE REVIEWED CAREFULLY, AS MINIMIZING THE NUMBER OF KEY-LOCKS IN THE CONTROL ROOM IS ALSO DESIRABLE. THE JUSTIFICATION FOR A KEY-LOCK ON MOV-120 SHOULD BE DETERMINED BY MORE THAN ONE SME.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

JUSTIFICATION DOES NOT EXIST FOR ADDING A KEY-CONTROL WOULD INHIBIT SYSTEM OPERATION. INADVERTENT OPERATION OF THIS FLOW PATH WOULD REQUIRE THE USE OF AN ADDITIONAL CONTROL WITH MOV-120. THEREFORE INADVERTENT ACTUATION WOULD REQUIRE TWO MISTAKES OCCUR. HENCE, SUFFICIENT PROTECTION IS PROVIDED TO THE SYSTEM WITHOUT A KEY-LOCK SWITCH.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### VERIFICATION OF SUITABILITY

PROC #0002, TASK 0004, A.S. 08

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | 37-016-000             | MOV-120           |       |

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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 909.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE SWITCH TYPE/MODE FOR THE TURBINE TRIP AND THROTTLE VALVE (MOV-150) IS INADEQUATE. TASK ANALYSIS REQUIREMENTS CITE A NEED FOR A CONTINUOUS MODE CONTROL, ABLE TO BE USED FOR THROTTLING OPERATIONS. THE PRESENT CONTROL IS DISCRETE.

## COMMENTS

IT SHOULD BE NOTED THAT THE LABEL, TURBINE TRIP AND THROTTLE VALVE, IMPLIES THAT A THROTTLING CAPABILITY IS AVAILABLE, ALTHOUGH IN REALITY IT ISN'T. THE NEED TO THROTTLE THIS VALVE (MOV-150) SHOULD BE REVIEWED.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

IT WILL NOT BE NECESSARY TO THROTTLE THIS VALVE. THE THROTTLING FUNCTION IS PERFORMED BY ADDITIONAL VALVES IN THE FLOW PATH. THE LABEL ON THE CONTROL WILL BE REWORDED TO REMOVE THE WORD THROTTLE.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0002, TASK 0004, A.S. 10

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | 37-006-000             | MOV-150           |       |

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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 910.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE RANGES ON PUMP AMPERAGE METERS (FOR ALL RCP'S, RHR PUMP, CRD PUMPS, ETC.) IS INADEQUATE.

## COMMENTS

THE PROBLEM RESULTS FROM PRESENT AMPERAGE METERS NOT BEING ABLE TO DETERMINE/DISPLAY THE "IN-RUSH" CURRENT, WHEN THE PUMP IS FIRST STARTED. IT MUST BE DETERMINED WHETHER THIS IS NECESSARY INFORMATION FOR THE OPERATOR, OR IS IT ACCEPTABLE TO LET THE METERS "PEG" MOMENTARILY ON START-UP BEFORE SETTLING BACK TO NORMAL OPERATING CURRENT.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

IT IS NOT NECESSARY FOR THE OPERATORS TO DETECT "IN-RUSH" CURRENT ON PUMPS. EXPANDING SCALES TO INCLUDE "IN-RUSH" CURRENT VALVES WOULD RESULT IN INEFFICIENT USE OF DISPLAY RANGE (I.E. ONLY THE BOTTOM 15-25% WOULD BE USED DURING NORMAL OPERATION) AND LOSS OF DISPLAY ACCURACY DUE TO MOST OPERATIONS BEING ON THE EXTREME LOW RANGE OF THE SCALE.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY  
VERIFICATION OF SUITABILITY  
VERIFICATION OF SUITABILITY

PROC #0003, TASK 0028, A.S. 21  
PROC #0003, TASK 0028, A.S. 09  
PROC# 0002, TASK 0004, A.S. 17

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | 12-009-000             | RHR PUMP AMPS     |       |
| 601   | 13-007-000             | RHR PUMP AMPS     |       |
| 601   | 18-007-000             | RHR PUMP AMPS     |       |

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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 915.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE INDICATION FOR CRD FLOW TO THE REACTOR VESSEL HAS INADEQUATE DIVISIONS. THE DISPLAY PRESENTLY HAS DIVISIONS OF 20 GPM. TASK ANALYSIS SUGGESTS DIVISIONS OF 10 GPM.

## COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

THE INVENTORY IS INCORRECT FOR THIS METER. THE DIVISION FOR THIS METER IS 2.0 GPM WHICH IS SUFFICIENT ACCURACY FOR THIS TASK.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0002, TASK 0009, A.S. 03

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 603   | 15-007-000             | CRD FLOW TO RV    |       |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 918.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT HPCS PUMP DISCHARGE PRESSURE INDICATIONS HAVE INADEQUATE SCALE DIVISIONS. PRESENT DISPLAYS HAVE DIVISIONS OF 20 PSI(G). SME'S DURING TASK ANALYSIS HAVE SUGGESTED DIVISIONS OF 10 PSIG.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

JUSTIFICATION DOES NOT EXIST FOR MODIFYING THESE METERS. THE PRESSURE DISPLAYED BY THESE METERS IS NOT DIRECTLY CONTROLLABLE BY THE OPERATOR, HENCE, EXTREMELY FINE DIVISIONS ON THE SCALE ARE NOT NEEDED.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0002, TASK 0011, A.S. 04

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | 14-005-000             | E22-R601          |       |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 920.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE UPPER RANGE OF THE DISPLAYS FOR REACTOR PRESSURE ARE INADEQUATE. PRESENT METERS HAVE AN UPPER RANGE OF 1200 PSI(G), AND THE RECORDER HAS AN UPPER RANGE OF 1050 PSI(G). TASK ANALYSIS SUGGESTS THAT AN UPPER RANGE OF 1500 PSIG WOULD BE MORE APPROPRIATE.

## COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: NO FIX

## EXPLANATION

THE RANGE OF DISPLAY OF 0-1200 PSIG IS ADEQUATE FOR NORMAL OPERATION AND FOR STARTUP/SHUTDOWN. IT IS ALSO ADEQUATE FOR ADS AND RELIEF VALVE PRESSURE EXCURSION. TWO POST-ACCIDENT MONITOR RECORDERS (A AND B) ON PANEL 601 ARE SCALED 0-1500 PSIG.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

### VERIFICATION OF SUITABILITY

PROC #0003, TASK 0002, A.S. 06

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 603   | 11-001-000             | C33-R605          |       |

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# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 921.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE DISPLAY DIVISIONS FOR SUPPRESSION POOL TEMPERATURE ARE INADEQUATE. PRESENT DISPLAYS HAVE DIVISIONS OF 5 DEGREE-F. TASK ANALYSIS SME'S HAVE SUGGESTED DIVISIONS OF 2.0 DEGREES-F.

## COMMENTS

AS WELL AS SUGGESTING DIVISIONS OF 2 DEGREE-F, THE SME HAS SUGGESTED A RANGE OF 70 TO 250 DEGREE-F, POSSIBLY SUGGESTING THE NEED FOR A NARROW RANGE INDICATION.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

TECHNICAL SPECIFICATION REQUIREMENTS DO NOT REQUIRE DIVISIONS OF ANY LESS THAN 5 DEG-F. THE RANGE OF 70 AND 250 IS INCORPORATED IN THE WIDE RANGE OF 0-300. THEREFORE NO MODIFICATIONS WILL BE IMPLEMENTED.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY  
VERIFICATION OF SUITABILITY

PROC 0007, TASK 0005, A.S. 01  
PROC #0003, TASK 0007, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME    | OTHER |
|-------|------------------------|----------------------|-------|
| 601   | 13-005-000             | SUPP-POOL WATER TEMP |       |
| 601   | 13-006-000             | SUPP-POOL WATER TEMP |       |
| 601   | 19-009-000             | SUPP-POOL WATER TEMP |       |
| 601   | 19-010-000             | SUPP-POOL WATER TEMP |       |



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# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 923.00.  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE FLOW FOR C41-R602 IS IN GPM  
AND UNITS OF GALLONS ARE DESIRED.

## COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

THIS IS AN INVALID HED, AS INVENTORY INFORMATION REFERENCE IS  
INCORRECT. ALSO FLOW SHOULD BE IN GPM.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY  
VERIFICATION OF SUITABILITY

PRO. 0003, TASK 0023, A.S. 01  
PROC 0004, TASK 0013, A.S. 06

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | 14-003-000             | C41-R602          |       |
| 601   | 14-003-000             | C41-R602          |       |

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# HUMAN ENGINEERING DISCREPANCY

HEL NUMBER: 925.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE DISPLAY FOR RPV TEMPERATURE PROVIDES INADEQUATE LEVEL OF INFORMATION FEEDBACK, AND HAS INADEQUATE DIVISIONS. PRESENTLY THE DISPLAY CAN GIVE STATUS AND VALUE INFORMATION AND HAS DIVISIONS OF 5.0 DEG-F. TRENDING INFORMATION IS DESIRED, AND DIVISIONS OF 2 DEG-F ARE SUGGESTED.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

JUSTIFICATION DOES NOT EXIST FOR ADDING A DEDICATED RECORDER. TRENDING INFORMATION WILL BE AVAILABLE FROM THE COMPUTER SELECTABLE TREND RECORDERS. A 5 DEG-F RANGE IS CONSIDERED ADEQUATE FOR ALL OPERATIONS.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY PROC 0003, TASK 0026, A.S. 01  
VERIFICATION OF SUITABILITY PROC #0003, TASK 0027, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME       | OTHER |
|-------|------------------------|-------------------------|-------|
| 602   | 11-031-000             | (RECIRC PUMP SUC. TEMP) |       |



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 927.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT DISPLAY FEEDBACK FOR SLC PUMP  
AMPERAGE IS NOT AVAILABLE.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

PRESSURE AND FLOW INDICATIONS ALREADY EXIST FOR SLC PUMPS AND CAN  
BE USED TO PROVIDE FEEDBACK OF PUMP OPERATION. THEREFORE, PUMP  
AMPERAGE IS NOT NEEDED, AS IS USED PREVIOUSLY FOR FEEDBACK OF  
PUMP OPERATION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0004, TASK 0013, A.S. 03

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

SLC PUMP AMPS

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HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 929.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE INDICATOR UPPER RANGE FOR  
CRD PUMP AMPERAGE IS INADEQUATE.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

INVENTORY OF THIS RANGE IS INCORRECT. ACTUAL RANGE IS 0-150  
WHICH IS SUFFICIENT TO COVER REQUIREMENTS.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PRO. 0004, TASK 0038, A.S. 06

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 603   | 15-011-000             | CRD PUMP CURRENT  |       |



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 930.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT SCALE DIVISIONS FOR SUPPRESSION POOL WATER TEMPERATURE ARE INADEQUATE. PRESENT DISPLAY DIVISIONS ARE 5 DEG-F. SME'S SUGGEST DIVISIONS OF 1 DEG-F.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

DIVISIONS OF 5 DEG-F HAVE BEEN DETERMINED TO BE ADEQUATE FOR ALL OPERATIONS, AND TECHNICAL SPECIFICATION REQUIREMENTS DO NOT REQUIRE DIVISIONS OF ANY LESS THAN 5 DEG-F.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0005, TASK 0001, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME     | OTHER |
|-------|------------------------|-----------------------|-------|
| 601   | 19-001-000             |                       |       |
| 601   | 19-009-000             | SUPP-POOL WATER TEMP. |       |



# HUMAN ENGINEERING DISCREPANCY

HEM NUMBER: 934.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE CONTROL POSITIONS FOR 2CCP-B11 MAY NOT BE ADEQUATE. PRESENT POSITIONS INCLUDE A CONTROL POSITION OF STOP. THIS IS AN MOV, BLOCK VALVE AND SHOULD BE RE-LABELLED CLOSE.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THIS IS A J-HANDLE CONTROL, AND IT HAS BEEN DECIDED THAT NO LABELING CHANGE WILL BE MADE, AS ALL J-HANDLES ARE TO BE CONSISTENTLY LABELLED START/STOP NOT OPEN/CLOSE.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY  
VERIFICATION OF SUITABILITY

PROC 0007, TASK 0002, A.S. 12  
PROC #0007, TASK 0002, A.S. 11

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                       | OTHER |
|-------|------------------------|---|-------|
| 873   | 22-003-000             | RBCLC TO DW CLR (UCIB BLOCK VLV MOV IB) |       |

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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 935.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT INDICATOR DIVISIONS FOR  
CONTAINMENT DRYWELL PRESS ARE INADEQUATE.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

INVENTORY IS INCORRECT, THIS METER HAS BEEN REPLACED SINCE  
INVENTORY AND HAS DIVISIONS OF 2.0.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PRO. 0007, TASK 0005, A.S. 02

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | 13-002-000             |                   |       |

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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 937.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT A CONTINUOUS MODE CONTROL FUNCTION/SWITCH IS NEEDED FOR THE PRIMARY CONTAINMENT PURGE VALVE, SOV-121. AT PRESENT THIS IS CITED AS BEING A DISCRETE OPEN/CLOSE CONTROL.

## COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

PROCEDURE HAS BEEN CHANGED SO THAT THE THROTTLING OF THIS VALVE IS NO LONGER REQUIRED.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY  
VERIFICATION OF SUITABILITY

PROC 0009, TASK 0001, A.S. 02  
PROC #0009, TASK 0001, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME               | OTHER |
|-------|------------------------|---------------------------------|-------|
| 875   | 24-005-000             | DW PURG PRESS INBD INIT ISOL    |       |
| 875   | 34-001-000             | SUPP POOL PURGE ISOL VLV*SOV121 |       |



HUMAN ENGINEERING DISCREPANCY

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HED NUMBER: 938.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

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VERIFICATION HAS DETERMINED THAT THE DIVISIONS FOR THE SCALE FOR DRYWELL PRESSURE ARE INADEQUATE.

COMMENTS

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ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

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INVENTORY IS INCORRECT, ACTUAL METER RANGE IS 0-150 IN DIVISIONS OF 2.0, NOT DIVISIONS OF 5.0. REQUIREMENTS ASK FOR DIVISIONS OF 1.0 BUT THIS IS NOT REQUIRED, AS DIVISIONS OF 2.0 PSI MAY BE READ TO 1.0 PSI.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

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EXPLANATORY INFORMATION

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VERIFICATION OF SUITABILITY

PRO. 0009, TASK 0001, A.S. 03

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME    | OTHER |
|-------|------------------------|----------------------|-------|
| ----- | -----                  | -----                | ----- |
| 601   | 13-002-000             | CONT. DRYWELL PRESS. |       |

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# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 939.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE SCALE UPPER RANGE ON THE (SBLCS) FILTER TRAIN HEATER INLET/OUTLET TEMPERATURE METER IS INADEQUATE. THE PRESENT METER HAS AN UPPER RANGE OF 120 DEG-F. SME'S DURING TASK ANALYSIS SUGGESTED AN UPPER RANGE OF 250 DEG-F.

## COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: NO FIX

## EXPLANATION

ADEQUATE FEEDBACK EXISTS ON OTHER DISPLAYS, SO THAT NO JUSTIFICATION EXISTS FOR MODIFYING THIS SCALE. AT PRESENT FEEDBACK ON CONTAINMENT TEMPERATURE IS AVAILABLE FROM THE REACTOR BUILDING AREA TEMPERATURE DISPLAYS AND DRYWELL TEMPERATURE DISPLAYS.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0009, TASK 0002, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME          | OTHER |
|-------|------------------------|----------------------------|-------|
| 870   | 11-001-000             | FLT TRAIN HTR INLET/OUTLET |       |



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HUMAN ENGINEERING DISCREPANCY  
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HEL NUMBER: 940.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY  
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VERIFICATION HAS DETERMINED THAT THE DISPLAY FOR NORMAL SUPPRESSION POOL PRESSURE MAY NOT BE ADEQUATE. THE PRESENT LISTED METER HAS A SCALE OF 0 TO 5 PSIG. SME'S IN TASK ANALYSIS HAVE SUGGESTED A RANGE OF 0 TO 70 PSIG.

COMMENTS  
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ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION  
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SUFFICIENT WIDE RANGE INDICATION EXISTS AND NARROW RANGE INFORMATION FOR NORMAL OPERATING CONDITIONS MAY BE OBTAINED FROM THE CITED METER. INDICATION IS ALSO AVAILABLE IN THE DRYWELL PRESSURE DISPLAY.

IMPLEMENTATION:

SOURCE OF DISCREPANCY  
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EXPLANATORY INFORMATION  
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VERIFICATION OF SUITABILITY

PROC #0009, TASK 0004, A.S. 01

| PANEL<br>----- | EQUIPMENT<br>ID NUMBER<br>----- | EQUIPMENT<br>NAME<br>----- | OTHER<br>----- |
|----------------|---------------------------------|----------------------------|----------------|
| 601            | 13-003-000                      | SUPP-POOL PRESS NORMAL     |                |



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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 943.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT SUMP LEVEL INDICATIONS ARE NOT AVAILABLE IN THE MAIN CONTROL ROOM.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

PRESENT THE CONTROL ROOM HAS AN ANNUNCIATOR ALARM FOR SUMP LEVEL. SUMP LEVEL INDICATIONS ARE AVAILABLE FROM THE RAD-WASTE COMPUTER. HENCE, ADEQUATE JUSTIFICATION DOES NOT EXIST FOR ADDING THESE DISPLAYS.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0011, TASK 0006, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

FOR ALL FI/DR SUMP LVLS



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 944.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE UPPER RANGE FOR CURRENT FLOW INDICATIONS FOR THE FANS (UC 413A) ARE INADEQUATE. PRESENT DISPLAY UPPER RANGES ARE 200 AMPS. SME'S SUGGEST THAT A 250 AMP UPPER RANGE IS NEEDED.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

S&W ENGINEERING HAS ANALYZED THIS AND DETERMINED THAT THE 150 HP MOTOR DRAWS APPROXIMATELY 150 AMPS. THEREFORE, THE EXISTING SCALE IS CORRECT.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY  
VERIFICATION OF SUITABILITY

PROC 0012, TASK 0004, A.S. 06  
PROC #0012, TASK 0004, A.S. 02

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 870   | 11-004-000             |                   |       |



HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 945.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT CONTROL CAPABILITY FOR SUMP PUMPS IS NOT AVAILABLE IN THE MAIN CONTROL ROOM.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

PUMP CONTROLS FOR SUMP PUMPS ARE LOCATED IN THE RAD-WASTE AREA. THIS IS SUFFICIENT. ADEQUATE JUSTIFICATION DOES NOT EXIST FOR ADDING THESE CONTROLS TO THE MAIN CONTROL ROOM.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0014.TASK 0002.A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |



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# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 948.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT CONTROL POSITION LABELS FOR THE SGBTS DISCHARGE FAN MAY BE INAPPROPRIATE. PRESENTLY THE SHUT-OFF POSITION IS LABELLED STOP. SME'S DURING TASK ANALYSIS SUGGEST THAT THIS POSITION BE LABELLED OFF.

## COMMENTS

OFF OR STOP MAY BE CONSIDERED EQUIVALENT FOR FAN CONTROLS.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

START/STOP IS EQUIVALENT TO ON/OFF FOR FAN CONTROLS AND WILL BE SUFFICIENT FOR POSITION LABELLING AS LONG AS IT IS CONSISTENT IN THE CONTROL ROOM.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #0015, TASK 0002, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME    | OTHER |
|-------|------------------------|----------------------|-------|
| 870   | 31-005-000             | SGBTS DISCH FAN FN1A |       |
| 870   | 31-011-000             | SGBTS DISCH FAN FN1B |       |





HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 951.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE LABELLED POSITIONS FOR THE  
HPCS PRESS HOLDING PUMP MAY BE INADEQUATE.

COMMENTS

THE TASK ANALYSIS SME HAS SUGGESTED THAT A POSITION OF START  
WOULD BE MORE APPROPRIATE THAN THE CURRENT POSITION LABEL OF RUN.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THIS IS A DISCRETE CONTROL, AND IS NOT A PUMP BREAKER  
CONTROL. THEREFORE, RUN WILL BE PREFERRED TO A POSITION LABELLED  
START. HENCE, NO MODIFICATION WILL BE IMPLEMENTED.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC. 0016, TASK 0010, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME       | OTHER |
|-------|------------------------|-------------------------|-------|
| 601   | 22-006-000             | RHR/B/LPCI HOLD PUMP    |       |
| 601   | 34-011-000             | HPCS PRESS HOLDING PUMP |       |

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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 953.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS INDICATED THE NEED FOR TRENDING INFORMATION ON BYPASS VALVE AND BYPASS VALVE OPENING JACK POSITION. AT PRESENT THE METERS ARE ONLY CAPABLE OF PROVIDING STATUS AND VALUE FEEDBACK.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

THESE METERS ARE OBSERVED CLOSELY BY THE OPERATORS AT ALL TIMES WHEN OPERATING THESE VALVES AND TREND COULD BE READ FROM THE METER. THEREFORE, NO SPECIAL RECORDER IS REQUIRED.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC. 0017, TASK 0010, A.S. 03

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME       | OTHER |
|-------|------------------------|-------------------------|-------|
| 851   | 21-001-002             | BYPASS VLV POSITION     |       |
| 851   | 21-001-012             | BYPASS VLV OPENING JACK |       |
| 851   | 21-001-021             | BYPASS VLV POSITION     |       |
| 851   | 21-001-023             | BYPASS VLV POSITION     |       |
| 851   | 21-001-024             | BYPASS VLV POSITION     |       |

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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 954.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS INDICATED A NEED FOR A SPRING-RETURN-TO-CENTER FUNCTION ON THE CONTROL FOR LPCS SUCTION FROM THE SUCTION POOL (MOV 112). AT PRESENT THIS IS A KEY-CONTROL WITH NO SPRING RETURN.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

DCRDR INV. IS INCORRECT. CONTROL PRESENTLY HAS A SR.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC. 0019, TASK 0005, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME           | OTHER |
|-------|------------------------|-----------------------------|-------|
| 601   | 28-046-000             | LPCS PUMP 1 SUCTION MOV-112 |       |

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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 955.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS INDICATED THAT MOV-104, LPCS INJECTION NEEDS TO HAVE A THROTTLE CAPABILITY, AND AT PRESENT IT IS LISTED AS A DISCRETE CONTROL.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

THIS CONTROL PRESENTLY HAS A THROTTLE CAPABILITY AND THEREFORE THIS HED IS INVALID.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PRO. 0020, TASK 0010, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | 29-022-000             | MOV 104           |       |





HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 956.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS INDICATED THAT THE DIVISIONS OF METER E12-R603A ARE INADEQUATE. PRESENTLY THE METER IS IN DIVISIONS OF 200 GPM. THE SME FROM TASK ANALYSIS HAS SUGGESTED THAT DIVISIONS OF 10 GPM WOULD BE MORE APPROPRIATE.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THIS METER HAS A RANGE OF 0-10000 GPM, AND DIVISIONS OF 10 GPM WOULD RESULT IN CROWDING OF THE SCALE. AT PRESENT 200 GPM DIVISIONS ARE SUFFICIENT FOR ALL PLANT OPERATIONS.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC. 0020, TASK 0011, A.S. 02

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | 18-009-000             | E12-R603A         |       |

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HUMAN ENGINEERING DISCREPANCY  
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HE NUMBER: 957.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY  
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VERIFICATION HAS DETERMINED THAT INDICATION OF PRESSURE DIFFERENTIAL BETWEEN REACTOR VESSEL AND SUPPRESSION CHAMBER IS DESIRED, AND IS PRESENTLY UNAVAILABLE.

COMMENTS  
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ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION  
-----

INDICATION IS AVAILABLE FOR BOTH PARAMETERS, VESSEL PRESSURE, AND SUPPRESSION CHAMBER PRESSURE. A SIMPLE CALCULATION WILL YIELD THE DELTA-P BETWEEN VESSEL AND SUPPRESSION CHAMBER. HENCE, JUSTIFICATION DOES NOT EXIST FOR ADDING A METER DEDICATED TO DISPLAYING THIS PARAMETER.

IMPLEMENTATION:

SOURCE OF DISCREPANCY  
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EXPLANATORY INFORMATION  
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VERIFICATION OF SUITABILITY

PROC. 0020, TASK 0012, A.S. 01

| PANEL<br>----- | EQUIPMENT<br>ID NUMBER<br>----- | EQUIPMENT<br>NAME<br>----- | OTHER<br>----- |
|----------------|---------------------------------|----------------------------|----------------|
|----------------|---------------------------------|----------------------------|----------------|

D-PRESS METER BETWEEN VESSEL AND SUPP  
CHAMBER

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2011

HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 959.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT FLOW INDICATIONS FOR REACTOR  
FEEDWATER SUCTION FLOW IS PRESENTLY DISPLAYED IN IMPROPER LIMITS.

COMMENTS

THE PRESENT DISPLAY HAS FEEDBACK IN UNITS OF GPM, WHEN FEEDBACK  
IN LBM/HR IS DESIRED. NOTE THAT BY CHANGING UNITS TO LBM/HR, THE  
SCALE RANGE WILL BE CHANGED ALSO.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

PUMP FLOWS SHOULD BE KEPT CONSISTENT IN GPM, RATHER THAN USING  
LBM/HR TO BE CONSISTANT WITH FEEDWATER-STEAM FLOW. FEEDWATER  
FLOW IN LBM/HR IS AVAILABLE ON PANEL 603 (C33-R604A, C33-R604B).

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY  
VERIFICATION OF SUITABILITY

PROC 0021, TASK 0004, A.S. 03  
PROC. 0021, TASK 0004, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME         | OTHER |
|-------|------------------------|---------------------------|-------|
| 851   | 15-008-000             | REAC. FD P1A SUCTION FLOW |       |

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HUMAN ENGINEERING DISCREPANCY  
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HE NUMBER: 960.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 5/15/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY  
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VERIFICATION HAS DETERMINED THAT A KEY-LOCK SWITCH FUNCTION IS  
DESIRED FOR THE ALARM-UP PUMPS.

COMMENTS  
-----

THESE ARE PRESENTLY STANDARD J-HANDLE PUMP-BREAKER CONTROLS AND  
DO NOT HAVE A KEY-LOCK.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION  
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INADVERTENT ACTUATION OF C/A PUMPS IS NOT A SAFETY CONCERN,  
THEREFORE A KEY-LOCK IS NOT NECESSARY. A KEY-LOCK COULD  
INTERFERE WITH NORMAL/PROPER OPERATION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY  
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EXPLANATORY INFORMATION  
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VERIFICATION OF SUITABILITY

PROC.0021, TASK 0084, A.S. 18

| PANEL<br>----- | EQUIPMENT<br>ID NUMBER<br>----- | EQUIPMENT<br>NAME<br>----- | OTHER<br>----- |
|----------------|---------------------------------|----------------------------|----------------|
| 602            | 34-002-000                      | CU PUMP A                  |                |
| 602            | 34-002-000                      | CU PUMP B                  |                |





# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 961.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT AN ANNUNCIATOR FOR ALL RODS IN IS NEEDED AND IS NOT CURRENTLY AVAILABLE.

## COMMENTS

ANNUNCIATOR NEEDED: ALL RODS IN. TIE IN WITH NMP-2 ANNUNCIATOR REVIEW.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THERE ARE FOUR ALTERNATE WAYS TO DETERMINE ALL RODS IN:

1. ROD WORTH MINIMIZER
2. ROD SEQUENCE CONTROL SYSTEM
3. FULL CORE DISPLAY
4. PROCESS COMPUTER

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF AVAILABILITY

PROC #01, TASK 08, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

ANNUNCIATOR: ALL RODS IN



# HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 962.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED A NEED FOR AN ANNUNCIATOR FOR CLEANUP SYSTEM ISOLATION. THERE CURRENTLY IS NO ANNUNCIATOR AVAILABLE FOR THIS.

## COMMENTS

ANNUNCIATOR NEEDED: CLEANUP SYSTEM ISOLATION. TIE IN WITH NMP-2 ANNUNCIATOR REVIEW.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THERE ARE TWO ALTERNATE METHODS OF DETERMINING CLEANUP SYSTEM ISOLATION:

1. OFF-NORMAL STATUS DISPLAYS
2. NORMAL CLEANUP SYSTEM ANNUNCIATOR

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF AVAILABILITY

PROC #02, TASK 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
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ANNUNCIATOR: CLEANUP SYSTEM ISOLATION

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HUMAN ENGINEERING DISCREPANCY

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HE NUMBER: 963.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

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VERIFICATION HAS DETERMINED A NEED FOR AN ANNUNCIATOR FOR RCIC LOGIC INITIATED. THERE IS CURRENTLY NO ANNUNCIATOR AVAILABLE FOR THIS.

COMMENTS

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ANNUNCIATOR NEEDED: RCIC LOGIC INITIATED. TIE IN WITH NMP-2 ANNUNCIATOR STUDY.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

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THERE IS A WHITE STATUS LIGHT ON PANEL 601 WHICH PROVIDES THIS INFORMATION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

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EXPLANATORY INFORMATION

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VERIFICATION OF AVAILABILITY

PROC #02, TASK 04, A.S. 07

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| ----- | -----                  | -----             | ----- |

ANNUNCIATOR: RCIC LOGIC INITIATED



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 964.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED A NEED FOR AN ANNUNCIATOR FOR STANDBY LIQUID CONTROL LOGIC INITIATED. NO ANNUNCIATOR CURRENTLY EXISTS FOR THIS.

COMMENTS

ANNUNCIATOR NEEDED: STANDBY LIQUID CONTROL INITIATED. TIE IN WITH NMP-2 ANNUNCIATOR STUDY.

ASSESSMENT CATEGORY: 3D

DISPOSITION: NO FIX

EXPLANATION

THE RRCS SYSTEM IS ANNUNCIATED FOR SLCS INITIATION. MANUAL INITIATION OF SLCS HAS KEYLOCK CONTROL. THUS, THERE IS NO NEED FOR ANNUNCIATION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF AVAILABILITY

PROC #02, TASK 05, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
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|-------|------------------------|-------------------|-------|

ANN: STANDBY LIQ. CONTROL INITIATED

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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 965.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED A NEED FOR AN ANNUNCIATOR FOR SD (SHUTDOWN) COOLING VALVE INOPERATIVE. THERE IS CURRENTLY NO ANNUNCIATOR AVAILABLE FOR THIS. MOV 112, MOV 113.

## COMMENTS

ANNUNCIATOR NEEDED: SHUTDOWN COOLING VALVE INOPERATIVE. TIE IN WITH NMP-2 ANNUNCIATOR STUDY.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THE CURRENT DESIGN HAS IN-OP LIGHTS WHICH WILL ALSO BRING AN ANNUNCIATOR FOR "RHR-SYSTEM INOPERABLE".

## IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF AVAILABILITY

PROC #02, TASK 019, A.S. 02

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

ANNUNCIATOR: SD COOLING VLV INOP

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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 966.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT AN ANNUNCIATOR IS NEEDED FOR RHR SHUTDOWN INTERLOCK CLEAR. NO ANNUNCIATOR CURRENTLY EXISTS FOR THIS.

COMMENTS

ANNUNCIATOR NEEDED: RHR SHUTDOWN INTERLOCK CLEAR. TIE IN WITH NMP-2 ANNUNCIATOR REVIEW.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THIS ANNUNCIATOR WOULD BE A "NICE TO HAVE". THERE IS NO SIGNIFICANT CONSEQUENCE OF NOT HAVING IT.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF AVAILABILITY

PROC #03, TASK 027, A.S. 03

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
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ANN: RHR SHUTDOWN INTERLOCK CLEAR

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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 967.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT AN ANNUNCIATOR IS NEEDED FOR HVAC COOLER INLET TEMP (HI/LO). THERE IS CURRENTLY NO ANNUNCIATOR AVAILABLE FOR THIS.

COMMENTS

ANNUNCIATOR NEEDED: HVAC COOLER INLET TEMP (HI/LO). TIE IN WITH NMP-2 ANNUNCIATOR REVIEW.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

AT NMP-2, AREA TEMPERATURES ARE USED IN LIEU OF HVAC INLET TEMP.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF AVAILABILITY

PROC #11, TASK 03, A.S. 02

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

ANNUNCIATOR: HVAC COOLER INLET TEMP



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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 968.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT ANNUNCIATOR IS NEEDED FOR HVAC COOLER OUTLET TEMP (HI/LO). THERE IS CURRENTLY NO ANNUNCIATOR AVAILABLE FOR THIS.

COMMENTS

ANNUNCIATOR NEEDED: HVAC COOLER OUTLET TEMP (HI/LO). TIE IN WITH NMP-2 ANNUNCIATOR REVIEW.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

SAME AS HEO-967. AT NMP-2, AREA TEMPERATURES ARE USED IN LIEU OF HVAC INLET TEMP.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF AVAILABILITY

PROC #011, TASK 03, A.S. 03

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

ANNUNCIATOR: HVAC COOLER OUTLET TEMP

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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 969.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT AN ANNUNCIATOR IS NEEDED TO INDICATE ALARMS ON THE RADIATION MONITOR PANEL. NO ANNUNCIATOR IS CURRENTLY RELATED TO THIS.

COMMENTS

ANNUNCIATOR NEEDED: RAD MONITOR PANEL. TIE IN WITH ANNUNCIATOR STUDY.

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

ANNUNCIATORS ARE FOUND ON PANEL 851.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF AVAILABILITY

PROC #011, TASK 08, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

ANNUNCIATOR: RAD MONITORS (IN ALARM)

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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 971.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE METER SCALE FOR SUPPRESSION POOL TEMPERATURE HAS INADEQUATE DIVISIONS. THE CURRENT METER HAS DIVISIONS OF 5 DEG-F. THE SME SUGGESTED DIVISIONS OF 1 DEG-F.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THIS IS NOT REQUIRED. ALL TECHNICAL SPECIFICATIONS ARE IN 5 DEGREE INTERVALS. IN ADDITION, RESOLUTION TO 1 DEGREE F IS AVAILABLE ON THE COMPUTER.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #002, TASK 005, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME           | OTHER |
|-------|------------------------|-----------------------------|-------|
| 601   | 19-009                 | SUPPRESSION POOL WATER TEMP |       |



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 973.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE METER SCALE FOR RHR PUMP DISCHARGE PRESSURE HAS INADEQUATE DIVISIONS. THE CURRENT METER HAS DIVISIONS OF 10 PSIG. THE SME SUGGESTED DIVISIONS OF 5 PSIG.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

RESOLUTION TO 5 PSIG IS NOT REQUIRED.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #03, TASK 028, A.S. 010

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME    | OTHER |
|-------|------------------------|----------------------|-------|
| 601   | 12-010                 | RHS-P1B DISCH PRESS  |       |
| 601   | 18-008                 | RHS-P1A DISCH PRESS. |       |



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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 974.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE CONTROL FOR SDC A RETURN VALVE SHOULD BE DISCRETE CONTROL AND IS CURRENTLY A THROTTLE (CONTINUOUS) CONTROL.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

GENERAL ELECTRIC HAS DETERMINED THAT THE VALVE MUST HAVE THROTTLE CAPABILITY IN ORDER TO VARY COOLDOWN RATE.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #03, TASK 028, A.S. 012

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME   | OTHER |
|-------|------------------------|---------------------|-------|
| 601   | 39-006                 | SDC A RETURN MOV40A |       |

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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 975.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE UNITS FOR RHR FLOW ARE INADEQUATE. THE SME HAS SUGGESTED THIS METER BE IN GALLONS PER MINUTE (GPM) AND IT IS CURRENTLY IN GALLONS PER HOUR (GPH).

COMMENTS

THE NEED FOR HAVING A METER IN GPM INSTEAD OF GPH MAY NECESSITATE SEVERAL OTHER CHANGES OF THE AFFECTED METER.

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

PRESENT METER IS IN GPM.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #03, TASK 028, A.S. 23

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME    | OTHER |
|-------|------------------------|----------------------|-------|
| 601   | 12-011                 | RHR FLOW (E12-R603B) |       |

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HUMAN ENGINEERING DISCREPANCY

HEAD NUMBER: 976.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE METER SCALE ON RHS B STEAM LINE PRESSURE HAS INADEQUATE DIVISIONS. THE CURRENT METER HAS DIVISIONS OF 25 PSIG, WHILE THE SME SUGGESTED THAT DIVISIONS OF 20 PSIG ARE NEEDED.

COMMENTS

THIS METER IS TO BE USED AS A FEEDBACK OF RPV PRESSURE.

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

NMP-2 HAS PRESSURE INDICATION IN INCREMENTS OF 20 PSIG ON THE PAM RECORDER ON PANEL 601.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #06, TASK 010, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME         | OTHER |
|-------|------------------------|---------------------------|-------|
| 601   | 12-008                 | RHS B STEAM LINE PRESSURE |       |

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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 977.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE UNITS FOR DRYWELL SPRAY HEADER FLOW ARE INADEQUATE. THE SME HAS SUGGESTED THIS METER SHOULD BE IN GALLONS PER MINUTE (GPM) AND IT IS CURRENTLY IN GALLONS PER HOUR (GPH).

## COMMENTS

THE NEED FOR A METER IN GPM INSTEAD OF GPH MAY NECESSITATE SEVERAL OTHER CHANGES OF THE AFFECTED METER.

## ASSESSMENT CATEGORY:

DISPOSITION: INVALID

## EXPLANATION

PRESENT METER IS IN GPM.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

|                             |                            |
|-----------------------------|----------------------------|
| VERIFICATION OF SUITABILITY | PROC #07, TASK 08, A.S. 03 |
| VERIFICATION OF SUITABILITY | PROC #07, TASK 09, A.S. 02 |
| VERIFICATION OF SUITABILITY | PROC #07, TASK 09, A.S. 04 |
| VERIFICATION OF SUITABILITY | PROC #07, TASK 05, A.S. 03 |

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME         | OTHER |
|-------|------------------------|---------------------------|-------|
| 601   | 12-013                 | DRYWELL SPRAY HEADER FLOW |       |
| 601   | 18-010                 | DRYWELL SPRAY HEADER FLOW |       |



10-11-11

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HUMAN ENGINEERING DISCREPANCY  
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HE NUMBER: 980.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY  
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VERIFICATION HAS DETERMINED THAT THE CONTROLS FOR SBGTS TRAIN INITIATION NEEDS TO HAVE A POSITION LABELED "OPEN". THE CURRENT CONTROL POSITION IS LABELED START.

COMMENTS  
-----

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION  
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"START" IS MORE APPROPRIATE FOR TRAIN INITIATION THAN "OPEN". IN ADDITION TO VALVE OPENING, PUMPS ARE STARTED.

IMPLEMENTATION:

SOURCE OF DISCREPANCY  
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EXPLANATORY INFORMATION  
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|                             |                            |
|-----------------------------|----------------------------|
| VERIFICATION OF SUITABILITY | PROC #09, TASK 03, A.S. 01 |
| VERIFICATION OF SUITABILITY | PROC #09, TASK 03, A.S. 02 |
| VERIFICATION OF SUITABILITY | PROC #09, TASK 03, A.S. 03 |

| PANEL<br>----- | EQUIPMENT<br>ID NUMBER<br>----- | EQUIPMENT<br>NAME<br>----- | OTHER<br>----- |
|----------------|---------------------------------|----------------------------|----------------|
| 870            | 21-002                          | SBGTS TRAIN INITIATION     |                |
| 871            | 21-002                          | SBGTS TRAIN INITIATION     |                |

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HUMAN ENGINEERING DISCREPANCY  
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HEAD NUMBER: 981.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY  
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VERIFICATION HAS DETERMINED THAT A CR CONTROL IS NEEDED FOR CONTROL OF THE PRIMARY CONTAINMENT VENT. NO CR CONTROL IS CURRENTLY AVAILABLE FOR THIS.

COMMENTS  
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THIS CONTROL SHOULD BE DISCRETE AND HAVE BOTH RED AND GREEN STATUS LIGHTS AND OPEN AND CLOSE POSITIONS.

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION  
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THIS CONTROL EXISTS ON PANEL 873.

IMPLEMENTATION:

SOURCE OF DISCREPANCY  
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EXPLANATORY INFORMATION  
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VERIFICATION OF AVAILABILITY      PROC #09, TASK. 024, A.S. 01

| PANEL<br>----- | EQUIPMENT<br>ID NUMBER<br>----- | EQUIPMENT<br>NAME<br>-----     | OTHER<br>----- |
|----------------|---------------------------------|--------------------------------|----------------|
|                | SOV 102                         | PRIMARY CONTAINMENT VENT VALVE |                |

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# HUMAN ENGINEERING DISCREPANCY

HEID NUMBER: 983.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT ANNUNCIATOR FOR HVAC COOLER DIFFERENTIAL TEMPERATURE HIGH IS NEEDED. NO ANNUNCIATOR CURRENTLY EXISTS FOR THIS.

## COMMENTS

ANNUNCIATOR NEEDED: HVAC COOLER DIFFERENTIAL TEMPERATURE HIGH.  
TIE IN WITH NMP-2 ANNUNCIATOR REVIEW.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

SAME AS HEO 967. AT NMP-2, AREA TEMPERATURES ARE USED IN LIEU OF HVAC INLET TEMP.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF AVAILABILITY

PROC #011, TASK 03, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

ANN: HVAC COOLER DIFF TEMP HI



# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 985.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE CONTROL/VALVE ACTION FOR SEVERAL CONTROLS RELATED TO THE RHR HEAT EXCHANGER ARE UNSUITABLE. THESE CONTROLS ARE PRESENTLY THROTTLE (CONTINUOUS) CONTROLS AND COULD BE DISCRETE POSITION CONTROLS.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

THESE VALVES ARE REQUIRED TO HAVE THROTTLE CAPABILITY TO WARM UP THE RHR HEAT EXCHANGER AND PROVIDE LEVEL CONTROL.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY  
VERIFICATION OF SUITABILITY

PROC #017,TASK 011,A.S. 02  
PROC #017,TASK 011,A.S. 03

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME                 | OTHER |
|-------|------------------------|-----------------------------------|-------|
| 601   | 32-004                 | STM SUPPLY TO RHR HX B MOV22B     |       |
| 601   | 32-005                 | STM SUPPLY TO RHR HX B MOV23B     |       |
| 601   | 32-007                 | RHR HX B VENT MOV27B.             |       |
| 601   | 32-014                 | RHR HX B VENT MOV26B              |       |
| 601   | 33-007                 | RHR B HX FLOW TO SUPP POOL MOV37B |       |



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 986.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE CONTROLS FOR REACTOR VESSEL  
VENTS SHOULD BE DISCRETE CONTROLS AND NEED NOT BE THROTTLE  
(CONTINUOUS) CONTROLS.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

HAS VERIFIED THAT THROTTLE CAPABILITY IS THE PROPER DESIGN.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY  
VERIFICATION OF SUITABILITY

PROC #017, TASK 015, A.S. 01  
PROC #020, TASK 02, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 602   | 33-030                 | RX VESSEL VENT    |       |
| 602   | 33-053                 | RX VESSEL VENT    |       |





HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 988.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT A METER FOR FULL LPCI LOOP FLOW  
IS NEEDED AND IS NOT CURRENTLY AVAILABLE.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

METER E12-R603B (RHR FLOW) PROVIDES FULL LPCI LOOP FLOW.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF AVAILABILITY

PROC #020, TASK 011, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

FULL LPCI LOOP FLOW INDICATION

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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 987.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE CONTROL FOR MAIN STEAM LINE  
PRESS EQUAL/WARMING MOV187 SHOULD BE A DISCRETE CONTROL AND NEED  
NOT BE A THROTTLE (CONTINUOUS) CONTROL.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

IS IS AN INFREQUENTLY USED CONTROL. THIS ENHANCEMENT IS NOT  
REQUIRED FOR SAFE SHUTDOWN.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #020, TASK 04, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 602   | 43-002                 | MOV 187           |       |



HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 989.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE INDICATOR FOR E12-  
R603B SHOULD BE IN UNITS OF GPM INSTEAD OF GPH.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

HARDWARE IS ALREADY IN GPM.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #020, TASK 011, A.S. 02

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | 12-011                 | E12-R603B         |       |

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# HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 990.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

## DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE METER SCALE DIVISIONS FOR E21-R600 ARE INADEQUATE. THE CURRENT METER HAS DIVISIONS OF 200 GPM. THE SME SUGGESTS USING 100 GPM DIVISIONS.

## COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

## EXPLANATION

DIVISIONS OF 200 CAN BE READ AT 100 GPM ACCURACY. OPERATIONS REVIEW INDICATED NO NEED TO REVISE SCALE.

## IMPLEMENTATION:

### SOURCE OF DISCREPANCY

### EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #020, TASK 13, A.S. 03

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | 19-013                 | E21-R600          |       |





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HUMAN ENGINEERING DISCREPANCY

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HE NUMBER: 991.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

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VERIFICATION HAS DETERMINED THAT THE CONTROL FOR RHR HEAD SPRAY VALVES SHOULD BE A DISCRETE CONTROL. THIS IS CURRENTLY A THROTTLE (CONTINUOUS) CONTROL.

COMMENTS

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ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

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REQUIRES THIS VALVE TO BE ADJUSTABLE IN ORDER TO CONTROL FLOW TO DESIGN SPECIFICATIONS.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

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EXPLANATORY INFORMATION

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VERIFICATION OF SUITABILITY

PROC #020, TASK 014, A.S. 03

| PANEL<br>----- | EQUIPMENT<br>ID NUMBER<br>----- | EQUIPMENT<br>NAME<br>----- | OTHER<br>----- |
|----------------|---------------------------------|----------------------------|----------------|
| 601            | 33-002                          | MOV 104                    |                |

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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 992.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE CONTROL FOR SHUTDOWN COOLING RETURN VALVES SHOULD BE DISCRETE CONTROLS AND ARE PRESENTLY THROTTLE (CONTINUOUS) CONTROLS.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

ME AS 974.00. GENERAL ELECTRIC HAS DETERMINED THAT THE VALVE MUST HAVE THROTTLE CAPABILITY IN ORDER TO VARY COOLDOWN RATE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #020, TASK 04, A.S. 04

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | 33-008                 | MOV40B            |       |
| 601   | 34-006                 | MOV40A            |       |

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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 995.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT AN AMBER STATUS LIGHT IS NEEDED FOR THE RHR TO DRYWELL SPRAY VALVE. CURRENTLY ONLY RED AND GREEN STATUS LIGHTS EXIST.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

PRESENT DESIGN HAS AN INOP STATUS LIGHT AND THERE IS NO VALID FUNCTION TO REQUIRE AN AMBER STATUS LIGHT.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #020, TASK 020, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | 49-002                 | MOV15A            |       |

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HUMAN ENGINEERING DISCREPANCY

HE NUMBER: 996.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE CONTROL FOR RHR TO  
SUPPRESSION POOL COOLING SHOULD BE A DISCRETE CONTROL. THIS  
CONTROL IS CURRENTLY A THROTTLE (CONTINUOUS) CONTROL.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

IS REQUIRED TO HAVE THROTTLE CAPABILITY TO PREVENT PUMP RUN  
OUT DURING THE PUMP OPERABILITY TEST.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PROC #020, TASK 020, A.S. 01

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
| 601   | 39-002                 | FV38A             |       |





HUMAN ENGINEERING DISCREPANCY

REFERENCE NUMBER: 997.00  
UTILITY: NMP

ORIGINATOR: DKB  
PLANT: NMP

DATE: 6/ 4/1985  
UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT A PUSH-BUTTON LEGEND LIGHT IS  
NEEDED FOR (SCRAM?) DISCHARGE VOLUME HIGH WATER LEVEL BYPASS.  
THIS IS NOT CURRENTLY AVAILABLE.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THE PRESENT DESIGN IS FOUR SWITCHES WITH AN ANNUNCIATOR ACTIVATED  
WHEN ANY SWITCH IS IN THE BYPASS POSITION. THEREFORE, A LEGEND  
LIGHT IS NOT NEEDED.

IMPLEMENTATION:

SOURCE OF DISCREPANCY

EXPLANATORY INFORMATION

VERIFICATION OF AVAILABILITY

PROC #004, TASK 035, A.S. 05

| PANEL | EQUIPMENT<br>ID NUMBER | EQUIPMENT<br>NAME | OTHER |
|-------|------------------------|-------------------|-------|
|-------|------------------------|-------------------|-------|

PP/LL-DISCH VOL HI-WTR BYPASS

