HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 1.00 ORIGINATOR: RCM DATE: 12/18/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 2.00 ORIGINATOR: RCM DATE: 12/18/1984
UTILITY: NMP PLANT: NMP 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 INPUTING 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 3.00 ORIGINATOR: RCM DATE: 12/18/1984
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 4.00 ORIGINATOR: RCM DATE: 12/18/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 5.00 ORIGINATOR: RCM DATE: 12/18/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 6.00 ORIGINATOR: RCM DATE: 12/18/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 7.00 ORIGINATOR: RCM DATE: 12/18/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 8.00 ORIGINATOR: RCM DATE: 12/18/1984
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 9.00 ORIGINATOR: RCM DATE: 12/18/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 10.00 ORIGINATOR: RCM DATE: 6/19/1990
UTILITY: NMP PLANT: NMP 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: 3D

DISPOSITION: NO FIX

EXPLANATION

EXTENSIVE HARDWARE/SOFTWARE CHANGES ARE REQUIRED TO IMPLEMENT THE DELAY MESSAGE. THIS EXPENSE IS NOT WARRANTED FOR THE FOLLOWING REASONS: 1) THE CURSOR WILL TURN FROM WHITE TO PURPLE, THEN TO WHITE TO INDICATE THAT THE TARGET FUNCTION HAS BEEN INITIATED AND HAS ACKNOWLEDGED THE VIDEO EXECUTIVE; 2) FOR NORMAL OPERATING CONDITIONS, ONLY THREE DISPLAYS TAKE LONGER THAN THREE SECONDS. NONE OF THESE DISPLAYS ARE CRITICAL IN NATURE; 3) THE NUREG 0700 REQUIREMENT FOR A 3 SECOND DELAY MESSAGE IS INCONSISTENT AND OVERLY RESTRICTIVE COMPARED TO NUREG 1342 (SPDS) WHICH REQUIRES A DELAY MESSAGE ONLY FOR DISPLAYS TAKING GREATER THAN 15 SECONDS, REFERENCE SM-CE90-0133.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.1.7.A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 61.00 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

COMMENTS

ASSESSMENT CATEGORY: 3D

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 ID NUMBER	EQUIPMENT NAME	OTHER
873			

HUMAN ENGINEERING DISCREPANCY

REV 2

HED NUMBER: 11.00 ORIGINATOR: RCM DATE: 6/19/1990
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: NO FIX

EXPLANATION

EXTENSIVE HARDWARE/SOFTWARE CHANGES ARE REQUIRED TO IMPLEMENT THE DELAY MESSAGE. THIS EXPENSE IS NOT WARRANTED FOR THE FOLLOWING REASONS: 1) THE CURSOR WILL TURN FROM WHITE TO PURPLE, THEN TO WHITE TO INDICATE THAT THE TARGET FUNCTION HAS BEEN INITIATED AND HAS ACKNOWLEDGED THE VIDEO EXECUTIVE; 2) FOR NORMAL OPERATING CONDITIONS, ONLY THREE DISPLAYS TAKE LONGER THAN THREE SECONDS. NONE OF THESE DISPLAYS ARE CRITICAL IN NATURE; 3) THE NUREG 0700 REQUIREMENT FOR A 3 SECOND DELAY MESSAGE IS INCONSISTENT AND OVERLY RESTRICTIVE COMPARED TO NUREG 1342 (SPDS) WHICH REQUIRES A DELAY MESSAGE ONLY FOR DISPLAYS TAKING GREATER THAN 15 SECONDS, REFERENCE SM-CE90-0133.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.1.7.B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 12.ØØ ORIGINATOR: RCM DATE: 12/18/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 13.00 ORIGINATOR: RCM DATE: 2/ 1/1990
UTILITY: NMP PLANT: NMP 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

IMPROVE READABILITY BY INSTALLING ANTI-GLARE SCREENS WHERE NECESSARY AND ELIMINATE CRT DISTORTION BY REALIGNING CRT GUN OR CRT REPLACEMENT.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.2.1.A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 14.00 ORIGINATOR: RCM DATE: 12/19/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 15.00 ORIGINATOR: RCM DATE: 12/19/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 16.00 ORIGINATOR: RCM DATE: 12/19/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 17.00 ORIGINATOR: RCM DATE: 12/18/1984
UTILITY: NMP PLANT: NMP 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 INPUTING 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 18.00 ORIGINATOR: RCM DATE: 12/19/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 19.00 ORIGINATOR: RCM DATE: 12/19/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 20.00 ORIGINATOR: RCM DATE: 3/13/1986
UTILITY: NMP PLANT: NMP 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 ARE FAMILIAR WITH THE DISPLAY DIFFERENCES.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.2.4.L.2

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 21.00 ORIGINATOR: RCM DATE: 12/19/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 22.00 ORIGINATOR: RCM DATE: 12/19/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 23.00 ORIGINATOR: RCM DATE: 12/19/1984
UTILITY: NMP PLANT: NMP 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: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.2.5.C

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		PLANT PROCESS COMPUTER	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 24.00 ORIGINATOR: RCM DATE: 12/19/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 25.00 ORIGINATOR: RCM DATE: 12/19/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 26.00 ORIGINATOR: RCM DATE: 3/13/1986
UTILITY: NMP PLANT: NMP 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

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.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

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.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.2.6.1

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 27.00 ORIGINATOR: RCM DATE: 12/19/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 28.00 ORIGINATOR: RCM DATE: 12/19/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 29.00 ORIGINATOR: RCM DATE: 12/19/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 30.00 ORIGINATOR: RCM DATE: 12/19/1984
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 31.00 ORIGINATOR: RCM DATE: 3/20/1986
UTILITY: NMP PLANT: NMP 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:

DISPOSITION: INVALID

EXPLANATION

MEASUREMENTS WERE MADE PRIOR TO COMPLETE INSTALLATION OF THE CENTER DESK CONSOLE AREA. COMPLIANCE WITH GUIDELINES IS DESCRIBED IN THE CENTER DESK STUDY.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.2.3.B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 32.00 ORIGINATOR: RCM DATE: 3/20/1986
UTILITY: NMP PLANT: NMP 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 OPERATOR'S ACTUAL LINE OF SIGHT.

COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: NO FIX

EXPLANATION

THE CENTER DESK CONSOLE AREA WAS EXAMINED PRIOR TO COMPLETE INSTALLATION OF THE CONSOLE. THE ARRANGEMENT TO THE DISPLAY CONSOLE WORKSTATIONS WAS EXAMINED AS PART OF THE CENTER DESK STUDY AND FOUND TO BE ADEQUATE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.2.3.C.1.A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 33.00 ORIGINATOR: RCM DATE: 3/20/1986
UTILITY: NMP PLANT: NMP 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:

DISPOSITION: INVALID

EXPLANATION

THE CENTER DESK WAS EXAMINED PRIOR TO COMPLETION OF THE DISPLAY CONSOLE. COMPLIANCE WITH GUIDELINES IS DESCRIBED IN THE CENTER DESK STUDY.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.2.3 C(1) B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 34.00 ORIGINATOR: RCM DATE: 12/20/1984
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

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	EXPLANATORY INFORMATION
CHECKLIST	7.2.7.L.2

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 35.00 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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	1.1.5.A
CHECKLIST	1.1.5.B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 36.00 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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: 3D

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

HED NUMBER: 37.01 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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

HED NUMBER: 37.02 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
602	3	ENTIRE BOX	35"

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 37.03 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 37.Ø4 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
851	1	ENTIRE BOX	42"
851	4	3 COLUMNS	
851	5	ENTIRE BOX	4Ø"
852	1	ENTIRE BOX	43"
852	2	4 COLUMNS	
852	5	1 COLUMN	
852	6	ENTIRE BOX	39"

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 37.05 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT 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	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 38.00 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT 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"

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 60.00 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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 TILES 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

HUMAN ENGINEERING DISCREPANCY REV 2

HED NUMBER: 65.00 ORIGINATOR: CFW DATE: 5/29/1986
UTILITY: NMP PLANT: NMP 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: 3C

DISPOSITION: FIX

EXPLANATION

THE LEGENDS OF THE INOP LEGEND LIGHTS WILL BE CONSIDERED DURING THE LABELING STUDY. THE LEGENDS WILL BE THREE LINES AND THE PRINT SIZE MADE LARGER FOR GREATER LEGIBILITY.

IMPLEMENTATION: COMMERCIAL OPERATION

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	4.3.3.B(5)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT 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	
602		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 IN CAL OR GRTOSO FAILURE	
602		MSIV TRIP UNIT B	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 63.00 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 62.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 64.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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 READABLILITY.

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	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 59.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

	IN CAL OR GROSO FAILURE	
602	MSIV TRIP UNIT C	
	IN CAL OR GROSO FAILURE	
602	MSIV TRIP UNIT D	
	IN CAL OR GROSO 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 PUSC 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 1 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	
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	

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"

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 39.01 ORIGINATOR: CFW DATE: 3/20/1986
UTILITY: NMP PLANT: NMP 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: 3D

DISPOSITION: FIX

EXPLANATION

AN EIGHT INCH OR GREATER STOOL WILL BE PROVIDED TO ENSURE THAT THESE DISPLAYS CAN BE READ BY THE 5TH PERCENTILE FEMALE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.2.5.B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT 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

HED NUMBER: 39.02 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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

HED NUMBER: 39.03 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
603		ROD DISPLAY	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 40.00 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

NO PROVISIONS HAVE BEEN MADE SO THAT THE PROCEDURES MANUALS AND OTHER REFERENCE MATERIALS CAN BE CONSULTED WHILE TASK SEQUENCES ARE PERFORMED AT THE CONSOLE.

COMMENTS

A ROLLING BOOKCASE SHOULD BE PROVIDED TO STORE AND USE PROCEDURAL MANUALS.

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

CONSIDER THE NEED FOR A ROLLING BOOKCASE IN A CENTER DESK EVALUATION OF THE OPERATOR'S TASK REQUIREMENTS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.2.6

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 41.00 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 42.00 ORIGINATOR: RCM DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 43.00 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 44.00 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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 ORIGINATOR: RCM DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 47.00 ORIGINATOR: RCM DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 48.00 ORIGINATOR: RCM DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 49.00 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 50.00 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 51.00 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

COMMENTS

ASSESSMENT CATEGORY: 3D

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

HED NUMBER: 52.00 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 53.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 54.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 55.00 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 56.00 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
870		EMER RECIRC TEST DAMPR 2HVR*AOD34A INOP	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 57.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 58.00 ORIGINATOR: CFW DATE: 1/22/1985
UTILITY: NMP PLANT: NMP 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

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*UC1Ø4 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*AOD1ØA 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 *AOD12Ø*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*UC1Ø3A INOP
870	STBY SWGR RM MKUP AIR FAN 2HVC*FN11A INOP
870	STBY SWGR ROOM 2HVC*AC1Ø1A 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*UC1Ø7 INOP
871	CHILLED WTR CIRC PUMP 2HVK*P1B INOP
871	CHILLED WTR TEMP VALVE 2HVK*TV21B INOP
871	CHILLLED 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*UC1Ø5 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*UC1Ø2 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*AOD1ØB INOP
871	RELAY RM A/C FAN 2HVC*ACU2B INOP
871	REMOTE SHTDN RM A/C 2HVC*ACU3B INOP
871	REMOTE SHUTDOWN RM B MANUALLY OUT OF SERVICE
871	ROOM 2 EXH FAN 2HVP*FN2A INOP
871	ROOM 2 EXH FAN 2HVP*FNB INOP
871	SMK RMVL FN1Ø 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*UC1Ø3B INOP
871	STBY SWGR RM MKUP AIR FAN 2HVC*FN11B INOP
871	STBY SWGR ROOM 2HVC*AC1Ø1B INOP
873	CCP TO SFC HX INL V MOV14A INOP
873	CCP TO SFC HX RTN V MOV18A INOP
873	COOL WATER BLOOCK V SOOV1ØA 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 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 MOV1 8A INOP
875	CCP TO SFC HX INL V MOV14B INOP
875	COOL WATER BLOCK V SOV1ØB 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 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 66.00 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 67.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 68.00 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		GENERIC	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 69.00 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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

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

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	4.2.1.A
CHECKLIST	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		TURBINE SPEED (RAISE,LOWER)	
851	A0	TURB GLAND STM PROM MAIN STM (OPEN,CLS,AUTO)	
852		MOTOR OPERATED DISCONNECT FOR 115V	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 70.00 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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	4.2.2
CHECKLIST	4.4.1.B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 71.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 72.00 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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: 3D

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

HED NUMBER: 73.00 ORIGINATOR: DKB DATE: 1/30/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	2CMS-L19A	SUPP POOL LVL A METER ID#1907	
601	2CMS-LI11A	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

HED NUMBER: 74.01 ORIGINATOR: DKB DATE: 1/30/1985
UTILITY: NMP PLANT: NMP 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 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 ID NUMBER	EQUIPMENT NAME	OTHER
(?)		EXHAUST HOOD TEMP SEL-2	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 74.02 ORIGINATOR: DKB DATE: 1/30/1985
UTILITY: NMP PLANT: NMP 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 FORTHE 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	1216	POST ACC. MONITOR B	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 74.03 ORIGINATOR: DKB DATE: 1/30/1985
UTILITY: NMP PLANT: NMP 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 FORTHE 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: 3D

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	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 74.04 ORIGINATOR: DKB DATE: 1/30/1985
UTILITY: NMP PLANT: NMP 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 FORTHE 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)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
842		BYPASS VLV TEST METERS	
842		CV TEST METERS-3	
842		IV TEST METER-3	
852		VOLTMETER SEL SWITCHES-3	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 75.00 ORIGINATOR: DKB DATE: 1/30/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 76.00 ORIGINATOR: DKB DATE: 1/30/1985
UTILITY: NMP PLANT: NMP 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 DISCREPANCIES 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 77.00 ORIGINATOR: DKB DATE: 1/30/1985
UTILITY: NMP PLANT: NMP 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: 3D

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

HED NUMBER: 78.00 ORIGINATOR: DKB DATE: 1/30/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 79.01 ORIGINATOR: DKB DATE: 1/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 79.02 ORIGINATOR: DKB DATE: 1/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT 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

HED NUMBER: 79.Ø3 ORIGINATOR: DKB DATE: 1/ 9/1985
UTILITY: NMP PLANT: NMP 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: 3D

DISPOSITION: FIX

EXPLANATION

THE 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 ID NUMBER	EQUIPMENT NAME	OTHER
852		EDG CONTROL/DISPLAY LAYOUT 1-2-3	

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 79.04 ORIGINATOR: DK DATE: 3/18/1986
UTILITY: NMP PLANT: NMP 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: 3C

DISPOSITION: FIX

EXPLANATION

RELOCATING THE SWITCHES IS NOT REQUIRED SINCE THERE IS NO OPERATIONAL SEQUENCE ASSOCIATED WITH THESE CONTROLS. OPERATORS WILL BE TRAINED TO THESE ANOMOLIES.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	8.2.2.A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT 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

HED NUMBER: 80.00 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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	8.2.3.B
CHECKLIST	8.3.3

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
603		AREA AROUND CORE GRID MAP	
852		ELECTRIC BUS LAYOUT/MIMIC	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 81.00 ORIGINATOR: DKB DATE: 1/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT 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	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 82.01 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
602		RECIRC LOOP FLOW CONTROL METERS (2/GRP)	(5X)

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 82.02 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
602		STATUS LIGHTS (MAIN VENDOR PANEL)	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 82.03 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
603		LPRM LEVEL METERS (4/GROUP)	4X

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 82.04 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
870/871		DRYWELL/SUPPRESSION POOL TEMP RECORDERS (3/PANEL)	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 83.01 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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	8.3.2.C(1)
CHECKLIST	8.3.2.C(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT 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

HED NUMBER: 83.02 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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: 3D

DISPOSITION: FIX

EXPLANATION

CHANGE ARRANGEMENT TO ELIMINATE CONFUSION.

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
601		SERV WATER SYS (6X4 PB MATRIX)	6

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 83.Ø3 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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	8.3.2.C(1)
CHECKLIST	8.3.2.C(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
6Ø2		CONT EFV POSN (Ø-18Ø DEG)(7X11 MATRIX)	
6Ø2		CONT EFV POSN (18Ø-369 DEG)(7X11MATRIX)	
842		FIRST TURBINE STATUS LIGHT	12

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 83.04 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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	8.3.2.C(1)
CHECKLIST	8.3.2.C(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
602		NSSS STATUS LIGHT PANEL (4 VERT. COL.)	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 83.05 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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	8.3.2.C(1)
CHECKLIST	8.3.2.C(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT 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

HED NUMBER: 83.06 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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	8.3.2.C(1)
CHECKLIST	8.3.2.C(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
609/611		(MULTIPLE ROWS) NIMS BIN COMPONENT RACK	
609/611		KEY SWITCH	6

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 83.07 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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	8.3.2.C(1)
CHECKLIST	8.3.2.C(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT 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

HED NUMBER: 83.08 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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	8.3.2.C(1)
CHECKLIST	8.3.2.C(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
619		JET PUMP INSTR. RACK	10
619		JET PUMP INSTR. RACK	10

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 83.09 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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	8.3.2.C(1)
CHECKLIST	8.3.2.C(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
824		AUX STM/MISC DRAINS (PB)	10
824		AUX STM/MISC DRAINS (PB)	12

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 83.10 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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	8.3.2.C(1)
CHECKLIST	8.3.2.C(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
842		SERVO-VALVE CURRENT (VP) METERS	7
842		SERVO-VALVE CURRENT (VP) METERS	6
851		GLAND SEAL STEAM METERS	6

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 83.11 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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(1)
CHECKLIST	8.3.2.C(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT 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)	6
871/8		DIESEL GEN BLDG HVAC (2 ROWS)	11
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)	11
875		PRIMARY CONT. PURGE DIV. II (PB)	7
875		PRIMARY CONT. PURGE DIV. II (PB)	6
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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 83.12 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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	8.3.2.C(1)
CHECKLIST	8.3.2.C(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
851		CLG TWR DE-ICING (2 ROWS T/B'S)	6
851		SPEED SELECTOR (P/B'S)(VP)	6

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 83.13 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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: 3D

DISPOSITION: FIX

EXPLANATION

THESE COMPONENTS REPRESENT 3 ROWS OF 6 ADJACENT METERS. DEMARCATE 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: 84.00 ORIGINATOR: DKB DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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	8.3.2.D.1
CHECKLIST	8.3.2.D.2

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT 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)	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 85.00 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		KEY LOCK CONTROLS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 86.00 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT 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

HED NUMBER: 87.00 ORIGINATOR: CFW DATE: 1/21/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		EMER DSL GEN 1	
		EMER DSL GEN 2	
		EMER DSL GEN 3	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 88.01 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THESE RECORDERS ARE STANDARD GE DESIGN, NON-SAFETY RELATED, INFREQUENTLY USED, AND ACCEPTABLE TO THE OPERATOR. THEREFORE, THEY WILL NOT BE FIXED.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	5.1.5.A.1
CHECKLIST	5.4.1.C

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
602	B35-R650	RECIRC PUMPS SUCTION TEMPERATURES	
842	2TMITJR137	TURB METAL TEMP	
842	2TMITJR166	BEARING METAL TEMP	
842	2TMITJR167	BEARING DRN & THRUST BEARING TEMP	
842	2TMIZDR135	TURB METAL TEMP	
873	2CMSMR72A	CONTMT DEWPT MONITOR	
873	2CMSMR72C	CONTMT DEWPT MONITOR	
873	2CMSMR72E	CONTMT DEWPT MONITOR	
873	2DRSTR10A	DW UNIT COOLER TEMP	
873	2DRSTR10B	DW UNIT COOLER TEMP	
875	2CMSMR72B	CONTMT DEWPT MONITOR	
875	2CMSMR72D	CONTMT DEWPT MONITOR	
875	2CMSMR72F	CONTMT DEWPT MONITOR	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 88.02 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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	5.1.5.A.1
CHECKLIST	5.4.1.C

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
870	2GTSFR10A	SGT FLTR TRAIN A	
870	2GTSPDR21A	SGT FLTR TRAIN A	
870	2HVCFR10A	SPEC FLTR TRAIN FLTR 2A	
870	2HVCPDR50A	SPEC FLTR TRAIN FLTR 2A	
871	2GTSPDR21B	SGT FLTR TRAIN B	
871	2HVCFR10B	SGT FLTR TRAIN B	
871	2HVCFR10B	SPEC FLTR TRAIN FLTR 2B	
871	2HVCPDR50B	SPEC FLTR TRAIN FLTR 2B	
873	2CMSTRX130	DRYWELL & SUPP CHAMBER TEMP	
873	2CMSTRY130	DRYWELL & SUPP CHAMBER TEMP	
873	2CMSTRZ130	DRYWELL & SUPP CHAMBER TEMP	
875	2CMSTRX140	DRYWELL & SUPP CHAMBER TEMP	
875	2CMSTRY140	DRYWELL & SUPP CHAMBER TEMP	
875	2CMSTRZ140	DRYWELL & SUPP CHAMBER TEMP	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 89.01 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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.I

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT 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 & 02/PH	
851		CIRC WTR SYS RETURN WTR COND PP	
851		CND DEMIN COND IN/OUT & 02 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	
852		MAIN GENERATOR FREQ	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 89.02 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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:

DISPOSITION: INVALID

EXPLANATION

RECORDER HAS TWO SPEED CAPABILITY.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	5.4.1.I

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
851		TREND RECORDER	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 90.00 ORIGINATOR: RCM DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		DISPLAYS (GENERIC)	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 91.00 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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: 3D

DISPOSITION: FIX

EXPLANATION

WHERE 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

HED NUMBER: 92.00 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
842		TURBINE SUP INSTR VIBR PHASE ANGLE	
842		TURBINE VIBRATION PHASE ANGLE REF	
842		VOLTAGE AT SHAFT	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 93.00 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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 II"	
873		REACTOR BUILDING DRYWELL DRN & COOLING	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 94.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT 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	
842		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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 95.00 ORIGINATOR: RCM DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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 ESCUTCHEONS OR OTHER LABELING AS NEEDED, IN ACCORDANCE WITH THE HF MANUAL GUIDANCE.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	6.1.1
CHECKLIST	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

HED NUMBER: 96.00 ORIGINATOR: RCM DATE: 1/23/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

THE FOLLOWING EQUIPMENT IS NOT LABELED.

COMMENTS

ASSESSMENT CATEGORY: 3D

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 IAF ENERGY CENT LINE KV	

852		115KV FEED FROM SCRIBA STA LINE KV
852		4KV EMER BUS 1Ø1 VOLTS
852		4KV EMER BUS 1Ø2 VOLTS
852		4KV EMER BUS 1Ø3 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

HED NUMBER: 97.00 ORIGINATOR: RCM DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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		
602	B35-R652A		
602	B35-R652B		
603		188C7983P001	

603		188C7983P002
603		188C7983P003
603		188C7983P004
603		TREND RECORDER
603	2FWS-TI64A	
603	2FWS-TI64B	
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

HED NUMBER: 98.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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 TO 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 ID NUMBER	EQUIPMENT 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: 99.00 ORIGINATOR: RCM DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 100.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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 UNNECESSARY 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	AOV1Ø5	COND AIR REMOVAL PUMPS INLET ISOL VALVE
851	AOV2ØA	CLN STM REBLR 1A SHELL BLOWDOWN
851	AOV2ØB	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	SOV18Ø	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	STV1Ø4	CLN STM REBLRS EXTRACTION SUPPLY ISOL
851	STV112	CLN STM REBLR MN STM SUPPLY
87Ø		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
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 OUTISDE 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	CONTMT 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 101.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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: 3D

DISPOSITION: FIX

EXPLANATION

DETERMINE 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)	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 102.01 ORIGINATOR: RK DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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: 2C

DISPOSITION: FIX

EXPLANATION

PROVIDE NEW SCALE WHERE THERE ARE GREATER THAN 9 GRADUATIONS BETWEEN MAJOR NUMERALS IN ACCORDANCE WITH HF MANUAL GUIDANCE.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	5.1.5.A(1)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601		P1A;B;C DISCH HDR PRESS	
851		REBLR DR TK 1A LVL TO COND	
851		REBLR DR TK 1B LVL TO COND	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 102.02 ORIGINATOR: RK DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
608		% POWER VOLTS	
618		% POWER VOLTS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 102.03 ORIGINATOR: RK DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT 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	
601		SVCE WTR P1D 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 018
852	PRIM FEED TO 4KV EMER BUS 101 FROM NORM BUS NNS 017
852	RUNNING VOLTS

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 103.00 ORIGINATOR: RK DATE: 1/ 9/1985
UTILITY: NMP PLANT: NMP 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: 3D

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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 104.00 ORIGINATOR: RK DATE: 1/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		ALL DISPLAYS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 105.00 ORIGINATOR: RK DATE: 1/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		ALL CIRCULAR (ROTARY) METERS	

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 106.00 ORIGINATOR: RK DATE: 1/ 9/1985
UTILITY: NMP PLANT: NMP 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

HED NUMBER: 107.00 ORIGINATOR: RK DATE: 1/ 9/1985
UTILITY: NMP PLANT: NMP 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

HED NUMBER: 108.00 ORIGINATOR: RK DATE: 1/ 9/1985
UTILITY: NMP PLANT: NMP 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: 3D

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
		ALL INDICATORS LIGHTS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 109.00 ORIGINATOR: RK DATE: 1/ 9/1985
UTILITY: NMP PLANT: NMP 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	5.3.1.A(1)
CHECKLIST	5.3.1.A(1)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		BULBS AND ANNUNCIATORS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 110.00 ORIGINATOR: RK DATE: 1/ 9/1985
UTILITY: NMP PLANT: NMP 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	5.1.5.B
CHECKLIST	5.1.5.C

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		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 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	RUNNITNG VOLTS
851	SPEED
852	4KV EMER BUS 101 FEED TO STUB BUS MSS 014
852	4KV EMER BUS 102 FEED TO 600V EMER MCC 201
852	4KV EMER BUS 103 FEED TO STUB BUS MSS 015
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
852	INCOMING VOLTS
852	PRIM FEED TO 4KV EMER BUS 101 FROM NORM

	BUS NNS Ø17
852	PRIM FEED TO 4KV EMER BUS 1Ø2 FROM NORM
	BUS NNS Ø17
852	PRIM FEED TO 4KV EMER BUS 1Ø3 FROM NORM
	BUS NNS Ø16
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 ORIGINATOR: RK DATE: 1/ 8/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT 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	
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
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: 112.00 ORIGINATOR: RD DATE: 3/ 5/1985
UTILITY: NMP PLANT: NMP 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

HED NUMBER: 113.00 ORIGINATOR: RD DATE: 3/ 5/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 114.00 ORIGINATOR: RD DATE: 3/ 5/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 115.00 ORIGINATOR: RD DATE: 3/ 5/1985
UTILITY: NMP PLANT: NMP 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 NTROL ROOM OPERATOR TO DISPATCH A PLANT OPERATOR TO PERFORM THIS FUNCTION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
OPERATOR SURVEY	A1.8

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 116.00 ORIGINATOR: RD DATE: 3/ 5/1985
UTILITY: NMP PLANT: NMP 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 CAPABTHE 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 117.00 ORIGINATOR: RD DATE: 3/ 5/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 118.00 ORIGINATOR: RD DATE: 3/ 5/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 119.01 ORIGINATOR: RD DATE: 3/ 5/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 119.Ø2 ORIGINATOR: RD DATE: 3/ 5/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

IN RESPONSE TO THE OPERATOR SURVEY SEVERAL OPERATORS INDICATED THAT THE VALVE TEST IS 3Ø FEET AWAY FROM EHC PANEL. TO DO TESTING IT WILL TAKE THREE OPERATORS-ONE AT PANEL 851, ONE AT VALVE TEST PANEL, ONE AT 6Ø3 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 120.00 ORIGINATOR: RD DATE: 3/ 6/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 121.00 ORIGINATOR: RD DATE: 3/ 8/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT IT IS UNNECCESSARY 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 SCRAM RESETS. THIS FUNCTION SHOULD NOT BE KEYLOCKED. REPLACE THESE KEYLOCK SWITCHES WITH APPROPRIATE ROTARY TYPE SWITCHES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
OPERATOR SURVEY	A2.4

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	B22-520	ADS SAFETY/RELIEF VLV PSV127	
601	B22C-509	SAFETY/RELIEF VLV PSV128	
601	B22C-510	SAFETY/RELIEF VLV PSV133	
602	B22H-516	CLEANUP SUCTION OUTSIDE ISOL MOV112	
603	C72A-S5A	REACTOR SCRAM RESET LOGIC A	
603	C72A-S5C	REACTOR SCRAM RESET LOGIC C	

HUMAN ENGINEERING DISCREPANCY REV 2

HED NUMBER: 122.00 ORIGINATOR: RD DATE: 6/19/1990
UTILITY: NMP PLANT: NMP 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: NO FIX

EXPLANATION

AS A RESULT OF FEEDWATER STRATIFICATION PROBLEMS, WE NOW PLACE WCS INTO A FULL FLOW REJECT MODE PRIOR TO READING 200 DEGREE F (PROCEDURE N2-OP-101A STEP 2.19). THIS HAS ELIMINATED THE NEED FOR A NARROW RANGE REACTOR WATER LEVEL INDICATION.
NOTE: THIS REVISION ONLY ADDS CLARIFICATION TO REVISION 1. NO ADDITIONAL VERIFICATION IS REQUIRED.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
OPERATOR SURVEY	A3.4

EQUIPMENT EQUIPMENT

PANEL	ID NUMBER	NAME	OTHER
2CECPNL602			
2CECPNL603			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 123.00 ORIGINATOR: RD DATE: 3/ 8/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 124.00 ORIGINATOR: RD DATE: 3/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 125.00 ORIGINATOR: RD DATE: 3/ 9/1985
UTILITY: NMP PLANT: NMP 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: 3D

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

HED NUMBER: 126.00 ORIGINATOR: RD DATE: 3/ 9/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 127.00 ORIGINATOR: RD DATE: 3/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 128.00 ORIGINATOR: RD DATE: 3/ 9/1985
UTILITY: NMP PLANT: NMP 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

HED NUMBER: 129.00 ORIGINATOR: RD DATE: 3/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 2

HED NUMBER: 130.00 ORIGINATOR: RD DATE: 6/ 5/1990
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY STATED A NEED FOR AN INDICATOR OF AVERAGE 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

SAME AS HED 931, 219. (STAGE 1) CALCULATE AVERAGE DRYWELL TEMPERATURE ON THE MAIN PLANT COMPUTER. (STAGE 2) CALCULATE AVERAGE DRYWELL TEMPERATURE ON THE SPDS AND TRAIN OPERATORS TO USE THE HIGHEST TEMPERATURE FROM P873 WHEN THE PLANT PROCESS COMPUTER AND SPDS FAIL.

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

HUMAN ENGINEERING DISCREPANCY

REV 2

HED NUMBER: 131.00 ORIGINATOR: RD DATE: 6/ 5/1990
UTILITY: NMP PLANT: NMP 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. 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.

COMMENTS

IN THE CASE OF COMPUTER FAILURE, THE OPERATOR WILL USE THE HIGHEST TEMPERATURE AS AVERAGE TEMPERATURE FOR EOP ACTIONS.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

SAME AS HED 220.THE SPDS COMPUTER CURRENTLY PROVIDES AN INDICATION OF AVERAGE SUPPRESSION POOL TEMP. TRAIN THE OPERATORS TO USE THE HIGHEST TEMPERATURE AS AVERAGE FOR EOP ACTIONS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
OPERATOR SURVEY	A3.15

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 132.00 ORIGINATOR: RD DATE: 3/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 133.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 134.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 135.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
603			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 136.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 PARAMTETER 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 137.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 RESUMED 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 138.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 139.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 140.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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

HED NUMBER: 141.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ACHEIVED.

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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 142.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 2

HED NUMBER: 143.00 ORIGINATOR: RD DATE: 6/19/1990
UTILITY: NMP PLANT: NMP 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: NO FIX

EXPLANATION

REFERENCE NMPC MEMO SM-CE90-0021. REACTOR WATER LEVEL RESPONSE TIME IS SLOW, TREND INFORMATION IS MORE APPROPRIATE AND CAN BE FOUND ON P603 INDICATING RECORDER.
NOTE: THIS REVISION ONLY ADDS CLAIRFICATION TO REVISION 1. NO ADDITIONAL VERIFICATION IS REQUIRED.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
OPERATOR SURVEY	B3.2

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 144.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 145.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 146.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 147.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 148.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
2CECPNL601			
2CECPNL603			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 149.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 CICUIT 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 ID NUMBER	EQUIPMENT NAME	OTHER
2CECPNL602			
2CECPNL603			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 150.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 151.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 152.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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
H13-P601			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 153.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

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	EXPLANATORY INFORMATION
OPERATOR SURVEY	B3.20

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
H13-7601			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 154.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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: 3D

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
H13-602			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 155.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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: 156.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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
H13-P603			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 157.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 158.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 159.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 MONENCLATURE 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 160.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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: 3D

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 ID NUMBER	EQUIPMENT NAME	OTHER
852			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 161.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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	B4.17
OPERATOR SURVEY	B4.6

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
H13-P824			
H13-P851			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 162.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 163.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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: 3D

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
602			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 164.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURVEY INDICATED THAT THE 4 KEY SPRING RETURN SWITCHES FOR "CRD HI 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

HED NUMBER: 165.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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
H13-P601			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 166.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 167.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 168.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 169.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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

HED NUMBER: 170.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 171.00 ORIGINATOR: RD DATE: 5/ 7/1986
UTILITY: NMP PLANT: NMP UNIT: 2

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 BEING PERFORMED WHEN THE BUTTON IS DEPRESSED. THE COLLAR POSITIONS ARE MARKED BUT MAY BE OVERLOOKED BY THE OPERATOR. THE POTENTIAL FOR ERROR IS REDUCED WITH A LINE ENGRAVED ON THE PUSHBUTTON POINTING TO THE SELECTED FUNCTION.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
OPERATOR SURVEY	B5.13

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	21001000	ADS LOGIC A MANUAL INITIATION	
603	25005000	CHANNEL A	
603	25006000	CHANNEL B	
603	25007000	CHANNEL A	
603	25008000	CHANNEL B	
603	25009000	CHANNEL A	
603	25010000	CHANNEL B	
603	25011000	CHANNEL A	
603	25012000	CHANNEL B	

603	25013000	CHANNEL A
603	25014000	CHANNEL B
603	25015000	CHANNEL A
603	25016000	CHANNEL B

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 172.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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, INKS 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 173.01 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 173.02 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 USUABLE 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 174.ØØ ORIGINATOR: RD DATE: 3/1Ø/1985
UTILITY: NMP PLANT: NMP 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 Ø TO 1Ø 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 Ø-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 1Ø TO Ø PSIG. ON THIS SCALE 14.7 WOULD BE NO VACUUM AND Ø PSID WOULD BE FULL VACUUM. THE COMBINATION "PSIG INCHES HG VAC, Ø TO 1Ø INCHES" DOES NOT MAKE ANY SENSE.

COMMENTS

SCALES SHOULD BE GRADUATED AND NUMBERED SO THAT READINGS ARE RELATED 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 175.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 176.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
852			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 177.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 178.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 179.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 180.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 WHICN 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 181.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 WHICN 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 182.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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: 3D

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	B8.2

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 183.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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: 3D

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	B8.5

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 184.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 185.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 186.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
852			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 187.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 188.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 189.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 190.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 191.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ANNUNICATOR.

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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 192.01 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 192.02 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 193.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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	C6.1

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 194.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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	C6.3

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 195.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 196.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 197.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 198.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP. 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: 3D

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	EXPLANATORY INFORMATION
OPERATOR SURVEY	E3.4

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 199.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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: 3D

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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 200.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

IN RESPONSE TO THE OPERATOR SURVEY SEVEN OPERATORS INDICATED THAT CRT USE REQUIRES DIVERTING ATTENTION FROM THE FRONT PANELS. ALARM CRT IF LARGER TYPE WOULD BE BETTER LOCATED ABOVE PANEL 603 WHERE COULD BE SEEN FROM OTHER PANELS. SPECIAL LOG CRT SHOULD BE ON TOP OF PANEL 603 ALSO.

COMMENTS

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

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

IN THE CENTER DESK STUDY, CONSIDER THE CRT VIEWING ANGLE AND LOCATION OF CRTS FOR OPERATOR USE FROM THE CENTER DESK.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
OPERATOR SURVEY	E4.4

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 201.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 202.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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: 3D

DISPOSITION: FIX

EXPLANATION

REMOVE THE ENABLE BUTTON.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
OPERATOR SURVEY	E6.2

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 203.01 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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: 3D

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

HED NUMBER: 203.02 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

RESPONSE TO THE OPERATOR SURBEY 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 204.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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: 3D

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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 205.00 ORIGINATOR: RD DATE: 3/10/1985
UTILITY: NMP PLANT: NMP 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: 3D

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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 206.00 ORIGINATOR: CFW DATE: 3/14/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

COMMENTS

ASSESSMENT CATEGORY: 3D

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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 207.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
603		REACTOR POWER APRM	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 208.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

THERE IS NO DISTINCTION BETWEEN LEGEND PUSHBUTTONS AND LEGEND LIGHTS.

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	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 209.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 210.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 2

HED NUMBER: 211.00 ORIGINATOR: DFT DATE: 6/19/1990
UTILITY: NMP PLANT: NMP 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: NO FIX

EXPLANATION

SAME AS HED 212. IT IS NOT PRACTICAL TO ADD INSTRUMENTATION WHICH WOULD ELIMINATE WALKING BETWEEN PANEL 602 AND PANEL 603. RECOMMENDATION IS TO USE EXISTING METERS ON PANEL 603 TO MONITOR LEVEL, PRESSURE AND GENERATOR OUTPUT AS NEEDED SEE NMPC IOC SM-CE90-0023.
NOTE: THIS REVISION ONLY ADDS CLARIFICATION TO REVISION 1. NO ADDITIONAL VERIFICATION IS REQUIRED.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VALIDATION	3.18

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 2

HED NUMBER: 212.00 ORIGINATOR: DFT DATE: 6/19/1990
UTILITY: NMP PLANT: NMP 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: NO FIX

EXPLANATION

SAME AS 211. IT IS NOT PRACTICAL TO ADD INSTRUMENTATION WHICH WOULD ELIMINATE WALKING BETWEEN P602 & P603. RECOMMENDATION IS TO USE EXISTING METERS ON PANEL 603 TO MONITOR LEVEL, PRESSURE AND GENERATOR OUTPUT AS NEEDED SEE NMPC IOC SM-CE90-0023.
NOTE: THIS REVISION ONLY ADDS CLARIFICATION TO REVISION 1. NO ADDITIONAL VERFICATION IS REQUIRED.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VALIDATION	3.19

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 213.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
603		REACTOR SCRAM BYPASS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 214.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
603		SCRAM DISCHARGE VOLUME DRAIN	
603		SCRAM DISCHARGE VOLUME VENT	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 215.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP 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

HED NUMBER: 216.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

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

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VALIDATION	5.6

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601		SUPPRESSION POOL LEVEL	
601		SUPPRESSION POOL LEVEL	
601		SUPPRESSION POOL LEVEL	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 217.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP 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

POST ACCIDENT RECORDERS PRESENTLY HAVE A SCALE OF -18' TO 0 TO +4'. THIS RANGE INDICATES A REFERENCE POINT OF ZERO.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VALIDATION	5.6

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601		RPV LVL	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 218.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
873		DRYWELL COOLING FANS	

HUMAN ENGINEERING DISCREPANCY

REV 2

HED NUMBER: 219.00 ORIGINATOR: DFT DATE: 6/ 5/1990
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

COMMENTS

A DEDICATED DISPLAY FOR AVERAGE DRYWELL TEMPERATURE ON PANEL 601 SHOULD BE CONSIDERED. PRESENTLY THE HIGHEST AND LOWEST TEMPERATURES ARE INDICATED ON BACK PANEL 873 AND INDIVIDUAL TEMPERATURES ARE ON RECORDERS. THE COMPUTER ALSO SUPPLIES AN INDIVIDUAL TEMPERATURE INDICATION.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

SAME AS HED 131, 931. (STAGE 1) CALCULATE AVERAGE DRYWELL TEMPERATURE ON THE MAIN PLANT COMPUTER. (STAGE 2) CALCULATE AVERAGE DRYWELL TEMPERATURE ON THE SPDS AND TRAIN OPERATORS TO USE THE HIGHEST TEMPERATURE FROM P873 WHEN THE PLANT PROCESS COMPUTER AND SPDS FAIL.

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

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VALIDATION	7.3

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
873		DRYWELL TEMP	

HUMAN ENGINEERING DISCREPANCY

REV 3

HED NUMBER: 220.00 ORIGINATOR: DFT DATE: 6/ 5/1990
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

COMMENTS

CURRENTLY THE HIGHEST AND LOWEST SUPPRESSION CHAMBER TEMPERATURES ARE DISPLAYED ON INDICATORS ON BACK PANELS 873 AND 875. INDIVIDUAL TEMPERATURES ARE PROVIDED ON RECORDERS ON THE SAME PANELS. IN ADDITION, INDIVIDUAL TEMPERATURES ARE AVAILABLE ON THE MAIN PLANT COMPUTER. IN THE CASE OF COMPUTER FAILURE, THE OPERATOR WILL USE THE HIGHEST TEMPERATURE AS AVERAGE TEMPERATURE, FOR EOP ACTIONS.

ASSESSMENT CATEGORY: 2C

DISPOSITION: NO FIX

EXPLANATION

(STAGE 1) CALCULATE AVERAGE SUPPRESSION CHAMBER (AIR) TEMPERATURE ON THE MAIN PLANT COMPUTER.
(STAGE 2) REV. 4 OF THE EMERGENCY PROCEDURE GUIDELINES ELIMINATED THE NEED FOR SUPPRESSION CHAMBER AIR TEMPERATURE INDICATION. NO FURTHER ACTION IS REQUIRED.

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

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VALIDATION	7.5

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601		AVERAGE SUPPRESSION CHAMBER TEMP	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 221.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP 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

DUE TO A SPECIAL PROCEDURE TO ADJUST DRYWELL SPRAY IN THE EOPS,
A CHANGE TO THE EXISTING CONTROL IS NOT NECESSARY.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VALIDATION	7.9

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601		RHR B TO DRYWELL SPRAY	
601		RHR B TO DRYWELL SPRAY	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 222.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

OPERATOR MUST LEAVE PRIMARY OPERATING AREA TO OBSERVE TEMPERATURE FOR SBGT SUCTION AND OPERATE SBGT.

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	9.2
VALIDATION	9.3

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 223.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP 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 ON PANEL 898.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VALIDATION	9.5

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601		SUPP POOL LVL	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 224.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 225.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 226.01 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601		FV-114	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 226.02 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601		FV-114	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 227.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601		MOV 104	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 228.00 ORIGINATOR: RK DATE: 4/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 229.00 ORIGINATOR: RK DATE: 4/12/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 230.00 ORIGINATOR: RK DATE: 4/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 231.00 ORIGINATOR: RK DATE: 2/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 232.00 ORIGINATOR: DFT DATE: 4/ 9/1985
UTILITY: NMP PLANT: NMP 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

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

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VALIDATION	3.17

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 233.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	E12-R602B		
601	RHS-P1A	CURRENT	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 234.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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	EXPLANATORY INFORMATION
CHECKLIST	5.1.4.A(1)(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		CHART RECORDERS	
601		FOXBORO CONTROLLERS (NO OPEN, CLOSED, DEMAND, OR OTHER	
601	E12-R602B		
601	E21-R614		
601	RCS P1C	DISCH PRESS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 235.01 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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

SAME 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 ID NUMBER	EQUIPMENT NAME	OTHER
601		FOXBORO CONTROLLERS	
842		SERVO VALVE CURRENTS	
851		ALL FOXBORO CONTROLLERS	
873		ALL FOXBORO CONTROLLERS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 235.02 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT 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 LV55A	
603		HI PRESS LOW FLOW FD WTR B CNTL VLV 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	
852		COND HWL NORM MAKEUP OFF LV POSN	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 235.03 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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

HED NUMBER: 236.00 ORIGINATOR: BK DATE: 4/29/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT 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 1Ø1-11
852	BREAKER 1Ø1-14
852	BREAKER 1Ø1-2
852	BREAKER 1Ø3-1
852	BREAKER 1Ø3-13
852	BREAKER 1Ø3-8
852	BREAKER 11-3
852	BREAKER 13-1Ø
852	BREAKER 13-6
852	BREAKER 14-1
852	BREAKER 14-2
852	BREAKER 14-4
852	BREAKER 14-8
852	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 ØØ1
852	CND BSTR PUMP 2C FROM BUS ØØ3
852	CONDENSATE PUMP 1A
852	CONDENSATE PUMP 1B
852	CONDENSATE PUMP 1C FROM BUS Ø11
852	CONDENSATE PUMP 1C FROM BUS Ø13
852	EMER DIESEL GEN 1 NEUTRAL BREAKER 1Ø1-N1
852	EMER DSL GEN 1 GOVERNOR
852	EMER DSL GEN 1 OUTPUT BREAKER 1Ø1-1
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 1Ø3-14
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 ØØ1
852	REAC FW PUMP 1C FROM BUS ØØ3
852	VOLTMETER (8 STAR SELECTOR SW)

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 237.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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: 3D

DISPOSITION: FIX

EXPLANATION

DURING THE LABELING STUDY, DETERMINE A STANDARD PLACEMENT FOR THESE RECORDER LABELS WHICH WILL ENHANCE READIBILITY. 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

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

HED NUMBER: 238.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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

HED NUMBER: 239.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 240.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP UNIT: 2

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
CHECKLIST	4.4.3.F

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601		LOCA OVERRIDE FOR MOV164	
601		LOCA OVERRIDE FOR MOV165	
601		RHR SAMPLE LINE ISOL OVRD 2RHS-SOV35A	
601		RHR SAMPLE LINE ISOL OVRD 2RHS-SOV35B	
601		RHR SAMPLE LINE ISOL OVRD 2RHS-SOV36A	
601		RHR SAMPLE LINE ISOL OVRD 2RHS-SOV36B	
601		STANDBY LIQUID PUMP C41-C001A	
601		STANDBY LIQUID PUMP C41-C001B	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 241.00 ORIGINATOR: BK DATE: 4/19/1985
UTILITY: NMP PLANT: NMP 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

HED NUMBER: 242.00 ORIGINATOR: BK DATE: 4/19/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
405		ALL DISPLAY METERS	

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 243.00 ORIGINATOR: BK DATE: 5/ 7/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

THE CITED DISPLAYS DO NOT MEET THE GUIDELINE FOR SUCCESIVE VALUES FOR UNIT GRADUATIONS. THE CITED SCALES HAVE NUMERALS OF 2.5,3,6,9,12... 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

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
405	2RSS/PI108		
405	RSS/PI109		
405	RSS/PI110		
405	RSS/PI111		
601	11035000	NITROGEN PURGE TEMP	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 244.00 ORIGINATOR: DKB DATE: 4/19/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
RSDP-405	GENERIC	WORKSHOP CONSIDERATION	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 245.00 ORIGINATOR: DKB DATE: 4/19/1985
UTILITY: NMP PLANT: NMP 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

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 ID NUMBER	EQUIPMENT NAME	OTHER
RSDP-405	GENERIC	WORKSPACE CONSIDERATION	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 246.00 ORIGINATOR: DKB DATE: 4/19/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT 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

HED NUMBER: 247.00 ORIGINATOR: DKB DATE: 4/19/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
RSDP-405	GENERIC	TOP ROW OF CONTROLS, P/B'S AND J'S	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 248.00 ORIGINATOR: DKB DATE: 4/19/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
RSDP-405	GENERIC		

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 249.00 ORIGINATOR: DKB DATE: 4/19/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
RSDP-405		BLACK P/B'S ON RSDP	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 250.00 ORIGINATOR: DKB DATE: 4/19/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
RSDP-405	1307	TEMP METER SELECTOR	
RSDP-405	1702	TEMP METER SELECTOR	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 251.00 ORIGINATOR: DKB DATE: 4/19/1985
UTILITY: NMP PLANT: NMP 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	4.4.3.B (RSDP)
CHECKLIST	4.4.3.D (RSDP)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT 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

HED NUMBER: 252.00 ORIGINATOR: DKB DATE: 4/19/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
RSDP-405	1307	TEMP METER SELECTOR CONTROL	
RSDP-405	1702	TEMP METER SELECTOR CONTROL	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 253.00 ORIGINATOR: DKB DATE: 4/19/1985
UTILITY: NMP PLANT: NMP 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	8.2.1.A(1) (RSDP)
CHECKLIST	8.2.2.B (RSDP)
CHECKLIST	8.2.3.A (RSDP)
CHECKLIST	8.2.4.A (RSDP)
CHECKLIST	9.2.2.D (RSDP)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT 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

HED NUMBER: 254.00 ORIGINATOR: DKB DATE: 4/19/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT 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

HED NUMBER: 255.00 ORIGINATOR: DKB DATE: 4/19/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
RSDP-405		2MSS-PSV121B	
RSDP-405		2MSS-PSV127A	
RSDP-405		2MSS-PSV129B	
RSDP-405		2MSS-PSV137A	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 256.00 ORIGINATOR: DKB DATE: 4/19/1985
UTILITY: NMP PLANT: NMP 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: 3D

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

HED NUMBER: 257.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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: 3D

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		

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 258.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
405	ALL METERS		

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 259.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

COMMENTS

ASSESSMENT CATEGORY: 3D

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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 260.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 261.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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: 3D

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

HED NUMBER: 262.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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: 3D

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

HED NUMBER: 263.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 264.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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

SAME 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 ID NUMBER	EQUIPMENT NAME	OTHER
405		SUPPRESSION POOL TEMP METER TRANSFER	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 265.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 266.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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	9.1.1.C(1) (RSDP)
CHECKLIST	9.2.2.B(2) (RSDP)
CHECKLIST	9.2.2.C(2) (RSDP)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 267.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 268.00 ORIGINATOR: BK DATE: 4/22/1985
UTILITY: NMP PLANT: NMP 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 SUPRESSION POOL TEMPERATURE AND SELECTOR WITH DIV II AND RHR B.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	9.2.2.A(1) (RSDP)
CHECKLIST	9.2.2.A(2) (RSDP)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
RSDP	2SWP/PIC	SERVICE WTR PUMP	
RSDP	2SWP/PIE		
RSDP	2SWPFI200C	SERVICE WATER PUMP	
RSDP	2SWPFI200E		

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 269.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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

REVIEW 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.4
CHECKLIST	6.6.3.B.5

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
	GENERIC		

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 270.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

COMMENTS

ASSESSMENT CATEGORY: 3D

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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 271.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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 DEMARCATION OF EMERGENCY CONTROLS.

COMMENTS

ASSESSMENT CATEGORY: 3D

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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 272.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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

NMPC 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 273.00 ORIGINATOR: CFW DATE: 1/23/1985
UTILITY: NMP PLANT: NMP 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

TAGS 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 274.00 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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	6.2.4.C
CHECKLIST	6.3.7.B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 275.00 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

COMMENTS

ASSESSMENT CATEGORY: 3D

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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 276.00 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 277.00 ORIGINATOR: CFW DATE: 1/24/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

COLOR CODING IS NOT CONSISTENT THROUGHOUT THE CONTROL ROOM.

COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

PERFORM 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 278.00 ORIGINATOR: BK DATE: 4/25/1985
UTILITY: NMP PLANT: NMP 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 IDENTICATION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	6.1.2.B(1)(2)(3)(4)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		GENERIC	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 279.00 ORIGINATOR: BK DATE: 4/25/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		GENERIC	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 280.00 ORIGINATOR: BK DATE: 4/25/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

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

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	6.4.1.A(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 281.00 ORIGINATOR: BK DATE: 4/25/1985
UTILITY: NMP PLANT: NMP 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: 3D

DISPOSITION: FIX

EXPLANATION

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

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.3.3.D(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 282.00 ORIGINATOR: DFT DATE: 3/13/1986
UTILITY: NMP PLANT: NMP 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

NMPC OPERATIONS WILL REVISE EOP'S TO HAVE OPERATORS ACTUATE SWITCH C72BS1 IN LIEU OF PULLING FUSE.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY EXPLANATORY INFORMATION

VALIDATION

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
610	C72BS1	POWER SOURCE SELECT SWITCH	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 283.00 ORIGINATOR: CFW DATE: 6/ 6/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 284.00 ORIGINATOR: CFW DATE: 6/11/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 285.00 ORIGINATOR: CFW DATE: 1/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 286.00 ORIGINATOR: CFW DATE: 7/25/1982
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 287.00 ORIGINATOR: DFT DATE: 4/29/1985
UTILITY: NMP PLANT: NMP 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	II-052

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
603		DIGITAL PRESSURE DISPLAY	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 288.00 ORIGINATOR: DFT DATE: 4/29/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
603		IRM RANGE SWITCHES AND RECORDERS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 289.00 ORIGINATOR: DFT DATE: 4/29/1985
UTILITY: NMP PLANT: NMP 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	II-052

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
603		IRM RECORDERS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 290.00 ORIGINATOR: DFT DATE: 4/29/1985
UTILITY: NMP PLANT: NMP 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	II-052

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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 291.00 ORIGINATOR: DFT DATE: 4/29/1985
UTILITY: NMP PLANT: NMP 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	EXPLANATORY INFORMATION
OPERATOR SURVEY	11-052

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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 292.01 ORIGINATOR: DFT DATE: 4/29/1985
UTILITY: NMP PLANT: NMP 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 ACCESSIBILITY 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
824			
842			
851			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 292.02 ORIGINATOR: DFT DATE: 4/29/1985
UTILITY: NMP PLANT: NMP 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 ACCESSIBILITY 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
601			
602			
603			
852			

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 308.00 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP 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 SUPPLIMENT 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 ID NUMBER	EQUIPMENT NAME	OTHER
		SPDS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 309.00 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP 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: 3D

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	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 310.00 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		SPDS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 311.00 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP 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: 3D

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	4.4.3.B.1
SDPS REVIEW	4.4.3.B.2

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		SPDS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 312.00 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP 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: 3D

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: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
SDPS REVIEW	4.4.3.B.2
CHECKLIST	7.2.4.A.1

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		SPDS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 313.01 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		SPDS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 313.02 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP 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	4.4.4.A.3
CHECKLIST	7.2.4.A.1
CHECKLIST	7.2.5.A.1

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
1		SPDS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 314.00 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP 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 READIBILITY 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 ID NUMBER	EQUIPMENT NAME	OTHER
		SPDS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 315.00 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP 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 INIDCATE 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 ID NUMBER	EQUIPMENT NAME	OTHER
		SPDS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 316.00 ORIGINATOR: VJF DATE: 6/11/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		SPDS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 317.00 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		SPDS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 318.00 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

THE DATE AND TIME ARE NOT LOCATED ON ANY MENU DISPLAY PAGES (E.G. ERF, VIDEO TREND, ALARM DATA MENU'S).

COMMENTS

CONSIDERATION SHOULD BE GIVEN TO INCLUDING THE DATE AND TIME ON THE MENU PAGES. UPDATING OF THE TIME SERVES AS A "PULSE" INDICATING THAT THE COMPUTER IS OPERATING PROPERLY AND SHOULD BE AVAILABLE ON ALL DISPLAY PAGES.

ASSESSMENT CATEGORY:

DISPOSITION:

EXPLANATION

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
SDPS REVIEW	4.7.1.B
CHECKLIST	7.2.4.L.2
CHECKLIST	7.2.4.L.3

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		ERF DISPLAYS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 319.00 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

NUMERIC DATA ARE NOT RIGHT-JUSTIFIED WITH DECIMAL POINTS ALIGNED ON MANY OF THE "LOWER-LEVEL" DISPLAY PAGES (E.G. ERF: ELECTRICAL SYSTEMS, REACTOR STATUS, MODIFY BAR CHART SET #1; MODIFY VIDEO TREND TRACK SET NO. 1; VIDEO TREND DISPLAYS; BAR SET DISPLAYS; GROUP OUTPUT=SYSTEM STATUS).

COMMENTS

CONSIDERATION SHOULD BE GIVEN TO PRESENTING LISTS OF NUMERIC DATA WITH DECIMAL POINTS ALIGNED.

ASSESSMENT CATEGORY:

DISPOSITION:

EXPLANATION

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.2.4.J.2

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		ERF DISPLAYS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 320.00 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

ALARM LISTS ARE NOT PROVIDED WITH DESCRIPTIVE COLUMN HEADINGS.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION:

EXPLANATION

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.2.4.A.1
CHECKLIST	7.2.4.M
CHECKLIST	7.2.8.A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		ERF DISPLAYS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 321.00 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

ALARM LISTS DISPLAYED ON MULTIPLE PAGES DO NOT PROVIDE INDICATION OF PAGE NUMBER AND TOTAL NUMBER OF PAGES.

COMMENTS

CONSIDERATION SHOULD BE GIVEN TO DISPLAYING ON EACH PAGE, THE PAGE NUMBER AND TOTAL NUMBER OF PAGES (E.G. PAGE 1 OF 3).

ASSESSMENT CATEGORY:

DISPOSITION:

EXPLANATION

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.2.5.H
CHECKLIST	7.2.8.C.1

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		ERF DISPLAYS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 322.00 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

THE MESSAGE PROMPTS ON THE 'BUILD DISPLAY' PAGES INVOLVED WITH BUILDING VIDEO TRENDS AND BAR GRAPHS DO NOT PROVIDE ENOUGH INFORMATION, NOR REFER TO SOURCES OF INFORMATION, IN WHICH TO HELP THE OPERATOR ANSWER THE MESSAGE PROMPTS.

COMMENTS

PROMPTS ASK FOR POINT IDS, SCALE MAGNITUDES, AND UPPER AND LOWER SCALE VALVES. THERE ARE NO READILY AVAILABLE MENUS ON THE DISPLAYS NOR ON HARD COPY TO PROVIDE OPERATORS WITH POINT IDS, AND THEIR ACCEPTABLE RANGES AND MAGNITUDES. CONSIDERATION SHOULD BE GIVEN TO POSSIBLY PROVIDING POINT IDS WITH THEIR ACCEPTABLE RANGES AND MAGNITUDES ON HARD COPY.

ASSESSMENT CATEGORY:

DISPOSITION:

EXPLANATION

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.2.6.A.2
CHECKLIST	7.2.6.C
CHECKLIST	7.2.6.D
CHECKLIST	7.2.6.G

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		ERF DISPLAYS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 323.00 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

ON THE VIDEO TREND DISPLAYS, THERE IS NO INDICATION BETWEEN NUMBERED AND UNNUMBERED GRIDS. GRAPHS ARE MORE EASILY READ IF NUMBERED LINES ARE BOLDER THAN UNNUMBERED LINES.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION:

EXPLANATION

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.3.3.C.1

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		ERF DISPLAYS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 324.00 ORIGINATOR: VJF DATE: 6/10/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

ALARM LISTS DO NOT PROVIDE VISUAL MEANS OF BREAKING UP THE DATA TO ENHANCE READIBILITY.

COMMENTS

GROUPING LONG LISTS OF DATA, FOR EXAMPLE, IN GROUPS OF FIVE LINES AIDS THE OPERATOR IN QUICK AND ACCURATE INTERPRETATION OF THE DATA.

ASSESSMENT CATEGORY:

DISPOSITION:

EXPLANATION

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.3.3.D.2

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		ERF DISPLAYS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 325.00 ORIGINATOR: VJF DATE: 6/11/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

COLOR CODING OF INFORMATION IS INCONSISTENT IN USE AND MEANING.

COMMENTS

USE OF COLORS IS INCONSISTENT ACROSS DISPLAY PAGES. ON DIFFERENT DISPLAYS, TEXT IS DISPLAYED IN BLUE, YELLOW, WHITE, AND GREEN; DEMARCATION LINES USE BLUE, YELLOW, WHITE; NUMERIC DATA, NOT IN ALARM IS DISPLAYED IN WHITE AND BLUE; TREND AND VIDEO GRAPHS ARE DRAWN WITH YELLOW, AQUA, MAGENTA, GREY, AND LAVENDER.

ASSESSMENT CATEGORY:

DISPOSITION:

EXPLANATION

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	7.2.7.K.1
CHECKLIST	7.2.7.K.2
CHECKLIST	7.2.7.L.2
CHECKLIST	7.2.7.L.3

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		ERF DISPLAYS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 326.00 ORIGINATOR: VJF DATE: 6/11/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		SPDS ERF DISPLAYS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 327.00 ORIGINATOR: VJF DATE: 6/19/1985
UTILITY: NMP PLANT: NMP 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	4.1.1.A
SDPS REVIEW	4.2.1.A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		DRMS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 328.00 ORIGINATOR: VJF DATE: 6/19/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		DRMS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 401.00 ORIGINATOR: RK DATE: 3/18/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

FILING CABINETS BLOCK OPERATOR ACCESS TO FIRE PANEL.

COMMENTS

FILE CABINETS ARE TEMPORARY FURNITURE INSTALLED TO SUPPORT START-UP TESTING.

ASSESSMENT CATEGORY: 2D

DISPOSITION: FIX

EXPLANATION

REMOVE FILE CABINETS FROM CONTROL ROOM.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.1.3 C(1)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
849		FIRE PANEL	

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 402.00 ORIGINATOR: RK DATE: 5/13/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

THERE IS NO CARPETING ON THE CONTROL ROOM FLOOR. THIS COULD CAUSE FATIGUE FROM STANDING AND WALKING ON THE HARD FLOOR.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

CARPETING OR MATS ARE TO BE PLACED ON THE FLOOR IN THE AREAS IN FRONT OF THE CONTROL PANELS.

IMPLEMENTATION: COMMERCIAL OPERATION

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.5.7 A(5)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 403.01 ORIGINATOR: AF DATE: 3/19/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

FILING CABINETS, RADIO EQUIPMENT, AND TWO LEVELS OF BOOKSHELVES OBSTRUCT THE SHIFT SUPERVISOR'S VIEW OF THE PRIMARY OPERATING AREA.

COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

FILING CABINETS AND BOOK CASES ARE TO BE REMOVED. RADIO EQUIPMENT WILL BE MOVED TO ANOTHER AREA OF THE CONTROL ROOM.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.1.3 A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 403.02 ORIGINATOR: AF DATE: 3/19/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

FILING CABINETS AND TWO LEVELS OF BOOKSHELVES OBSTRUCT THE OPERATOR'S VIEW OF SOME CONTROL PANELS.

COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

FILING CABINETS AND BOOKSHELVES ARE TO BE REMOVED.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.1.3 A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 404.00 ORIGINATOR: AF DATE: 3/19/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

THE COVERING OVER ARMRESTS ON SOME CHAIRS IS TORN OR MISSING.

COMMENTS

THIS IS TEMPORARY FURNITURE INSTALLED TO SUPPORT START-UP TESTING.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THIS IS NOT CONSIDERED A SIGNIFICANT PROBLEM; HOWEVER NEW CHAIRS ARE ON ORDER.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.2.8 C

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 405.00 ORIGINATOR: RK DATE: 3/19/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

PROCEDURES ARE STORED IN A LARGE BINDER WITH TABS TO IDENTIFY THE PROCEDURES, BUT TABS ARE LABELED ON ONLY ONE SIDE. LABELS TO THE LEFT OF THE OPEN PLACE IN THE BINDER CANNOT BE READ.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

TAB BINDERS WILL BE LABELED ON BOTH SIDES.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.1.4 B(1)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 406.00 ORIGINATOR: AF DATE: 3/19/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

THE SEAT DEPTH OF CHAIRS AVAILABLE AT WORKSTATIONS EXCEED THE GUIDELINE OF 15 TO 17 INCHES. ONE CHAIR STYLE HAS A SEAT DEPTH OF 18 INCHES; THE OTHER STYLE HAS A SEAT DEPTH OF 19 INCHES.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THERE ARE OTHER CHAIRS AVAILABLE IF AN OPERATOR SHOULD FIND ONE OF THESE TO BE UNCOMFORTABLE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.2.8 E

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 407.00 ORIGINATOR: RK DATE: 3/19/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

DOCUMENTS DO NOT REMAIN OPEN AT THE DESIRED PLACE WITHOUT HOLDING.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

OPERATORS USE BOOKMARKS IF THE NEED ARISES.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.1.4 C(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 408.00 ORIGINATOR: AF DATE: 3/19/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

ALTHOUGH ALL CHAIRS AVAILABLE IN THE PRIMARY OPERATING WORKSTATION ARE ADJUSTABLE TO HEIGHTS FROM 15 TO 18 INCHES, SOME CHAIRS ARE UNSTABLE, THE SEATS ROCK FROM SIDE TO SIDE.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

NEW CONTROL ROOM FURNITURE HAS BEEN ORDERED.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.2.8 F

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 409.00 ORIGINATOR: RK DATE: 3/19/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

ANNUNCIATORS WERE SURVEYED DURING PRE-OP AND STARTUP TESTING AND MOST OF THE ANNUNCIATOR TILES WERE ILLUMINATED.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

FOR THE MOST PART, THIS IS DUE TO PRE-OP AND STARTUP TESTING. ANNUNCIATORS WILL BE RE-EVALUATED DURING NORMAL OPERATION TO ENSURE A DARK BOARD CONCEPT.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	3.3.2 E

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 410.00 ORIGINATOR: RK DATE: 5/13/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

FLOOR TILES ARE UNEVEN AND PRESENT TRIP HAZARDS. IN SOME PLACES, FLOOR TILES ARE LOOSE AND MOVE WHEN STEPPED ON.

COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

STAGE 1: LEVEL FLOOR PLATES AND INSTALL LOCKING MECHANISM TO ELIMINATE LOOSENESS.
STAGE 2: CARPETING OR MATS WILL BE INSTALLED IN THE AFFECTED AREA OF THE CONTROL ROOM.

IMPLEMENTATION: STAGE 1: FUEL LOAD STAGE 2: COMMERCIAL OPERATION

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.1.3 C(1)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 411.00 ORIGINATOR: RK DATE: 3/19/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

PROTECTIVE EQUIPMENT (PROTECTIVE CLOTHING AND BREATHING APPARATUS), RADIATION, AND RESCUE EQUIPMENT ARE NOT READILY ACCESSIBLE IN THE CONTROL ROOM.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

APPROPRIATE BREATHING EQUIPMENT WILL BE INSTALLED PRIOR TO FUEL LOAD. FIRE AND EMERGENCY EQUIPMENT ARE LOCATED IN FIRE AND EMERGENCY CABINETS WHICH ARE APPROPRIATELY LOCATED THROUGHOUT THE PLANT IN ACCORDANCE WITH EMERGENCY PLANS AND PROCEDURES.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.4.1 A,C,D,E,F,G
CHECKLIST	1.4.2 A,B
CHECKLIST	1.4.3 A,B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 412.00 ORIGINATOR: RK DATE: 8/19/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

ANNUNCIATORS WERE SURVEYED DURING STARTUP TESTING WITH ANNUNCIATORS ALARMING VERY FREQUENTLY. THIS GUIDELINE CANNOT BE ADEQUATELY CHECKED UNTIL THE CONCLUSION OF TESTING.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

A STUDY OF NUISANCE ALARMS WILL BE PERFORMED WHEN THE UNIT HAS ACHIEVED NORMAL OPERATION AND THE NATURE OF THE PROBLEM HAS STABILIZED. THE STUDY WILL IDENTIFY ANNUNCIATORS WHICH PRESENT A NUISANCE. IT WILL SPECIFY THE SOURCE OF THE ALARMS AND THE CONDITIONS WHICH CAUSE IT TO BE A NUISANCE ALARM. CORRECTIVE ACTIONS TO ALLEVIATE THE PROBLEM WILL BE RECOMMENDED. THE STUDY WILL BE PROVIDED TO THE NRC FOR REVIEW.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	3.1.2 A(1)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 413.00 ORIGINATOR: RK DATE: 5/29/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

THERE IS NO PROCEDURE CURRENTLY IN PLACE TO CONTROL THE PERIODIC TESTING OF ANNUNCIATORS.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

OPERATIONS WILL INCORPORATE TESTING OF ANNUNCIATORS INTO PERIODIC OPERATOR CHECKLIST.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	3.4.1 D(2)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 414.00 ORIGINATOR: RK DATE: 3/19/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

THE LEVEL OF ILLUMINATION PROVIDED BY FULL AC AMBIENT LIGHTING EXCEEDS THE MAXIMUM LEVEL RECOMMENDED IN THE GUIDELINE ON THE HORIZONTAL SECTIONS OF THE MAIN CONTROL PANELS. THE RECOMMENDED MAXIMUM IS 50 FC, THE MEASURED VALUES AVERAGE ABOUT 60 FC.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THE LIGHT LEVEL IS ADJUSTABLE AND IS NORMALLY SET BELOW MAXIMUM LEVELS.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.5.3 A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 415.00 ORIGINATOR: RK DATE: 3/19/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

THE EMERGENCY LIGHTING GUIDELINE MINIMUM ILLUMINATION LEVEL OF 10 FC IS NOT MET IN SOME BACKPANEL AREAS.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THE AREAS IDENTIFIED WERE SMALL AREAS ON THE BACK PANEL. LABELS FOR CONTROLS IN THOSE AREAS COULD BE READ UNDER THE EMERGENCY LIGHTING CONDITION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.5.4 C

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 416.00 ORIGINATOR: RK DATE: 5/13/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

THE GUIDELINE LIMIT OF 65 dB(A) FOR BACKGROUND NOISE IS EXCEEDED IN THE CONTROL ROOM AREA AROUND THE PRINTERS. TWO OPERATOR DESKS ARE LOCATED IN THIS AREA.

COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

INSTALL NOISE REDUCTION DEVICES ON PRINTERS.

IMPLEMENTATION: COMMERCIAL OPERATION

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.5.5 B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 417.00 ORIGINATOR: RK DATE: 3/19/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

THE EMERGENCY DIESEL GENERATOR GOVERNOR AND START CONTROLS ARE LOCATED ADJACENT TO ONE ANOTHER ON PANEL 852. THESE CONTROLS APPEAR IDENTICAL AND THE WRONG CONTROL COULD BE ACCIDENTLY ACCUATED DURING A SEQUENCE OF CONTROL MOVEMENTS.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THESE CONTROLS ARE LOCATED NEXT TO ONE ANOTHER TO ASSIST IN OPERATION OF THE DIESEL GENERATOR. THERE ARE NO ADVERSE CONSEQUENCES TO ACCIDENTAL ACTIVATION OF ANY OF THESE SWITCHES.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	4.1.2 A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
852	4 1 007	EMER DSL GEN 1 GOVERNOR	
852	4 1 008	EMER DSL GEN 1 START	
852	4 2 007	EMER DSL GEN 2 GOVERNOR	
852	4 2 008	EMER DSL GEN 2 START	
852	4 3 005	EMER DSL GEN 3 GOVERNOR	
852	4 3 006	EMER DSL GEN 3 START	

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 418.00 ORIGINATOR: RK DATE: 5/13/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

LEGEND MESSAGES ON SOME LEGEND LIGHTS ARE AMBIGUOUS. THIS IS A GENERAL PROBLEM WITH INOP STATUS LIGHTS.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

LEGEND LIGHT MESSAGES ARE BEING CHANGED AS PART OF THE LABELING STUDY.

IMPLEMENTATION: COMMERCIAL OPERATION

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	4.3.3 B(4)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 419.00 ORIGINATOR: RK DATE: 5/29/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

ANNUNCIATOR VISUAL TILE LEGENDS ARE AMBIGUOUS.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

ANNUNCIATOR TILE LEGENDS ARE BEING CHANGED AS PART OF THE ANNUNCIATOR STUDY.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	3.3.4 A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 420.00 ORIGINATOR: RK DATE: 5/29/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

CONTROL SWITCHES FOR SPRING-LOADED ROTARY SELECTOR CONTROLS ARE NOT LARGE ENOUGH TO BE HELD AGAINST THE SPRING TORQUE WITHOUT FATIGUE.

COMMENTS

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

OPERATORS WILL BE PROVIDED WITH EXTENDER BARS TO FACILITATE SWITCH MOVEMENT.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	4.4.5 F

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 421.00 ORIGINATOR: RK DATE: 3/19/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

RECORDER PENS ARE NOT LABELED TO IDENTIFY THE PARAMETERS.

COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

RECORDER PEN LABELS WILL BE PROVIDED IN CONJUNCTION WITH THE LABELING STUDY.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	5.4.2 A(1)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 422.00 ORIGINATOR: RK DATE: 5/29/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

FIRE EXTINGUISHERS PLACED ON THE FLOOR ARE TRIP HAZARDS.

COMMENTS

THESE FIRE EXTINGUISHERS ARE TEMPORARY EQUIPMENT.

ASSESSMENT CATEGORY: 3C

DISPOSITION: FIX

EXPLANATION

PROVIDE FOR PERMENENT MOUNTING OF FIRE EXTINGUISHERS.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.1.3 C(1)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 423.00 ORIGINATOR: RK DATE: 3/19/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

SUBJECT MATTER EXPERT STATED THAT PAPER, PENS, AND INK FOR CHART RECORDERS IS NOT READILY ACCESSIBLE IN THE CONTROL ROOM.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

ALTHOUGH THE SUPPLIES ARE NOT LOCATED IN THE CONTROL ROOM, THEY ARE READILY ACCESSIBLE TO THE OPERATORS IN THE STOREROOM.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	5.4.1 E

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 424.00 ORIGINATOR: RK DATE: 5/29/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

THE NUMBER PRINTING MECHANISM ON THE CITED DISCRETE CHANNEL RECORDERS PRODUCE A SMEAR ACROSS THE PAGE INSTEAD OF READABLE CHANNEL NUMBERS.

COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

EVALUATE PRINTING MECHANISM FOR REPAIR OR REPLACEMENT.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	5.4.2 B(3)

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
873	2 3 005	DRYWELL UNIT COOLER TEMP	
873	3 3 001	DRYWELL UNIT COOLER TEMP	

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 425.00 ORIGINATOR: RK DATE: 5/29/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

DATA IS NOT VISIBLE THROUGH THE THE WINDOW OF THIS DISCRETE CHANNEL RECORDER. RECORDER HAS NON-GLARE GLASS THAT IS NOT CLEAR ENOUGH TO ALLOW CHANNEL IDENTIFICATION NUMBERS ON THE CHART PAPER TO BE READ.

COMMENTS

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

REPLACE GLASS IN CHART RECORDER DOOR.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	5.4.1 K

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
614		PUMP MOTOR A & B TEMP	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 426.00 ORIGINATOR: RK DATE: 3/20/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

TEMPERATURE AND HUMIDITY MEASUREMENTS IN THE CONTROL ROOM ARE NOT IN COMPLIANCE WITH THE GUIDELINE.

COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

THE AIR CONDITIONING SYSTEM WILL BE ADJUSTED TO MEET HUMAN FACTORS GUIDELINES.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.5.1 A

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 427.00 ORIGINATOR: RK DATE: 3/20/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

TEMPERATURE MEASURED IN THE CONTROL ROOM AT HEAD LEVEL AND AT FLOOR LEVEL VARIED BY MORE THAN 10 DEGREES.

COMMENTS

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

ADJUST SYSTEM TO MEET HUMAN FACTORS REQUIREMENTS.

IMPLEMENTATION: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
CHECKLIST	1.5.1 B

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 428.00 ORIGINATOR: RK DATE: 4/20/1986
UTILITY: NMP PLANT: NMP 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 429.00 ORIGINATOR: RK DATE: 6/ 5/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

J-HANDLES ARE LESS THAN 3" FROM EDGE OF PANEL 852.

COMMENTS

J-HANDLE SWITCHES ARE 2-1/4" FROM THE EDGE OF THE PANEL.

ASSESSMENT CATEGORY: 3C

DISPOSITION: NO FIX

EXPLANATION

THIS HED IS CONSIDERED A NO FIX FOR THE FOLLOWING REASONS:

1. THE J-HANDLES IN QUEATION ARE SBM MODELS WHICH ARE NOT EASILY, INADVERTENTLY MOVED.
2. THE ANTRHOPOMETRICS OF THE PANELS ARE SUCH, THAT THE OPERATORS ARE NOT REQUIRED TO BEND OVER THE PANELS, TO READ INDICATIONS OR OPERATE CONTROLS.
3. NO KNOWN INADVERTENT OPERATION HAS OCCURED EITHER ON THE SIUMULATOR OR ON THE CONTROL ROOM PANEL.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION

CHECKLIST

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
852			

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 430.00 ORIGINATOR: RK DATE: 2/ 1/1990
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

A KW LOAD-SET METER SCALE ON ONE PANEL HAD CALIBRATION BELOW ZERO.

COMMENTS

THIS METER IS LOCATED ON THE LSTG INSERT OF P851.

ASSESSMENT CATEGORY: 3D

DISPOSITION: NO FIX

EXPLANATION

CURRENT METER SCALE IS IN ACCORDANCE WITH GE RECOMMENDATIONS.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY
VERIFICATION OF SUITABILITY

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
851		LSTG INSERT, KW LOAD-SET	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 431.00 ORIGINATOR: RK DATE: 6/ 5/1986
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

LABEL CHARACTER SIZE AND SCALE MARKINGS WERE NOT CONSISTENT BETWEEN THE A AND B METERS OF MAIN STEAM PRESSURE AND PRESSURE SET POINTS.

COMMENTS

THESE METERS ARE LOCATED ON THE LSTG INSERT OF P851.

ASSESSMENT CATEGORY: 3D

DISPOSITION: FIX

EXPLANATION

REPLACE METER SCALES IN ACCORDANCE WITH GE RECOMMENDATIONS AND THE HUMAN FACTOR'S MANUAL.

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY EXPLANATORY INFORMATION

VERIFICATION OF SUITABILITY

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
851		LSTG INSERT, METER	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 901.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 0015 A.S. 01
VERIFICATION OF SUITABILITY	PROC #0002,TASK 0011,A.S. 06
VERIFICATION OF SUITABILITY	PROC #0002,TASK 0014,A.S. 01
VERIFICATION OF SUITABILITY	PROC #0002,TASK 0018,A.S. 01
VERIFICATION OF SUITABILITY	PROC #0003,TASK 0018,A.S. 06
VERIFICATION OF SUITABILITY	PROC #0010,TASK 0012,A.S. 01
VERIFICATION OF SUITABILITY	PROC #0010,TASK 0026,A.S. 01
VERIFICATION OF SUITABILITY	PROC #0016,TASK 0016,A.S. 02
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	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 902.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 903.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	11-002-000	DRYWELL PRESS	
601	19-003-000	DRYWELL PRESS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 904.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 DIFFFERENTIATE 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 #0001,TASK 0007,A.S.02
VERIFICATION OF SUITABILITY	PROC #0001,TASK 0008,A.S. 07
VERIFICATION OF SUITABILITY	PROC #0002,TASK 0005
VERIFICATION OF SUITABILITY	PROC #0002,TASK 0005,A.S. 01
VERIFICATION OF SUITABILITY	PROC #0002,TASK 0005,A.S. 02
VERIFICATION OF SUITABILITY	PROC #0002,TASK 0006,A.S. 01
VERIFICATION OF SUITABILITY	PROC #0001, TASK 0006, A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT 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	
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: 905.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
603	14-002-000	REACTOR THERMAL POWER (MWTH)	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 906.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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: 4

DISPOSITION: NO FIX

EXPLANATION

REG. GUIDE 1.97 REQUIRES BWR SUPPRESSION POOL INIDICATION 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 OPERTIONS. THEREFORE ADEQUATE NEED DOES NOT EXIST FOR JUSTIFYING PLACING A DEDICATED SUPPRESSION POOL RECORDER ON THE FRONT PANEL.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VERIFICATION OF SUITABILITY	PROC #0003,TASK 0008,A.S. 01
VERIFICATION OF SUITABILITY	PROC# 0002,TASK 0003,A.S. 04

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	19-001-00	SUPP POOL A LEVEL	

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 907.00 ORIGINATOR: DKB DATE: 10/29/1985
UTILITY: NMP PLANT: NMP 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: NO FIX

EXPLANATION

THE ESCUTCHEON PLATES FOR THE LISTED KEYLOCK SWITCHES ARE LABELED "OFF-AUTO-OPEN". THESE POSITIONS MOST ACCURATELY DESCRIBE THE OPERATION OF THE VALVE. IN THE "OPEN" POSITION THE VALVE IS OPEN. IN THE "AUTO" POSITION THE VALVE OPENS AND AUTOMATICALLY CLOSES IN RESPONSE TO SYSTEM DEMANDS. IN THE "OFF" POSITION, THE VALVE IS NOT OPERATING AS A SAFETY VALVE BUT STILL PERFORMS THE FUNCTION OF A RELIEF VALVE, AND WILL THEREFORE OPEN UPON DEMAND; EVEN IN THE "OFF" POSITION. IT WOULD NOT BE ACCURATE TO LABEL THE POSITION AS "CLOSE".

IMPLEMENTATION:

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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 908.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 OPERTION. 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	37-016-000	MOV-120	

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 909.00 ORIGINATOR: DKB DATE: 3/20/1986
UTILITY: NMP PLANT: NMP 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 USES THE INDUSTRY STANDARD DESIGNATION FOR THIS CONTROL. THE HUMAN FACTORS MANUAL STATES THE DESIGNATION STANDARD FOR NMP-2 THROTTLE VALVES.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VERIFICATION OF SUITABILITY	PROC #0002, TASK 0004, A.S. 10

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	37-006-000	MOV-150	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 910.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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	PROC #0003,TASK 0028,A.S. 09
VERIFICATION OF SUITABILITY	PROC #0003,TASK 0028,A.S. 21
VERIFICATION OF SUITABILITY	PROC# 0002,TASK 0004,A.S. 17

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	12-009-000	RHR PUMP AMPS	
601	13-007-000	RHR PUMP AMPS	
601	18-007-000	RHR PUMP AMPS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 911.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 0011,A.S. 06
VERIFICATION OF SUITABILITY	PROC 0002,TASK 0014,A.S. 01
VERIFICATION OF SUITABILITY	PROC 0002,TASK 0015,A.S. 01
VERIFICATION OF SUITABILITY	PROC 0002,TASK 0018,A.S. 01
VERIFICATION OF SUITABILITY	PROC 0003,TASK 0018,A.S. 06
VERIFICATION OF SUITABILITY	PROC 0003,TASK 0019,A.S. 05
VERIFICATION OF SUITABILITY	PROC 0003,TASK 0019,A.S. 06
VERIFICATION OF SUITABILITY	PROC #0002, TASK 0006, A.S. 01

PANEL	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

REV 1

HED NUMBER: 912.00 ORIGINATOR: DKB DATE: 3/13/1986
UTILITY: NMP PLANT: NMP 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	PROC 0003,TASK 0002,A.S. 05
VERIFICATION OF SUITABILITY	PROC# 0002,TASK 0006,A.S. 4

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	12-058-000	FUEL ZONE LEVEL	
601	29-018-000	FUEL ZONE LEVEL (RECORDER)	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 913.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
603	35-015-000	CDR PUMP FLOW	
603	35-016-000	CDR PUMP FLOW	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 914.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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: 915.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
603	15-007-000	CRD FLOW TO RV	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 916.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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: 3D

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

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
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

HED NUMBER: 917.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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: 3D

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 #2,TASK 0011,A.S. 01
VERIFICATION OF SUITABILITY	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

HED NUMBER: 918.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	14-005-000	E22-R601	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 919.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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	PROC 0002,TASK 0012,A.S. 04
VERIFICATION OF SUITABILITY	PROC #0002,TASK 0013,A.S. 02

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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 920.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
603	11-001-000	C33-R605	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 921.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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	PROC 0007,TASK 0005,A.S. 01
VERIFICATION OF SUITABILITY	PROC #0003,TASK 0007,A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT 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	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 922.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 923.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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	PRO. 0003, TASK 0023, A.S. 01
VERIFICATION OF SUITABILITY	PROC 0004,TASK 0013,A.S. 06

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	14-003-000	C41-R602	
601	14-003-000	C41-R602	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 924.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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: 3D

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

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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 925.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
602	11-031-000	(RECIRC PUMP SUC. TEMP)	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 926.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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: 3D

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

HED NUMBER: 927.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		SLC PUMP AMPS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 928.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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

HED NUMBER: 929.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
603	15-011-000	CRD PUMP CURRENT	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 930.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	19-001-000		
601	19-009-000	SUPP-POOL WATER TEMP.	

HUMAN ENGINEERING DISCREPANCY

REV 2

HED NUMBER: 931.00 ORIGINATOR: DKB DATE: 6/ 5/1990
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

COMMENTS

A DEDICATED DISPLAY FOR DRYWELL AVERAGE TEMPERATURE ON PANEL 601 SHOULD BE CONSIDERED. PRESENTLY THE HIGHEST AND LOWEST TEMPERATURES ARE INDICATED ON BACK PANEL 873 AND INDIVIDUAL TEMPERATURES ARE ON RECORDERS. THE COMPUTER ALSO SUPPLIES AN INDIVIDUAL TEMPERATURE INDICATION.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

SAME AS HED 130, 219. (STAGE 1) CALCULATE AVERAGE DRYWELL TEMPERATURE ON THE MAIN PLANT COMPUTER. (STAGE 2) CALCULATE AVERAGE DRYWELL TEMPERATURE ON THE SPDS AND TRAIN OPERATORS TO USE THE HIGHEST TEMPERATURE FROM P873 WHEN THE PLANT PROCESS COMPUTER AND SPDS FAIL.

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

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VERIFICATION OF SUITABILITY	PROC #0005,TASK 0002,A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		DRYWELL TEMP IND	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 932.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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: 3D

DISPOSITION: FIX

EXPLANATION

SAME AS HEO 216. THE METER UNITS WILL BE CHANGED TO READ "FEET ELEVATION"

IMPLEMENTATION: FIRST REFUEL OUTAGE

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VERIFICATION OF SUITABILITY	PROC 0005,TASK 0006,A.S. 01
VERIFICATION OF SUITABILITY	PROC 0006,TASK 0001,A.S. 01
VERIFICATION OF SUITABILITY	PROC #0005,TASK 0005,A.S. 01

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

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 933.00 ORIGINATOR: DKB DATE: 10/29/1985
UTILITY: NMP PLANT: NMP 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: 3D

DISPOSITION: NO FIX

EXPLANATION

THE ESCUTCHEON PLATES FOR THE LISTED KEYLOCK SWITCHES ARE LABELED "OFF-AUTO-OPEN". THESE POSITIONS MOST ACCURATELY DESCRIBE THE OPERATION OF THE VALVE. IN THE "OPEN" POSITION THE VALVE IS OPEN. IN THE "AUTO" POSITION THE VALVE OPENS AND AUTOMATICALLY CLOSES IN RESPONSE TO SYSTEM DEMANDS. IN THE "OFF" POSITION, THE VALVE IS NOT OPERATING AS A SAFETY VALVE BUT STILL PERFORMS THE FUNCTION OF A RELIEF VALVE, AND WILL THEREFORE OPEN UPON DEMAND; EVEN IN THE "OFF" POSITION. IT WOULD NOT BE ACCURATE TO LABEL THE POSITION AS "CLOSE".

IMPLEMENTATION:

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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 934.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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	PROC 0007,TASK 0002,A.S. 12
VERIFICATION OF SUITABILITY	PROC #0007,TASK 0002,A.S. 11

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
873	22-003-000	RBCLC TO DW CLR (UCIB BLOCK VLV MOV IB)	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 935.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	13-002-000		

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 936.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

COMMENTS

ASSESSMENT CATEGORY: 3D

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 #0007,TASK 0008,A.S. 02

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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 937.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT A CONTINUOUS MODE CONTROL FUNCTION/SWITCH IS NEEDED FOR THE PRIMARY CONTAINMENT PURGE VALUE, 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	PROC 0009,TASK 0001,A.S. 02
VERIFICATION OF SUITABILITY	PROC #0009,TASK 0001,A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT 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

HED NUMBER: 938.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE DIVISIONS FOR THE SCALE FOR DRYWELL PRESSURE ARE INADEQUATE.

COMMENTS

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

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	EXPLANATORY INFORMATION
VERIFICATION OF SUITABILITY	PRO. 0009, TASK 0001, A.S. 03

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	13-002-000	CONT. DRYWELL PRESS.	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 939.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE SCALE UPPER RANGE ON THE (SBGTS) 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:

DISPOSITION: INVALID

EXPLANATION

THE UPPER RANGE OF THE OUTLET TEMP IS 300 DEG-F, WHICH IS ADEQUATE FOR THE TASK. THE DATA COLLECTED WAS UPPER RANGE FOR THE INLET TEMP (120 DEG-F).

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VERIFICATION OF SUITABILITY	PROC #0009,TASK 0002,A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
871	11-001-000	FLT TRAIN HTR INLET/OUTLET	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 940.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

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	EXPLANATORY INFORMATION
VERIFICATION OF SUITABILITY	PROC #0009,TASK 0004,A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	13-003-000	SUPP-POOL PRESS NORMAL	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 941.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
870	21-003-000	RX BLDG IN/OUT DIFF PRESS.	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 942.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 0012,TASK 0001,A.S. 01
VERIFICATION OF SUITABILITY	PROC 0013,TASK 0004,A.S. 01
VERIFICATION OF SUITABILITY	PROC 0013,TASK 0006,A.S. 01
VERIFICATION OF SUITABILITY	PROC 0015,TASK 0004,A.S.04
VERIFICATION OF SUITABILITY	PROC #0011,TASK 0004,A.S. 01

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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 943.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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

AT 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 ID NUMBER	EQUIPMENT NAME	OTHER
		FOR ALL FI/DR SUMP LVLS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 944.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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	PROC 0012,TASK 0004,A.S.06
VERIFICATION OF SUITABILITY	PROC #0012,TASK 0004,A.S. 02

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
870	11-004-000		

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 945.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 946.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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-II 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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 947.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 LABELLED CLOSE.

COMMENTS

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

ASSESSMENT CATEGORY: 3D

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

HED NUMBER: 948.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT CONTROL POSITION LABELS FOR THE SBGTS 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 EQUIVILENT 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 ID NUMBER	EQUIPMENT NAME	OTHER
870	31-005-000	SGBTS DISCH FAN FN1A	
870	31-011-000	SGBTS DISCH FAN FN1B	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 949.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION INDICATES THAT CONTROL INDICATION FOR FIRE PUMPS ARE 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. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		FIRE PUMP	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 950.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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
		FIRE MAIN HDR PRESS GAUGE	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 951.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	22-006-000	RHR/B/LPCI HOLD PUMP	
601	34-011-000	HPCS PRESS HOLDING PUMP	

HUMAN ENGINEERING DISCREPANCY

REV 1

HED NUMBER: 952.00 ORIGINATOR: DKB DATE: 3/13/1986
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	12-058-000	FUEL ZONE LEVEL	
601	29-018-000	FUEL ZONE LEVEL (RECORDER)	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 953.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT 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	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 954.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	28-046-000	LPCS PUMP 1 SUCTION MOV-112	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 955.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	29-022-000	MOV 104	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 956.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	18-009-000	E12-R603A	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 957.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT INDICATION OF PRESSURE DIFFERENTIAL BETWEEN REACTOR VESSEL AND SUPPRESSION CHAMBER IS DESIRED, AND IS PRESENTLY UNAVAILABLE.

COMMENTS

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	EXPLANATORY INFORMATION
VERIFICATION OF SUITABILITY	PROC. 0020, TASK 0012, A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		D-PRESS METER BETWEEN VESSEL AND SUPP CHAMBER	

HUMAN ENGINEERING DISCREPANCY

REV 3

HED NUMBER: 958.00 ORIGINATOR: DKB DATE: 6/ 5/1990
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

COMMENTS

IN THE CASE OF COMPUTER FAILURE, THE OPERATOR WILL USE THE HIGHEST TEMPERATURE AS AVERAGE TEMPERATURE FOR EOP ACTIONS.

ASSESSMENT CATEGORY: 2C

DISPOSITION: FIX

EXPLANATION

SAME AS HED 131. THE SPDS COMPUTER CURRENTLY PROVIDES AN INDICATION OF AVERAGE SUPPRESSION POOL TEMP. TRAIN THE OPERATORS TO USE THE HIGHEST TEMPERATURE AS AVERAGE FOR EOP ACTIONS.

IMPLEMENTATION: FIRST REFUEL OUTAGE

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

HED NUMBER: 959.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP 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	PROC 0021, TASK 0004, A.S. 03
VERIFICATION OF SUITABILITY	PROC. 0021, TASK 0004, A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
851	15-008-000	REAC. FD P1A SUCTION FLOW	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 960.00 ORIGINATOR: DKB DATE: 5/15/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

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	EXPLANATORY INFORMATION
VERIFICATION OF SUITABILITY	PROC.0021, TASK 0084, A.S. 18

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
602	34-002-000	CU PUMP A	
602	34-002-000	CU PUMP B	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 961.ØØ ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 #Ø1, TASK Ø8, A.S. Ø1

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		ANNUNCIATOR: ALL RODS IN	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 962.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		ANNUNCIATOR: CLEANUP SYSTEM ISOLATION	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 963.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED A NEED FOR AN ANNUNCIATOR FOR RCIC LOGIC INITIATED. THERE IS CURRENTLY NO ANNUNCIATOR AVAILABLE FOR THIS.

COMMENTS

ANNUNCIATOR NEEDED: RCIC LOGIC INITIATED. TIE IN WITH NMP-2 ANNUNCIATOR STUDY.

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THERE IS A WHITE STATUS LIGHT ON PANEL 601 WHICH PROVIDES THIS INFORMATION.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VERIFICATION OF AVAILABILITY	PROC #02, TASK 04, A.S. 07

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		ANNUNCIATOR: RCIC LOGIC INITIATED	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 964.ØØ ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 #Ø2, TASK Ø5, A.S. Ø1

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		ANN: STANDBY LIQ. CONTROL INITIATED	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 965.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		ANNUNCIATOR: SD COOLING VLV INOP	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 966.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		ANN: RHR SHUTDOWN INTERLOCK CLEAR	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 967.ØØ ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 Ø3,A.S. Ø2

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		ANNUNCIATOR: HVAC COOLER INLET TEMP	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 968.ØØ ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 #Ø11,TASK Ø3,A.S. Ø3

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		ANNUNCIATOR: HVAC COOLER OUTLET TEMP	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 969.ØØ ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 #Ø11,TASK Ø8,A.S. Ø1

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
		ANNUNCIATOR: RAD MONITORS (IN ALARM)	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 970.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

COMMENTS

ANNUNCAITOR 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
		ANNUNCIATOR: DRYWELL TEMPERATURE HIGH	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 971.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	19-009	SUPPRESSION POOL WATER TEMP	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 972.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 973.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	12-010	RHS-P1B DISCH PRESS	
601	18-008	RHS-P1A DISCH PRESS.	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 974.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	39-006	SDC A RETURN MOV40A	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 975.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	12-011	RHR FLOW (E12-R603B)	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 976.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	12-008	RHS B STEAM LINE PRESSURE	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 977.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	12-013	DRYWELL SPRAY HEADER FLOW	
601	18-010	DRYWELL SPRAY HEADER FLOW	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 978.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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	PROC #08, TASK 05, A.S. 02
VERIFICATION OF SUITABILITY	PROC #08, TASK 05, A.S. 04

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

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 979.00 ORIGINATOR: DKB DATE: 9/ 6/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THE METER SCALE FOR SBGTS FILTER TRAIN HEATER INLET/OUTLET TEMPERATURE HAS INADEQUATE DIVISIONS AND EXCESSIVE HIGH RANGE. THE CURRENT METER HAS DIVISIONS OF 4.8 DEG-F AND A HIGH RANGE OF 300oF. THE SME SUGGESTED DIVISIONS OF 2 DEG-F AND A HIGH RANGE OF 250oF.

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

HED NUMBER: 980.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

"START" IS MORE APPROPRIATE FOR TRAIN INITIATION THAN "OPEN". IN ADDITION TO VALVE OPENING, PUMPS ARE STARTED.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
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	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
870	21-002	SBGTS TRAIN INITIATION	
871	21-002	SBGTS TRAIN INITIATION	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 981.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

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

THIS CONTROL SHOULD BE DISCRETE AND HAVE BOTH RED AND GREEN STATUS LIGHTS AND OPEN AND CLOSE POSITIONS.

ASSESSMENT CATEGORY:

DISPOSITION: INVALID

EXPLANATION

THIS CONTROL EXISTS ON PANEL 873.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VERIFICATION OF AVAILABILITY	PROC #09, TASK 024, A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
	SOV 102	PRIMARY CONTAINMENT VENT VALVE	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 982.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	13-004	SUPP POOL LEVEL B	
601	19-007	SUPP POOL LEVEL A	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 983.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		ANN: HVAC COOLER DIFF TEMP HI	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 984.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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: FUEL LOAD

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VERIFICATION OF SUITABILITY	PROC #016,TASK 018,A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
603	21-012	REACTOR WATER LEVEL RECORDER	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 985.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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	PROC #017,TASK 011,A.S. 02
VERIFICATION OF SUITABILITY	PROC #017,TASK 011,A.S. 03

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT 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

HED NUMBER: 986.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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

GE HAS VERIFIED THAT THROTTLE CAPABILITY IS THE PROPER DESIGN.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VERIFICATION OF SUITABILITY	PROC #017,TASK 015,A.S. 01
VERIFICATION OF SUITABILITY	PROC #020, TASK 02, A.S. 01

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
602	33-030	RX VESSEL VENT	
602	33-053	RX VESSEL VENT	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 987.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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

THIS 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 ID NUMBER	EQUIPMENT NAME	OTHER
602	43-002	MOV 187	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 988.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		FULL LPCI LOOP FLOW INDICATION	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 989.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	12-011	E12-R603B	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 990.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	19-013	E21-R600	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 991.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

VERIFICATION HAS DETERMINED THAT THE CONTROL FOR RHR HEAD SPRAY VALVES SHOULD BE A DISCRETE CONTROL. THIS IS CURRENTLY A THROTTLE (CONTINUOUS) CONTROL.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

GE REQUIRES THIS VALVE TO BE ADJUSTABLE IN ORDER TO CONTROL FLOW TO DESIGN SPECIFICATIONS.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VERIFICATION OF SUITABILITY	PROC #020,TASK 014,A.S. 03

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	33-002	MOV 104	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 992.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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

SAME 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	33-008	MOV40B	
601	34-006	MOV40A	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 993.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 994.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 995.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	49-002	MOV15A	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 996.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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

IT 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 ID NUMBER	EQUIPMENT NAME	OTHER
601	39-002	FV38A	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 997.00 ORIGINATOR: DKB DATE: 6/ 4/1985
UTILITY: NMP PLANT: NMP 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 ID NUMBER	EQUIPMENT NAME	OTHER
		PP/LL-DISCH VOL HI-WTR BYPASS	

HUMAN ENGINEERING DISCREPANCY

HED NUMBER: 998.00 ORIGINATOR: AV DATE: 9/ 6/1985
UTILITY: NMP PLANT: NMP UNIT: 2

DESCRIPTION OF DISCREPANCY

THE COLLECTIVE RANGE OF THE LISTED DISPLAYS CITED IN TASK ANALYSIS REQUIREMENTS DOES NOT REPRESENT 80% OF THE RANGE INDICATED ON THE INSTRUMENTS. SEE SECTION 9.3 OF SUMMARY REPORT FOR A DESCRIPTION OF COLLECTIVE RANGE SUITABILITY.

COMMENTS

ASSESSMENT CATEGORY: 4

DISPOSITION: NO FIX

EXPLANATION

THE RANGES ON THESE INDICATORS ARE JUSTIFIED AS PROPER AND ADEQUATE FOR ONE (OR BOTH) OF THE FOLLOWING OPERATIONAL REASONS:

1. THE DESIGN GOAL IS TO HAVE THE NORMAL OPERATING PARAMETER WITHIN THE THIRD QUARTER OF THE SCALE.

2. OPERATING NEEDS OTHER THAN EOPS, SUCH AS POST-ACCIDENT MONITORING, JUSTIFY THE SCALE.

IMPLEMENTATION:

SOURCE OF DISCREPANCY	EXPLANATORY INFORMATION
VERIFICATION OF SUITABILITY	PROC #01,TASK 003,A.S. 01
VERIFICATION OF SUITABILITY	PROC #02,TASK 004,A.S. 13
VERIFICATION OF SUITABILITY	PROC #020,TASK 011,A.S. 02
VERIFICATION OF SUITABILITY	PROC #03,TASK 018,A.S. 04
VERIFICATION OF SUITABILITY	PROC #03,TASK 028,A.S. 23
VERIFICATION OF SUITABILITY	PROC #06,TASK 010,A.S. 01
VERIFICATION OF SUITABILITY	PROC #07,TASK 005,A.S. 02
VERIFICATION OF SUITABILITY	PROC #09,TASK 001,A.S. 03
VERIFICATION OF SUITABILITY	PROC #09,TASK 013,A.S 01
VERIFICATION OF SUITABILITY	PROC #21,TASK 004,A.S. 01
VERIFICATION OF SUITABILITY	PROC #21,TASK 004,A.S. 03
VERIFICATION OF SUITABILITY	PROC #21,TASK 084,A.S. 21
VERIFICATION OF SUITABILITY	PROC #21,TASK 085,A.S. 01
VERIFICATION OF SUITABILITY	PROC #22,TASK 010,A.S. 01
VERIFICATION OF SUITABILITY	PROC #002,TASK 004,A.S. 19
VERIFICATION OF SUITABILITY	PROC #020,TASK 020,A.S. 01
VERIFICATION OF SUITABILITY	PROC #03,TASK 028,A.S. 11
VERIFICATION OF SUITABILITY	PROC #20,TASK 014,A.S. 07

PANEL	EQUIPMENT ID NUMBER	EQUIPMENT NAME	OTHER
601	12-008	RPV PRESSURE	
601	12-011	RHR PUMP FLOW	
601	12-015	RPV PRESSURE	
601	13-002	DRYWELL PRESSURE	
601	17-006	RCIC TURB SPEED	
601	18-009	RHR PUMP FLOW	
601	19-002	DRYWELL PRESSURE	
601	19-006	SUPP POOL PRESS	
602	14-005	CLEANUP REJECT FLOW	
851	16-009	RX FEEDWATER PUMP CURRENT	