UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

September 13, 1985

Docket Nos.: 50-424
50-425

APPLICANT: Georgia Power Company

FACILITY: Vogtle, Units 1 and 2

SUBJECT: Summary of In-Progress Audit of Vogtle Detailed Control Room Design Review

The staff met with the applicant at the Vogtle site from July 9-11, 1985, to discuss the Vogtle Unit 1 Detailed Control Room Design Review (DCRDR). Participants are listed in Enclosure 1. The meeting and instrumentation for inadequate core cooling agendas are included in Enclosure 2.

The DCRDR team consists of 5 members whose contribution to the DCRDR effort ranges from 10 to 100% of their time. The applicant indicated that its human engineering discrepancy (HED) identification is complete and that all team members are involved in the control room survey, HED resolution and development of design improvements. Enclosure 3 indicates training for the team members. In the Summary Report scheduled for March 1986 submittal, the applicant should generate a table illustrating member tasks and involvement.

The applicant's function and task analysis is procedure-based rather than task-based. The applicant evaluated the instruments needed in the control room initially rather than listing instruments needed for a particular task and then comparing the list with the available instruments in the control room. The applicant had committed to confirm instrument characteristics as part of the Procedure Generation Package review. The applicant plans to utilize Westinghouse in an approach similar to that used at Millstone Unit 3 which the staff found acceptable. The applicant then will follow with a control room inventory based on the Westinghouse instrument listing in the function and task analysis. An acceptable approach to function and task analysis is presented in Enclosure 4 and was provided to the applicant during the audit.

The applicant stated that the present control room survey is being conducted using the NUTAC guidelines. The staff stated that the applicant needs to address how the NUTAC guidelines will be supplemented because they do not cover all areas of guidance provided in NUREG-0700. The applicant stated that it also planned to use NUREG-0700 guidelines and that Appendices B through H of NUTAC 83-042 list those NUREG-0700 guidelines not included in the NUTAC guidelines. The applicant needs to complete its control room surveys for lighting, communication, and noise. The applicant also needs to complete the operator-assisted checklist. The applicant stated that it has currently identified 210 HEDs. The staff conducted a brief control room survey of one panel identifying 21 HEDs contained in Enclosure 5.

8509190179 850915
PDR ADOCK 05000424
F PDR

During the process of HED assessment, the applicant identified the appropriate category for the HED as listed below.

Category 1: HEDs that have caused or may cause errors during emergency conditions
Category 2: HEDs that have caused problems during normal operation
Category 3: HEDs that can be easily fixed
Category 4: HEDs that are unlikely to affect emergency operation
Category 4a: HEDs that do not warrant corrective action

The applicant stated that all Category 1 items will be accomplished and that the team's recommendation to Georgia Power Company management will be that all Category 2 items be done also.

The selection of design improvements is developed by the entire DCRDR team. The staff questioned what is done if there are several solutions to a single HED. The applicant stated that cost effectiveness would then be considered. The staff indicated that the criteria for selecting HED resolution should be better defined.

The verification and validation effort was discussed. A formal and auditable description has not been written. The applicant advised that this will be provided in the Summary Report.

The applicant stated that significant changes would be updated on the simulator for evaluation prior to implementation in the control room.

The applicant stated that the DCRDR and EOP validation were integrated. The staff requested that the DCRDR Summary Report address the ATWS condition. The Inadequate Core Cooling Instrumentation was discussed. The staff stated that the Summary Report should have a description of the system and displays used and the location of the instrumentation.

The applicant's checklists and survey forms are included in Enclosure 6. The HED forms are contained in Enclosure 7.

The applicant indicated that the DCRDR program plan for Vogtle Unit 2 would be submitted to the staff in March 1986 with the Summary Report for Unit 2 following in September 1987.

In the exit interview, the staff indicated that review team qualifications appear adequate but indicated that additional resources may be necessary to complete the DCRDR. The staff also stated that the systems function and task analysis (SFTA) was incorrectly procedure-based and lacked determination of control and information needs as in NUREG-0737. However, the applicant's plan to use Westinghouse to complete a task-based approach and then integrate this with work previously done should meet the requirements of Supplement 1 of NUREG-0737. The comparison of the SFTA results with control room equipment has not yet been done. The applicant needs to discuss this process in the Summary Report. For the control room survey the applicant needs to identify differences between the NUTAC guidelines and NUREG-0700 and verify any exceptions. The staff also stated that it would like to see the process and

methodology of the 1981 control room survey that identified approximately 175 HEDs. The categorization used by the applicant in the assessment of HEDs is inadequate. The process needs to be better formalized, and cumulative effects of HEDs need to be addressed. The approach for the selection of design improvements is not rigorous, systematic, or auditable. The applicant needs to provide a flagging system to identify when engineering completes improvements, and this system should be addressed in the Summary Report. The verification and validation process needs to be formalized and explained in the Summary Report. The staff also indicated at the exit interview that the DCRCR team leader is aware of the necessity of coordination of the DCRDR with other activities such as RG 1.97, the Safety Parameter Display System, and the Emergency Operating Procedures. The staff also emphasized the importance of proper documentation of the DCRDR both for the validity of the current program and to continue an adequate human factors program for the life of the plant. The staff indicated that the above comments need to be incorporated into the Vogtle DCRDR and discussed in the Summary Report before the staff can find the review in compliance with the requirements of NUREG-0737.

Melanie A. Miller, Project Manager
Licensing Branch No. 4
Division of Licensing

Enclosures:
As stated

DESIGNATED ORIGINAL

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ENCLOSURE 1

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P. Kochery
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*Attended exit interview only

September 13, 1985

MEETING SUMMARY DISTRIBUTION

Docket File 50-424/425
NRC PDR
Local PDR
PRC System
NSIC
LB #4 r/f
Attorney, OELD
EAdensam
Project Manager M. Miller
MDuncan

NRC PARTICIPANTS

M. Miller
S. Saba

bcc: Applicant & Service List

Enclosure 2

TENTATIVE AGENDA

VOGTLE UNIT 1

DETAILED CONTROL ROOM DESIGN REVIEW

IN-PROGRESS AUDIT

Tuesday, July 9, 1985

8:00 a.m.

- Administrative Processing for on-site access
- Informal Briefing and Introduction
- Short visit to Vogtle Unit 1 control room
- Begin DCRDR audit

1. DCRDR Team

   Qualifications of members of the review team;
   Extent of participation of the human factors specialists;
   Task assignments and level of effort.

2. Function and Task Analyses

   Identification of operator tasks and information and control requirements. Identification of required display and control characteristics.

3. Control Room Inventory

   Methodology for comparing existing control room instrumentation with required display and control characteristics.

Wednesday, July 10, 1985

8:00 a.m. till 5:00 p.m.

4. Control Room Survey

   Survey Procedures;
   Survey data collection forms;
   Survey team

5. HED Assessment

   Methodology
   Assessment team

   Discuss how the cumulative and interactive affects of HEDs were considered. Justification for not correcting HEDs.

6. Selection of Design Improvements

   Methodology
   Team membership

7. Verification That HEDs Are Corrected and That Improvements Do Not Introduce New HEDs

   Methodology

Thursday, July 11, 1985

8:00 a.m. till 5:00 p.m.

8. Coordination of DCRDR With SPDS, R. G. 1.97, Upgraded EOPs, and Training

   Methodology

9. Audit in Control Room

10. Audit at Alternate Shutdown Panel

Friday, July 12, 1985

8:00 a.m.

11. NRC Team Meeting

12. Exit Briefing

HFEB

AGENDA FOR VOGTLE 1 I.C.C REVIEW

1. Current status of the ICCI with respect to conformance to NUREG-0737 Item II.F.2 requirements.
   - System design (Human Factors Involvement of HF Specialist)
   - System Operation (CET, SMM, RVLIS)
   - System Upgrade (CET, SMM, RVLIS)
2. Integrated control room display with respect to ICCI
   - Operator training for use of RVLIS, CETs, and SMM
3. Procedure walk through with respect to ICCI
   - ICCI role in the EOPs
   - Either at control room or at simulator
4. Check List
   - General Layout and Accessibility of Instrumentation
   - Consistency at multiunits Control Rooms
   - Location of Annunciators for I.C.C, alarm parameters
   - Location of Control, coding
   - Displays: information, readability, coding, scale
   - Labels location, contents and readability

ICCI: Inadequate Core Cooling Instrumentation

CET: Core Exit Thermocouple

SMM: Subcooling Margin Monitor

RVLIS: Reactor Vessel Level Instrument System

RVLMS: Reactor Vessel Level Monitoring System

Interoffice Correspondence

ENCLOSURE 3
Georgia Power

DATE: January 16, 1985

RE: Plant Vogtle - Units 1 & 2
Control Room Design Review Training
File: 1X7N18.0 System: 1601
Log: GSU-1604
Security Code: NC
Keyword: Control, Room, Review, Training

FROM: Ed Kozinsky

TO: Skip Kitchens

This letter documents the training provided for the Control Room Design Review (CRDR) team, as required by the CRDR Program Plan submitted to the Nuclear Regulatory Commission.

The training was conducted in the service building conference room, October 8 - 12, 1984 and attended by:

CRDR Team

E. J. Kozinsky
J. Hopkins
R. Johnson
P. Kochery
A. James
G. Hooper

Others to Assist in CRDR

M. Seymour
W. Dunn

Enclosure 1 documents the scheduled and actual times at which the training was conducted.

I was the instructor for the training, with J. Bowles and J. Williams from the Emergency Operating Procedures (EOP) group presenting material on Emergency Response Guidelines and EOP Validation Plans.

Attachments 1 - 5 were used as training material, in addition to the CRDR program plan and related INPO and NRC publications.

Ed

EJK/vsj

xc: VRMS

ENCLOSURE 1
VOGTLE CONTROL ROOM
DESIGN REVIEW TEAM
TRAINING COURSE OUTLINE

OCTOBER 8	TIME*	ACTUAL
Overview - History of Human Factors	8:00 - 9:00	8:05 - 8:57
Human Factors in the Nuclear Industry	9:00 - 10:00	9:15 - **
Human Factors Guidelines and Standards	10:00 - 12:00	11:17 - **
OCTOBER 9		
Human Performance Evaluation	8:00 - 9:00	8:04 - 8:53
Operator Reliability	9:00 - 10:00	9:12 - 10:15
Performance Shaping Factors	10:00 - 11:00	10:40 - **
Exercise	11:00 - 12:00	11:42 - **
OCTOBER 10		
Control Room Design Review Methods	8:00 - 9:00	8:09 - 9:55
Response Guidelines/EOP's	9:00 - 10:00	10:05 - 11:45
Systems Functions/Task Analysis	10:00 - 12:00	9:17 - 9:55
OCTOBER 11		
Controls	8:00 - 9:00	8:14 - 9:31
Indications	9:00 - 10:00	9:54 - 11:39
		OCTOBER 12
Procedures	10:00 - 11:00	8:06 - 8:30
Computer Displays	11:00 - 12:00	9:42 - 10:28
OCTOBER 12		
Layout	8:00 - 9:00	8:30 - 8:41
Labeling	9:00 - 10:00	8:41 - 9:22
Maintenance	10:00 - 11:00	10:50 - 11:00
Operations/Communication	11:00 - 12:00	11:00 - 11:48

*Times Approximate
**Actual Times Not Logged

1. Analyze the functions performed by plant systems in responding to transients and accidents in order to identify and describe those tasks operators must perform.

2. For each task identified in Item 1 above, determine the information requirements (e.g., parameters such as feedwater flow, steam generator pressure) that signal the need to perform the task and the control capabilities needed to perform the task. Displays and controls are not identified at this stage. Operator tasks should be identified and described, and the information and control requirements necessary to perform those tasks should be determined.

3. Analyze the information and control requirments identified in Item 2 above to determine those characteristics essential for adequate task performance. Instrument characteristics include dynamic range, set-points, precision/accuracy at which the readings must be made (e.g., +5), speed of response to the operation of associated controls, units (e.g., PSIG, GPM), and the need for trending, alarming, etc. Control characteristics include type (discrete or continuous); the control operation is the control type needed is discrete (e.g., detented versus spring-loaded, momentary contact positioning); positons (e.g., OPEN and CLOSE, START and STOP); rate; gain and response requirements; locking functions; and feedback information associated with control use.

The described process is descriptive. It should identify, in detail, what operators need to do in order to control the systems that mitigate the consequences of transients and accidents. In addition to its use in the DCRDR, the F&TA should be the basis for complete and technically adequate EOPs. Identification of tasks and and necessary information and control requirments should be based on engineering/operations and human factors analyses and be independent of displays and controls currently in the control room.

CONTROL ROOM EVALUATION DISCREPANCY RECORD NO: A 001

Plant:	Review Code:	Reviewer:	Date:
Voyttle	2		7-10-85

EQUIPMENT

Panel No.	Component No.	Equipment Name
1A1		Component Cooling & Service Water Panel

DESCRIPTION

Annunciator Panel Tiles lettering system not consistent ~~from~~ on all tiles

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐
4		ALB04 (CC SW)	

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace	___ 6. Labels & Aids
___ 2. Communications	___ 7. Computers/CRT
X 3. Annunciators	___ 8. Panel Layout
___ 4. Controls	___ 9. C/D Integration
___ 5. Displays	___

Rating: 1 2 3 3'

Discrepancy Code: 3.3.5

CONTROL ROOM EVALUATION DISCREPANCY RECORD NO: A002

Plant:	Review Code:	Reviewer:	Date:
	2		

EQUIPMENT

Panel No.	Component No.	Equipment Name
1A1		Annunciator Tiles

DESCRIPTION

There is no alpha-numeric code number on tiles to identify tile location on panel mating which could lead to interchange of tiles if more than one is out for bulb change

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐
4			

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace	___ 6. Labels & Aids
___ 2. Communications	___ 7. Computers/CRT
___ 3. Annunciators	___ 8. Panel Layout
___ 4. Controls	___ 9. C/D Integration
___ 5. Displays	___

Rating: 1 2 3 3'

Discrepancy Code: 3.31

CONTROL ROOM EVALUATION DISCREPANCY RECORD NO: A 003

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
[A1		

DESCRIPTION

Hi-Lo engraving on CCW Train B Surge tank level Tele indicator guidelines check by showing dark & more than one specific condition (Typical)

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie? ☐
5			

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace	___ 6. Labels & Aids	Rating: 1 2 3 3*	
___ 2. Communications	___ 7. Computers/CRT	Discrepancy Code: 3.2.1	
___ 3. Annunciators	___ 8. Panel Layout		
___ 4. Controls	___ 9. C/D Integration		
___ 5. Displays	___		

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD NO: A 004

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
[A1		

DESCRIPTION

Non Glare Coating on meter Glass Cover is not uniform inconsistency and is a potential readability problem

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie? ☐
6			

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace	___ 6. Labels & Aids	Rating: 1 2 3 3*	
___ 2. Communications	___ 7. Computers/CRT	Discrepancy Code: 5.1.3	
___ 3. Annunciators	___ 8. Panel Layout		
___ 4. Controls	___ 9. C/D Integration		
___ 5. Displays	___		

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD

NO: A 005

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
1A1		Sergent Hafely

DESCRIPTION

There are no matrix identification numbers on Group monitor. Light indicators to prevent interchanging of lenses if more than one is removed in change bulbs (typical)

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐
6			
7			

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace
___ 2. Communications
___ 3. Annunciators
___ 4. Controls
___ 5. Displays
___ 6. Labels & Aids
___ 7. Computers/CRT
___ 8. Panel Layout
___ 9. C/D Integration

Rating: 1 2 3 3'

Discrepancy Code: 5.3.1.C

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD

NO: A 006.

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
1A1		

DESCRIPTION

There is no hierarchical labeling on Panels. Top label is number only. There ~~other~~ are no system or subsystem labels of graduated size. All other labels are the same size.

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐
2			

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace
___ 2. Communications
___ 3. Annunciators
___ 4. Controls
___ 5. Displays
___ 6. Labels & Aids
___ 7. Computers/CRT
___ 8. Panel Layout
___ 9. C/D Integration

Rating: 1 2 3 3'

Discrepancy Code: 6.1.2

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD

NO: A to 7

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
1A1		

DESCRIPTION

Labels ~~do~~ do not consistently use dark letters on light background

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐
8			

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace	___ 6. Labels & Aids
___ 2. Communications	___ 7. Computers/CRT
___ 3. Annunciators	___ 8. Panel Layout
___ 4. Controls	___ 9. C/D Integration
___ 5. Displays	___

Rating: 1 2 3 3'

Discrepancy Code: 6.4.1.b

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD

NO: A008

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
1A1		

DESCRIPTION

3-Stage switches. There is some question whether the force required to operate start handle switches & hold them against spring return pressure for periods of time would cause operator discomfort (Typical)

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace	___ 6. Labels & Aids
___ 2. Communications	___ 7. Computers/CRT
___ 3. Annunciators	___ 8. Panel Layout
___ 4. Controls	___ 9. C/D Integration
___ 5. Displays	___

Rating: 1 2 3 3'

Discrepancy Code: 4.4.2

4.1.1

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD NO: A 009

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
1A2		

DESCRIPTION

Inappropriate use of arrow on T handles switches

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐
9			

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace	___ 6. Labels & Aids
___ 2. Communications	___ 7. Computers/CRT
___ 3. Annunciators	___ 8. Panel Layout
___ 4. Controls	___ 9. C/D Integration
___ 5. Displays	___

Rating: 1 2 3 3'

Discrepancy Code: 4.1.1

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD NO: A 010

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
1A1		

DESCRIPTION

Recorders are not in operating station and should be reviewed for Human factors issues prior to placing in operation

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐
10			

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace	___ 6. Labels & Aids
___ 2. Communications	___ 7. Computers/CRT
___ 3. Annunciators	___ 8. Panel Layout
___ 4. Controls	___ 9. C/D Integration
___ 5. Displays	___

Rating: 1 2 3 3'

Discrepancy Code: 5.4.1

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD

NO: A 011

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
1P1		

DESCRIPTION

These appears to be due excessive use of T-handle switches on all panels, which may be a potential item of confusion under stress. The location of switches by number in procedures may be difficult because they are not numbered consecutively

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐
11			

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace
___ 2. Communications
___ 3. Annunciators
___ 4. Controls
___ 5. Displays
___ 6. Labels & Aids
___ 7. Computers/CRT
___ 8. Panel Layout
___ 9. C/D Integration
___

Rating: 1 2 3 3'

Discrepancy Code: 5.1.1.a

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD

NO: A 012

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
1A1		

DESCRIPTION

Some meter fail off scale and others fail at zero

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace
___ 2. Communications
___ 3. Annunciators
___ 4. Controls
___ 5. Displays
___ 6. Labels & Aids
___ 7. Computers/CRT
___ 8. Panel Layout
___ 9. C/D Integration
___

Rating: 1 2 3 3'

Discrepancy Code: 5.1.1.f

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD

NO: A 013

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
1AR		

DESCRIPTION

Scale size on controllers too small to read easily from operating position

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐
12			

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace
___ 2. Communications
___ 3. Annunciators
___ 4. Controls
___ 5. Displays
___ 6. Labels & Aids
___ 7. Computers/CRT
___ 8. Panel Layout
___ 9. C/D Integration

Rating: 1 2 3 3'

Discrepancy Code: 5

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD

NO: A 014

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
1A1		

DESCRIPTION

There is a general lack of color banding or limit marking on meter scales

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace
___ 2. Communications
___ 3. Annunciators
___ 4. Controls
___ 5. Displays
___ 6. Labels & Aids
___ 7. Computers/CRT
___ 8. Panel Layout
___ 9. C/D Integration

Rating: 1 2 3 3'

Discrepancy Code: 5, 4, 3

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD

NO: A 015

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
1A1		

DESCRIPTION

There are several sets of identical angle wiring switches

PHOTOGRAPHY

I.D. No.	Location	Instructions:
13		

Movie ? ☐

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace	___ 6. Labels & Aids
___ 2. Communications	___ 7. Computers/CRT
___ 3. Annunciators	___ 8. Panel Layout
___ 4. Controls	___ 9. C/D Integration
___ 5. Displays	___

Rating: 1 2 3 3*

Discrepancy Code: 6.2.1

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD

NO: A 016

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
QFAB		

DESCRIPTION

Some Annunciator Panels have more than 50 Tiles

PHOTOGRAPHY

I.D. No.	Location	Instructions:
14		

Movie ? ☐

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace	___ 6. Labels & Aids
___ 2. Communications	___ 7. Computers/CRT
___ 3. Annunciators	___ 8. Panel Layout
___ 4. Controls	___ 9. C/D Integration
___ 5. Displays	___

Rating: 1 2 3 3*

Discrepancy Code:

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD

NO: A 017

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
QFAB		

DESCRIPTION

There are several of meters with more than 5 meters on a board

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐
15			

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace
___ 2. Communications
___ 3. Annunciators
___ 4. Controls
___ 5. Displays
___ 6. Labels & Aids
___ 7. Computers/CRT
___ 8. Panel Layout
___ 9. C/D Integration
___

Rating: 1 2 3 3'

Discrepancy Code:

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD

NO: A 018

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
1A1		

DESCRIPTION

Some switch label engraving is filling up with dirt which will eventually reduce legibility

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐
13			

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace
___ 2. Communications
___ 3. Annunciators
___ 4. Controls
___ 5. Displays
___ 6. Labels & Aids
___ 7. Computers/CRT
___ 8. Panel Layout
___ 9. C/D Integration
___

Rating: 1 2 3 3'

Discrepancy Code:

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD

NO: A 019

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
1A1		

DESCRIPTION

There was a general lack of demarcation lines on display panels in Control Room (Typical

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐
1 of 4			

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace
___ 2. Communications
___ 3. Annunciators
___ 4. Controls
___ 5. Displays
___ 6. Labels & Aids
___ 7. Computers/CRT
___ 8. Panel Layout
___ 9. C/D Integration
___

Rating: 1 2 3 3*

Discrepancy Code:

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD

NO: A 020

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
1B		

DESCRIPTION

Stacky Tape is used to hold labels on.

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐
16			

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace
___ 2. Communications
___ 3. Annunciators
___ 4. Controls
___ 5. Displays
___ 6. Labels & Aids
___ 7. Computers/CRT
___ 8. Panel Layout
___ 9. C/D Integration
___

Rating: 1 2 3 3*

Discrepancy Code:

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD

NO: A 21

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name
A3		

DESCRIPTION

There are two fan switches in the middle of a groupins of green system switches. The fan swtches are not system related. ~~Each~~ Green Panel natyaran & a tan panel but unrelated to it.

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐
17		The green Panel has several sub systems on it but no demarcation	

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace	___ 6. Labels & Aids
___ 2. Communications	___ 7. Computers/CRT
___ 3. Annunciators	___ 8. Panel Layout
___ 4. Controls	___ 9. C/D Integration
___ 5. Displays	___

Rating: 1 2 3 3'

Discrepancy Code:

11/30/81

CONTROL ROOM EVALUATION DISCREPANCY RECORD

NO: A

Plant:	Review Code: 2	Reviewer:	Date:

EQUIPMENT

Panel No.	Component No.	Equipment Name

DESCRIPTION

PHOTOGRAPHY

I.D. No.	Location	Instructions:	Movie ? ☐

Caption:

REPORT

Concise Description:

CODES

___ 1. Workspace	___ 6. Labels & Aids
___ 2. Communications	___ 7. Computers/CRT
___ 3. Annunciators	___ 8. Panel Layout
___ 4. Controls	___ 9. C/D Integration
___ 5. Displays	___

Rating: 1 2 3 3'

Discrepancy Code:

11/30/81

--A--

Abnormal Operating Procedures	AOP
Accelerate	ACCEL
Acceptance	ACPT
Access	ACC
Accumulator	ACCUM
Active	ACT
Actuation	ACTU
Additive/Addition	ADD
Administration Building	ADM BLDG
Adsorber	ADS
Air Current Breaker	ACB
After	AFT
Aftercooler	AFTCLR
Alarms	ALMS
Alternate	ALT
Alternating Current	AC*
Ambient	AMB
Ampere	AMP
Amplifier	AMPL
Air Operated Valve	AOV
American National Standards Institute	ANSI*
Analysis	ANAL
Analyzer	ANLY
Annunciator	ANN
Anticipated Transient Without Trip	ATWT*
Approximate	APPROX
Area Radiation Monitor	ARM
Arrester	ARSR
Assembley	ASSY

--A--(Cont'd.)

Atmosphere	ATM
Atmospheric Relief Valve	ARV
Atomizer	ATMZ
Attenuator	ATTEN
Auctioneered	AUCT
Audible	AUD
Automated Turbine Supervisory Instrumentation	ATSI
Automatic	AUTO
Auxiliary	AUX
Auxiliary Boiler Control Room	BOILER CONTROL
Auxiliary Boiler Operator	BO
Auxiliary Building	AUX BLDG, AB
Auxiliary Boiler Building	AUX BOILER BLDG
Auxiliary Building Operator	AO
Auxiliary Component Cooling Water	ACCW*
Auxiliary Feedwater	AFW*
Auxiliary Feedwater Actuation Signal	AFAS
Auxiliary Feedwater Pump Building	AFWB
Auxiliary Steam	AUX STM
Average	AVG

--B--

Back-Up	BKUP
Backwash	B/W
Balance of Plant	BOP*
Balance of Plant Operator	PO
Bank	BK
Battery	BATT, BAT
Bearing	BRG
Beginning Of Life	BOL*
Bistable	B/S
Blender	BLEND
Block/Blocked	BLOC
Blowdown	B/D
Blower	NOT ABBREV
Boiler	BLR
Boiler Control	(SEE AUXILIARY BOILER CONTROL ROOM)
Boiler Operator	(SEE AUXILIARY BOILER OPERATOR)
Booster	BSTR
Boric Acid	BA
Boric Acid Transfer (Pump)	BA XFER
Boric Acid Storage Tank	BAST*
Boron Concentration Measurement System	BCMS
Boron Injection Surge Tank	BIST
Boron Injection Tank	BIT*
Boron Recycle System	BRS*
Boron Thermal Regeneration System	BTRS*
Botton	BOT
Boundary	BYD

--B--(Cont'd.)

Breaker	BRKR
British Thermal Units	BTU
Building	BLDG
Bulkhead	BHD
Bypass	BYP
Bypass Feed Isolation Valve	BFIV
Bypass Feed Regulating Valve	BFRV

--C--

Cabinet	CAB
Cable	CBL
Capacity	CAP
Carbon Dioxide	CO_2
Carrier	CARR
Catalytic	CAT
Catalytic Hydrogen Recombiner	NOT ABBREV
Cathode	CATH
Cathode Ray Tube	CRT*
Cavity	NOT ABBREV
Centigrade	C
Central	CENT
Central Processing Unit	CPU
Centrifugal	CNTFGL
Centrifugal Charging Pump	CCP*
Channel	CH
Charcoal	CHAR
Charge	CHG
Charger	CHGR
Check	CK
Chemical, Chemistry	CHEM
Chemical and Volume Control System	CVCS*
Chemistry Department (See either: Radiochemistry Laboratory -OR- Plant Water Chemistry Laboratory	
Chilled	CHLD
Chiller	CHLR
Chlorinators/Chlorine	CHLOR, CL_2

--C--(Cont'd.)

Circuit	CKT
Circulating Water System	CWS*
Circulation or Circulating	CIRC
Circulating Water System	CWS*
Clarifier	CLARIFR
Classification	CLASS
Close	DO NOT ABBREV
Closed Loop	DO NOT ABBREV
Cold Leg	CL
Collector	COLL
Communication	COMM
Compactor	CMPCTR
Compartment	COMPT
Compensating	CMP
Component	COMP
Component Cooling Water	CCW*
Compressed	COMPRESS
Compressor	CMPSR
Computer	CMPTR
Concentrate	CONCTR
Concrete	CON
Condensate	COND
Condensate Storage Tank	CST
Condensation	CNDS
Condenser	CNDSR
Condition	CNDTN
Conditioner	CDTR
Conductivity	CONDCT
Conference	CONF
Connection	CONN
Construction	CONST

--C--(Cont'd.)

Containment	CNMT*
Containment Building	CTB, CNMT BLDG
Containment Isolation - Phase A	CI-A
Containment Isolation - Phase B	CI-B
Containment Isolation Ventilation	CIV
Containment Spray	CS*
Containment Spray Actuation Signal	CSAS
Continuous	CONT
Control, Controller	CNTL
Control Building	CB, CNTL BLG
Control Building Control Room	CBCR
Control Rod Drive Mechanism	CRDM*
Control Room (Use when referring to a Control Room other than the Main Control Room with appropriate prefix)	CR*
Control Room Ventilation Isolation Signal	CRVIS
Control Valve	CV
Converter	CONV
Cooler	CLR
Coolers	CLRS
Cooling	CLG
Cooling Water	CLG WTR
Cooling Water Chemical Control System	CWCCS
Corridor	CORR
Coupling	CPLG

--C--(Cont'd.)

Critical Safety Function Status Tree	CSFST
Cross Connection	XCONN
Cross-Trip	X-TRIP
Crystalizer	CRYSTLZR
Cubic Centimeter	CC
Cubic Feet	CUFT
Cubic Feet Per Minute	CFM
Cubic Feet Per Second	CFS
Cubic Inch	CUIN
Current	CUR
Current Transformer	CT
Cycle	CY
Cycles Per Minute	CPM
Cycles Per Second	CPS
Cylinder	CYL

--D--

Damper		DMPR
Decontamination		DECON
Decrease		---
(Use the word lower)		
Defeat		DEF
Degasifier		DEGAS
Degree		DEG
Degrees, Celcius		°C*
Degrees, Fahrenheit		°F*
Demineralizer		DEMIN
Demineralizers		DEMINS
Demineralized Water		DW, DEMIN WTR
Departure from Nucleate Boiling		DNB*
Departure from Nucleate Boiling Ratio		DNBR*
Design Basis Accident		DBA
Detector		DET
Deviation		DEV
Diameter		DIA
Diesel		DSL
Diesel Fuel Oil		DFO
Diesel Generator		DG*
Diesel Generator Building		DB
Differential		DIFF
Differential Pressure	(labels)	DP
	(procedures)	dP*
Differential Temperature	(labels)	DT
	(procedures)	dT*
Digital Rod Position Indication		DRPI*
Dilute, Dilution		DIL
Diode		DIO

--D--(Cont'd.)

Direct Current	DC
Direction	DIR
Discharge	DISCH
Disconnect	DISC
Displacement	DISPL
Distributor	DISTR
Diverted	DIVERT
Document	DOC
Domestic	DOM
Downstream	DNSTRM
Drain	DRN
Drive	DR
Duplex	DUP

--E--

Eccentricity	ECC
Effluent	EFFL
Electric, Electrical, Electricity	ELEC
Electrical Auxiliary Board	EAB*
Electrical Penetration Room, Filtration and Exhaust System	ELEC PEN RM FLTR AND EXH SYS
Electrohydraulic Control	EHC*
Element	ELEM
Elevation	ELEV
Emergency	EMERG
Emergency Bearing Oil Pump	EBOP
Emergency Core Cooling System	ECCS*
Emergency Notification System	ENS
Emergency Operating Procedures	EOP
Emergency Operations Facility	EOF*
Emergency Response Facilities	ERF*
Emergency Trip System	ETS
Encapsulate	ENCAP
Enclose, Enclosure	ENCL
End of Cycle	EOC
End of Life	EOL*
Engineered Safety Feature	ESF*
Engineered Safety Features Actuation System	ESFAS*
Engineering	ENG
Entrance	ENTR
Environment, Environmental	ENVIR
Equalizing, Equalization	EQ
Equipment	EQUIP
Essential Service Water	ESW
Evaporator, Evaporate	EVAP

--E--(Cont'd.)

Excess	EX
Exchange	EXCH
Excitation, Exciter	EXCTR
Exhaust, Exhauster, Exhausted	EXH
Expansion	EXP
Extraction	EXTRACT
Extractor	EXT

--F--

Fahrenheit	F
Failure	FAIL
Feed	FD
Feeder	FDR
Feedwater	FW*
Feedwater Isolation Signal	FWIS
Feedwater Regulating Valve	FRV
Feet Per Minute	FPM
Feet Per Second	FPS
Field	FLD
Filter, Filtration	FLTR
Fire Hose Station	FHS
Fire Pump	FP
Fire Pumphouse	FPH
Fitting	FTG
Fixture	FXTR
Flange	FLG
Flexible	FLEX
Floor	FLR
Floor Drain Tank	FDT
Flow	FL
Fluorescent	FLUOR
Flush	FLSH
Flux	FLX
Forced Draft Fan	FD FAN
Freeze	FRZ
Frequency	FREQ
Fuel Handling Building	FHB*
Fuel Handling Building Isolation	FHBI
Fuel Oil	F.O.
Function Restoration Procedure	FRP

--G--

Gallery, Galleries	GLRY
gallons per minute	GPM*
Gas Decay Tank	GDT
Gaseous Radwaste	GRW
Gaseous Waste Processing System	GWPS
Gauge	GA
Gear	GR
Generator	GEN
Governor	GOV
Gross Failed Fuel Detector	GFFD
Ground	GND
Group	GR

--H--

Handling	HDLG
Hanger	HGR
Header	HDR
Health Physics Department	HP*
Health Physics Laboratory	HP LAB
Health Physics Tech. (See Shift Health Physics Technician)	
Heater	HTR
Heater Drain Tank	HDT
Heat Exchanger	HX*
Heating, Ventilation and Air Conditioning	HVAC*
Heat Tracing	HT TRACE
Hertz	HZ
High	HI
High Efficiency Particulate Air	HEPA*
High-High	HIHI
High-Low	HILO
High Pressure	HP
High Pressure Stop Valve	HPSV
High Voltage	HV*
Horizontal	HORIZ
Horsepower	HPWR
Hot/Cold	H/C
Hot Leg	HL
House	HSE
Humidity	HUM
Hydraulic	HYD
Hydrogen	H_2

--I--

Inbalance	IMBAL
Impeller	IMPLR
Impulse	IMP
Inactive	INACT
Increase	INCR
Increased	INCRD
Incoming	INCM
Indicator, Indicate	IND
Induced Draft Fan	ID FAN
Influent	INFL
Injection, Injector	INJ
Inlet	IN
Inside Reactor Containment	IRC
Install, Installation	INSTL
Instrument	INSTR
Instrumentation	INST'N
Instrumentation & Control	I & C*
Instrument and Control Shop	TEST SHOP
Intake	INTK
Integrated Leak Rate Test	ILRT*
Interconnection	INTCON
Interlock	INTLK
Intermediate	INTMD
Intermediate Pressure	IP
Intermediate Range (NIS)	IR*
Inverter	INV
Isolation, Isolate, Isolated	ISO

--J--

Junction	JCT

--K--

Kilogram	KG
Kilovolts	KV*
Kilovolt-Ampere	KVA
Kilowatt	KW
Kitchen	KIT

--L--

Laundry	LNDRY
Leakage	LKG
Leakoff	LKOF
Letdown	LTDN
Level	LVL
Licensee Event Report	LER
Lighting	LTG
Limiting Condition For Operation	LCO*
Line	LN
Liquid	LIQ
Liquid Radwaste	LRW
Liquid Waste Processing System	LWPS
Load Center	LC
Local	LOC
Local Leak Rate Test	LLRT*
Lock Out Relay	LOR*
Loss of Coolant Accident	LOCA*
Loss of Off Site Power	LOSP*
Low	LO
Low-Low	LOLO
Lower	LWR
Low Pressure	LP, LO PRESS
Low Pressure Stop Valve	LPSV
Low Temperature Overpressure Protection System	LTOP SYSTEM
Lube Oil	L.O.
Lubricate	LUBE

--M--

Main		MN
Main Circulating Water		CW*
Main Control Board		MCB*
Main Control Room		MCR*
Main Feed Isolation Valve		MFIV*
Main Feed Regulating Valve		MFRV
Main Feedwater		MFW*
Main Feedwater Pump		MFP
Main Feedwater Turbine		MFT
Main Generator Hydrogen Seal Oil		H_2 SEAL OIL
Main Steam		MS*
Main Steam Isolation Valve		MSIV*
Main Steam Line Break		MSLB
Maintenance		MAINT
Maintenance Building		MB*
Makeup		M/U
Manifold		MNFLD
Manual		MAN
Maximum		MAX
Maximum Permissible Concentration		MPC
Measure, Measuring, Measurement		MEAS
Mechanic		
(See Shift Mechanic)		
Mechanical		MECH
Megawatt Electric	(labels)	MWE
	(procedures)	MWe*
Megawatt Thermal	(labels)	MWT
	(procedures)	MWt*
Megavolt-Amperes		MVA*
Megavolt-Amperes-Reactive		MVAR OR MEGAVARS*
Meteorological (Tower)		MET
Metering		MTRG

--M--(Cont'd.)

Microwave	MICROWVE
Millwright	
(Not used - See Shift Mechanic)	
Minimum	MIN
Misaligned	MISALIGN
Miscellaneous	MISC
Mitigation	MITG
Mixer	MXR
Model	MOD
Moisure	MSTR
Moisture Separator	MSTR SEP
Moisture Separator Drain Tank	MSDT
Moisture Separator Reheater	MSR*
Momentary	MOMENT
Monitor	MON
Monitor Light Board	MLB
Motor	MTR
Motor Control Center	MCC*
Motor Driven	MD
Motor Driven Auxiliary Feedwater	MDAFW*
Motor Generator	MG*
Motor Operated Valve	MOV*
Mounted	MTD

--N--

Narrow Range	NR
Negative	NEG
Net Positive Suction Head	NPSH*
Neutral	NEUT
Neutralization	NEUTRLZN
Nitrogen	N_2
Nil Ductility Transition (Temp.)	NDT
Nomenclature	NOMEN
Nominal	NOM
Normal	NORM
Normally Closed	NC
Normally Open	NO
North East	N-E
North West	N-W
Nuclear	NUC
Nuclear Instrumentation System	NIS*
Nuclear Service Cooling Water	NSCW*
Nuclear Service Cooling Water Tower	NSCT
Nuclear Steam Supply System	NSSS
Number	#

--O--

Obstruction		OBS
Offsite (One Word)		NOT ABBREV
Oil Circuit Breaker		OCB
Oily Waste		OW
On-Shift Operations Supervisor		OSOS
Operating Basis Earthquake		OBE
Operator, Operate, Operating, Operations		OPR
Operations Support Center		OSC
Outlet		OUT
Outside Reactor Containment		ORC
Out of Service		OOS
Overcurrent		OC
Overload		OL
Overpower Delta Temperature	(labels)	OPΔT
	(procedures)	OPdT*
Overpressure		OP
Overspeed		OVSP
Overtemperature Delta Temperature	(labels)	OTΔT
	(procedures)	OTdT*
Overtime		OT
Overvoltage		OV
Outside Air		OSA
Outside Area Operator		OAO
Oxygen		O_2

--P--

Package, Packing	PKG
Panel	PNL
Parts Per Billion	PPB
Parts Per Million	PPM
Penetration	PEN
Percent	PCT
Permanent	PERM
Permissive	PERMIS
Phase	PH
Phase A Containment Isolation Signal	CIA
Phase B Containment Isolation Signal	CIB
Phase Overcurrent	PHOC*
Piping	PPG
Piping And Instrument Diagram	P&ID*
Plant	PLT
Plant Entry And Security Building	SB*
Plant Water Chemistry Laborator	CHEM LAB
Pneumatic	PNEU
Portable	PORT
Position	POS
Positive	NOT ABBREV
Postive Displacement Charging Pump	PDP*
Post Accident Monitoring System	PAMS*
Post Accident Sampling System	PASS*
Potable Water	POT WTR
Potential	POT
Potential Transformer	PT
Pounds Per Square Inch	PSI
Pounds Per Square Inch Absolute	PSIA
Pounds Per Square Inch Differential	PSID
Pounds Per Square Inch Gauge	PSIG

--P--(Cont'd.)

Power	PWR
Power Circuit Breaker	PCB
Power Operated Relief Valve	PORV*
Power Range NIS	PR*
Preaction	PREACT
Pressure	PRESS
Pressure Operated Valve	POV
Pressurizer	PRZR
Pressurizer Relief Tank	PRT*
Primary	PRI
Process And Effluent Radiation Monitoring System	PERMS*
Process Control Panel	PCP
Process Control System	PCS
Production	PROD
Protection	PROT
Pull-To-Lock	PTL
Pumphouse	PMPHSE
Pump	PMP or P
Purification	PURIF

--R--

Radiation		RAD
Radiation Monitoring System		RMS
Radiochemistry Laboratory		NUCLEONIC
Radioactive Waste		RW
Range		RNG
Reactor	(labels)	RX, REAC
	(procedures)	Rx*
Reactor Coolant Drain Tank		RCDT*
Reactor Coolant Pump		RCP*
Reactor Coolant System		RCS*
Reactor Makeup Water		RMW*
Reactor Makeup Water Storage Tank		RMWST*
Reactor Operator		RO
Reactor Pressure Vessel		RV
Reactor Protection System		RPS
Reactor Vessel Level Instrumentation System		RVLIS*
Receiver		RCVR
Receptacle		RECP
Reciprocating		RECIP
Recombiner		RECOMB
Recorder		REC
Recirculate/Recirculation		RECIRC
Recycle		RECYC
Recycle Holdup Tank		RHT
Refereneee		REF
Refrigerant		REFRIG
Refueling Water Storage Tank		RWST*
Regeneration, Regenerative		REGEN
Regulator		REG
Reheater		REHTR
Reheater Drain Tank		RHDT

--R--(Cont'd.)

Relay	RLY
Relief	REL
Reserve Auxiliary Transformer	RAT*
Reservoir	RSVR
Residual Heat Removal	RHR*
Resistance	RES
Resistance Temperature Detector	RTD*
Retention	RETN
Return	RTN
Reverse	REVRS
Reverse Osmosis	RO
Revolution	REV
Revolutions Per Minute	RPM
Rheostat	RHEO
Rod Cluster Control Assembly	RCCA*
Rod Position Indicator	RPI
Room	RM
Root	RT
Rotary	RTRY

--S--

Safe Shutdown Earthquake	SSE
Safeguard	SFGD
Safety	SFTY
Safety Injection	SI
Safety Injection System	SIS
Safety Parameter Display System	SPDS
Sample, Sampling	SMPL
Sanitary	SAN
Screen	SCRN
Second, Secondary	SEC
Secondary Liquid Waste	SLW
Security Building	SB
Select, Selection, Selector	SEL
Separator	SEP
Sequence	SEQ
Serial	SER
Service	SERV
Service Building	SERV BLDG
Service Water	SERV WTR
Setpoint	SETPT
Shaft Lube Oil Pump	SLOP
Shift Chemistry Foreman	NOT ABBREV
Shift Chemistry Technician	SHIFT CHEMIST
Shift Electrician	SE
Shift Health Physics Foreman	SHIFT HP FOREMAN
Shift Health Physics Technician	SHIFT HP
Shift Instrument Technician	ST
Shift Maintenance Foreman	SMF
Shift Mechanic	SM
Shift Supervisor	SS*
Shift Technical Advisor	STA*

--S--(Cont'd.)

Shower	SHWR
Shutdown	S/D
Signal	SIG
Sleeve	SLV
Smoke	SMK
Solenoid	SOL
Solenoid Operated Valve	SOV*
Solid Radwaste	SRW
Solid State Protection System	SSPS*
Solidification	SOLID
Source Range NIS	SR*
South East	S-E
South West	S-W
Speaker	SPKR
Special	SPCL
Specification	SPEC
Speed	SPD
Spent Fuel Pool	SFP
Spent Fuel Pool Cooling and Purification System	SFPCLG
Spray Booth	SPRY BTH
Spreading	SPDG
Sprinkler	SPRINK
Stage	STG
Standby	STBY
Standard	STD
Startup	S/U
Startup Rate	SUR
Station	STA

--(S)--(Cont'd.)

Steam	STM
Steam Generator	SG*
Steam Generator Atmospheric Relief Valve	SG ARV
Steam Generator Blowdown Processing System	SGBPS*
Steam Generator Blowdown	SGBD*
Steam Generator Feedwater Regulating Valve	SG FRV
Steam Generator Feedwater Pump	SGFP*
Steam Generator Feedwater Pump Turbine	SGFPT*
Steam Generator Tube Rupture	SGTR
Steam Generator Water Level Control	SGWLC
Steam Jet Air Ejector	SJAE
Steamline	SL
Steam Line Break Accident	SLBA
Steam Line Isolation	SLI
Stop Valve	SV
Storage	STOR
Strainer	STR
Structure	STRUCT
Suction	SUCT
Supervisor	SUPV
Supply	SPLY
Surge	SRG
Switch	SW
Switchboard	SWBD
Switchgear	SWGR*
Switchyard	SWYD*
Switchyard Control Building	SWYD CONTROL*
Switchyard Operator	SWYD OPR
Synchroscope	SYNSCP
Synchronization	SYNCH
System	SYS
(GPC) System Operator (Dispatcher)	SO

--T--

Tank		TK
Tanks		TKS
Technical		TECH
Technical Support Center		TSC*
Temperature		TEMP
Temperature (Auctioneered)		T AUCT
Temperature (Average)	(labels)	T AVG
	(procedures)	Tavg*
Temperature (Reference)	(labels)	T REF
	(procedures)	Tref*
Test Shop		
(See Instrument and Control Shop)		
Temporary		TMPRY
Thermal		THRM
Thermal Barrier		THRM BAR
Thermocouple		TC
Throttle		THROT
Thrust Bearing		T-BRG
Time Delay		T/D
Toilet		TOIL
Torque		TRQ
Totally Dissolved Solids		TDS
Tower		TWR
Train		TRN

--T--(Cont'd.)

Transfer	XFER
(Not abbrev. in EOP's and AOP's)	
Transfer Building	XFER BLDG
Transceiver	XCVR
Transducer	XDUCR
Transformer	XFMR
Transmitter	XMTR
Traveling	TRV
Treatment	TRT
Trouble	TRBL
Tunnel	TUN
Turbidity, Turbine	TURB
Turbine Building	TB*, TURB BLDG
Turbine Building Operator	TO
Turbine Driven Auxiliary Feedwater	TDAFW*
Turbine Generator	TG*
Turbine Load Reference Temperature	TREF
Turbine Plant Closed Cooling Water	TPCCW
Turbine Plant Cooling Water	TPCW
Turbine Plant Cooling Water Tower	TPCWT
Turbine Plant Sampling System	TPSS
Turbocharger	TURBO
Turning	TURN

--U--

Ultimate Heat Sink	UHS
Ultrasonic	ULTRSC
Underfrequency	UF
Underpressure (One Word)	NOT ABBREV
Undervoltage	UV
Uninterruptable Power Supply	UPS
Unit 1 Containment Building	UNIT 1 CNMT
Unit 2 Containment Building	UNIT 2 CNMT
Unit 1 Control Area	UNIT 1 CNTL
Unit 2 Control Area	UNIT 2 CNTL
Unit Auxiliary Transformer	UAT*
Universal	UNIV
Upper	UP
Upstream	UPSTRM
Urgent	URG
Utility	UTIL

--V--

Vacuum	VAC
Valve	VLV
Valves	VLVS
Vapor	VAP
Variable	VAR
Vent	VT
Ventilation	VENT
Vertical	VERT
Vessel	VES
Vibration	VIB
Volt	V
Volt Meter	VM
Voltage	VOLT
Volume	VOL
Volume Control Tank	VCT*
Volume Reduction and Solidification	VRS

--W--

Warehouse	WHSE
Waste	WST
Waste Control	
(See Radioactive Waste Control Room)	
Waste Control Room Operator	
(See Radioactive Waste Control Room Operator)	
Waste Holdup Tank	WHT
Waste Monitor Tank	WMT
Waste Operator	
(See Radioactive Waste Control Room Operator)	
Waste Processing System Gaseous	GWPS
Waste Processing System Liquid	LWPS
Waste Shift Supervisor	
(See Radioactive Waste Shift Supervisor)	
Waste Supervisor	
(See Radioactive Waste Shift Supervisor)	
Waste Water Retention Basin	WWRB
Water	WTR
Water Level Control	WLC
Water Treatment Building	WTB
Wet Layup	WLU
Wide Range	WR

--X--

Xfmr.	TRANSFORMER
XFMR	TRANSFORMER

--Y--

Yard	YD

--Z--

Zone	Z

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW
CHECKLISTS AND SURVEYS

Checklist/Survey: TASK ANALYSIS PROCEDURE / 0
Title Revision

Reviewed and approved by:

E J Kozinski / MAR 28, 1985
Review Team Leader Date

D. Hoppe / 3/28/85
Review Team Member Date

Ricky R. Johnson / 3-28-85
Review Team Member Date

Paul [illegible] / 3-28-85
Review Team Member Date

[illegible] / 4-1-85
Review Team Member Date

Performed by:

/
Review Team Member Date

/
Review Team Member Date

Results reviewed by:

/
Review Team Leader Date

/
Review Team Member Date

/
Review Team Member Date

/
Review Team Member Date

/
Review Team Member Date

Notes, comments, HED's, etc: _____

TASK ANALYSIS PROCEDURE

1.0 DEFINITION

The Task Analysis Procedure for the CRDR involves four items:

1 - Objectives
2 - Task Analysis Method
3 - Verification of Instruments and Controls
4 - Validation of Emergency Operating Procedures

2.0 OBJECTIVES

The objectives of the CRDR Task Analysis are to identify the tasks required to support emergency operation and to determine whether the design of the control room allows and supports those tasks. Final results will consist of HEDs identified during the program. This analysis will cover all Emergency Operating Procedure tasks in the control room.

3.0 TASK ANALYSIS METHODS

3.1 Task Sequence Chart

3.1.1 Beginning with Westinghouse Emergency Response Guidelines (ERG) sequences, a review team member will extract tasks and steps required to complete each ERG and list on a Task Sequence Chart (TSC) as shown in Figure 1.

3.1.2 Sequence numbers and titles are taken directly from the ERG. The "STEP" or "ACTION/EXPECTED RESPONSE" columns in the ERG provide the task numbers and task titles in the "TASKS IN MAIN SEQUENCE" columns of the TSC.

3.1.3 The "RESPONSE NOT OBTAINED" column in the ERG provides the sequence number, task number, and title in the "SEQ./TASKS POTENTIALLY BRANCHED TO" columns of the TSC. The task number should be designated with a "RNO-" prefix, for 'Response Not Obtained' tasks within a given ERG.

3.2 Task Data Form

3.2.1 The Task Data Form (TDF), as shown in Figure 2, is the primary data collection record for each task and is used to describe the activities of control room operators at the task element level. Each row of the form constitutes one task element, such that when the line entry is read left to right, the information is presented as a consistently formatted "model sentence". When all TDFs have been completed by hand, typed copies will be made for the Summary Report; all typed information must be carefully verified against the originals. The typed data will be reviewed and approved by the CRDR team and maintained or microfilmed as permanent plant records.

3.2.2 The TDFs will be completed by CRDR team members, assisted by operators or other validation observers. The TDF heading data will be extracted from the TSC. The task elements will then be added by reference to the plant specific Emergency Operating Procedure (EOP) and System Operating Procedures (SOP) used in support of the EOPs. The Behavior Verb and the Immediate Object of ACTION will be filled in at this stage. Reference to installed control room instrumentation will be needed to complete this stage in some cases to get specific instrument numbers and locations. If CRDR team members note any control room problems at this point, HEDs may be written.

3.2.3 TDF ENTRY DEFINITIONS

3.2.3.1 SEQUENCE NO.: Taken from the TSC.

3.2.3.2 SEQUENCE TITLE: Taken from the TSC.

3.2.3.3 REV. NO.: Taken from the TSC. Denotes revision no. of the sequence title.

3.2.3.4 TASK NO.: Taken from the TSC.

3.2.3.5 TASK TITLE: Taken from the TSC.

3.2.3.6 TASK CUE: The input that prompts the crew member to initiate the task.

3.2.3.7 TASK OBJECTIVE: The reason for the crew member's performance of the task. All elements of the task support this objective.

3.2.3.8 COMMENT: Any remarks needed to clarify the task analysis. The plant specific EOP number/step will be entered here. Also reference to the TDF where a detailed analysis is completed for duplicate tasks.

3.2.3.9 SUBJECT:

- WHO: The individual who performs the task.
- LOCATION: Panel name or other workstation.
- BEHAVIOR VERB: A verb taken from Table 3 of the EOP and AOP writers guide which describes the crew members actions.

3.2.3.10 IMMEDIATE OBJECT OF ACTION:

- NAME: The system name to which the task behavior is directed. (eg. SI)
- DESCRIPTION: The control room component name. (eg. meter, handswitch, recorder)
- PLANT I.D.: The control room component tag number. (eg. 1HS-12918)
- LOCATION: The control panel number on which the control room component is located.

3.2.3.11 REMOTE OBJECT OF ACTION:

NOTE: Following data will be added only if not obvious from the control room component name.

- PLANT COMPONENT: The type of component, in the plant, to which the task behavior is directed. (eg. pump)
- COMPONENT STATE: The mode of the plant component. (ie. running, for pumps; open, for valves)
- PARAMETER: The plant parameter of concern. (ie. level, flow, temperature)
- PARAMETER STATE: The condition of the plant parameter. (ie. LO, HI, LO-LO)

3.2.3.12 COMM: When communication is involved between the SUBJECT and another individual, the job category and location of the other party as well as the means of communication will be placed here under PARTY & LOCATION.

3.2.3.13 HED I.D. NO.: Any Human Engineering Deficiency number written as a result of the analysis of this task element.

3.3 TASK-ERG MATRIX

3.3.1 Some tasks are duplicated in many ERGs. A matrix of tasks and ERGs containing those tasks will be prepared to support the validation goal of covering every task in the ERGs.

3.3.2 In the preparation of TDFs where a task is duplicated, the TDF will be annotated in the comments section to refer to the step where a detailed TDF fill-in was performed. No additional TDF data will be entered on such duplicate task forms.

4.0 VERIFICATION OF INSTRUMENTS AND CONTROLS

4.1 The TDFs filled out PER paragraph 3.2.2 will be used along with draft EOPs to walkthru all EOPs in the control room. This will verify the presence in the control room of instrumentation to perform each task. During the walkthru the TDFs will be checked for each task element, verifying "behavior verb" and "immediate object of action" data.

4.2 The control room walkdown will be conducted by a Shift Supervisor and two operators who have completed RO or SRO training, supervised by a CRDR team member. The STA position will not be represented in the walkthru.

4.3 Since task numbers based in ERGs may not map directly to EOP numbers, the EOP step number, if different, should be shown in the "comments" section of the TDF.

4.4 During the verification/walkthru the suitability of the instrument or control to perform each task element will be reviewed using the guidelines in ATTACHMENT 1. Any HED will be noted in the "H.E.D. ID. NO." column.

5.0 VALIDATION OF EMERGENCY OPERATING PROCEDURES

5.1 During the validation process selected scenarios will be run on the plant simulator such that each task (some of which will be common to one or more task sequences) will be performed on the simulator by a VEGP operating crew.

5.2 An observation team will be assigned to observe the crew's movements and to note any deviations from the appropriate ERGs.

5.3 The simulator runs will be video-taped and sound recorded for post scenario debriefing support.

5.4 The movement of each crew member will be traced on a control room outline drawing by an observer either during the scenario or later during a videotape review.

5.5 A record will be made of significant communication links used during each transient, using Figure 3. This is not a detail log of all face to face communications in the control room.

5.6 Debriefing sessions held after each scenario will provide time to review actions, discuss problems, clarify communications (who, how/where), and identify HEDs relating to performing the task during dynamic simulation. A review team member will be in the observer team debriefing for at least one run of each task.

5.7 During the validation, a copy of the Task-ERG Matrix (Paragraph 3.3) will be annotated to insure each task is performed in the simulator.

TASK SEQUENCE CHART (TSC)

PLANT VOGTLE
UNIT # _____
REV. # _____

SEQUENCE NO. _____ SEQUENCE TITLE _____

TASKS IN MAIN SEQUENCE		SEQ./TASKS POTENTIALLY BRANCHED TO*			COMMENTS
NUMBER	TASK TITLE	SEQUENCE NUMBER	TASK NO.	TITLE	

*Enter only one task - namely, the task immediately branched to.

FIGURE 1

TASK DATA FORM (TDF)

PLANT VOGTLE
UNIT NO. 1

SEQUENCE NO. _____ SEQUENCE TITLE _____ REV. NO. ____ PAGE ___ OF ___

TASK NO. _____ TASK TITLE _____ COMMENTS: _____

TASK CUE _____ TASK OBJECTIVE _____ _____

SUBJECT			IMMEDIATE OBJECT OF ACTION (CONTROL ROOM COMPONENT)				REMOTE OBJECT OF ACTION				COMM.	HED I.D. NO.
WHO	LOCATION	BEHAVIOR VERB	NAME	DESCRIPTION	PLANT I.D.	LOCATION	PLANT COMPONENT	COMPONENT STATE	PARAMETER	PARAMETER STATE	PARTY & LOCATION	

FIGURE 2

TASK ANALYSIS HED PRINCIPLES

1. Are all of the controls, displays and indicators that are required to perform this task present in the control room?

2. Are the controls, displays and indicators grouped in accordance with the information and control requirements of this task?

3. Are the controls, displays and indicators labeled according to the requirements of this task?

4. Can the displays and annunciators used in this task be read accurately from viewing position of the operator? Can displays be read while operating associated controls?

5. Do the displays give the operator direct, readily usable information:

   - o Parameter values with required precision?
   - o Range, band, limit shown if the operator needs to know in/out of range/band, above/below limit,etc.
   - o Trend information when needed?
   - o Rate of change information when needed?
   - o Percentage information used only when appropriate?
   - o Digital or analog information used when needed?
   - o Status or demand information as appropriate for the task?*

6. If instrumentation orcontrol capabilities are unavailable under certain plant conditions, are there alternate means provided for the operator to meet task needs.

* To be noted only for cases known to the operator; task analysis is not expected to determine power source of all indications.

7. Are related controls and displays within functional groups, arranged in the same relative positions? For example:

A display	B display	C display
A control	B control	C control

8. Is the display obscured while operating its associated control?

9. Are there any controls, control positions or displays which the operator knows do not serve any function?

NOTE

If the Task Analysis Team discovers a HED which in their judgement would require operational knowledge to discover or would be a decrement to Task performance, they should feel free to report it even though it is nominally allocated to the Survey or Operating Experience Review.

VOGTLE EOP VALIDATION

Scenario Communication Link Record

Scenario # _____ Date _____

INITIATOR	RECEIVER	METHOD	MESSAGE

FIGURE 3

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW

HUMAN ENGINEERING DISCREPANCY (HED) — Title
0 — Revision

Reviewed and approved by:

E J Kozinski — Review Team Leader — OCT 23, 1984 — Date
Libby R. Tahmoosi — Review Team Member — 10-23-84 — Date
Paul M Lahay — Review Team Member — 10-23-84 — Date
D L Hooper — Review Team Member — 10-23-84 — Date
[signature] — Review Team Member — 10-23-84 — Date

Performed by: As indicated on individual pages.

Results reviewed by:

Review Team Leader — Date
Review Team Member — Date
Review Team Member — Date
Review Team Member — Date
Review Team Member — Date

Notes, Comments, etc.: _____

REV:	0
DATE:	10/23/84

HUMAN ENGINEERING DISCREPANCY FORM INSTRUCTIONS

HED NUMBER: To avoid confusion with previous reviews, numbers will be assigned consecutively beginning with 1001.

ITEMS(S) INVOLVED: Describe the item(s) which are judged to be out of acceptance limits. Include tag numbers for controls and indications, as well as name.

i.e., SGFPT manual controller (SC3151)

ORIGIN: List the guideline source document or survey and number which is violated.

i.e., Annunciator survey (ANS-2) INPO 83-036 (NUTAC) 3.4.1.1

HED DESCRIPTION: Give clear concise details of the problem.

i.e., Air compressors are labeled from top to bottom D,C,B,A

ORIGINATOR: Signature of the person describing this HED and the date of this report.

CATEGORY: Assigned by the CRDR team. This denotes the relative severity of the discrepancy and prioritizes the HED for resolution.

i.e., Category 1 - (Safety Significant) - HEDs that have caused errors in or are judged likely to affect adversely the management of emergency conditions by control room operators.

Category 2 - HEDs that are known to have caused problems during normal operation.

Category 3 - HEDs that can be "Fixed" with simple and inexpensive enhancements, so-called "paint, tape, and label" (PTL) fixes. This may seem to be an implementation rather than an assessment category. However, there probably will be HEDs that the review team feels are very easy to fix but difficult to assess as to effect on emergency operation. This category is for such HEDs.

Category 4 - HEDS that do not fit into categories 1 through 3. These HEDs are judged by the review team as unlikely to affect emergency operations, not documented as causing problems during normal operation, and not simple or cheap to fix.

Category 4a - Such a minor deviation from standards it is not expected to cause a problem.

PROPOSED RESOLUTION: Describe the resolution agreed upon by the CRDR team.

i.e., Revise the meter scales to 0-100°F.

CRDR TEAM APPROVAL: Signature of one of the team members signifying CRDR team approves of the proposed resolution and the signature date.

REA NUMBER: The number assigned by document control to the Request for Engineering Assistance form (SUM-19) when assistance is requested in resolving an HED.

i.e., 1-84-XXXX

WORK ORDER NUMBER: The number assigned to the work order to accomplish the proposed resolution.

PAGES ATTACHED: Denotes the number of amplifying pages attached to the HED form. Each attached page or package should contain the HED number and page numbers.

i.e., HED Continuation Sheets
Sketches
Photographs

HED LOG - Each HED written will be entered in the HED Log. Each entry will consist of the assigned HED number, a brief description of the HED, the entry date, and the initials of the person making the entry.

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number _____

Item(s) Involved: _____

Origin _____

HED Description:

Originator: _____ / _____
Signature Date

Proposed Resolution: Category: _____

CRDR Team Approval _____ / _____
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY
CONTINUATION SHEET

HED Number _____

Page ___ of ___

REV:	0
DATE:	10/23/84

HED LOG SHEET

SHEET ____ OF ____

HED NUMBER	BRIEF DESCRIPTION	DATE	LOGGED BY

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW

PROBLEM REPORTS	0
Title	Revision

Reviewed and approved by:

Review Team Leader	Nov 5, 1984
Review Team Member	11/8/84
Review Team Member	11/8/84
Review Team Member	11/9/84
Review Team Member	11-12-84

Date

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1

CONTROL ROOM DESIGN REVIEW

PROBLEM REPORTS

REVISION:	0
DATE:	11/12/84
PAGE	1 OF 3

PURPOSE: To provide a mechanism for control, review, and disposition of Problem Reports (Figure 1).

LOGGING: Upon receipt of a problem report the Review Team Leader, or his designee, will assign a sequential control number, and complete the entry in the Problem Report Log (Figure 2) by inserting the report #, description, date, and initials.

PROPOSED DISPOSITION: The Review Team Leader will evaluate the report and initial the most appropriate disposition on the log.

REVIEW TEAM: Each team member will review problem reports dispositioned as "NO SIGNIFICANT IMPACT-FILE FOR REFERENCE". Agreement with this disposition will be signified by the team member initialing the log. If a review team member disagrees with the 'NO SIGNIFICANT IMPACT' disposition, he will initiate an HED and enter the HED number on Figure 2, initialing beside the number.

DISPOSTION: HED's generated as a result of a problem report will be handled according to the HED procedure. A copy of Problem Reports requiring further investigation during a checklist/survey will be attached to the original checklist/survey in the master CRDR file. If the additional investigation is not performed during the referenced checklist/survey, an HED will be written to assure adequate review.

CLOSEOUT: Closeout of a Problem Reports is accomplished when one of the following dispositions is indicated in the Problem Report Log:

1 - Reviewed by CRDR Team
2 - HED number
3 - Checklist/Survey

CONTROL ROOM DESIGN PROBLEM REPORT

FROM: _____ DATE: _____

TO: E. J. Kozinsky

CONTROL/INDICATOR (# AND NAME):

PROBLEM:

RECOMMENDATION:

Figure 1

VOGTLE ELECTRIC GENERATING PLANT - UNIT NO. 1
CONTROL ROOM DESIGN REVIEW
PROBLEM REPORT LOG

PROBLEM REPORT NUMBER	BRIEF DESCRIPTION	DATE LOGGED / LOGGED BY	DISPOSITION (REVIEW TEAM LEADER)				CRDR TEAM REVIEW	
			HED NO.	INITIATE HED	FURTHER EVAL. CHKLIST/SURVEY	NO IMPACT TEAM REVIEW REQ'D.	INITIAL	INITIAL

Figure 2

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW
CHECKLISTS AND SURVEYS

Checklist/Survey: COLOR-CODING SURVEY (CCS) / 0
Title Revision

Reviewed and approved by:

C J Kozinski / 10/15/84
Review Team Leader Date

H L Hooper / 10/15/84
Review Team Member Date

Paul Kenny / 10/15/84
Review Team Member Date

John S Hosko / 10-15-84
Review Team Member Date

Ruby R. Johnson / 10-15-84
Review Team Member Date

Performed by:

C J Kozinski / Dec 7, 1984
Review Team Member Date

S S Hosko / 12/7/84
Review Team Member Date

Results reviewed by:

C J Kozinski / 12-7, 84
Review Team Leader Date

S S Hosko / 12/7/84
Review Team Member Date

Ruby R. Johnson / 12-7-84
Review Team Member Date

H L Hooper / 12-19-84
Review Team Member Date

Paul Kenny / 12-19-84
Review Team Member Date

Notes, comments, HED's, etc: 2 ESCUTCHEON PLATE COLOR CODE SHEETS ATTACHED. DOES NOT INCLUDE COMPUTER COLOR CONVENTIONS.

COLOR-CODING SURVEY (CCS)

The purpose of this survey is to compile a list of dominant color-coding conventions used in the control room. Violations of these conventions need not be determined at this time. It is suggested that this survey be conducted with the assistance of an operator. If no single convention is clearly dominant for a particular color meaning, this should be noted as well. The survey should include the following as a minimum: indicator lights, legend lights and switches, control handles, labels, any markings on meter faces, chart recorders, board coloring, demarcation lines, mimic lines, annunciator windows, and computer-generated displays. The operator should be asked to supply additional uses of color. Any meanings found for color not included in the attached list should be added. Text should be used freely to explain or qualify any of the recorded meanings. Copies of this list should be attached to the panel checklists so deviations may be noted.

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1

CONTROL ROOM DESIGN REVIEW

REVISION: 0
DATE: 10/15/84
PAGE 2 OF 2

COLOR-CODING SURVEY

COLOR	MEANING	COMMENTS
Red	Valve Open	
Green	Valve Closed	
Green	Breaker Open	
Red	Breaker Closed	
	Mid- or Transitional Position	
Red	On or Operating	
Green	Off or Not Operating	
Red	Start	
Green	Stop	
Red	Danger or Warning	
Yellow	Caution, Trouble, or Pre-trip	
Amber	Trip or Failure	
	Automatic Operation or Control	
	Manual Operation or Control	
	Limit Condition	
	General Status	
	Hot	
	Cold	
	Channel	
Brown/Green	Train	
lue, Red, Purple, Brown, Green	Bus Voltage Codes	
	Other (specify)	
White	Voltage Potential	
Red	Auto Sync. (Main Turbine/Gen.)	
Blue	Start Permissive for RCP's (oil lift pmp)	
White	Locked-out Valves	
White	Manual override. (AFW injection valves)	
	Valve Switch Plate Cover Code Attached. - 2 PAGES	

EK

ESCUTCHEON PLANT COLOR CODES

Panel QEAB - Electrical Auxiliary

Non-Train Breakers - Black
A - Train Breakers - Brown
B - Train Breakers - Green
C - Train Breakers - Blue
D - Train Breakers - Yellow

Panel QMCB - B

Turbine Electrical/Auxiliary - Black
Seal Oil - White
Steam Seals - White
Air Ejector Steam - Grey
Extraction Steam - Grey
MSR's - Grey
FW Isolation - Grey (1-3), Dark Blue (4)
FW Isolation Reset - Light Blue
FW Htrs, Cond Pmp, Htr Drn Pmp - Dark Blue
Condensate/AFW - Light Blue
TDAFW Steam - Grey
SGFP (Main FW) - Dark Blue
MS and Blowdown -Grey

Panel QMCB - C

RCP's - Black
COPPS - Yellow
dT/opdT/Tave - Black
PRZR/PORV/PRT - Light Orange
PRZR SI Block/Reset - Burnt Orange
CNMT Isolation - Yellow
RX Trip/SI - Red
Emergency Borate - Light Green

Panel QMCB - D

RX Head Vent - Light Green

Panel QMCB - A

CW/TPCW/TPCCW - Dark Grey
Air - White
NSCW - Brown
RMWST - Light Blue
CCW/ACCW - Grey-Brown
CNMT Isolation - Yellow
Containment Spray - Red
SI/Accumulators - Orange

EK

Panel QMCB - A continued

RHR - Tan-Brown
CVCS - Light Green
BIT to Normal Charging - Tan-Brown
Charging Pump Miniflow - Tan-Brown
RCDT - Light Orange
RMW - Light Blue
CVCS Chiller - Dark Grey
RX Trip/SI - Red

Panel QPCP - Process Control

All Switches - White

Panel QSDA - Remote Shutdown - A

All Switches - White

Panel QSDB - Remote Shutdown - B

All Switches - White

EK

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW
CHECKLISTS AND SURVEYS

Checklist/Survey: ABBREVIATION AND ACRONYM SURVEY / 0
Title Revision

Reviewed and approved by:

E J Kozinski / 10/15/84
Review Team Leader Date

T. L. Hooper / 10/15/84
Review Team Member Date

Gordon Kalhoy / 10/15/84
Review Team Member Date

John Hopkins / 10-15-84
Review Team Member Date

Ruby R. Johnson / 10-15-84
Review Team Member Date

Performed by:

/
Review Team Member Date

/
Review Team Member Date

Results reviewed by:

/
Review Team Leader Date

/
Review Team Member Date

/
Review Team Member Date

/
Review Team Member Date

/
Review Team Member Date

Notes, comments, HED's, etc: _____

ABBREVIATION AND ACRONYM SURVEY (AAS)

The purpose of this survey is to compile a list of abbreviations and acronyms commonly used in the control room. Violations of these conventions need not be determined at this time. Abbreviations used on annunciator windows and labels for words such as pump, steam, isolation, etc., should be recorded. Acronyms for system names found on annunciator windows, labels, and component identifications (such as LPI-311) should be recorded separately.

Using a sketch, also record symbols to make sure they are being used consistently.

ABBREVIATION AND ACRONYM SURVEY

SKETCH OF SYMBOL	WORD/EXPRESSION REPRESENTED

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW
CHECKLISTS AND SURVEYS

Checklist/Survey: OPERATOR-ASSISTED CHECKLIST(OAC) / 0
Title Revision

Reviewed and approved by:

E J Kozinski / 10/15/84
Review Team Leader Date

J L Hooper / 10/15/84
Review Team Member Date

Paulon Kochay / 10/15/84
Review Team Member Date

John Hook / 10-15-84
Review Team Member Date

Ruby L Johnson / 10-15-84
Review Team Member Date

Performed by:

/
Review Team Member Date

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Review Team Member Date

Results reviewed by:

/
Review Team Leader Date

/
Review Team Member Date

/
Review Team Member Date

/
Review Team Member Date

/
Review Team Member Date

Notes, comments, HED's, etc:

OPERATOR-ASSISTED CHECKLIST (OAC)

Information concerning some topics addressed in the control room review are most readily obtained with operator assistance. Such topics include inventorying available procedures, storage areas, spare parts, protective and emergency equipment, and some aspects of operator training. Operator assistance should be obtained for answering the following items.

I. ADMINISTRATIVE PROCEDURES AND PRACTICES

List procedure numbers for the following procedures controlling both temporary and permanent changes (such as labeling) to control board:

OAC-1 method of label application _____

OAC-2 language (acronyms and abbreviations) _____

OAC-3 typestyle or font _____

OAC-4 color _____

OAC-5 periodic review _____

OAC-6 incorporation in procedures if made permanent _____

List procedure numbers for the following:

OAC-7 Procedure for out-of-service annunciator tiles

OAC-8 Procedure for identifying annunciator tiles lit for an extended period during normal operations

OAC-9 Procedure controlling loudness adjustment for annunciator system (if adjustable)

OAC-10 Procedure(s) controlling annunciator window and legend light/switch removal to ensure replacement in correct location (N/A if hinged or keyed)

OAC-11 Procedures for control room emergencies involving fire or contamination

OAC-12 Instructions for use of personnel protective equipment

OAC-13 Procedure controlling the use of equipment shared between two or more units (N/A for single unit)

OAC-14 Procedure calling for the periodic cleaning of labels, panels, and instrument faces

OAC-15 Procedure that ensures infrequently activated auditory alarms are tested periodically

OAC-16 Operators have authority to limit access to the control room

II. RELEVANT DOCUMENTS

List procedure numbers and frequency of periodic inspection/checks for each of the following:

OAC-17 Annunciator test

OAC-18 Control room fire-fighting equipment

OAC-19 Portable radiation monitoring equipment

OAC-20 Control room personnel protective equipment

OAC-21 Control room communication equipment

OAC-22 Periodic chart marking (once/shift and speed change)

III. STORAGE/SPARE PARTS

The following are true for storage of spare parts:

OAC-23 Expendables and spare parts are readily accessible and include items such as fuses, bulbs, ink, inking pens,

		TRUE	FALSE
	recorder charts, printer paper, batteries (i.e., if walkie-talkies used), special tools (as needed to install parts), and items for emergency equipment, such as filters.	☐	☐
OAC-24	Spare parts are identified clearly and distinctively, and an inventory system maintains an adequate supply of spare parts described in OAC-23.	☐	☐
OAC-25	Sufficient storage space exists for expendables and spare parts.	☐	☐
OAC-26	A well-marked, accessible place should be provided for headset storage.	☐	☐
	A. Protective Equipment		
	The following should exist for protective equipment:		
OAC-27	Accessible storage in or near the control room.	☐	☐
OAC-28	A supply adequate to outfit the shift crew, including breathing apparatus.	☐	☐
OAC-29	Face masks have speech diaphragm or microphone.	☐	☐
	B. Emergency Equipment		
	Accessible storage in or near the control room is available for the following:		
OAC-30	Fire-fighting equipment	☐	☐
OAC-31	Portable radiation monitoring equipment	☐	☐
	IV. ORGANIZATION OF PROCEDURES		
OAC-32	Operating procedures and reference documents are readily accessible, stored separately for each unit, and are separate from other documents.	☐	☐

		TRUE	FALSE
OAC-33	Documents are protected from wear so they do not become dog-eared, dirty, loose, torn, or difficult to read.	☐	☐
OAC-34	Annunciator response procedures are indexed by panel identification and window position.	☐	☐
OAC-35	Documents are not fixed in racks and are bound so they can be opened fully and remain opened at the desired place without holding.	☐	☐
OAC-36	Clearly visible title labels identify specific documents.	☐	☐
V.	TRAINING		
OAC-37	Instructions for use of personnel protective equipment are available, and operators have received training and are practiced in their use.	☐	☐
OAC-38	Training is given on the use of each communication system, including familiarity with suggested alternatives if a system becomes inoperable.	☐	☐
OAC-39	Procedures are established for handling communications during an emergency, and these procedures must be known by all operators.	☐	☐
OAC-40	Operators are trained in the use of emergency equipment.	☐	☐

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW
CHECKLISTS AND SURVEYS

Checklist/Survey: LIGHTING SURVEY / 0
Title Revision

Reviewed and approved by:

E J Kopinsky / 10/15/84
Review Team Leader Date

J. F. Hooper / 10/15/84
Review Team Member Date

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Review Team Member Date

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Review Team Member Date

Results reviewed by:

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Review Team Leader Date

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Review Team Member Date

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Review Team Member Date

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Review Team Member Date

/
Review Team Member Date

Notes, comments, HED's, etc: _____

LIGHTING SURVEY (LS)

This survey consists of a series of luminance and illuminance readings taken with a light meter/spot photometer. The control room layout should be sketched labeling all panel sections, operators' desks, alarm printer, and other work stations. Two vertical and two horizontal illuminance readings should be taken for each labeled section of benchboard. Two luminance readings, taken in the plane normally viewed, should be recorded for other operating stations. This process should be repeated under emergency lighting conditions, taking single measurements. There should be no apparent change in the discriminability of colors under emergency lighting conditions. (See also "Control Room Computer Survey," CRCS-7, for additional measurement requirements.)

Evaluation

There is some latitude in assessing the adequacy of illumination. NUREG-0700, 6.1.5.3a, specifies Illuminating Engineering Society (IES) criteria for recommended illumination levels. The IES criteria for a power plant control room specified below are more appropriate. The recommended illumination level for a power plant control room, 50 footcandles, allows reading printed material, meter reading, and ordinary seeing tasks (IES, MIL-STD-1472C). Whichever criteria are chosen, they should be used consistently in assessing survey results.

Illuminating Engineering Society (IES) Criteria
For Power Plant Control Room (Footcandles)

	Emergency	Minimum	Recommended
Panels	20	20	50
Desks	20	50	75
Printer	20	50	75

Note: It is assumed that only typed or printed material will need to be read under emergency lighting and that annotation may be used on alarm copy. If little writing is done at desks, lowering these minimum levels may be justified.

Assessment

LS-1 Note on sketch any illumination readings falling outside specified range (normal and emergency lighting).

Initial / Date

LS-2 Note on sketch all instances in which any of the following are true:

(a) paired readings exceed a ratio of 3:1

Initial / Date

(b) horizontal and vertical readings from a benchboard section exceed a ratio of 3:1

Initial / Date

(c) adjacent panel sections exceed a ratio of 3:1 (NORMAL LIGHTING)

Initial / Date

LS-3 Compare highest and lowest illuminations recorded. Note if a ratio of 10:1 has been exceeded (NORMAL LIGHTING).

Initial / Date

LS-4 Compute luminance ratios for indicator, legend, and annunciator lights measured.

Note any contrast of less than 10 percent. If contrasts are found to be inadequate, take additional readings of the dimmest of the remaining luminaires. Repeat until all luminaires with inadequate contrast have been identified.

Initial / Date

LS-5 Are colors used in coding recognizable under both normal and emergency lighting conditions?

Initial / Date

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW
CHECKLISTS AND SURVEYS

Checklist/Survey: NOISE SURVEY / 0
Title Revision

Reviewed and approved by:

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Review Team Member Date

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Review Team Member Date

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Review Team Member Date

Notes, comments, HED's, etc: _____

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW

REVISION: 0
DATE: 10/15/84
PAGE 1 OF 1

NOISE SURVEY (NS)

The noise survey covers items that could interfere with verbal communication or reception of auditory alarms.

NS-1 Take sound pressure level (SPL) readings at desks, each panel, and other control room operating stations. Note readings higher than 65 db(A).

_____ / _____
Initial Date

NS-2 Take readings of annunciator alarms at locations used in NS-1. Note if alarm is not 10 db(A) above ambient at any location.

_____ / _____
Initial Date

NS-3 Take readings adjacent to ventilation duct(s), printer(s), and door(s). Note if readings are 6 db(A) above average ambient level.

_____ / _____
Initial Date

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW
CHECKLISTS AND SURVEYS

Checklist/Survey: COMMUNICATION SURVEY (CS) / 0
Title Revision

Reviewed and approved by:

E J Kozinski / 10/15/84
Review Team Leader Date

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Ruby R. Johnson / 10-15-84
Review Team Member Date

Performed by:

_____ / _____
Review Team Member Date

_____ / _____
Review Team Member Date

Results reviewed by:

_____ / _____
Review Team Leader Date

_____ / _____
Review Team Member Date

_____ / _____
Review Team Member Date

_____ / _____
Review Team Member Date

_____ / _____
Review Team Member Date

Notes, comments, HED's, etc: _____

COMMUNICATION SURVEY (CS)

The intent of many of the criteria contained in Section 6.2.1 of NUREG-0700 is to ensure the intelligibility of speech over the plant communications systems. The Articulation Index (US ANSI, S3.5) commonly is used to estimate speech intelligibility from such measurements. Direct intelligibility measurement, however, is preferable.

TESTING: A phonetically balanced (PB) word list may be used for this purpose. All devices used for communication between the control room and plant should be tested. Select a "speaker" with a reasonably good speaking voice (if you have trouble understanding the person during normal conversation, then the test of communication devices will not be valid). The test list should be read slowly, without repetition. The "listener," who should have normal hearing, will write the words. The words then can be read back to the "reader" for checking (and for an additional rough check of the communications device). Use one list per communication device tested. Do not repeat lists with the same listener. You will want to test some devices, alternating the roles of "speaker" and "listener," so communication is tested in both directions. A number of plant areas covered by each device should be sampled. Locations with the highest noise levels, as well as less noisy locations, if less well equipped (such as absence of "hear-here" booths), should be tested. SPL readings should be taken at each location, and PB word lists communicated in each direction. If paging or alerting signals are employed, SPL readings should be taken for these signals to determine signal-to-noise ratio. Separate assessments using the PB word list should be run both with operators wearing face masks and for unimpeded voice communication among operators in the control room.

ASSESSMENT: Eighteen to 20 words correctly received correspond to an evaluation of the communication link as very good to excellent (Baranek, 1947). Three or more errors indicate potential problems. Note if alarm is not 10 db(A) above ambient noise at any location.

		TRUE	FALSE
	Checklist To Be Used With Communications Survey		
CS-1	Handsets/cords should be examined to ensure the following:		
	(a) Handsets are easily held, with ear contact being maintained while speaking.	☐	☐
	(b) Cords are of sufficient length to permit operator mobility.	☐	☐
	(c) Cords are nonkinking or self-retracting.	☐	☐
CS-2	Sound-powered telephone system headsets are comfortable and held firmly in place.	☐	☐
CS-3	If used, walkie-talkies or portable communication devices are light, easy to carry, and allow manipulation of plant controls, when required.	☐	☐
CS-4	If gain adjustment can be made with an accessible control, it cannot be set so low that the device cannot be heard.	☐	☐
CS-5	To preclude wrong instrument system connections, jacks for the system being examined differ from those used for other communication systems in the control room; otherwise, another means is employed to make plugging into the wrong circuit obvious.	☐	☐
CS-6	Patch panels are conspicuously marked, accessible, and provided with a complete set of cords (N/A if not sound-powered phone).	☐	☐
CS-7	Switching for conventional-powered phones is maintained during emergency conditions.	☐	☐

COMMUNICATION SURVEY

SPEAKER'S DATA SHEET

WORD LIST:

(1)	_____	(11)	_____
(2)	_____	(12)	_____
(3)	_____	(13)	_____
(4)	_____	(14)	_____
(5)	_____	(15)	_____
(6)	_____	(16)	_____
(7)	_____	(17)	_____
(8)	_____	(18)	_____
(9)	_____	(19)	_____
(10)	_____	(20)	_____

WORD LIST APPROVED BY: _____ / _____
REVIEW TEAM LEADER DATE

COMMUNICATION DEVICE TESTED: _____

PLANT LOCATION: _____

BACKGROUND SOUND PRESSURE LEVEL (SPL) READING: _____

OTHER CONDITIONS (respirators worn, signal to noise ratio for paging signals, etc.): _____

_____

_____

COMMENTS: _____

_____

_____

_____

SPEAKER: _____ / _____
Signature Date

COMMUNICATION SURVEY

LISTENER'S DATA SHEET

WORD LIST:

(1)	_____	(11)	_____
(2)	_____	(12)	_____
(3)	_____	(13)	_____
(4)	_____	(14)	_____
(5)	_____	(15)	_____
(6)	_____	(16)	_____
(7)	_____	(17)	_____
(8)	_____	(18)	_____
(9)	_____	(19)	_____
(10)	_____	(20)	_____

COMMUNICATION DEVICE TESTED: _____

PLANT LOCATION: _____

BACKGROUND SOUND PRESSURE LEVEL READING: _____

OTHER CONDITIONS (respirators worn, signal to noise ratio, etc.):

_____

_____

_____

COMMENTS: _____

_____

_____

_____

LISTENER: _____ / _____
Signature Date

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW
CHECKLISTS AND SURVEYS

Checklist/Survey: CONTROL ROOM COMPUTER CHECKLIST (CRCC) / 0
Title Revision

Reviewed and approved by:

[signature] / 10/15/84
Review Team Leader Date

[signature] / 10/15/84
Review Team Member Date

[signature] / 10/15/84
Review Team Member Date

[signature] / 10-15-84
Review Team Member Date

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Review Team Member Date

Performed by:

[signature] / 5-9-85
Review Team Member Date

/
Review Team Member Date

Results reviewed by:

/
Review Team Leader Date

/
Review Team Member Date

/
Review Team Member Date

/
Review Team Member Date

/
Review Team Member Date

Notes, comments, HED's, etc: ITEMS MARKED AS "N/A" DO NOT APPLY TO THE HARDWARE CONFIGURATION OF THE ERF COMPUTER.

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW

REVISION:	0
DATE:	10/15/84
PAGE	1 OF 7

CONTROL ROOM COMPUTER CHECKLIST (CRCC)

☐ PROTEUS ☒ ERF ☐ ATSI

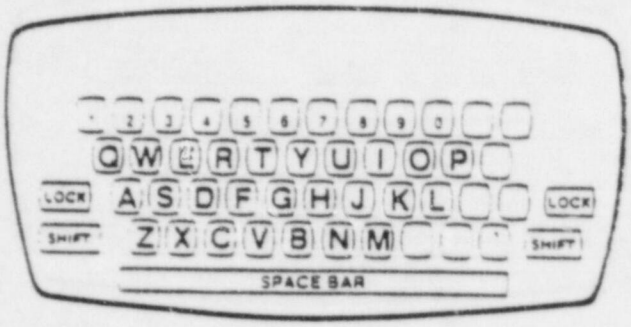
☐ PERMS ☐ PSMS

Computers used in the control room may vary widely in the functions they perform. Relatively simple systems use keyboards for input and printers and/or CRTs for output. These systems are used for recordkeeping, sequertially displaying annunciators and other alarms, and will display or trend parameter values upon request. More complex systems may use additional input devices, such as joysticks, and may integrate a range of parameter values to aid diagnosis of plant problems. Most of the items in this checklist are relevant to all computers used by the operator. Items relevant only to the more complex systems have an asterisk beside them.

Since answering most of the checklist items requires demonstration of the computer system(s), operator assistance should be obtained.

		TRUE	FALSE
CRCC-1	The system has protection provisions to ensure that only authorized personnel can make changes in setpoints, constants, or system software.	☐	☒
CRCC-2	A record of changes to setpoints, constants, and software affecting the operator is provided.	☐	☒
CRCC-3	Operating mode is displayed on CRT or printer if operation is not dedicated (e.g., alarm printer).	☐	☒
CRCC-4	Alphanumeric keyboards have QWERTY arrangement; number pads have telephone or calculator arrangement (see Figure 1).	☐	☒
CRCC-5	Keyboards contain only those keys used by operators.	☒	☐
CRCC-6	Abbreviations are used in place of long strings of alphanumerics to minimize operator input requirements.	☒	☐

QWERTY Keyboard Arrangement



Numeric Keyboard Arrangement

Telephone style

Calculator style

Figure 1. (Illustrating Item CRCC-4)
Numeric and Alphanumeric Keyboard Arrangements

		TRUE	FALSE
CRCC-7	Alphanumeric codes used to call up displays do not exceed seven characters, unless acronyms are employed.	X	
CRCC-8	If function keys are used, they have the following characteristics:		
	a. grouped together	X	
	b. labeled	X	
	c. laid out identically at all locations	X	
CRCC-9	Key size, resistance, and displacement allow easy keying in of commands, while minimizing inadvertent activation of keys and providing positive key movement feedback.		X
CRCC-10	When a menu item or an option is selected, it is highlighted or otherwise acknowledged by the system.		X
CRCC-11	Computer controls are operable from locations where the operator needs to interact with the computer.	X	
CRCC-12	If CRTs can be operated by a centrally located master control, a positive indication is provided at both locations to identify when the local display is under master control.	N/A	
*CRCC-13	Computer controls provide both rapid and accurate positioning of cursors or selection of choices.		X
*CRCC-14	Operators have a specific command to terminate functions or actions that are no longer needed.	X	
CRCC-15	Response time for any query is not appreciably greater than three seconds (preferred), or a delay message is presented to maintain the operator's attention.	X	
CRCC-16	Operators are able to correct individual errors easily without having to retype the entire query or entry.	X	

		TRUE	FALSE	
CRCC-17	There is a procedure(s) in the control room with instructions suitable for the control room operator to operate the computer.	☐	☒	
CRCC-18	A listing of computer points, cross-indexed by alpha-numeric code, system/subsystem, and functional group, is provided in the control room.	☐	☒	
CRCC-19	Lists and data presented in tabular form are left-hand justified and aligned vertically; numeric data are right-hand justified.	☒	☐	
CRCC-20	Data are separated into groups for long columns.	☒	☐	
*CRCC-21	Data subgroups are demarcated by spaces, lines, etc.	☒	☐	
*CRCC-22	Lists of options (such as in a menu) have high probability items presented first.	☐	☒	
*CRCC-23	Each page of multiple-paged data has both page number and total number of pages.	☐	☒	
CRCC-24	Trend plot scales are consistent with intended functional use of data.	☒	☐	
CRCC-25	Graphs and charts are concise and easily read.	☒	☐	
CRCC-26	If the following information is presented, standardized fields are used:			
	a. telephone (area code) XXX-XXXX	☐	☐	N/A
	b. time HH:MM:AA, HH:MM, MM:SS, .S	☒	☐	
	c. date MM/DD/YY	☒	☐	
CRCC-27	The operator has an unobstructed view of the CRT screen from the normal work station.	☒	☐	

		TRUE	FALSE
CRCC-28	The operator has some capability for controlling the amount, format, and complexity of information displayed (e.g., core dumps, program outputs, error messages).	X	
CRCC-29	If CRT luminance (brightness), contrast, and color are adjustable, then a color standard for comparison is provided.		N/A
CRCC-30	Alphanumeric characters are not less than 0.17" in height, where a maximum viewing distance of 48" is assumed.	X	
CRCC-31	CRT alphanumerics are of a consistent style. Letters are all uppercase, simple, without prominent serifs or slants; have separations among letters, words, and lines approximating samples; and have styles falling somewhere among these samples.		X
CRCC-32	Data groups or messages have descriptive titles that reflect their content.	X	
CRCC-33	CRT screen labels are oriented horizontally and are consistently located with respect to items they describe.	X	
CRCC-34	Highlighting methods (brightness, flashing, etc.) are used in a consistent fashion to attract operator attention to important or action items.	X	
CRCC-35	Data relevant to an operator entry are displayed on a single page, when possible.	X	

NOT THINNER THAN THIS	NOT THICKER THAN THIS
(Stroke width to character height = 1:10 letter width to height = 3:5)	(Stroke width to character height = 1:5 letter width to height = 1:1)

Char. Width = 4/32"
Char. Height = 32/32"
Stroke Width = 1/32"

Stroke W./Char. H. 1/8

Char. W./Char. H. 1/2

		TRUE	FALSE
CRCC-36	Flashing of a symbol or message is reserved for items requiring prompt operator action, such as emergency conditions.	☒	☐
CRCC-37	If pages are hierarchically organized allowing different paths through the series, an audit trail of choices is available upon operator request.	☐	☐ N/A
CRCC-38	When scrolling or panning a large frame or list, the location is shown; sectional coordinates are used when large schematics are panned or magnified.	☐	☐ N/A
CRCC-39	Invalid entries result in error messages that indicate required corrective action.	☒	☐
CRCC-40	System provides messages on change in status, including system malfunction, (e.g., "STATUS LOG UNAVAILABLE").	☐	☒
CRCC-41	Printer(s) with capabilities to record alarms and status data and printer or strip recorder(s) to record trend data are in the primary operating area.	☐	☐ N/A
CRCC-42	Alarm messages are printed along with event times in the order of their occurrence.	☐	☐ N/A
CRCC-43	If an alarm corresponds to an annunciator tile, the message uses the wording of the annunciator tile and specifies the setpoint(s) violated.	☐	☐ N/A
CRCC-44	Alarm messages are readily distinguishable from other messages.	☐	☐ N/A
CRCC-45	Printouts are legible.	☐	☐ N/A
CRCC-46	Printouts can be read and annotated as they are printed.	☐	☐ N/A

		TRUE	FALSE	
CRCC-47	Instructions for reloading paper, ribbon, etc., are posted on the printer.	☐	☐	N/A
CRCC-48	If it is possible to print hard copy of a CRT page, it is done without altering the screen content.	☒	☐	
CRCC-49	Printers recording trend data, computer alarms, and critical status information have a high-speed printing capability.	☐	☐	N/A
CRCC-50	The collection device for the printer has a capacity adequate for the fastest printing speed.	☐	☐	N/A

HUMAN ENGINEERING DISCREPANCY FORM INSTRUCTIONS

HED NUMBER: To avoid confusion with previous reviews, numbers will be assigned consecutively beginning with 1001.

ITEMS(S) INVOLVED: Describe the item(s) which are judged to be out of acceptance limits. Include tag numbers for controls and indications, as well as name.

i.e., SGFPT manual controller (SC3151)

ORIGIN: List the guideline source document or survey and number which is violated.

i.e., Annunciator survey (ANS-2) INPO 83-036 (NUTAC) 3.4.1.1

HED DESCRIPTION: Give clear concise details of the problem.

i.e., Air compressors are labeled from top to bottom D,C,B,A

ORIGINATOR: Signature of the person describing this HED and the date of this report.

CATEGORY: Assigned by the CRDR team. This denotes the relative severity of the discrepancy and prioritizes the HED for resolution.

i.e., Category 1 - (Safety Significant) - HEDs that have caused errors in or are judged likely to affect adversely the management of emergency conditions by control room operators.

Category 2 - HEDs that are known to have caused problems during normal operation.

Category 3 - HEDs that can be "Fixed" with simple and inexpensive enhancements, so-called "paint, tape, and label" (PTL) fixes. This may seem to be an implementation rather than an assessment category. However, there probably will be HEDs that the review team feels are very easy to fix but difficult to assess as to effect on emergency operation. This category is for such HEDs.

Category 4 - HEDS that do not fit into categories 1 through 3. These HEDs are judged by the review team as unlikely to affect emergency operations, not documented as causing problems during normal operation, and not simple or cheap to fix.

Category 4a - Such a minor deviation from standards it is not expected to cause a problem.

PROPOSED RESOLUTION: Describe the resolution agreed upon by the CRDR Team.

i.e., Revise the meter scales to 0-100°F.

CRDR TEAM APPROVAL: Signature of one of the team members signifying CRDR team approves of the proposed resolution and the signature date.

REA NUMBER: The number assigned by document control to the Request for Engineering Assistance form (SUM-19) when assistance is requested in resolving an HED.

i.e., 1-84-XXXX

WORK ORDER NUMBER: The number assigned to the work order to accomplish the proposed resolution.

PAGES ATTACHED: Denotes the number of amplifying pages attached to the HED form. Each attached page or package should contain the HED number and page numbers.

i.e., HED Continuation Sheets
Sketches
Photographs

HED LOG - Each HED written will be entered in the HED Log. Each entry will consist of the assigned HED number, a brief description of the HED, the entry date, and the initials of the person making the entry.

HUMAN ENGINEERING DISCREPANCY FORM INSTRUCTIONS

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Sketches
Photographs

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VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW
CHECKLISTS AND SURVEYS

Checklist/Survey: OVERVIEW CHECKLIST (OC) / 0
Title Revision

Reviewed and approved by:

[signature]	/ 10/15/84	
Review Team Leader	Date	
[signature]	/ 10/15/84	
Review Team Member	Date	
[signature]	/ 10/15/84	
Review Team Member	Date	
[signature]	/ 10-15-84	
Review Team Member	Date	
[signature]	/ 10-15-84	
Review Team Member	Date	

Performed by:

[signature]	/ FEB 27, 85	
Review Team Member	Date	
	/	
Review Team Member	Date	

Results reviewed by:

	/	
Review Team Leader	Date	
[signature]	/ 6-3-85	
Review Team Member	Date	
[signature]	/ 6-6-85	
Review Team Member	Date	
[signature]	/ 6-10-85	
Review Team Member	Date	
[signature]	/ 6-18-85	
Review Team Member	Date	

Notes, comments, HED's, etc: HED 1054, 1063, 1087, 1089, 1090

COMMENT SHEET ATTACHED.

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW

REVISION:	0
DATE:	10/15/84
PAGE	1 OF 3

OVERVIEW CHECKLIST (OC)

This checklist contains easily observed items related to control room design.

		TRUE	FALSE
OC-1	If a control room is mirror-imaged, operational personnel are committed to a particular unit or the distinction between units should be heightened through demarcation, shading, etc.	N.A. ☐	☐
OC-2	Sanitary facilities and drinking water are accessible easily.	☒	☐
OC-3	Public address speaker coverage is provided in the control room, restrooms, locker room, kitchen, and other areas where control room personnel might be located.	DEFER ☐	☐
OC-4	The shift supervisor's (SS) office is near the control room, or a dedicated communications link is provided if SS location interferes with voice contact.	☒	☐
OC-5	The visual and physical path from the operator's desk to the control board is unobstructed. Possible obstructions include the following:		
	o tripping hazards	☒	☐
	o poorly positioned filing cabinets and storage racks HED 1087	☐	☒
	o maintenance equipment	☒	☐
OC-6	Labels are positioned consistently either above (preferred to avoid visual obstruction when operating control) or below devices they describe and are readily associated with corresponding controls and displays.	☒	☐
OC-7	No uncovered openings are in panels. SEE NOTE. HED-1089	☒	☐
OC-8	Coding by sound intensity is not employed.	☒	☐

		TRUE	FALSE
OC-9	Control board tags to identify out-of-service equipment are affixed securely to the associated component and do not obscure labels or adjacent components.	☐	☒
OC-10	An automatic system warns operators of control room fires. ANY FIRE – FIRE ALARM COMPUTER	☒	☐
OC-11	Indirect or diffuse lighting is employed.	☒	☐
OC-12	Sufficient storage space exists for the crew's personal belongings.	DEFER ☐	☐
OC-13	At locations with more than one telephone, (a) telephones that are ringing can be identified easily, and (b) dedicated telephones are identified distinctively and uniquely.	DEFER ☐	☐
OC-14	Annunciator windows are prioritized. HED-1063	☐	☒
OC-15	Annunciator window positions are labeled to facilitate access to procedures. HED-1054	☐	☒
OC-16	Annunciator controls are set off from other controls through some form of coding (describe). UNIQUE STYLE NOT USED FOR OTHER EQUIPMENT.	☒	☐
OC-17	Annunciator controls are arranged consistently (for example, functions should be in the same order).	☒	☐
OC-18	Annunicator controls are "nondefeatable" (for example, not encircled by a ring in which a coin might be inserted to defeat the control).	☒	☐
OC-19	Cords are positioned in a way that avoids entangling critical controls or endangering passing traffic.	DEFER ☐	☐

		TRUE	FALSE
OC-20	Speaker volume is adjusted to ensure that speaker communications will not prevent detection of annunciator, telephone, or other audible signals.	DEFER ☐	☐
OC-21	Labels are sturdy and mounted securely.	☒	☐
OC-22	Labels have dark characters on a light background. HED-1090	☐	☒
OC-23	Plant communications systems are redundant (not subject to common cause failures) e.g., public address and walkie-talkies or convertional and sound-powered telephones.	☒	☐

OVERVIEW CHECKLIST (OC) FINDINGS

OC-5 Planned circular bookcase obstructs Plant Operators view of SPDS terminal.

Proteus terminal and modular cover obstructs Turbine Operators view of turbine and switchyard panels. (HED-1087)

OC-7 Although no holes exist, disconnected Boron Injection Tank handswitches to be left installed pose a similar problem of distraction and board clutter. Located in the CVCS section which is also poorly arranged (HED-1088), these dead switches have a high potential for interfering with CVCS operation in execution of the Emergency Operating Procedures. (HED-1089)

OC-12 Deferred, Action Item Assigned

OC-13 Deferred, Action Item Assigned

OC-14 Annunciator windows not prioritized. Planned action HED-1063.

OC-15 Annunciator windows not indexed. Planned action HED-1054.

OC-19 Defer, Action Item Assigned

OC-20 Defer, Action Item Assigned

OC-22 Labels are white on dark vice dark on white. (HED-1090)

MCB + QEAB

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW
CHECKLISTS AND SURVEYS

Checklist/Survey: GENERAL PANEL CHECKLIST (G) / 0
Title Revision

Reviewed and approved by:

E J Kozinski / 10/15/84
Review Team Leader Date

G L Hooper / 10/15/84
Review Team Member Date

Louis M Kelley / 10-15-84
Review Team Member Date

[signature] / 10-15-84
Review Team Member Date

Riley R. Johnson / 10-15-84
Review Team Member Date

Performed by:

[signature] 3/1/85
Review Team Member Date

/
Review Team Member Date

Results reviewed by:

/
Review Team Leader Date

Riley R. Johnson 16-3-85
Review Team Member Date

[signature] 16-6-85
Review Team Member Date

Louis M Kelley 16-18-85
Review Team Member Date

G L Hooper 16-19-85
Review Team Member Date

Notes, comments, HED's, etc: HED 1091 – 1113, 1180

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW

REVISION:	0
DATE:	10/15/84
PAGE	1 OF 8

TRUE FALSE

GENERAL PANEL CHECKLIST (G)

This checklist contains easily observed items related to control room panel design.

G-1 Controls and displays (indicating lights, meters, recorders, indicators, annunciators) generally are grouped by system and function, with identical layout for repetitive groups. ☒ ☐

G-2 Components of similar function are consistently ordered, preferably from left to right or top to bottom. ☐ ☒

Correct:	Incorrect:
A - B - C	B - C - A
1	2
2	3
3	1

G-3 Roman numerals are not used. ☐ ☒

G-4 Labels in close proximity cannot be confused easily due to use of highly similar words, abbreviations, or acronyms (e.g., Effluent/Influent). ☒ ☐

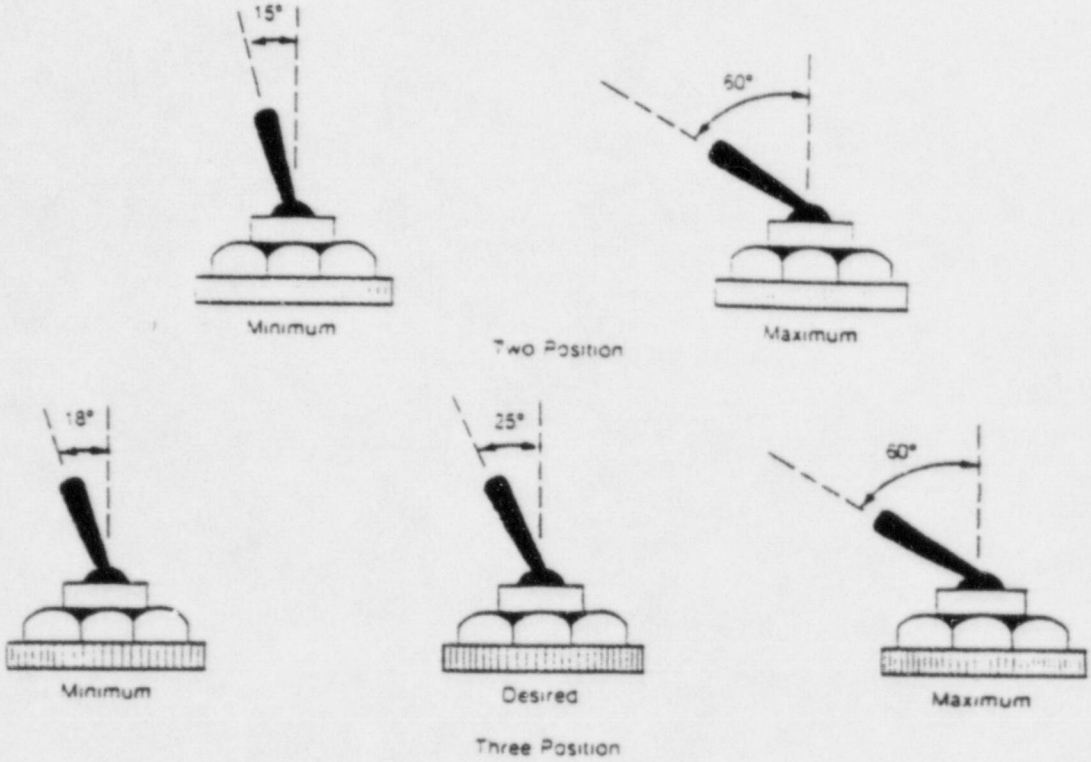
G-5 Panel access openings used by control room operators are labeled to identify by function the items accessible through them. ☐ ☐ N/A

G-6 Labels, legend plates, and escutcheons are used to identify each component's function. ☐ ☒

		TRUE	FALSE
G-7	Labels are worded succinctly and accurately with respect to function or input signal.	☐	☒
G-8	Labels are oriented horizontally to read from left to right.	☐	☒
G-9	Adjacent labels are separated sufficiently so they are not read as one continuous label.	☒	☐
G-10	Displays, indicator lights, and labels are free from visual obstruction by hand or arm when the switch is operated or from obstruction by other controls and displays.	-	☒
G-11	Each control position is marked clearly, as is direction for increase.	☒	☐
G-12	When meaning is not obvious, light indicators and other displays are labeled clearly.	☐	☒
G-13	Control surfaces promote ease of use. Knurls or serrations are used for knobs, rocker, and slide switches and indentations for pushbuttons.	☒	☐
G-14	Rocker and toggle switches are oriented consistently either vertically or horizontally.	☐	☒
G-15	Toggle switch and rocker switch displacements are between those shown in Figure 1.	☒	☐
G-16	Handles or knobs are shaped or marked clearly to indicate position, without obstruction of legends or confusion of direction.	☒	☐
G-17	Glare does not interfere with reading meters when they are viewed from operator's station at control panel.	☐	☐ Defer

Toggle Switches

(angles represent displacement from vertical)



Rocker Switches

(angles represent displacement from horizontal)

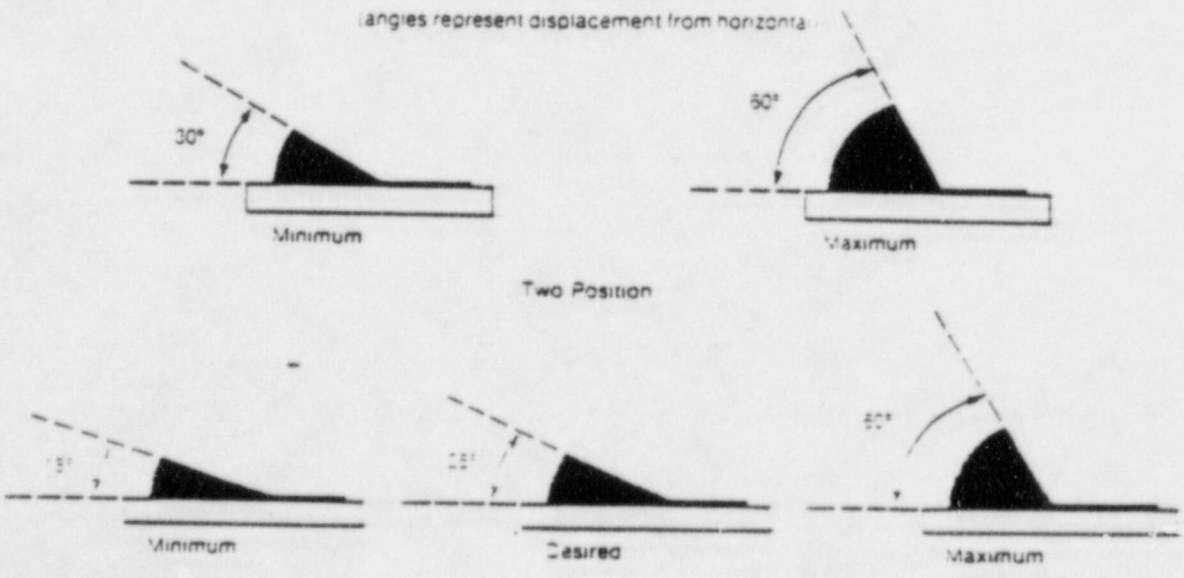


Figure 1. (Illustrating Item G-15) Switch Displacements

		TRUE	FALSE
	Meters		
	General		
G-18	Parallax does not interfere with reading meters when they are viewed from the operator's station at the control panel.	☐	☒
G-19	Moving scale indicators are not used.	☒	☐
G-20	In groups of similar displays, meters are aligned to promote visual comparison and provided with identical scales to facilitate comparative reading.	☐	☒
G-21	Meter scales are in commonly used engineering units and are in the same units as the associated controller if one exists.	☐	☒
G-22	Scales have black markings on a white background.	☐	☒
	Conformation		
G-23	Circular scales are symmetrical about their vertical axis, with the break centered at the 6 o'clock position, unless they are multi-revolution type.	☒	☐
G-24	If circular meters have multi-revolution or both positive and negative values, zero is located in the 12 o'clock position.	☒	☐
G-25	Meters are designed so the pointers do not obscure graduation marks, numerals, or process units.	☐	☒
G-26	No more than 1/16" separation exists between pointer tip and scale.	☐	☒

		TRUE	FALSE
G-27	Sufficient visual contrast exists among scale graduations, process units, numerals, background, and pointer.	☒	☐
G-28	Meter scales contain a maximum of nine intermediate graduations between numbered markings. Intermediate and minor graduations are shown if there are five or more graduations between numerals.	☐	☒
G-29	Meters are scaled with subdivisions in decimal multiples of 1, 2, or 5.	☐	☒
G-30	Scales are marked with numerals oriented in an upright position.	☒	☐
Operation			
G-31	Control/display operation conforms to control room design conventions (see Design Convention Survey).	☐	☐ DEFER
G-32	Scales are marked to show normal and abnormal, safe and unsafe, or expected and unexpected ranges of operation, where applicable (pressures, flows, levels, etc.)	☐	☒
G-33	Meters have not been rescaled using temporary means (e.g., embossed tape).	☒	☐
G-34	Multirange meters are marked or color-coded to differentiate among range scales.	☒	☐
Indicator Lights Not Included in Design Convention Survey			
G-35	Sets of lights are in alignment to facilitate comparison between related system elements.	☒	☐

		TRUE	FALSE
G-36	Color of indicator lights is clearly identifiable.	☒	☐
	Legend Lights/Switches		
G-37	Legends for legend lights and legend pushbuttons have engraved dark lettering on a light backing, are readable under ambient lighting, and contain no more than three lines.	☒	☐
G-38	To prevent accidental activation, barriers are present when legend pushbuttons are contiguous.	☒	☐
G-39	Barriers have rounded edges to prevent injury.	☒	☐
G-40	Legend switches are easily discriminable from legend lights.	☐	☒
	Chart Recorders		
G-41	Printed chart recorder values are read easily.	☐	☐ Defer
G-42	Current data is readable through the window.	☒	☐
G-43	Printed value corresponds to scale value (i.e., proper chart paper is being used).	☐	☐ Defer
G-44	On multiple pen recorders, parameters are listed in the same order as their pens. Each pen prints with a different color ink.	—	— Defer
G-45	If the chart recorder has switchable channels, a procedure or standard operating practice exists for marking channels, and use of different channels does not cause confusion because of different scale requirements.	☐	☒

		TRUE	FALSE
G-46	Single-point select capability is available on multipoint recorders.	☐	☒
	Counters		
G-47	Mechanical counters use black numbers on a white background and have a matte or flat finish; electronic counters ("Nixie" tubes, light-emitting diodes, etc.) use alphanumerics that are easily read and have adequate character-to-background contrast.	☐	☒
G-48	To maximize viewing angle and minimize shadows, mechanical counters are mounted so the display is not recessed.	☐	☒
G-49	Mechanical counters and electronic counters are oriented so they can be read horizontally from left to right.	☒	☐
	Emergency Controls		
G-50	Switches for emergency or abnormal use (such as turbine trip, scram, emergency trip, etc.) are clearly marked.	☒	☐
G-51	Emergency controls and other important controls are protected from inadvertent operation.	☐	☒
G-52	Emergency controls are readily accessible.	☒	☐
G-53	The purpose of key switches is not defeated by having keys in their locks.	☐	☐ N/A
G-54	Key switches are "off" or "safe" in the vertical position. They are nearly horizontal when operated (judge by position labels).	☐	☐ N/A

		TRUE	FALSE
G-55	For display types listed in the engineering questionnaire as having indirect indication and any controls without associated indicator lights, readable backup displays are within view (example: a meter for pumps).	☐	☐ DEFER
G-56	Color use conforms to the attachment from color-coding survey.	☐	☐ DEFER
G-57	Abbreviation/acronym use conforms to the attachment from abbreviation/acronym survey.	☐	☐ DEFER

Q HVC

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW
CHECKLISTS AND SURVEYS

Checklist/Survey: GENERAL PANEL CHECKLIST (G) / 0
Title Revision

Reviewed and approved by:

E J Kozinski / 10/15/84
Review Team Leader Date

G L Hooper / 10/15/84
Review Team Member Date

Paul M Koshey / 10-15-84
Review Team Member Date

John Hopkins / 10-15-84
Review Team Member Date

Ricky R Johnson / 10-15-84
Review Team Member Date

Performed by: QHVC

Ricky R Johnson / 12-28-84
Review Team Member Date

/
Review Team Member Date

Results reviewed by:

/
Review Team Leader Date

Ricky R Johnson 16-3-85
Review Team Member Date

John Hopkins 16-6-85
Review Team Member Date

Paul M Koshey / 6-18-85
Review Team Member Date

G L Hooper / 6-19-85
Review Team Member Date

Notes, comments, HED's, etc: _____

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW

REVISION:	0
DATE:	10/15/84
PAGE	1 OF 8

TRUE FALSE

GENERAL PANEL CHECKLIST (G)

This checklist contains easily observed items related to control room panel design.

G-1 Controls and displays (indicating lights, meters, recorders, indicators, annunciators) generally are grouped by system and function, with identical layout for repetitive groups. ☑ ☐

G-2 Components of similar function are consistently ordered, preferably from left to right or top to bottom. ☑ ☐

Correct:	Incorrect:
A - B - C	B - C - A
1	2
2	3
3	1

G-3 Roman numerals are not used. ☑ ☐

G-4 Labels in close proximity cannot be confused easily due to use of highly similar words, abbreviations, or acronyms (e.g., Effluent/Influent). ☑ ☐

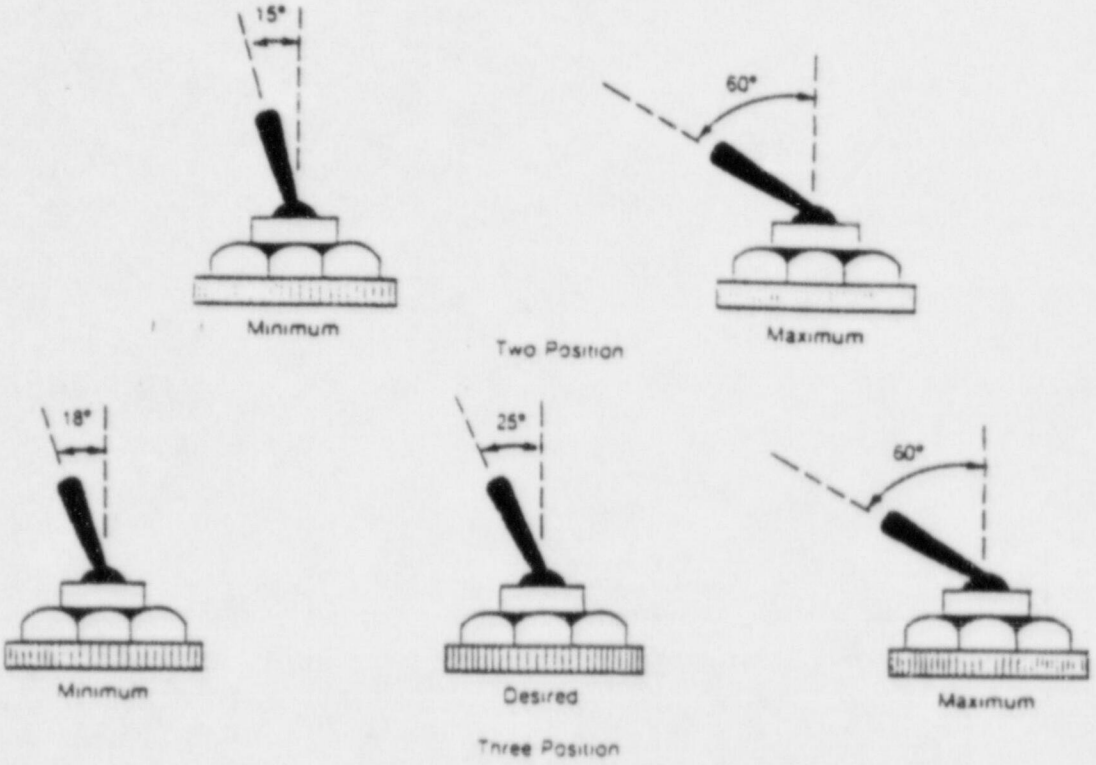
G-5 Panel access openings used by control room operators are labeled to identify by function the items accessible through them. NA ☐ ☐

G-6 Labels, legend plates, and escutcheons are used to identify each component's function. ☑ ☐

		TRUE	FALSE
G-7	Labels are worded succinctly and accurately with respect to function or input signal.	☐	☑
G-8	Labels are oriented horizontally to read from left to right.	☑	☐
G-9	Adjacent labels are separated sufficiently so they are not read as one continuous label.	☑	☐
G-10	Displays, indicator lights, and labels are free from visual obstruction by hand or arm when the switch is operated or from obstruction by other controls and displays.	☑	☐
G-11	Each control position is marked clearly, as is direction for increase.	☑	☐
G-12	When meaning is not obvious, light indicators and other displays are labeled clearly.	☑	☐
G-13	Control surfaces promote ease of use. Knurls or serrations are used for knobs, rocker, and slide switches and indentations for pushbuttons.	☑	☐
G-14	Rocker and toggle switches are oriented consistently either vertically or horizontally.	NA ☐	☐
G-15	Toggle switch and rocker switch displacements are between those shown in Figure 1.	NA ☐	☐
G-16	Handles or knobs are shaped or marked clearly to indicate position, without obstruction of legends or confusion of direction.	☑	☐
G-17	Glare does not interfere with reading meters when they are viewed from operator's station at control panel.	DEFER ☐	☐

Toggle Switches

(angles represent displacement from vertical)



Rocker Switches

(angles represent displacement from horizontal)

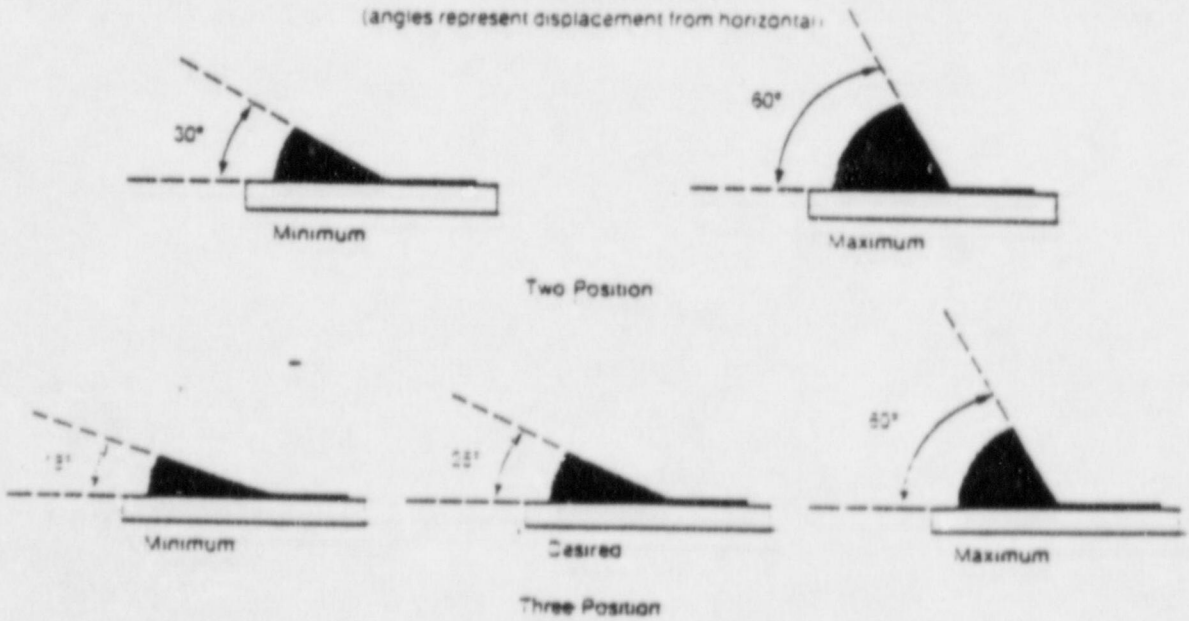


Figure 1. (Illustrating Item G-15) Switch Displacements

		TRUE	FALSE
	Meters		
	General		
G-18	Parallax does not interfere with reading meters when they are viewed from the operator's station at the control panel.	☑	☐
G-19	Moving scale indicators are not used.	☑	☐
G-20	In groups of similar displays, meters are aligned to promote visual comparison and provided with identical scales to facilitate comparative reading.	☑	☐
G-21	Meter scales are in commonly used engineering units and are in the same units as the associated controller if one exists.	☑	☐
G-22	Scales have black markings on a white background.	☑	☐
	Conformation		
G-23	Circular scales are symmetrical about their vertical axis, with the break centered at the 6 o'clock position, unless they are multi-revolution type.	NA ☐	☐
G-24	If circular meters have multi-revolution or both positive and negative values, zero is located in the 12 o'clock position.	NA ☐	☐
G-25	Meters are designed so the pointers do not obscure graduation marks, numerals, or process units.	NA ☐	☐
G-26	No more than 1/16" separation exists between pointer tip and scale.	NA ☐	☐

		TRUE	FALSE
G-27	Sufficient visual contrast exists among scale graduations, process units, numerals, background, and pointer.	☑	☐
G-28	Meter scales contain a maximum of nine intermediate graduations between numbered markings. Intermediate and minor graduations are shown if there are five or more graduations between numerals.	☑	☐
G-29	Meters are scaled with subdivisions in decimal multiples of 1, 2, or 5.	☑	☐
G-30	Scales are marked with numerals oriented in an upright position.	☑	☐
Operation			
G-31	Control/display operation conforms to control room design conventions (see Design Convention Survey).	☑	☐
G-32	Scales are marked to show normal and abnormal, safe and unsafe, or expected and unexpected ranges of operation, where applicable (pressures, flows, levels, etc.)	☑	☐
G-33	Meters have not been rescaled using temporary means (e.g., embossed tape).	☑	☐
G-34	Multirange meters are marked or color-coded to differentiate among range scales.	NA ☐	☐
Indicator Lights Not Included in Design Convention Survey			
G-35	Sets of lights are in alignment to facilitate comparison between related system elements.	☑	☐

		TRUE	FALSE
G-36	Color of indicator lights is clearly identifiable.	☑	☐

Legend Lights/Switches

G-37	Legends for legend lights and legend pushbuttons have engraved dark lettering on a light backing, are readable under ambient lighting, and contain no more than three lines.	☑	☐
G-38	To prevent accidental activation, barriers are present when legend pushbuttons are contiguous.	☑	☐
G-39	Barriers have rounded edges to prevent injury.	☑	☐
G-40	Legend switches are easily discriminable from legend lights.	☑	☐

Chart Recorders

G-41	Printed chart recorder values are read easily.	DEFER ☐	☐
G-42	Current data is readable through the window.	DEFER ☐	☐
G-43	Printed value corresponds to scale value (i.e., proper chart paper is being used).	DEFER ☐	☐
G-44	On multiple pen recorders, parameters are listed in the same order as their pens. Each pen prints with a different color ink.	NA ☐	☐
G-45	If the chart recorder has switchable channels, a procedure or standard operating practice exists for marking channels, and use of different channels does not cause confusion because of different scale requirements.	NA ☐	☐

		TRUE	FALSE
G-46	Single-point select capability is available on multipoint recorders.	NA ☐	☐

Counters

G-47	Mechanical counters use black numbers on a white background and have a matte or flat finish; electronic counters ("Nixie" tubes, light-emitting diodes, etc.) use alphanumerics that are easily read and have adequate character-to-background contrast.	NA ☐	☐
G-48	To maximize viewing angle and minimize shadows, mechanical counters are mounted so the display is not recessed.	NA ☐	☐
G-49	Mechanical counters and electronic counters are oriented so they can be read horizontally from left to right.	NA ☐	☐

Emergency Controls

G-50	Switches for emergency or abnormal use (such as turbine trip, scram, emergency trip, etc.) are clearly marked.	NA ☐	☐
G-51	Emergency controls and other important controls are protected from inadvertent operation.	NA ☐	☐
G-52	Emergency controls are readily accessible.	NA ☐	☐
G-53	The purpose of key switches is not defeated by having keys in their locks.	NA ☐	☐
G-54	Key switches are "off" or "safe" in the vertical position. They are nearly horizontal when operated (judge by position labels).	NA ☐	☐

		TRUE	FALSE
G-55	For display types listed in the engineering questionnaire as having indirect indication and any controls without associated indicator lights, readable backup displays are within view (example: a meter for pumps).	DEFER ☐	☐
G-56	Color use conforms to the attachment from color-coding survey.	DEFER ☐	☐
G-57	Abbreviation/acronym use conforms to the attachment from abbreviation/acronym survey.	DEFER ☐	☐

QHVC

G-5 NA ON THIS PANEL

G-7 UNCLEAR LABELS WILL BE CORRECTED AS PART OF THE LABELING SURVEY

G-14 NONE ON THIS PANEL

G-15 NONE ON THIS PANEL

G-17 DEFER UNTIL NORMAL LIGHTING IS INSTALLED

G 23 NONE ON THIS PANEL

G24 NONE ON THIS PANEL

G 25 NA ON THIS PANEL, BAR METERS ARE USED

G 26 NA ON THIS PANEL, BAR METERS ARE USED

G 34 NONE ON THIS PANEL

G 41 DEFER UNTIL RECORDERS ARE IN USE

G 42 DEFER UNTIL RECORDERS ARE IN USE

G 43 DEFER UNTIL RECORDERS ARE IN USE

G 44 NONE ON THIS PANEL

G 45 NA ON THIS PANEL

G 46 NONE ON THIS PANEL

G 47, 48, 49 NO COUNTERS USED ON THIS PANEL

G 50, 51, 52, 53, 54 NONE ON THIS PANEL

G 55 TO BE ADDRESSED WHEN QUESTIONNAIRE IS COMPLETED

G 56 TO BE ADDRESSED WHEN SURVEY IS COMPLETED

G 57 ANY NONCONFORMITIES WILL BE CORRECTED BY USE OF THE ENGRAVING LIST.

QPCP

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW
CHECKLISTS AND SURVEYS

Checklist/Survey: GENERAL PANEL CHECKLIST (G) / 0
Title Revision

Reviewed and approved by:

E J Kozinski / 10/15/84
Review Team Leader Date

D L Hooper / 10/15/84
Review Team Member Date

Paul M Kodney / 10-15-84
Review Team Member Date

[signature] / 10-15-84
Review Team Member Date

Ruby L Johnson / 10-15-84
Review Team Member Date

Performed by: QPCP BY

Mark E Summer / 12-28-84
~~Review Team Member~~ NRC 12-28-84 Date

Ruby L Johnson / 12-28-84
Review Team Member Date

Results reviewed by:

_____ /
Review Team Leader Date

Ruby L Johnson / 6-3-85
Review Team Member Date

[signature] / 6-6-85
Review Team Member Date

Paul M Kodney / 6-18-85
Review Team Member Date

D L Hooper / 6-19-85
Review Team Member Date

Notes, comments, HED's, etc: SEE ATTACHED CHECKLIST EXCEPTIONS

HEDs 1203, 1204, 1205

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW

REVISION:	0
DATE:	10/15/84
PAGE	1 OF 8

TRUE FALSE

GENERAL PANEL CHECKLIST (G)

This checklist contains easily observed items related to control room panel design.

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G-6 Labels, legend plates, and escutcheons are used to identify each component's function. ☑ ☐

		TRUE	FALSE
G-7	Labels are worded succinctly and accurately with respect to function or input signal.	☐	☑
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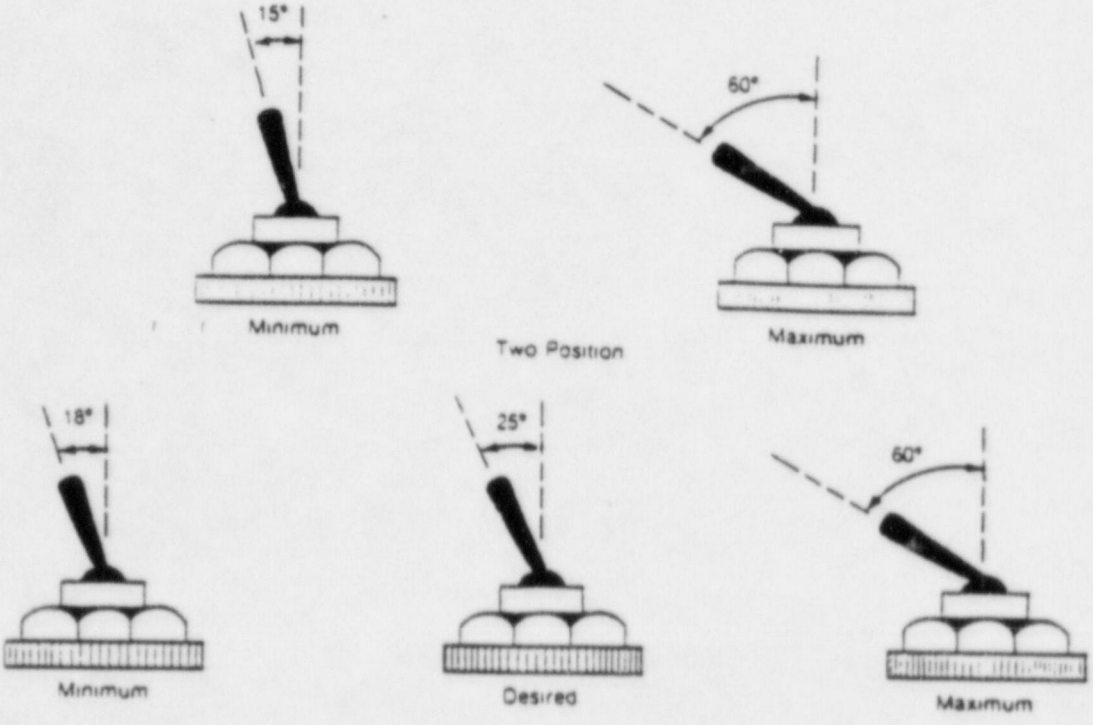
G-17	Glare does not interfere with reading meters when they are viewed from operator's station at control panel.	☐	☐ NA

Toggle Switches

(angles represent displacement from vertical)



Rocker Switches

(angles represent displacement from horizontal)

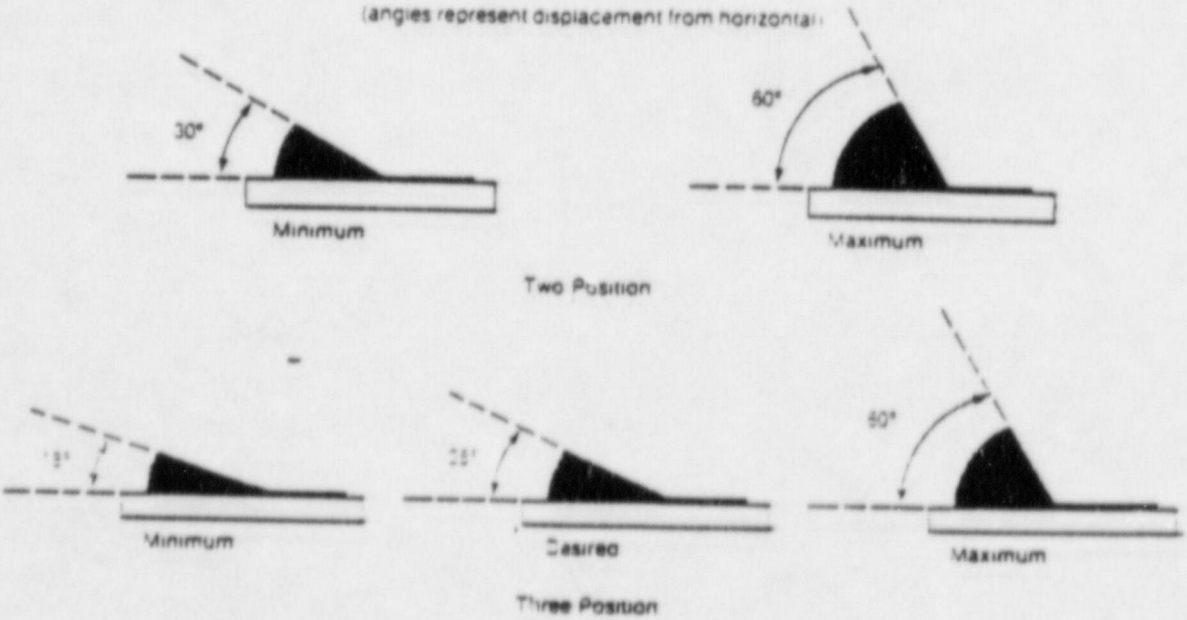


Figure 1. (Illustrating Item G-15) Switch Displacements

		TRUE	FALSE
	Meters		
	General		
G-18	Parallax does not interfere with reading meters when they are viewed from the operator's station at the control panel.	☑	☐
G-19	Moving scale indicators are not used.	☑	☐
G-20	In groups of similar displays, meters are aligned to promote visual comparison and provided with identical scales to facilitate comparative reading.	☑	☐
G-21	Meter scales are in commonly used engineering units and are in the same units as the associated controller if one exists.	☑	☐
G-22	Scales have black markings on a white background.	☑	☐
	Conformation		
G-23	Circular scales are symmetrical about their vertical axis, with the break centered at the 6 o'clock position, unless they are multi-revolution type.	☑	☐
G-24	If circular meters have multi-revolution or both positive and negative values, zero is located in the 12 o'clock position.	☑	☐
G-25	Meters are designed so the pointers do not obscure graduation marks, numerals, or process units.	☑	☐
G-26	No more than 1/16" separation exists between pointer tip and scale.	☑	☐

		TRUE	FALSE	
G-27	Sufficient visual contrast exists among scale graduations, process units, numerals, background, and pointer.	☑	☐	
G-28	Meter scales contain a maximum of nine intermediate graduations between numbered markings. Intermediate and minor graduations are shown if there are five or more graduations between numerals.	☐	☑	
G-29	Meters are scaled with subdivisions in decimal multiples of 1, 2, or 5.	☑	☐	
G-30	Scales are marked with numerals oriented in an upright position.	☑	☐	
	Operation			
G-31	Control/display operation conforms to control room design conventions (see Design Convention Survey).	☐	☐	NA
G-32	Scales are marked to show normal and abnormal, safe and unsafe, or expected and unexpected ranges of operation, where applicable (pressures, flows, levels, etc.)	☐	☑	
G-33	Meters have not been rescaled using temporary means (e.g., embossed tape).	☑	☐	
G-34	Multirange meters are marked or color-coded to differentiate among range scales.	☐	☐	NA
	Indicator Lights Not Included in Design Convention Survey			
G-35	Sets of lights are in alignment to facilitate comparison between related system elements.	☑	☐	

		TRUE	FALSE
G-36	Color of indicator lights is clearly identifiable.	☑	☐
	Legend Lights/Switches		
G-37	Legends for legend lights and legend pushbuttons have engraved dark lettering on a light backing, are readable under ambient lighting, and contain no more than three lines.	☑	☐
G-38	To prevent accidental activation, barriers are present when legend pushbuttons are contiguous.	☐	☐ NA
G-39	Barriers have rounded edges to prevent injury.	☐	☐ NA
G-40	Legend switches are easily discriminable from legend lights.	☐	☑
	Chart Recorders		
G-41	Printed chart recorder values are read easily.	☐	☐ NA
G-42	Current data is readable through the window.	☐	☐ NA
G-43	Printed value corresponds to scale value (i.e., proper chart paper is being used).	☐	☐ NA
G-44	On multiple pen recorders, parameters are listed in the same order as their pens. Each pen prints with a different color ink.	☐	☑
G-45	If the chart recorder has switchable channels, a procedure or standard operating practice exists for marking channels, and use of different channels does not cause confusion because of different scale requirements.	☐	☐ NA

		TRUE	FALSE	
G-46	Single-point select capability is available on multipoint recorders.	☐	☑	
	Counters			
G-47	Mechanical counters use black numbers on a white background and have a matte or flat finish; electronic counters ("Nixie" tubes, light-emitting diodes, etc.) use alphanumerics that are easily read and have adequate character-to-background contrast.	☐	☑	
G-48	To maximize viewing angle and minimize shadows, mechanical counters are mounted so the display is not recessed.	☑	☐	
G-49	Mechanical counters and electronic counters are oriented so they can be read horizontally from left to right.	☑	☐	
	Emergency Controls			
G-50	Switches for emergency or abnormal use (such as turbine trip, scram, emergency trip, etc.) are clearly marked.	☐	☐	NA
G-51	Emergency controls and other important controls are protected from inadvertent operation.	☐	☐	NA
G-52	Emergency controls are readily accessible.	☐	☐	NA
G-53	The purpose of key switches is not defeated by having keys in their locks.	☐	☐	NA
G-54	Key switches are "off" or "safe" in the vertical position. They are nearly horizontal when operated (judge by position labels).	☐	☐	NA

		TRUE	FALSE
G-55	For display types listed in the engineering questionnaire as having indirect indication and any controls without associated indicator lights, readable backup displays are within view (example: a meter for pumps).	☐	☑
G-56	Color use conforms to the attachment from color-coding survey.	☐	☐ DEFER
G-57	Abbreviation/acronym use conforms to the attachment from abbreviation/acronym survey.	☐	☑

GENERAL PANEL CHECKLIST EXCEPTIONS (QPCP)

G-5 NONE USED

G-7 LABELS ARE NOT CLEAR AS TO FUNCTION OF DEVICE

G-12 CHECK "RHTR DRN TNK-X VENT" HANDSWITCH LIGHTS FOR MEANING

G-14 NONE USED

G-15 NONE USED

G-17 CHECK WHEN NORMAL LIGHTING IS IN USE

G-28 ALI-27623B HAS 24 DIVISIONS BETWEEN NUMERALS (ALSO PSSL-9699)

G-31 SURVEY NOT COMPLETED

G-34 NONE OF THIS TYPE

G-38 NONE OF THIS TYPE

G-39 NONE OF THIS TYPE

G-40 PUSH-TO-TEST PUSHBUTTONS ON STATUS LIGHT BOARDS AREN'T UNIQUE

G-41,42,43 DEFER UNTIL RECORDERS ARE IN USE

G-44 ATR-50301,2 & ASR-50300 LABELED PEN-1/PEN-2 (PENS ARE RED & BLACK)

G-45 NONE ARE SWITCHABLE

G-46 ITJR-3000, IZR-412, ITJR-1690, ITJR-1691

G-47 WASTE WATER TOTALIZER, CNMT COOLING UNITS DRAIN TOTALIZERS

G-50 NONE USED

G-51 NONE USED

G-52 NONE USED

G-53 NONE USED

G-54 NONE USED

G-55 IHS-5227E, IHS-5228E, IHS-5229E, IHS-5230E

G-57 HED's TO BE COVERED IN ABBREVIATION AND ACRONYM SURVEY

12-28-84

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW
CHECKLISTS AND SURVEYS

Checklist/Survey: GENERAL PANEL CHECKLIST (G) / 0
Title Revision

Reviewed and approved by:

E J Kozinski / 10/15/84
Review Team Leader Date

G L Hooper / 10/15/84
Review Team Member Date

Lauren Kobney / 10-15-84
Review Team Member Date

[signature] / 10-15-84
Review Team Member Date

Riley L Johnson / 10-15-84
Review Team Member Date

REMOTE SHUTDOWN
Performed by:

[signature] / 12/20/84
Review Team Member Date

E J Kozinski / DEC 20, 84
Review Team Member Date

Results reviewed by:

_____ /
Review Team Leader Date

_____ /
Review Team Member Date

_____ /
Review Team Member Date

_____ /
Review Team Member Date

_____ /
Review Team Member Date

Notes, comments, HED's, etc: DISCREPANCY LIST ATTACHED.

VOGTLE ELECTRIC GENERATING PLANT
UNIT NO. 1
CONTROL ROOM DESIGN REVIEW

REVISION:	0
DATE:	10/15/84
PAGE	1 OF 8

TRUE FALSE

GENERAL PANEL CHECKLIST (G)

This checklist contains easily observed items related to control room panel design.

G-1 Controls and displays (indicating lights, meters, recorders, indicators, annunciators) generally are grouped by system and function, with identical layout for repetitive groups. ☒ ☐

G-2 Components of similar function are consistently ordered, preferably from left to right or top to bottom. ☒ ☐

Correct:	Incorrect:
A - B - C	B - C - A
1	2
2	3
3	1

G-3 Roman numerals are not used. ☒ ☐

G-4 Labels in close proximity cannot be confused easily due to use of highly similar words, abbreviations, or acronyms (e.g., Effluent/Influent). ☒ ☐

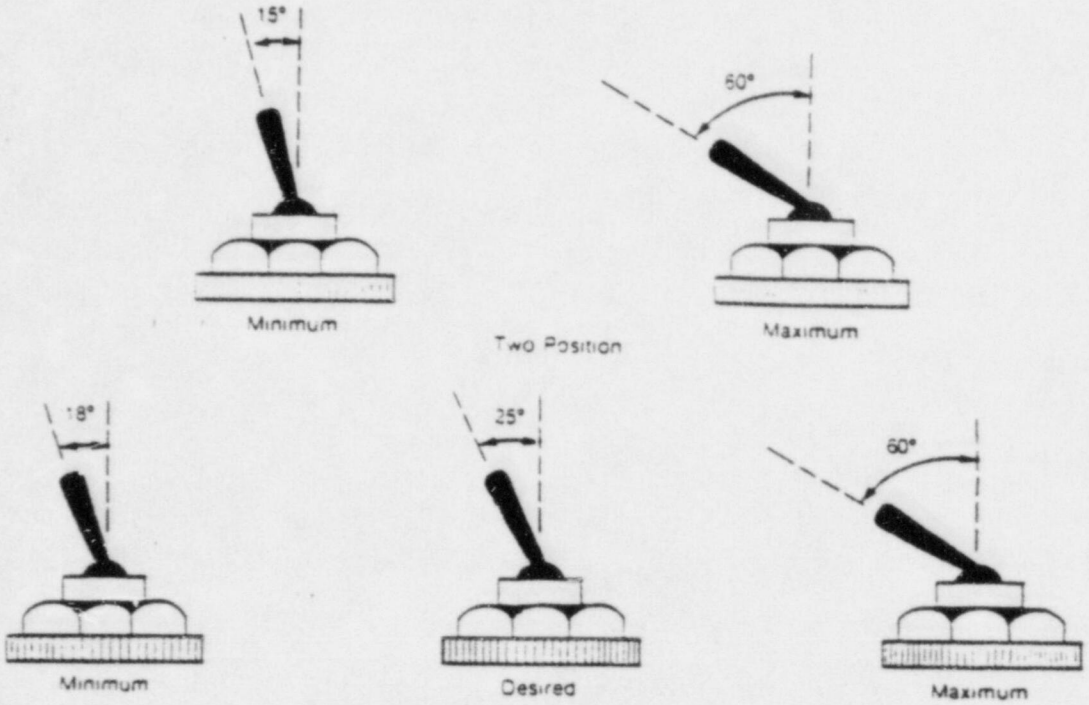
G-5 Panel access openings used by control room operators are labeled to identify by function the items accessible through them. N/A ☐ ☐

G-6 Labels, legend plates, and escutcheons are used to identify each component's function. ☒ ☐

		TRUE	FALSE
G-7	Labels are worded succinctly and accurately with respect to function or input signal.	☒	☐
G-8	Labels are oriented horizontally to read from left to right.	☒	☐
G-9	Adjacent labels are separated sufficiently so they are not read as one continuous label.	☒	☐
G-10	Displays, indicator lights, and labels are free from visual obstruction by hand or arm when the switch is operated or from obstruction by other controls and displays.	☒	☐
G-11	Each control position is marked clearly, as is direction for increase.	☒	☐
G-12	When meaning is not obvious, light indicators and other displays are labeled clearly.	☐	☒
G-13	Control surfaces promote ease of use. Knurls or serrations are used for knobs, rocker, and slide switches and indentations for pushbuttons.	☒	☐
G-14	Rocker and toggle switches are oriented consistently either vertically or horizontally.	N/A ☐	☐
G-15	Toggle switch and rocker switch displacements are between those shown in Figure 1.	N/A ☐	☐
G-16	Handles or knobs are shaped or marked clearly to indicate position, without obstruction of legends or confusion of direction.	☒	☐
G-17	Glare does not interfere with reading meters when they are viewed from operator's station at control panel.	☐	☐

Toggle Switches

(angles represent displacement from vertical)



Rocker Switches

(angles represent displacement from horizontal)

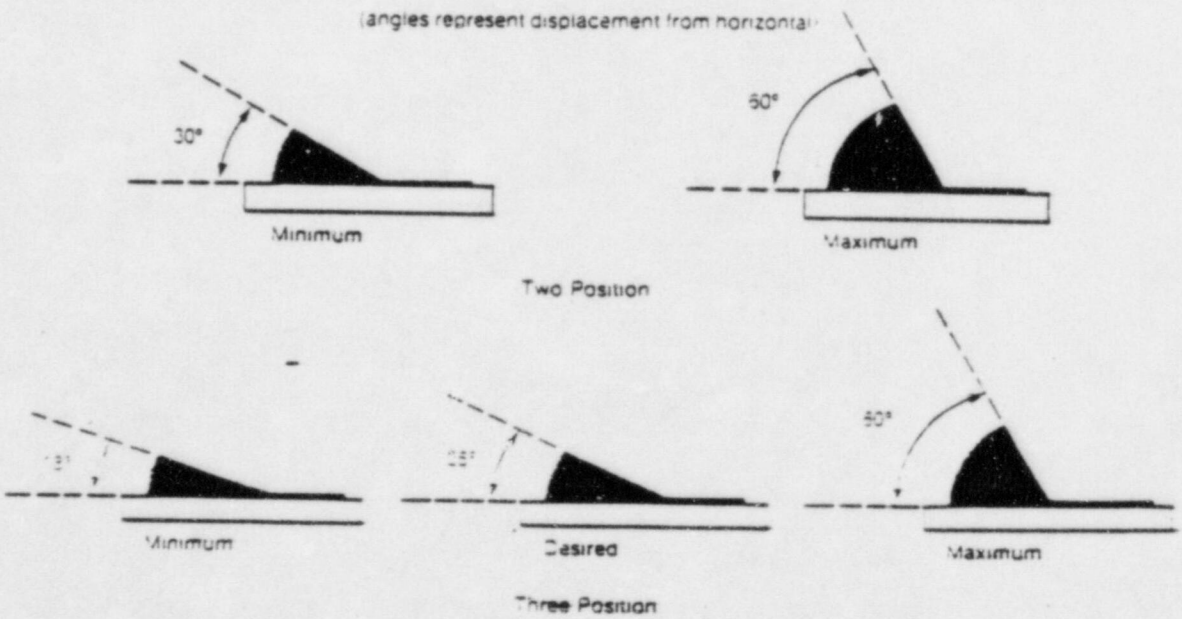


Figure 1. (Illustrating Item G-15) Switch Displacements

		TRUE	FALSE
	Meters		
	General		
G-18	Parallax does not interfere with reading meters when they are viewed from the operator's station at the control panel.	☒	☐
G-19	Moving scale indicators are not used.	☒	☐
G-20	In groups of similar displays, meters are aligned to promote visual comparison and provided with identical scales to facilitate comparative reading.	☒	☐
G-21	Meter scales are in commonly used engineering units and are in the same units as the associated controller if one exists.	☒	☐
G-22	Scales have black markings on a white background.	☐	☒
	Conformation		
G-23	Circular scales are symmetrical about their vertical axis, with the break centered at the 6 o'clock position, unless they are multi-revolution type.	N/A ☐	☐
G-24	If circular meters have multi-revolution or both positive and negative values, zero is located in the 12 o'clock position.	N/A ☐	☐
G-25	Meters are designed so the pointers do not obscure graduation marks, numerals, or process units.	☒	☐
G-26	No more than 1/16" separation exists between pointer tip and scale.	☒	☐

		TRUE	FALSE
G-27	Sufficient visual contrast exists among scale graduations, process units, numerals, background, and pointer.	☒	☐
G-28	Meter scales contain a maximum of nine intermediate graduations between numbered markings. Intermediate and minor graduations are shown if there are five or more graduations between numerals.	☐	☒
G-29	Meters are scaled with subdivisions in decimal multiples of 1, 2, or 5.	☒	☐
G-30	Scales are marked with numerals oriented in an upright position.	☒	☐
	Operation		
G-31	Control/display operation conforms to control room design conventions (see Design Convention Survey).	☐	☐
G-32	Scales are marked to show normal and abnormal, safe and unsafe, or expected and unexpected ranges of operation, where applicable (pressures, flows, levels, etc.)	☐	☒
G-33	Meters have not been rescaled using temporary means (e.g., embossed tape).	☒	☐
G-34	Multirange meters are marked or color-coded to differentiate among range scales.	N/A ☐	☐
	Indicator Lights Not Included in Design Convention Survey		
G-35	Sets of lights are in alignment to facilitate comparison between related system elements.	☒	☐

		TRUE	FALSE
G-36	Color of indicator lights is clearly identifiable.	X	

Legend Lights/Switches

G-37	Legends for legend lights and legend pushbuttons have engraved dark lettering on a light backing, are readable under ambient lighting, and contain no more than three lines.	N/A	
G-38	To prevent accidental activation, barriers are present when legend pushbuttons are contiguous.	N/A	
G-39	Barriers have rounded edges to prevent injury.	N/A	
G-40	Legend switches are easily discriminable from legend lights.	N/A	

Chart Recorders

G-41	Printed chart recorder values are read easily.	N/A	
G-42	Current data is readable through the window.	N/A	
G-43	Printed value corresponds to scale value (i.e., proper chart paper is being used).	N/A	
G-44	On multiple pen recorders, parameters are listed in the same order as their pens. Each pen prints with a different color ink.	N/A	
G-45	If the chart recorder has switchable channels, a procedure or standard operating practice exists for marking channels, and use of different channels does not cause confusion because of different scale requirements.	N/A	

		TRUE	FALSE
G-46	Single-point select capability is available on multipoint recorders.	N/A ☐	☐
	Counters		
G-47	Mechanical counters use black numbers on a white background and have a matte or flat finish; electronic counters ("Nixie" tubes, light-emitting diodes, etc.) use alphanumerics that are easily read and have adequate character-to-background contrast.	N/A ☐	☐
G-48	To maximize viewing angle and minimize shadows, mechanical counters are mounted so the display is not recessed.	N/A ☐	☐
G-49	Mechanical counters and electronic counters are oriented so they can be read horizontally from left to right.	N/A ☐	☐
	Emergency Controls		
G-50	Switches for emergency or abnormal use (such as turbine trip, scram, emergency trip, etc.) are clearly marked.	☐	☒
G-51	Emergency controls and other important controls are protected from inadvertent operation.	☐	☒
G-52	Emergency controls are readily accessible.	☒	☐
G-53	The purpose of key switches is not defeated by having keys in their locks.	N/A ☐	☐
G-54	Key switches are "off" or "safe" in the vertical position. They are nearly horizontal when operated (judge by position labels).	N/A ☐	☐

		TRUE	FALSE
G-55	For display types listed in the engineering questionnaire as having indirect indication and any controls without associated indicator lights, readable backup displays are within view (example: a meter for pumps).	☒	☐
G-56	Color use conforms to the attachment from color-coding survey.	☐	☒
G-57	Abbreviation/acronym use conforms to the attachment from abbreviation/acronym survey.	☐	☐

General Panel Checklist - Remote Shutdown Panels A & B.

G-12. Light indicators on RCP Lift pumps which indicate oil pressure start permissive (3 blue light) are not labeled.

G-17 - Must wait to perform this step until permanate lighting is operational.

G-22 - The following scales have white marking ~~[illegible]~~ on Black Background.

IHC-442C	IHC-442D	
IHC-190C	IHC-190D	These scales utilize a red light instead of a pointer. The reversal is to accommodate visibility of the light.
IHC-943C	IHC-943D	

G-28 - The following indicators have 14 intermediate graduations:

IFI-138B

IFI-406B

IFI-407B.

G-50. The HS for Rx Trip has a white switch plate

REV: 0
DATE: 10/23/84

ENCLOSURE 7

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1001

Item(s) Involved: METERS

Origin 1982 PRELIMINARY CRDR (HED 101 & 105) & ANTHROPOMETRIC SURVEY (AS-1

HED Description:
THE TOP ROW OF METERS ON THE MAIN CONTROL BOARD & QHVC ARE TOO HIGH.

Originator: [signature] / 10-29-84
Signature Date

Proposed Resolution:
NO. ACTION

Category: 4 A

NO PROBLEMS NOTED IN SIMULATOR

CRDR Team Approval [signature] / NOV 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1002

Item(s) Involved: BOTTOM ROW OF SWITCHES AND METER DISPLAYS ON QEAB, QPCP, AND QHUC

Origin ANTHROPOMETRIC SURVEY (AS-8); 1982 PRELIMINARY CRDR (HED 102,10

HED Description:

BOTTOM ROW OF SWITCHES AND METERS ON THE QEAB, QPCP, AND QHUC ARE BELOW THE MINIMUM HEIGHT SUGGESTED IN THE GUIDELINES.

Originator: [signature] 10-25-84
Signature Date

Proposed Resolution:
NO ACTION
NO PROBLEM NOTED IN SIMULATOR

Category: 4A

CRDR Team Approval [signature] / NOV 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1003

Item(s) Involved: ANNUNCIATOR windows

Origin 1982 PRELIMINARY CRDR (HED 103), LMD-2

HED Description:

ANNUNCIATOR LETTER SIZE IS SMALL FOR NORMAL VIEWING DISTANCE.

Originator: R. Johnson 10-25-84
Signature Date

Proposed Resolution: Category: 4A

KEEP CURRENT SIZE FOR INFORMATION CONTENT. LARGER LETTERS REQUIRES SHORTER MESSAGES. NO LEGIBILITY PROBLEMS HAVE BEEN NOTED IN SIMULATOR TRAINING.

CRDR Team Approval [signature] 12/5/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1004

Item(s) Involved: MAIN CONTROL BOARDS

Origin 1982 PRELIMINARY CRDR (HED 201), LMD CHECKLIST LMD-12, LMD-2

HED Description:

A HIERARCHICAL SYSTEM OF LABELING WAS NOT UTILIZED ON THE MAIN CONTROL BOARD.

Originator: Ruby Tolson 10-24-84
Signature Date

Proposed Resolution:

Category: 3

UTILIZE A HIERARCHICAL LABELING SYSTEM FOR INSTRUMENT LABELS WHERE BOARD LAYOUT PERMITS. CONTROL ARRANGEMENT WILL GENERALLY PREVENT THIS APPROACH DUE TO LIMITED SPACE.

CRDR Team Approval [signature], NOV 29, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

RECATEGORIZED 4A. LIMITED USE WHERE POSSIBLE MIGHT IMPAIR LOCATION OF OTHER MORE CRITICAL INSTR. WHER IT WAS POSSIBLE. [signature] JUN 10, 85.

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1005

Item(s) Involved: CCW Pump Switches

Origin 1982 PRELIMINARY CEDR (HED 205)

HED Description:

THE CCW PUMP SWITCHES ON PANEL 1A1 ARE LABELED:

PUMPS:	1, 3, 5	2, 4, 6
TRAIN:	A, A, A	B B B

Originator: [signature] / 10-25-84
Signature Date

Proposed Resolution: NO ACTION

Category: 4A

TRAIN GROUPING TAKES PRECEDENCE OVER NUMBER SEQUENCE. OPERATION IS BY TRAIN GROUPING

CRDR Team Approval [signature] / NOV 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1006

Item(s) Involved: NSCW PUMP SWITCHES

Origin 1982 PRELIMINARY CRDR (HED 207)

HED Description:

THE NSCW PUMP SWITCHES ARE LABELED, LEFT TO RIGHT:

Pump	1,3,5,7	2,4,6,8
Train	A,A,A,B	B,B,B,A

Originator: Ruby Johnson 10-25-84
Signature Date

Proposed Resolution: NO ACTION

Category: 4A

TRAIN CROSSING TAKES PRECEDENCE OVER NUMBER SEQUENCE. OPERATORS IN BY TRAIN GROUP.

CRDR Team Approval [signature] 11-05-84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1007

Item(s) Involved: NSCW METERS

Origin 1982 PRELIMINARY CRDR (HED 208)

HED Description:

THE NSCW TRAIN A AND TRAIN B METERS SEPERATION IS INADEQUATE.

Originator: Riley Jackson 10-25-84
Signature Date

Proposed Resolution:

Category: 3

EITHER DEMARCATION LINE OR HIERARCHICAL LABELING.

CRDR Team Approval S N Kozinski NOV 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1008

Item(s) Involved: NSCW VALVES SWITCHES

Origin 1982 PRELIMINARY CRDR (HED 209)

HED Description:

THE NSCW VALVE SWITCHES FOR THE CONTAINMENT COOLER VALVES ARE LABELED:

1 & 2	5 & 6	3 & 4	7 & 8
TRN A	~~TRN A~~ TRN A	TRN B	TRN B

Originator: Ruby Johnson / 10-25-84
Signature Date

Proposed Resolution: NO ACTION
TRAIN GROUPING TAKES PRECEDENCE IN OPERATION.

Category: 4A

CRDR Team Approval [signature] / NOV 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1009

Item(s) Involved: GROUP 4 MONITOR LIGHTS

Origin 1982 PRELIMINARY CRDR (HED 212)

HED Description:

GROUP 4 MONITOR LIGHTS REQUIRE FOUR PANELS AS COMPARED TO TWO PANELS FOR OTHER GROUPS.

Originator: Ruby Johnson 10-25-84
Signature Date

Proposed Resolution: Category: 3

MONITOR BOXES WILL BE IDENTIFIED WITH LABELS SHOWING CHNL AND TRAIN.

CRDR Team Approval [signature] NOV 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1010

Item(s) Involved: STATUS PANEL LIGHTS

Origin 1982 PRELIMINARY CRDR (HED213)

HED Description:

THERE ARE NO REFERENCES ON PANEL 1A1 OR 1A2 AS TO WHICH ANNUNICATOR IS ASSOCIATED WITH WHICH STATUS PANEL.

Originator: Ricky Johnson 10-25-84
Signature Date

Proposed Resolution: Category: 3

MONITOR BOXES WILL BE IDENTIFIED WITH LABELS SHOWING GROUP AND TRAIN.

CRDR Team Approval S N Kopinski / NOV 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1011

Item(s) Involved: RECIRC ISO VLVS HS8870A & B8870B

Origin 1982 PRELIMINARY CRDR (HED 2.14)

HED Description:

HS-8870A & HS 8870B ARE LABELED "BIST"

Originator: Ricky Johnson 10-25-84
Signature Date

Proposed Resolution: Category: 3

WILL RELABEL
'BIT SURGE TK' UNLESS REMOVED.

CRDR Team Approval [signature] NOV 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1012

Item(s) Involved: LETDOWN ORIFICE VALVES SWITCHES HS8149A, 8149B, 8149C

Origin 1982 PRELIMINARY CRDR (HED 215)

HED Description:

THE LABELS FOR LETDOWN ORIFICE VALVE SWITCHES HS8149A, 8149B, 8149C DO NOT SUPPLY SUFFICIENT INFORMATION FOR PROPER USE.

Originator: R. Johnson 10-26-84
Signature Date

Proposed Resolution: Category: 3

RELABEL SHOWING FLOW RATE.

CRDR Team Approval [signature] Nov 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number ~~1013~~ 1013

Item(s) Involved: AFW Pump Switches

Origin 1982 Preliminary CRDR (HED 2.9)

HED Description:

THE AFW Pump SWITCHES ~~HAVE~~ FOR PUMPS 1, 2, AND 3 HAVE ON THEIR LABELS THE LETTERS C, A AND B

Originator: [signature] 10-25-84
Signature Date

Proposed Resolution: Category: 3

DROP NUMBERS FROM LABELS, USE TRAIN LETTERS. (EQUIP ON HS IS RS: A AND B) EK MAY 14, 85

CRDR Team Approval [signature], Nov 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1014

Item(s) Involved: PRESSURIZER POWER OPERATED RELIEF VALVE SWITCHES HS 0455A HS 0456A

Origin 1982 PRELIMINARY CRDR (HED 221)

HED Description:

HS-0455A AND HS-0456A HAVE THE EXTRANEOUS WORD "ISO" INCLUDED ON THEM.

Originator: Ricky Johnson 10-25-84
Signature Date

Proposed Resolution: Category: 3

RELABEL TO DELETE 'ISO'

CRDR Team Approval E D Kopinsky / NOV 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1015

Item(s) Involved: SGFPT MANUAL CONTROLLER (SC 3151) & SPEED CONTROLLER (SIC 509A)

Origin 1982 PRELIMINARY CRDR (HED 223)

HED Description:

SC 3151 & SIC 509A ARE LABELED A AND 1 RESPECTIVELY

Originator: Ruby Jackson 10-25-84
Signature Date

Proposed Resolution: Category: 3

RELABEL CONSISTENTLY 'A' ~~OR 1.~~ EK

CRDR Team Approval E J Kopinsky, Nov 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1016

Item(s) Involved: QEAB LABELING

Origin 1982 PRELIMINARY CRDR (HED 229)

HED Description:

LABELS ON THE QEAB NEED MORE INFORMATION THAN JUST THE BREAKER CODE.

Originator: Ruby Johnson 10-25-84
Signature Date

Proposed Resolution:

Category: 3

RELABEL SHOWING LOAD OR MCC OR LOCATION.

CRDR Team Approval [signature] Nov 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1017

Item(s) Involved: GEAR LABELING

Origin 1982 PRELIMINARY CRDR (HED 230)

HED Description:

THE LABEL ON THE GEAR mimic buss DOES NOT INCLUDE A VOLTAGE DESCRIPTION, BUT IS COLOR CODED

Originator: [signature] 10-25-84
Signature Date

Proposed Resolution: Category: 3

ADD VOLTAGE TO LABELS OF BUSSES.

CRDR Team Approval [signature] Nov 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1018

Item(s) Involved: QHVC LABELING

Origin 1982 PRELIMINARY CRDR (HED 235)

HED Description:

THE DAMPER POSITION INDICATORS ON THE QHVC ARE NOT LABELED.

Originator: Ruby Tolson 10-24-84
Signature Date

Proposed Resolution: Category: 3

ADD DAMPER LABELS OR DEMARCATIONS.

CRDR Team Approval E M Kozumbo 1 NOV 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

CANCEL. POSITIONS ARE LABELED. HED WAS AN ANOMALY OF 1980 MOCKUP.

E M Kozumbo JUN 10, 1985

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1019

Item(s) Involved: CRITICAL SWITCHES

Origin 1982 PRELIMINARY CRDR (HED 23C)

HED Description:

CRITICAL SWITCHES DO NOT HAVE PROTECTIVE COVERS

Originator: Ruby Johnson / 10-25-84
Signature Date

Proposed Resolution: Category: ~~4A~~ 3

REACTOR TRIP, SAFETY INJECTION AND CONTAINMENT ISOLATION SWITCHES ARE COLOR CODED DISTINCTLY AND LOCATED AWAY FROM ROUTINE CONTROLS. NO COVERS ARE CONSIDERED NECESSARY. THESE AND STEAM LINE ISO HANDLES WILL BE COLORED RED.

CRDR Team Approval S N Loyless / NOV 29, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1020

Item(s) Involved: QEAB AND QMCA ALARM HORNS

Origin 1982 PRELIMINARY CRDR (HED 237), PR-70

HED Description:

THE ALARMS ON THE QEAB AND QMCB PANELS SOUND OFF WITH THE SAME TONE, AND THERE ARE NO DIRECTIONAL CUES FOR THE ALARMS ON THE QMCB.

Originator: Cathy Johnson 10-25-84
Signature Date

Proposed Resolution: Category: 2

ADJUST TO DIFFERENT TONES.

ADD HORNS TO MCB A AND B FOR THEIR ANNUNCIATORS.

CRDR Team Approval E N Kozinski NOV 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1021

Item(s) Involved: SYNCHRONIZING SWITCHES

Origin 1982 PRELIMINARY CRDR (HED 239)

HED Description:

SOME SYNCHRONIZING SWITCHES WERE TO BE ARRANGED SO THAT THEY TURN "ON" WITH A COUNTER CLOCKWISE MOVEMENT.

Originator: [signature] 10-25-84
Signature Date

Proposed Resolution: Category: 4A

THE SWITCHES HAVE LEFT AND RIGHT 'ON' POSITIONS AS INCOMING OR RUNNING POWER SOURCE, RESPECTIVELY. THE BREAKER ALIGNMENT DICTATES WHICH WILL BE SELECTED. THIS IS INHERENT IN THE SWITCHING DESIGN. NO ACTION NECESSARY.

CRDR Team Approval [signature] AUG 29, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1022

Item(s) Involved: ANNUNCIATORS

Origin 1982 PRELIMINARY CRDR (HED 240)

HED Description:

THE ORDERING OF LOOPS ON ANNUNCIATORS IS INCONSISTENT FROM STATUS PANEL TO STATUS PANEL

Originator: [signature] 10-25-84
Signature Date

Proposed Resolution: Category: 4

ARRANGE BY LOOP 1 VERTICALLY
2
3
4

CRDR Team Approval [signature] NOV 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1023

Item(s) Involved: CIRCULATING WATER & INSTURMENT AIR METERS

Origin 1982 PRELIMINARY CRDR (HED 242)

HED Description:

THE CIRCULATING WATER AND INSTURMENT AIR METERS ARE NOT FUNCTIONALLY ARRANGED WITH RESPECT TO THE CONTROL LAYOUT

Originator: Ruby Johnson 10-25-84
Signature Date

Proposed Resolution: Category: CANCEL

CANCEL. THIS WAS AN ERROR ~~IN~~ IN THE MOCKUP USED FOR THE 1981 CRDR. CURRENT LAYOUT IS FUNCTIONAL.

CRDR Team Approval E M Kozinski NOV 29, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1024

Item(s) Involved: ACCW HS-1974, 1975, 1978 & 1979

Origin 1982 PRELIMINARY CRDR (HED 243)

HED Description:

ACCW HS-1974, 1975, 1978 & 1979 ARE ORDERED RETURN-TO-SUPPLY (LEFT-TO-RIGHT). THIS VIOLATES THE DESIGN CONVENTION.

Originator: Ruby Johnson 10-25-84
Signature Date

Proposed Resolution:

Category: 3

RELABEL AS IRC/ORC CNMT ISOLATIONS.
CONVENTION IS CORRECT - RTD/PMP/SPLY
LABELS REV 6 ARE CORRECT BK JAN 14, 85

CRDR Team Approval [signature] NOV 2, 1984
(Team Member Signature) Date

REA Number _____ or ~~Work Order Number~~ DRAWING 1X6AV01-212 REV 6
BK
JAN 10, 85

____ Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1025

Item(s) Involved: SAFETY INJECTION SYSTEM

Origin 1982 PRELIMINARY CRDR (HED 284)

HED Description:

THE SAFETY INJECTION SYSTEM IS NOT ARRANGED FUNCTIONALLY. THE FLOW PATH IS NOT FOLLOWED IN THE ARRANGEMENT OF THE CONTROLS, AND THERE IS NO CONSISTENT TOP-TO-BOTTOM ORGANIZATION.

Originator: [signature] 10-25-84
Signature Date

Proposed Resolution: Category: 4

REVISE ARRANGEMENT PER ATTACHED REA.

CRDR Team Approval [signature] 1 JAN 4, 1985
(Team Member Signature) Date

REA Number 1-85-0263 or Work Order Number _____

2 Pages Attached

REA NO. 1-85-0263 REV. _____ PAGE 1 OF 2

REQUEST FOR ENGINEERING ASSISTANCE

Orig. J.Hopkins (Name) Date 1/2/85 Phone 4325 S/U System(s): BJ

REA Title: Safety Injection Control Layout

Statement of problem:

The SI system controls on QMCB are not functionally arranged as identified in the DCRDR. (Ref. HED-1025)

Proposed Solution:

Relocate controls as shown on attachment 1.

(1) Swap HS-8807B and HS-8924.
(2) Move HS-8802B to right, one row so that it is under HS-8821B.

Reference Documents:

1X6AV02-46 Rev. 10

Nuclear Operations Disposition

Approve **Reject**

Lead Test Supervisor: _____ Date: _____

Pre-op Test Superintendent: _____ Date: _____

Initial Test Program Manager: _____ Date: _____

FIGURE 1

Attachment 1

GEORGIA POWER
PLANT: VOGTLE NUCLEAR PLANT
UNIT: 1 ITEM:
STATUS: CERTIFIED FOR CONSTRUCTION
CERTIFICATION LTR. NO. GP-

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1027

Item(s) Involved: PRESSURIZER LEVEL INDICATORS

Origin 1982 PRELIMINARY CRDR (HED 247)

HED Description:

THE PRESSURIZER LEVELS ARE ARRANGED AS FOLLOWS:

PRZR LEVEL II	PRZR LEVEL I	PRZR LEVEL III

Originator: ~~Ruby Johnson~~ 10-26-84
Signature Date

Proposed Resolution: Category: 3

DELETE ROMAN NUMERAL CHANNEL DESIGNATIONS IN MULTIPLE CHANNEL INSTURMENT LABELS. PROCESSES ARE KEYED ON INST #'s, NOT ROMAN NUMERAL DESIGNATIONS.

CRDR Team Approval [signature] FEB 26, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

RECATAGORIZE 4A. CHANNEL DESIGNATION AIDS IN LOCATING BISTABLES FOR TRIPPING BAD CHANNELS. SEE 1094. NORMALLY NOT LOOKED AT BY INDICATOR CHANNEL. SEE 1094. [signature] JSH 10/85

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1028

Item(s) Involved: REACTOR COOLANT TEMPERATURE

Origin 1982 PRELIMINARY CRDR (HED 249)

HED Description:
THERE IS NO PROVISION FOR LOOP-TO-LOOP COMPARISONS OF THE REACTOR COOLANT TEMPERATURE

Originator: Ruby Jackson 10-26-84
Signature Date

Proposed Resolution: Category: 4A
NO ACTION
MAINTAIN VERTICAL LOOP ARRANGEMENT CONVENTION.

CRDR Team Approval [signature] NOV 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1029

Item(s) Involved: RCP SEAL FLOW

Origin 1982 PRELIMINARY CRDR (HED 250)

HED Description:

THE FLOW ~~WATER~~ INDICATORS FOR THE REACTOR COOLANT PUMP SEALS ARE NOT IN CLOSE PROXIMITY TO THE PUMPS.

Originator: Ruby Johnson / 10-26-84
Signature Date

Proposed Resolution:
NO ACTION
CURRENT ARRANGEMENT PLACES INDICATION WITH SEAL FLOW CONTROLS AND ALARMS.

Category: 4A

CRDR Team Approval S. J. Kennedy / Nov 2, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1030

Item(s) Involved: LOOP TEMPERATURE RECORDERS 433A, 433B AND 413A, 413B

Origin 1982 PRELIMINARY CRDR (HED 251)

HED Description:

THE REACTOR COOLANT LOOP TEMPERATURE RECORDERS 433A, 433B AND 413A, 413B SERVE THE SAME FUNCTION ON DIFFERENT LOOPS, BUT THEY ARE DIFFERENT TYPES OF INSTURMENTS, AND ARE IN DIFFERENT LOCATIONS

Originator: Riley Johnson 10-26-84
Signature Date

Proposed Resolution: Category: 4A

NO ACTION. BOTH READABLE, SAME SCALE.

CRDR Team Approval [signature] Nov 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1031

Item(s) Involved: CONTROL Rod SWITCH

Origin 1982 PRELIMINARY CRDR (H1D252)

HED Description:

CONTROL Rod SWITCH AND INDICATOR LIGHTS ARE NOT FUNCTIONALLY ARRANGED

Originator: [signature] 10-26-84
Signature Date

Proposed Resolution: Category: 4

ROLL IN & OUT LIGHTS TO PUT OUT ON TOP TO MATCH RPI. NO CONCERN IF NO CHANGE TO CONTROL SWITCH, LEAVE AS IS.

CRDR Team Approval [signature] 1/30/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1032

Item(s) Involved: GENERATOR SYNCHROSCOPE

Origin 1982 PRELIMINARY CRDR (HED 256)

HED Description:

THE GENERATOR SYNCHRO SCOPE ON PANEL 1B2 IS ABOVE THE GUIDELINE HEIGHT.

Originator: Ricky Johnson 10-26-84
Signature Date

Proposed Resolution:
NO ACTION
METERS USED MORE OFTEN ARE LOWER.

Category: 4A

CRDR Team Approval E N Kozinski NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1033

Item(s) Involved: SYNCH CHECK BYPASS SWITCH

Origin 1982 PRELIMINARY CRDR (HED 257)

HED Description:

THE SYNCH CHECK BYPASS SWITCH MAY BE LEFT IN A ~~PARALLEL~~ PARALLEL POSITION

Originator: Ricky R Tolson / 10-26-84
Signature Date

Proposed Resolution: Category: 4a

SWITCH IN PARALLEL POSITION HAS NO IMPACT ON EQUIPMENT OPERATION, SO RELIANCE ON ADMINISTRATIVE RETURN TO NORMAL POSITION IS SUFFICENT.

CRDR Team Approval [signature] / JAN 4, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1034

Item(s) Involved: DIESEL-GENERATOR CONTROLS

Origin 1982 PRELIMINARY CRDR (HED 258)

HED Description:

POOR ARRANGEMENT OF DIESEL-GENERATOR CONTROL AREA THAT MAY RESULT IN POSSIBLE ACTUATION OF DIESEL-GENERATOR START/STOP SWITCHES WHEN SYCHRONIZING.

Originator: Riley Jackson 10-26-84
Signature Date

Proposed Resolution: Category: 3

GUARD NORMAL STOP BUTTON.

CRDR Team Approval [signature] Nov 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

CANCEL THIS HED WAS AN ANOMOLY IN THE 1980 MOCK-UP THERE IS NO PROBLEM WITH THE ACTUAL LAYOUT.

[signature] JUN 10, 198

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1035

Item(s) Involved: Color coding

Origin 1982 PRELIMINARY CRDR (HED 25?)

HED Description:
THE COLOR CODING SYSTEM IS NOT CONSISTENT ACROSS ALL THE BOARDS. FOR EXAMPLE, QMCB IS COLOR CODED BY SYSTEM, BUT THE DIESEL GENERATORS ON THE QEAB ARE COLOR CODED BY TRAIN.

Originator: Ricky Tolson / 10-26-84
Signature Date

Proposed Resolution: Category: 4A

THE EXISTING TRAIN CONFIGURATIONS THE ELECTRICAL TRAIN COLOR CODES. THIS DISTINCTION IMPROVES TRAIN SEPERATION IN DIESEL OPERATION. NO ACTION REQUIRED.

CRDR Team Approval E N Kozinski / NOV 29, '84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1036

Item(s) Involved: RHR SYSTEM CONTROLS

Origin 1982 PRELIMINARY CRDR (HED 261)

HED Description:
THE RESIDUAL HEAT REMOVAL SYSTEM IS NOT ARRANGED FUNCTIONALLY.

Originator: Ruby Johnson 10-26-84
Signature Date

Proposed Resolution: Category: 4

REVISE ARRANGEMENT PER ATTACHED REA

CRDR Team Approval [signature] JAN 4, 85
(Team Member Signature) Date

REA Number 1-85-255 or Work Order Number _____

2 Pages Attached

RNR.

PAGE 2 OF 2

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1037

Item(s) Involved: TS-4111E AT ΔT/ΔT SET POINT SELECTOR

Origin 1982 PRELIMINARY CRDR (HED 262)

HED Description:

TS-4111E, AT ΔT/ΔT SET POINT SELECTOR, IS NOT IN CLOSE PROXIMITY TO ITS DISPLAY

Originator: [signature] 10-26-84
Signature Date

Proposed Resolution:
NO ACTION
GROUPED WITH OTHER SELECTORS AND IS IN EASY VIEW OF RECORDER.

Category: 4A

CRDR Team Approval [signature] NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1038

Item(s) Involved: PANEL 1B1

Origin 1982 PRELIMINARY CRDR (HED263)

HED Description:

THE LEFT HAND CORNER OF PANEL 1B1 IS TOO CROWDED, AND THERE IS NO DIRECT INDICATION FOR THE SG BLOWDOWN VALVES (HS-7603 A, B, C, THIS INDICATOR IS ON THE QPCP.

Originator: [signature] 10-26-84
Signature Date

Proposed Resolution:

Category: 4

ADD VALVE POSITION TO LIGHT BOX ON 1B1.

CRDR Team Approval [signature] NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1039

Item(s) Involved: PI 5500 AND PI 5501, SGFP BEARING OIL

Origin 1982 PRELIMINARY CRDR (HED 265)

HED Description:
PRESSURE INDICATORS PI-5500 & PI-5501 ARE NOT NEAR ASSOCIATED CONTROLS.

Originator: Ricky Tolson 10-26-84
Signature Date

Proposed Resolution:

Category: 4

MOVE IN LINE WITH OTHER INDICATORS. HOWEVER THIS IS NOT A SIGNIFICANT OPERATIONAL PROBLEM. VERY LOW PRIORITY.

CRDR Team Approval E J Kozinski NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

MOVE TO REPLACE MODULE 259 (SG 3 FW ΔT)
IF THESE FEED INST CAN BE ELIMINATED.
EK MAY 14, 85

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1040

Item(s) Involved: HS-5208, HS-5209 & FIC/FI 4499

Origin 1982 PRELIMINARY CRDR (HED 266)

HED Description:

HS-5208, HS-5209 & FIC/FI-4499 ARE NOT IN CLOSE PROXIMITY TO THE MAIN FEED PUMPS.

Originator: Ruby Tolman 10-26-84
Signature Date

Proposed Resolution:

Category: 4 4A BK NOV 14, 84

MOVE HS TO SGFP SECTION.

NO PRACTICAL MOVE FOR FIC SINCE IT IS NOT ASSOCIATED WITH FEED PUMP.

CRDR Team Approval [signature] NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

CURRENT LOCATION WITH OTHER FEED WATER VALVES IS SUPERIOR TO PLACING WITH MFP TURB STM VLVS. BK

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1041

Item(s) Involved: ATSE CRT

Origin 1982 PRELIMINARY CRDR (HED 268)

HED Description:
THE ATSE CRT IS TOO HIGH.

Originator: Ricky Tolleson 10-26-84
Signature Date

Proposed Resolution:
NO ACTION.
NO PROBLEMS NOTED IN SIMULATOR.

Category: 4A

CRDR Team Approval [signature] NOV 15, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1042

Item(s) Involved: PANEL 182

Origin 1982 PRELIMINARY CRDR (HED 269)

HED Description:
THE AREA ABOVE THE TURBINE PANEL ON 182 IS NOT ARRANGED IN A FUNCTIONAL MANNER, AND DOES NOT INCLUDE THE TURBINE IMPULSE PRESSURE INDICATORS PI-505 AND PI-506

Originator: [signature] 10-26-84
Signature Date

Proposed Resolution: Category: 4A
RETAIN CURRENT LOCATION. CURRENT LOCATION IS A GOOD COMPROMISE BETWEEN R.O AND T.O. STATIONS.

CRDR Team Approval [signature] FEB 26 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1043

Item(s) Involved: QEAB VOLTMETER SELECTORS

Origin 1982 PRELIMINARY CRDR (HED 270)

HED Description:

THE QEAB HAS 29 VOLTMETER SELECTOR SWITCHES OPERABLE BY ONE OF THREE HANDLES.

Originator: Ricky Johnson 10-26-84
Signature Date

Proposed Resolution:

Category: 3

COLOR HANDLES WHITE.

CODE GROUPS A, B, C, D (CURRENTLY IN CONTROL ROOM)

CRDR Team Approval [signature] NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1044

Item(s) Involved: RIVER WATER FLOW RECORDER IFR-7252

Origin 1982 PRELIMINARY CRDR (HED 273)

HED Description:

THE RIVER WATER FLOW RECORDER IFR-7252 ON THE QPCP IS NOT LOCATED DIRECTLY OVER THE RIVER WATER VALVES

Originator: Riley Johnson 10-26-84
Signature Date

Proposed Resolution: Category: 3

THESE ARE LABEL ERRORS, NOT ARRANGEMENT. THE LABELS WILL BE REVISED TO MORE CLEARLY INDICATE THE FUNCTIONS OF THE VALVES AND RECORDER.

CRDR Team Approval [signature] NOV 29, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1045

Item(s) Involved: TURBINE PANEL

Origin 1982 PRELIMINARY CRDR (HED 403)

HED Description:

THE STATUS LIGHTS AND PUSH BUTTONS ON THE TURBINE PANEL ARE VERY SIMILAR IN APPEARANCE

Originator: Cathy Johnson 10-26-84
Signature Date

Proposed Resolution: Category: 3

PUT (PB) DOTS BELOW PUSHBUTTONS.

CRDR Team Approval [signature] 1 NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1046

Item(s) Involved: All control switches

Origin 1982 Preliminary CRDR (HED 404)

HED Description:

Control ~~switches~~ switch indicator lights have no "push to test" capacity.

Originator: Ruby Johnson 10-26-84
Signature Date

Proposed Resolution:

Category: 4A

No action

Minor concern, basic design issue.

CRDR Team Approval S. J. Kozinski 11/15/84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1047

Item(s) Involved: SET-POINT KNOBS

Origin 1982 PRELIMINARY CRDR (HED 405)

HED Description:

THE SET-POINT KNOB FOR THE CONTROLLERS DO NOT HAVE DIRECTIONAL MARKINGS.

Originator: [signature] 10-26-84
Signature Date

Proposed Resolution: Category: 4A

NO ACTION.

FOLLOWS POPULATIONAL STEREOTYPE (CLOCKWISE INCREASE) AND HAS NUMBERED SETTINGS.

CRDR Team Approval [signature] NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1048

Item(s) Involved: METERS

Origin 1982 PRELIMINARY CRDR (HED 406)

HED Description:

COLOR CODING HAS NOT BEEN UTILIZED TO DEFINE NORMAL LIMITS FOR OPERATIONAL PARAMETERS

Originator: Ruby Johnson 10-26-84
Signature Date

Proposed Resolution:

Category: 3

ADD GREEN BAND TO METER FACE, BY FUEL LOAD

MODIFY ~~RED BLOCK~~ RANGES BY FIRST REFUELING.

CRDR Team Approval [illegible] AUG 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1049

Item(s) Involved: STATUS PANELS

Origin 1982 PRELIMINARY CRDR (HED 408)

HED Description:

THE PRESS TO TEST FEATURE ON MANY OF THE STATUS PANELS ARE TOO FAR AWAY TO BE EFFECTIVELY UTILIZED.

Originator: [signature] 10-26-84
Signature Date

Proposed Resolution:

Category: 4

PROVIDE STOOL/LADDER FOR TEST AND ANNUNCIATOR SERVICE.

CRDR Team Approval [signature] NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1050

Item(s) Involved: ANNUNCIATORS

Origin 1982 PRELIMINARY CRDR (HE0410)

HED Description:

ANNUNCIATOR LETTERING IS TOO SMALL

Originator: Ruby Johnson 10-26-84
Signature Date

Proposed Resolution: Category: 4A

RETAIN CURRENT SIZE.

SAME AS HED 1003.

CRDR Team Approval E J Kozinski FEB 26, '85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1051

Item(s) Involved: CONTROL HANDLES

Origin 1982 PRELIMINARY CRDR (HED 411)

HED Description:

CONTROL HANDLES ARE NOT SHAPE coded

Originator: Ruby Johnson / 10-26-84
Signature Date

Proposed Resolution: Category: 3

CODE VALVES, DAMPERS - "T"

PUMPS, FANS, BREAKERS - "J"

CRDR Team Approval [signature] / NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1052

Item(s) Involved: MULTI-POINT RECORDER

Origin 1982 PRELIMINARY CRDR (HED 412)

HED Description:

THERE IS A MULTI-POINT RECORDER IN THE CONTROL ROOM.

Originator: Ricky Johnson 10-23-84
Signature Date

Proposed Resolution:

Category: 4

REPLACE WITH L+N 250 OR SIMILAR RECORDER.

CRDR Team Approval [signature] NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1053

Item(s) Involved: ANNUNCIATOR SILENCING

Origin 1982 PRELIMINARY CRDR (HED 413)

HED Description:
THERE IS NO METHOD OF SILENCING AN ALARM ON A BACK PANEL FROM ANY POSITION ON THE MAIN CONTROL BOARD.

Originator: [signature] 10-22-84
Signature Date

Proposed Resolution:

Category: 4A

NO ACTION.

KEEP AS IS TO IMPROVE RELIABILITY OF ALARM RECOGNITION/RESPONSE.

CRDR Team Approval [signature] NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1054

Item(s) Involved: ANNUNCIATOR WINDOWS

Origin 1982 PRELIMINARY CRDR (HED 414)

HED Description:

THERE IS NO EASY REFERENCE FOR LOCATING SPECIFIC ANNUNCIATOR WINDOWS.

Originator: [signature] 10-22-84
Signature Date

Proposed Resolution: Category: 3

ADD A, B, C — 1, 2, 3 MATRIX MARKINGS.

CRDR Team Approval [signature] 10-25-84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1055

Item(s) Involved: RECORDERS

Origin 1982 PRELIMINARY CRDR (HED 415)

HED Description:

INK CARTRIDGE RECORDERS ARE DIFFICULT TO REFILL AFTER CLOGGING

Originator: Riley Johnson 10-29-84
Signature Date

Proposed Resolution:

Category: 4

REPLACE WITH CARTRIDGE RECORDERS WHEN MAJOR REPAIRS OR REPLACEMENT IS REQUIRED.

CRDR Team Approval [signature] NOV 15, '84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1056

Item(s) Involved: PERMISSIVES PANEL PBLB

Origin 1982 PRELIMINARY CRDR (HED 502)

HED Description:

THE PERMISSIVES ON PANEL 1C1, LABELED BPLB, ARE POORLY ARRANGED AND SUBJECT TO MISINTERPRETATION.

Originator: Ricky Johnson 10-29-84
Signature Date

Proposed Resolution:

Category: 4

REARRANGE AND MODIFY LEGENDS.

CRDR Team Approval _____ NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1057

Item(s) Involved: SG VALVE STATUS LIGHTS

Origin 1982 PRELIMINARY CRDR (HED 503)

HED Description:
THE STATUS LIGHTS FOR THE STEAM GENERATOR ATMOSPHERIC RELIEF VALVE AND THE STEAM GENERATOR STEAM DUMP VALVES ARE NOT IN CLOSE PROXIMI TO THEIR RESPECTIVE CONTROLS.

Originator: Riley Jackson 10-29-84
Signature Date

Proposed Resolution: Category: 2

ADD OR MOVE LIGHTS TO 1B1.

CRDR Team Approval [signature] 10/30/84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV:	0
DATE:	10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1058

Item(s) Involved: HIGH RADIATION ANNUNCIATOR

Origin 1982 PRELIMINARY CRDR (HED 504)

HED Description:
THERE IS NO ANNUNCIATOR FOR HIGH RADIATION IN THE STEAM JET AIR EJECTOR LINE. IN FACT, THERE ARE ONLY THREE ANNUNCIATORS FOR RADIATION WHICH LEAD TO PERMS.

Originator: Ricky Johnson 10-22-84
Signature Date

Proposed Resolution: Category: 4

ADD ALARM TO ~~1BF4K~~ ALB. ON QMCB.

CRDR Team Approval [signature] NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1059

Item(s) Involved: STATUS LIGHT BOX TSLB-4

Origin 1982 PRELIMINARY CRDR (HED 505)

HED Description:

THE STATUS LIGHT BOX ON 1A2(TSLB-4) IS ARRANGED POORLY

Originator: Ricky Johnson 10-29-84
Signature Date

Proposed Resolution:

Category: 4

REARRANGE OR ADD GROUP LABELS.

CRDR Team Approval [signature] Nov 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1060

Item(s) Involved: AFW INDICATORS

Origin 1982 PRELIMINARY CRDR (HED 507)

HED Description:
THE AUXILIARY FEEDWATER INDICATORS ARE LOCATED TOO FAR AWAY FROM THE CONTROLS TO BE READ ACCURATELY FROM THERE.

Originator: Ricky Johnson 10-29-84
Signature Date

Proposed Resolution:

Category: 4A

NO ACTION.

CONTROLS EASILY READ FROM CONTROL STATION.

CRDR Team Approval [signature] NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1061

Item(s) Involved: SI VALVE CONTROLS

Origin 1982 PRELIMINARY CRDR (HED 508)

HED Description:

THE SAFETY INJECTION ACCUMULATOR ISOLATOR VALVES ARE HARD TO LOCATE.

Originator: Ruby Johnson 10-29-84
Signature Date

Proposed Resolution:

Category: 3

LABEL SI AND ACCUMULATOR SECTIONS OF BOARD.

CRDR Team Approval [signature] NOV 15 '84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1062

Item(s) Involved: CONTAINMENT SPRAY ~~Flow~~ Cooling FLOW INDICATORS

Origin 1982 PRELIMINARY CRDR (HED 509)

HED Description:
THERE IS NO INDICATION OF COOLING WATER FLOW TO THE CONTAINMENT SPRAY HEAT EXCHANGERS.

Originator: Ricky Johnson 10-29-84
Signature Date

Proposed Resolution: Category: _____

CANCEL.
ERROR IN ORIGINAL SURVEY.

CRDR Team Approval [signature] NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1063

Item(s) Involved: ANNUNCIATOR ALARMS

Origin 1982 PRELIMINARY CRDR (HED 510)

HED Description:

THE PRIORITY ALARMS ARE NOT EASILY IDENTIFIED.

Originator: Ricky Johnson 10-29-84
Signature Date

Proposed Resolution:

Category: 3

COLOR CODE RED AND YELLOW ANN WHITE ANNUNCIATOR WINDOWS.

CRDR Team Approval E N Kozinsky NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1064

Item(s) Involved: WORKSPACE

Origin 1982 PRELIMINARY CRDR (HED 601-606)

HED Description:
THIS CONCERNS WORKING ENVIRONMENT PROBLEMS SUCH AS LIGHTING LEVELS, NOISE CONTROL, TEMPERATURE, HUMIDITY, AND COLORS.

Originator: Ricky R. Johnson / 10-29-84
Signature Date

Proposed Resolution:

Category: CANCEL

CANCEL. THESE AREAS WILL BE SEPERATELY ADDRESSED IN THE CURRENT SURVEY

CRDR Team Approval E A Kopinski / NOV 29, 1984
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1065

Item(s) Involved: QMCB BENCHBOARD SECTION

Origin ANTHROPOMETRIC SURVEY (AS-1)

HED Description:

BENCHBOARD, WITH RAIL INSTALLED, EXCEEDS THE RECOMMENDED DEPTH OF 28 INCHES. (ACTUAL MEASURMENT 30 5/8")

Originator: Riley Johnson 11-6-84
Signature Date

Proposed Resolution:

Category: 4A

NO ACTION

RAIL WAS ADDED TO CORRECT HED OF INADVERTENT ACTUATION.

CRDR Team Approval [signature] NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1066

Item(s) Involved: QMCB Displays

Origin ANTHROPOMETRIC SURVEY (AS-6)

HED Description:
Displays on the QMCB benchboard are below the recommended heigth. (turbine supervisory displays only)

Originator: Ricky R. Tolman 11-6-84
Signature Date

Proposed Resolution: Category: 4A

No action.

Displays are part of vendor panel, used in conjunction with those controls.

No problems noted in simulator.

CRDR Team Approval [signature] 11.15.84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1067

Item(s) Involved: QMCB

Origin ANTHROPOMETRIC SURVEY (AS-7)

HED Description:

THE ANNUNCIATORS ON THE QMCB ARE ABOVE THE RECOMMENDED HEIGTH OF 80 INCHES (94" TO THE TOP)

Originator: Ricky R. Johnson 11-6-84
Signature Date

Proposed Resolution:

Category: 4A

NO ACTION
WITHIN LIMITS FOR TILTED SECTION ON VERTICAL PANELS.
NO PROBLEMS NOTED IN SIMULATOR.

CRDR Team Approval [signature] NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1068

Item(s) Involved: NUCLEAR INSTR. & INCORE DETECTOR PANEL

Origin ANTHROPOMETRIC SURVEY (AS-9)

HED Description:
CONTROLS ARE ABOVE THE RECOMENDED HEIGHT OF 70"

Originator: Riley L. Johnson 11-6-84
Signature Date

Proposed Resolution:

Category: 4A

NO ACTION.

CONTROLS SELDOM OPERATED.

STOOL AVAILABLE.

CRDR Team Approval [signature] Nov 15, 84 ~~10 Oct 84 ER~~
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1069

Item(s) Involved: NUCLEAR INST & INCORE DETECTOR PANEL

Origin ANTHROPOMETRIC SURVEY (AS-10)

HED Description:

DISPLAYS ARE BELOW THE RECOMMENDED HEIGHT OF 41"
(ACTUAL HEIGHT 13")

Originator: Riley Johnson 11-6-84
Signature Date

Proposed Resolution:

Category: 4A

NO ACTION.

SELDOM USED DISPLAYS.

CAN BE READ ACCURATELY IF NEEDED.

CRDR Team Approval [signature] 11 Nov 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV:	0
DATE:	10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1070

Item(s) Involved: QEAB, QPCP, QHVC

Origin ANTHROPOMETRIC SURVEY (AS-12)

HED Description:

ANNUNCIATORS ARE ABOVE THE RECOMMENDED HEIGHT FOR VERTICAL BOARDS.

Originator: Ruby R. Johnson 11-6-84
Signature Date

Proposed Resolution:

Category: 4A

NO ACTION

NO PROBLEM NOTED IN SIMULATOR.

CRDR Team Approval E J Kozinski NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1071

Item(s) Involved: SPDS CONSOLE

Origin ANTHROPOMETRIC SURVEY (AS-13)

HED Description:

SPDS CONSOLE DOES NOT HAVE THE RECOMMENDED 18 INCHES OF KNEE ROOM (ACTUAL MEASUREMENT 15½ INCHES)

Originator: Ricky R. Johnson 11-6-84
Signature Date

Proposed Resolution:

Category: 4 A

NO ACTION.
USED FOR ONE BUTTON COMMANDS MOSTLY.
NO OPERATOR SITS AT IT ROUTINELY.

CRDR Team Approval E. J. Kozinski, NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number DAJ ~~HEDS~~ 1072

Item(s) Involved: SPDS CONSOLE

Origin ANTHROPOMETRIC SURVEY (AS-14)

HED Description:

SPDS CONSOLE DOES NOT HAVE THE RECOMMENDED 25 INCHES UNDER SURFACE HEIGHT WITH FOOT REST INSTALLED (ACTUAL HEIGHT 24 3/4" WITH 3" FOOT REST)

Originator: Riley L. Tabor 11-6-84
Signature Date

Proposed Resolution: Category: 4A

NO ACTION. MINOR DEVIATION 1/4".

FOOT REST ADDED FOR OPERATOR COMFORT

CRDR Team Approval [signature] Nov 15, 84
(ea Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1073

Item(s) Involved: QMCB CONTROLS

Origin ANTHROPOMETRIC SURVEY (AS-17)

HED Description:
CONTROLS ARE NOT SEPERATED BY THE RECOMMENDED 4" FOR "J" HANDLES AND 2" FOR OTHER CONTROLS. (MOST J HANDLES ARE 3" AND ROTARY ARE 1½")

Originator: Ricky R. Johnson 11-6-84
Signature Date

Proposed Resolution:

Category: 4A

NO ACTION.

CONTROLS SMALLER THAN COMMON USAGE. ALLOWS CLOSER SPACING.

CRDR Team Approval [signature] Nov 15, '84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

REV:	0
DATE:	10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1074

Item(s) Involved: DESK TOP MONITORS.

Origin ANTHROPOMETRIC SURVEY (AS-20)

HED Description:

MONITOR ON DESKTOP AT SIMULATOR PREVENT SEEING INSTURMENTS AND CONTROLS FROM A SEATED POSITION

Originator: Riley R. Johnson 11-6-84
Signature Date

Proposed Resolution:

Category: 4A

NO ACTION.

TERMINAL RELOCATED. MINOR OBSTRUCTION OF QEAB CONTROLS VIEW. INSTURMENTS CLEAR.

MCB VIEW CLEAR.

CRDR Team Approval [signature] NOV 15, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1075

Item(s) Involved: REACTOR TRIP SWITCHES, MANUAL

Origin PROBLEM REPORT 20

HED Description:

REACTOR TRIP SWITCHES TRIP TO THE LEFT AND RESET TO THE RIGHT. THIS VIOLATES A POPULATIONAL STEREOTYPE TO FUNCTION TO THE RIGHT; THE FUNCTION BEING REACTOR TRIP. CURRENT DESIGN TREATS THIS AS A BREAKER ONLY, NOT A FUNCTION. ERRORS IN ACTUATION NOTED IN SIMULATION.

Originator: E J Kozinski / DEC 26, 84
Signature Date

Proposed Resolution: Category: 1

REWIRE AND RELABEL SWITCHES TO TRIP CLOCKWISE AND RESET COUNTERCLOCKWISE (HS 40002) ONLY).
HS-40002, 40002A, 40002B, 40007. ELIMINATE FLAG ON HS-40007

CRDR Team Approval E J Kozinski / JAN 4, 85
(Team Member Signature) Date

REA Number DEC 21, 84 or Work Order Number

1 Ø Pages Attached

PROCEDURE NO	REVISION	PAGE NO
SUM-19	1	11

REA NO. _____ REV. _____ PAGE 1 OF 1

REQUEST FOR ENGINEERING ASSISTANCE

Orig. E.J.Kozinsky (Name) Date 12/21/84 Phone 4202 S/U System(s): SB

REA Title: Reactor Trip Switch Direction

Statement of problem:

'TRIP' to the left violates populational steotype; function is to the right. This is not just a breaker control, but a function like safety injection. Observed error rate in simulator training is 25-50%.

Proposed Solution:

Modify HS 40002, 40002A, 40002B, and 40007 to trip clockwise and HS 40007 to 'RESET' counterwise. The flag on HS-40007 should also be eliminated or covered with a solid eschutcheon plate, so as not to confuse this with a simple breaker control. This is a safety impact item identified in the Control Room Design Review (HED-1075 and must be corrected prior to fuel load.

Reference Documents:

1X3D-BD-U01C
1X3D-BD-U01D
Control Room Design Review Program Plan

Nuclear Operations Disposition

Approve Reject

Lead Test Supervisor: _____ Date: _____

Pre-op Test Superintendent: _____ Date: _____

Initial Test Program Manager: _____ Date: _____

FIGURE 1

T. G. Aufdenkamp
X 3164
JAN 2, '85
To

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1076

Item(s) Involved: GROUP MONITOR LIGHT

Origin PROBLEM REPORT 9

HED Description:

ARRANGEMENT OF TILES ON GROUP MONITOR LIGHTS IS NOT CONSISTENT WITH FUNCTIONAL GROUPS WHICH MUST BE VERIFIED IN EOP's (ie. SI, CIA, CVI)

Originator: [signature] JAN 4, 1985
Signature Date

Proposed Resolution: Category: 1

RE GROUP LIGHTS ON GROUP MONITOR PANELS, AND REWIRE IN TERMINATION CABINETS TO GROUP FOR SUPPORT OF EOP's.

CRDR Team Approval [signature] JAN 4, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

REA # ____
ATTACHMENT 1

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1076

Item(s) Involved: GROUP MONITOR LIGHT

Origin PROBLEM REPORT 9

HED Description:

ARRANGEMENT OF TILES ON GROUP MONITOR LIGHTS IS NOT CONSISTENT WITH FUNCTIONAL GROUPS WHICH MUST BE VERIFIED IN EOP's (ie: SI, CIA, CVI)

Originator: [signature] JAN 4, 1985
Signature Date

Proposed Resolution: Category: 1

RE GROUP LIGHTS ON GROUP MONITOR PANELS, AND REWIRE IN TERMINATION CABINETS TO GROUP FOR SUPPORT OF EOP's.

CRDR Team Approval [signature] JAN 4, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REA NO. _____ REV. ____ PAGE 1 OF 3

REQUEST FOR ENGINEERING ASSISTANCE

Orig. Ed Kozinsky (Name) Date 1/10/85 Phone 4202 S/U System(s): RK

REA Title: Functional Arrangement of Group Monitor Lights on QMCB

Statement of problem:

The Control Room Design Review (CRDR) has identified the lack of functional arrangement of the Group Monitor Lights to be a Category 1, safety significant, Human Engineering Discrepancy (HED). The arrangement should be consistent with functional groups which must be verified in EOP's (i.e. SI, CIA, CVI). In addition, unnecessary deviations from the "Standardized Nomenclature/Abbreviation List" should be corrected.

Proposed Solution:

Rearrange the indicators on group monitor panels MLB-01 through MLB-13 as shown on Attachment 3 and reterminate associated cable assemblies listed on attached continuation sheet. As a category 1/safety significant HED, implementation must be completed prior to fuel load.

In addition, provide hierarchical labels corresponding to functional groups and change abbreviations as indicated on Attachment 3.

Reference Documents:

HED number 1076 (Attachment 1)
GSU-1572 (Attachment 2)
1X6AV02-163-3
1X6AV02-164-4

Nuclear Operations Disposition

Approve Reject

Lead Test Supervisor: _____ Date: _____

Pre-op Test Superintendent: _____ Date: _____

Initial Test Program Manager: _____ Date: _____

FIGURE 1

REA NO. _____ REV. ____ PAGE 2 of 3

REQUEST FOR ENGINEERING ASSISTANCE

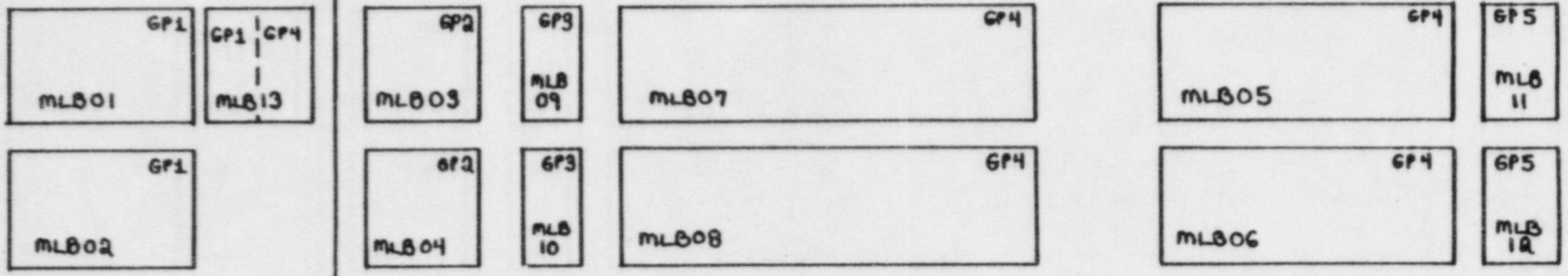
CONTINUATION SHEET

MCB TERM CAB.	MONITOR LIGHT BOX
1ACPT05	MLB03
1ACPT05	MLB09
1BCPT06	MLB06-P1
1BCPT06	MLB06-P2
1BCPT06	MLB04
1BCPT06	MLB10
1ACPT07	MLB01
1BCPT08	MLB02
1BCPT10	MLB12
1ACPT11	MLB07-P1
1ACPT11	MLB07-P2
1BCPT14	MLB08-P1
1BCPT14	MLB08-P2
1ACPT15	MLB05-P1
1ACPT15	MLB05-P2
1ACPT15	MLB11
1CCPT19	MLB13

FIGURE 2

MLB STATUS

FOR: REA #
ATTACHMENT 3
SHEET 1 OF 16



BOARD A1

BOARD A2

MLB 01

CHG ~~SUC~~ (SUCT) HV-8471A CLOSED	SIP-1 SUC HV-8923A CLOSED	NSCW ~~TR~~ (TPMP) 1202P4008 RUNNING		MS TO AFW HV-3019 CLOSED			H_2 ~~SAMP~~ (SMPL) HV-2791A OPEN
CHG DISCH HV-8485A CLOSED	RHR DISCH HV-606 CLOSED	BIT RECIR 1204P6001 RUNNING	SIS TEST HV-8871 OPEN	AFW ~~SUC~~ (SUCT) HV-5119 OPEN	RV VENT HV-8095A OPEN		H_2 ~~SAMP~~ (SMPL) HV-2792A OPEN
CHG HDR HV-8924 CLOSED	ACCUM TK1 HV-8808A CLOSED		PRT WPS HV-8047 OPEN		RV VENT HV-8096A OPEN	ACCW RTN HV-1975 CLOSED	H_2 ~~SAMP~~ (SMPL) HV-2752B OPEN
CHG BYP HV-8116 OPEN	ACCUM TK3 HV-8808C CLOSED		ACCUM N_2 HV-8880 OPEN			ACCW SPLY HV-1979 CLOSED	H_2 ~~SAMP~~ (SMPL) HV-2793A OPEN
TEST							

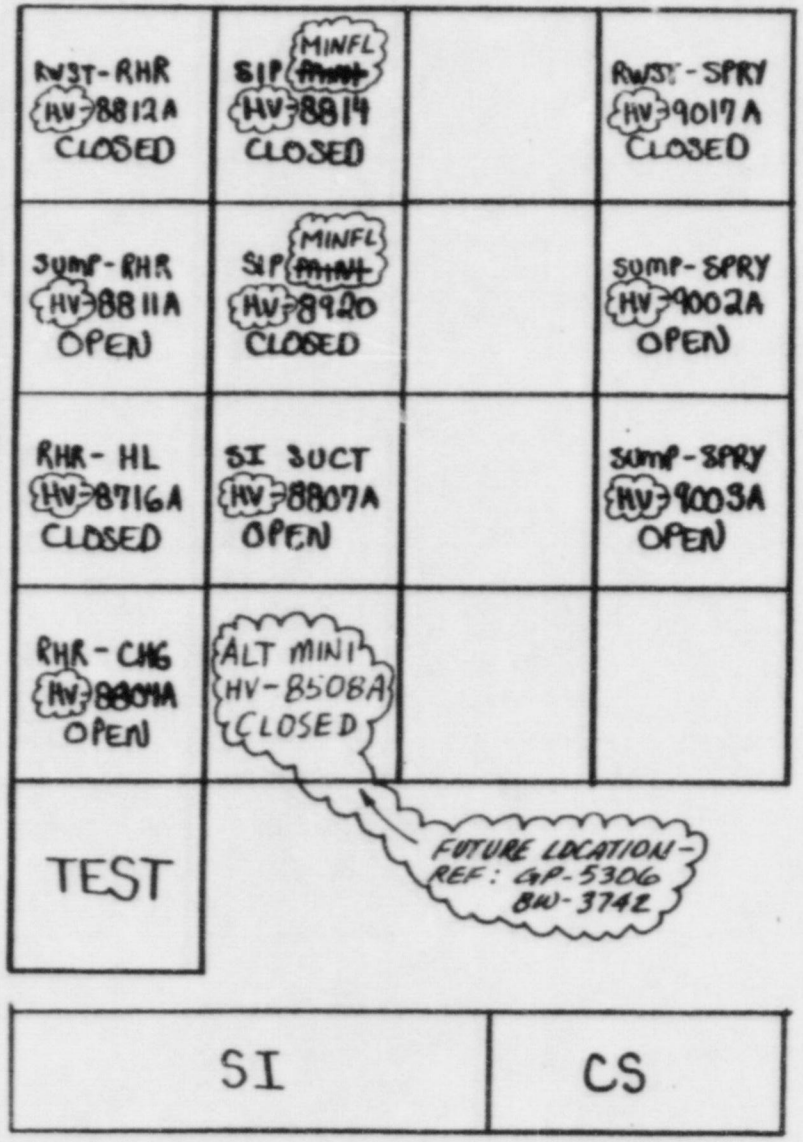
SI	CIA	AFW	RV VENT	ACCW	CNMT H_2 MON.

MLB02

CHG ~~SUC~~ SUCT HV-8471B CLOSED	SIP 2 SOC HV-8923B CLOSED	NSCW ~~TR~~ TPMP 1202P4007 RUNNING	SIS TEST HV-8890A OPEN	SIS TEST HV-8843 OPEN		RV VENT HV-8095B OPEN	H_2 ~~SAMP~~ SMPL HV-2790A OPEN
CHG DISCH HV-8485B CLOSED	RHR DISCH HV-607 CLOSED		SIS TEST HV-8890B OPEN	SIS TEST HV-8881 OPEN	MS TO AFW HV-3009 CLOSED	RV VENT HV-8096B OPEN	H_2 ~~SAMP~~ SMPL HV-2790B OPEN
CHG DISCH HV-8438 CLOSED	ACCUM TK2 HV-8808B CLOSED	SIS TEST HV-8823 OPEN	SIS TEST HV-8824 OPEN	SIS TEST HV-8888 OPEN	AFW ~~SUC~~ SUCT HV-5118 OPEN	ACCW RTN HV-1974 CLOSED	H_2 ~~SAMP~~ SMPL HV-2791B OPEN
BIT RECIR 1204P600R RUNNING	ACCUM TK4 HV-8808D CLOSED	SIS TEST HV-8825 OPEN	PRT-WPS HV-8033 OPEN	SIS TEST HV-8964 OPEN		ACCW SPLY HV-1978 CLOSED	H_2 ~~SAMP~~ SMPL HV-2793B OPEN
TEST							

SI	CIA	AFW	RV VENT / ACCW	CNMT H_2 MON.

MLB03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CLOSED
SIP MINFL
HV-8814
CLOSED
RWST-SPRY
HV-9017A
CLOSED
SUMP-RHR
HV-8811A
OPEN
SIP MINFL
HV-8920
CLOSED
SUMP-SPRY
HV-9002A
OPEN
RHR-HL
HV-8716A
CLOSED
SI SUCT
HV-8807A
OPEN
SUMP-SPRY
HV-9003A
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RHR-CHG
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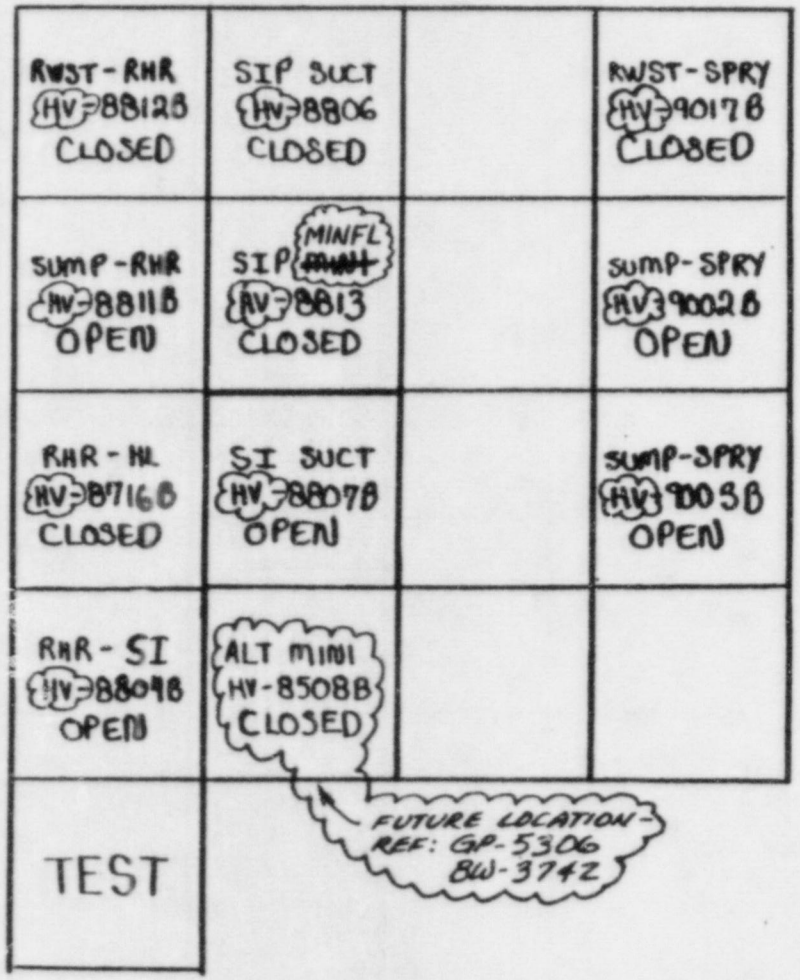
HV-8508A
CLOSED
FUTURE LOCATION -
REF: GP-5306
BW-3742
TEST
SI
CS

MLB04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CLOSED
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HV-8806
CLOSED
RWST-SPRY
HV-9017B
CLOSED
SUMP-RHR
HV-8811B
OPEN
SIP
MINFL
AV-8813
CLOSED
SUMP-SPRY
HV-9002B
OPEN
RHR-HL
HV-8716B
CLOSED
SI SUCT
HV-8807B
OPEN
SUMP-SPRY
HV-9003B
OPEN
RHR-SI
HV-8809B
OPEN
ALT MINI
HV-8508B
CLOSED
FUTURE LOCATION
REF: GP-5306
BW-3742
TEST
SI
CS

MLB05

CHG PUMP 1208P6002 RUNNING	SI PMP 1204P6003 RUNNING	RHR PMP 1205P6001 RUNNING	CCW PMP 1203P4001 RUNNING	NSCW PMP 1202P4001 RUNNING	NSCW ISO HV-1806 OPEN	NSCW ISO HV-2184 CLOSED	
BIT INLET HV-8803A OPEN	BIT ~~SIR~~ RECIR HV-8870A CLOSED	VCT OUT LV-112B CLOSED	CCW PMP 1203P4003 RUNNING	NSCW PMP 1202P4003 RUNNING	NSCW ISO HV-1808 OPEN	NSCW ISO HV-2138 CLOSED	
BIT DISCH HV-8801A OPEN	BIT ~~SIR~~ DISCH HV-8883 CLOSED	ACCW PMP 1217P4001 STOP	CCW PUMP 1203P4005 RUNNING	NSCW PMP 1202P4005	NSCW ISO HV-1822 OPEN	NSCW ISO CV-9446 CLOSED	
CHG DISCH HV-8106 CLOSED	CHG MINFLO HV-8110 CLOSED				NSCW ISO HV-1830 OPEN		
TEST							

SI

MLB05

	CVC LETDN HV-8160 CLOSED	SG 1 FW FL HV-5230 CLOSED	AFW MD P 130A P400S RUNNING		SG 1 STM FL HV-3006A CLOSED	
	RCP SEAL HV-8112 CLOSED	SG 2 FW FL HV-5229 CLOSED	AFW TO SG 2 HV-5137 OPEN	SG 1 BLDN HV-7603A CLOSED	SG 2 STM FL HV-3016A CLOSED	CS PMP 120C P600-1 RUNNING
RCDT DISCH HV-7699 CLOSED	ACCUM TK 1 HV-10950 CLOSED	SG 3 FW FL HV-5228 CLOSED	AFW TO SG 3 HV-5139 OPEN	SG 3 BLDN HV-7603C CLOSED	SG 3 STM FL HV-3026A CLOSED	CS P1 DISCH HV-9001A OPEN
RCDT VENT HV-7126 CLOSED	ACCUM TK 3 HV-10952 CLOSED	SG 4 FW FL HV-5227 CLOSED	AFW BLDG FV-5155 CLOSED		SG 4 STM FL HV-3036A CLOSED	
						TEST

CIA	FWI	AFW	SG BLDN	SLI	CS

MLB06

CHG PMP 1208P6003 RUNNING	SI PMP 1204P6004 RUNNING	RHR PMP 1205P6002 RUNNING	CCW PMP 1203P4002 RUNNING	NSCW PMP 1202P4002 RUNNING	NSCW ISO HV-1807 OPEN	NSCW ISO HV-2135 CLOSED	
BIT INLET HV-8803B OPEN	BIT RECIR HV-8870B CLOSED	VCT OUT LV-112C CLOSED	CCW PMP 1203P4004 RUNNING	NSCW PMP 1202P4004 RUNNING	NSCW ISO HV-1809 OPEN	NSCW ISO HV-2139 CLOSED	
BIT DISCH HV-8801B OPEN	CHG MINFLO HV-8111A CLOSED	ACCW PMP 1217P4002 STOP	CCW PMP 1203P4006 RUNNING	NSCW PMP 1202P4006 RUNNING	NSCW ISO HV-1823 OPEN	NSCW ISO CV-9447 CLOSED	
CHG DISCH HV-8105 CLOSED	CHG MINFLO HV-8111B CLOSED				NSCW ISO HV-1831 OPEN		
TEST							

SI

MLB06

		CVC LETDN HV-8152 CLOSED	SG1 FW FL HV-5230 CLOSED	AFW MD P 1302 P4002 RUNNING		SG1 STM FL HV-3006B CLOSED	
	PRT RMW HV-8028 CLOSED	RCP SEAL HV-8100 CLOSED	SG2 FW FL HV-5229 CLOSED	AFW TO SG1 HV-5134 OPEN	SG2 BLDN HV-7603B CLOSED	SG2 STM FL HV-3016B	CS PMP 1206 P6002 RUNNING
	RCDT DISCH LV-7136 CLOSED	ACCUM TK2 HV-10951 CLOSED	SG3 FW FL HV-5228 CLOSED	AFW TO SG4 HV-5132 OPEN	SG4 BLDN HV-7603D CLOSED	SG3 STM FL HV-3026B	CS P2 DIS HV-9001B OPEN
	RCDT VENT HV-7150 CLOSED	ACCUM TK4 HV-10953 CLOSED	SG4 FW FL HV-5227 CLOSED	AFW MINI FV-5154 CLOSED		SG4 STM FL HV-3036B CLOSED	
							TEST

CIA	FWI	AFW	SG BLDN	SLI	CS

MLB07

CNMT LO F 1501A7001 RUNNING	RM CLR F 1555A7001 RUNNING	RM CLR F 1555A7011 RUNNING	BAT RM F 1592B7001 RUNNING	CAVITY F ~~CAVT FAN~~ 1516B7001 RUNNING		INST AIR HV-9378 CLOSED	PASS HV-8208 CLOSED	NUC SMPL ~~SAMP~~ HV-3508 CLOSED	
CNMT LO F 1501A7002 RUNNING	RM CLR F 1555A7003 RUNNING	RM CLR F 1555A7013 RUNNING	BAT RM F 1532B7003			SERV AIR HV-9385 CLOSED	PASS HV-8212 CLOSED	NUC SMPL ~~SAMP~~ HV-3514 CLOSED	
CNMT LO F 1501A7005 RUNNING	RM CLR F 1555A7005 RONNING	RM CLR F 1555A7015 RUNNING	ESF RM F 1632A7001 RUNNING	ESF PMP 1592P7001 RUNNING		DRN SUMP HV-780 CLOSED	PASS HV-8986A CLOSED	NUC SMPL ~~SAMP~~ HV-3502 CLOSED	
CNMT LO F 1501A7006 RUNNING	RM CLR F 1555A7007 RUNNING	RM CLR F 1555A7017 RUNNING	AUX RLY F 1539A7001 RUNNING	ESF CHLR ~~CHILL~~ 1592C7001 RUNNING		FIRE PROT HV-27901 CLOSED	PASS HV-8220 CLOSED	BR HLD TK HV-12596 CLOSED	
TEST									

FUTURE LOCATIONS REF. SPEC. # X5AA06

SI	CIA	

MLB07

CNMT PRGE HV-2626A CLOSED	CNMT PRGE HV-2628A CLOSED	PEN RM F 1561N7001 RUNNING	PEN RM F 1562N7001 RUNNING	CR ISO HV-12146 CLOSED	CR FAN 1531N7001 RUNNING	CR FAN 1531B7005 RUNNING		SG 3 SMPL ~~SAMP~~ HV-9453 CLOSED	
CNMT PRGE HV-2626B CLOSED	CNMT PRGE HV-2628B CLOSED	PIPE PEN HV-12604 CLOSED	PEN RM HV-2636A CLOSED	CR ISO HV-12149 CLOSED	CR DMPR ~~DMP~~ HV-12118 OPEN	CR DMPR ~~DMP~~ HV-12130 OPEN		SG 4 SMPL ~~SAMP~~ HV-9454 CLOSED	
CNMT RAD HV-12975 CLOSED	CNMT PRGE HV-2624A CLOSED	PIPE PEN HV-12605 CLOSED	PEN RM HV-2638A CLOSED	CR ISO AHV-12153 CLOSED	CR DMPR ~~DMP~~ HV-12128 OPEN				
CNMT RAD HV-12978 CLOSED				CR ISO AHV-12162 CLOSED					RM CLR F 1555A7609 RUNNING
									TEST

CVI	CRI	SG SAMP	CS

MLB08

CNMT LO F 1501A7003 RUNNING	Rm CLR F 1555A7002 RUNNING	Rm CLR F 1555A7012 RUNNING	BAT Rm F 1532B7002 RUNNING	CAVITY F ~~CNMT FAN~~ 1516B7002 RUNNING		INST AIR HV-9378 CLOSED	PASS HV-8209 CLOSED	NUC SMPL ~~SAMP~~ HV-3507 CLOSED	
CNMT LO F 1501A7004 RUNNING	Rm CLR F 1555A7009 RUNNING	Rm CLR F 1555A7019 RUNNING	BAT Rm F 1532B7004 RUNNING			SERV AIR HV-9385 CLOSED	PASS HV-8211 CLOSED	NUC SMPL ~~SAMP~~ HV-3513 CLOSED	
CNMT LO F 1501A7009 RUNNING	Rm CLR F 1555A7006 RUNNING	Rm CLR F 1555A7016 RUNNING	ESF Rm F 1532A7002 RUNNING	ESF PMP 1592P7002 RUNNING		DRN SUMP HV-781 CLOSED	PASS HV-8986B CLOSED	NUC SMPL ~~SAMP~~ HV-3548 CLOSED	
CNMT LO F 1501A7008 RUNNING	Rm CLR F 1555A7008 RUNNING	Rm CLR F 1555A7018 RUNNING	AUX RLY F 1539A7002 RUNNING	ESF CHLR ~~CHILL~~ 1592C7002 RUNNING		FIRE PROT HV-27901 CLOSED		BR HLD TK HV-12597 CLOSED	
TEST									

FUTURE LOCATIONS REF. SPEC # X5AA06

SI	CIA	

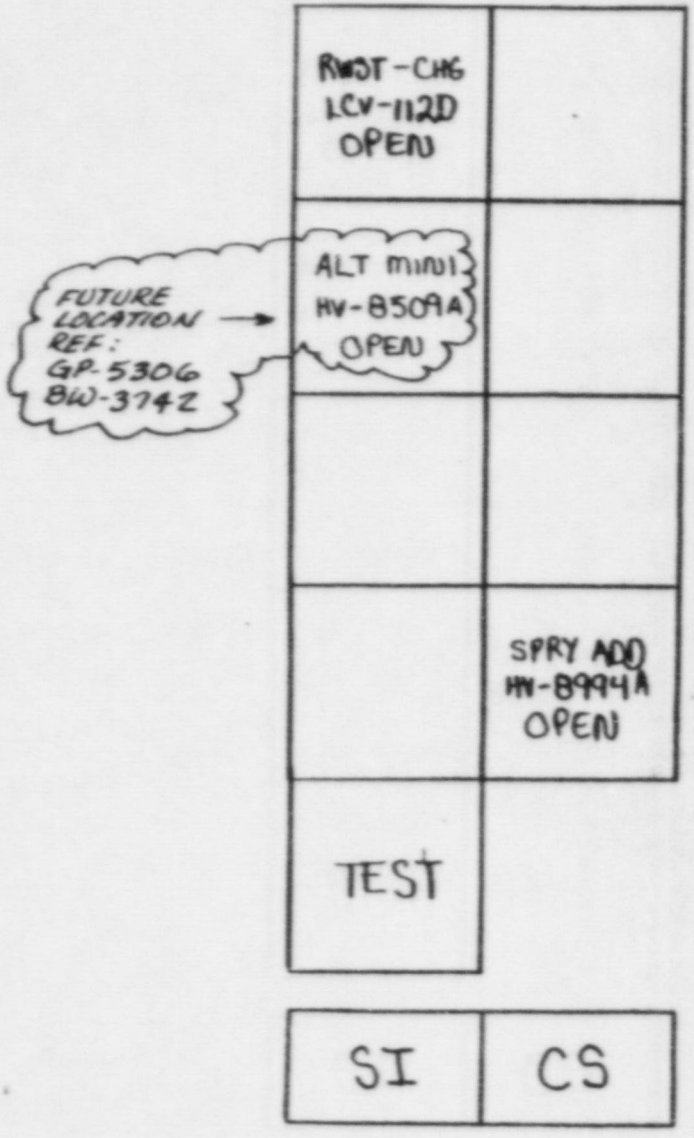
REA # _____ ATTACHMENT 3 SHEET 13 OF 16

MLB08

CNMT PRGE HV-2627A CLOSED	CNMT PRGE HV-2629A CLOSED	PEN RM F 1561N7002 RUNNING	PEN RM F 1562N7002 RUNNING	CR ISO AHV-12147 CLOSED	CR FAN 1591N7002 RUNNING	CR FAN 1581N7006 RUNNING		SG1 SMPL ~~SAMP~~ HV-9451 CLOSED	
CNMT PRGE HV-2629B CLOSED	CNMT PRGE HV-2629B CLOSED	PIPE PEN HV-12606 CLOSED	PEN RM HV-2636B CLOSED	CR ISO AHV-12148 CLOSED	CR DMPR ~~DMP~~ HV-12119 OPEN	CR DMPR ~~DMP~~ HV-12131 OPEN		SG2 SMPL ~~SAMP~~ HV-9452 CLOSED	
CNMT RAD HV-12976 CLOSED	CNMT PRGE HV-2629B CLOSED	PIPE PEN HV-12607 CLOSED	PEN RM HV-2638B CLOSED	CR ISO AHV-12152 CLOSED	CR DMPR ~~DMP~~ HV-12129 OPEN				
CNMT RAD HV-12977 CLOSED				CR ISO AHV-12163 CLOSED					RM CLR F 1555A7010 RUNNING
									TEST

CVI	CRI	SG SAMP	CS

MLB09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BW-3742
SPRY ADD
HV-8994A
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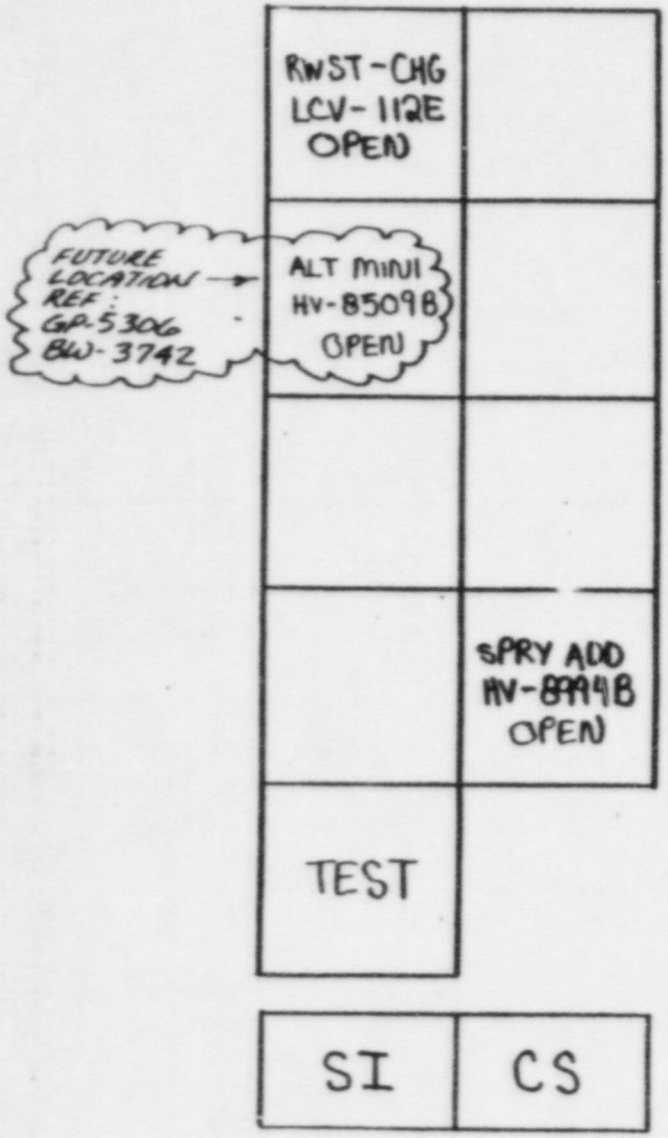
TEST
SI
CS

MLB10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FUTURE
LOCATION
REF:
GP-5306
BW-3742
SPRY ADD
HV-8994B
OPEN
TEST
SI
CS

MLB 11

RHR CL HV-8809A CLOSED		
SI CL HV-8821A CLOSED		
SI CL HV-8835 CLOSED		
SI HL HV-8802A OPEN		
TEST		

SI

MLB 12

RHR CL HV-8809B CLOSED		RCP 1 SEAL HV-8103A CLOSED
SI CL HV-8821B CLOSED		RCP 2 SEAL HV-8103B CLOSED
RHR HL HV-8840 OPEN		RCP 3 SEAL HV-8103C CLOSED
SI HL HV-8802B OPEN		RCP 4 SEAL HV-8103D CLOSED
TEST		

SI	RCP SEAL INJECTION

MLB13

AFW SUCT ~~SUC~~ HV-5113 OPEN		AFW TO SG1 HV-5129 OPEN	MS TO AFW HV-5106 OPEN
		AFW TO SG2 HV-5125 OPEN	AFW T&T PV-15129 OPEN
		AFW TO SG3 HV-5127 OPEN	
		AFW TO SG4 HV-5126 OPEN	
TEST			

AFW

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1077

Item(s) Involved: LETDOWN/CHARGING FLOW INDICATOR SCALE

Origin PROBEM REPORT 14

HED Description:

FI 132C AND 121C (LETDOWN AND CHARGING) METERS ON MCB-1A2 ARE SIDE BY SIDE FOR COMPARISON, BUT HAVE DIFFERENT SCALES. THIS MAKES COMPARISON DIFFICULT AND ERROR LIKELY.

Originator: [signature] 14 JAN 85
Signature Date

Proposed Resolution: Category: 2

RESCALE FI-121C FROM 0-200 GPM IN 5 GPM INCREMENTS TO MATCH FI-132C. ALSO RESCALE FI-121A ON QMCB-C 0-200 GPM TO BE CONSISTENT AND FACILITATE COMPARISON TO FI-132A

CRDR Team Approval [signature] 14 JAN 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

1 Pages Attached

REA NO. _____ REV. ____ PAGE 1 OF 2

REQUEST FOR ENGINEERING ASSISTANCE

Orig. Ed Kozinsky (Name) Date 1/8/85 Phone X4202 S/U System(s): BG

REA Title: Charging/Letdown Flow Indicator Scales

Statement of problem:

FI 132C & A and FI 121 C & A (Letdown/Charging) meters have different scales making comparison difficult and error likely. FI 132 is 0-200 GPM in 5 GPM increments and FI 121 is 40-200 GPM in 8 GPM increments.

FI 132 is 0-200 GPM in 5 GPM increments and FI 121 is 40-200 GPM in 8 GPM increments.

Proposed Solution:

Rescale FI-121C and FI-121A fr[illegible] match FI-132A and 132C.

Reference Documents:

Control Room Design Review HED-

Nuclear Operations Disposition

Approve Reject

Lead Test Supervisor: _____ Date: _____

Pre-op Test Superintendent: _____ Date: _____

Initial Test Program Manager: _____ Date: _____

FIGURE 1

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1078

Item(s) Involved: Crud Tank Level Alarms - Local Panel

Origin Problem Report 39

HED Description:

Annunciator legends say 'Crud Level' vice 'Crud Tank Level'. 'High-Low' and 'Low-High' legends are confusing. On panel 1-1224-P5-FBP/Drawing 1X4AN06-312.

Originator: [signature] / Jan 8, '85
Signature Date

Proposed Resolution:
Engrave Windows

Category: 3

CRUD TK LEVEL HIGH-HIGH
CRUD TK LEVEL HIGH
CRUD TK LEVEL LOW
CRUD TK LEVEL LOW-LOW

CRDR Team Approval [signature] / FEB 26, 85
(Team Member Signature) Date

8 Jan '85
REA Number _____ or Work Order Number _____

1 Pages Attached

CANCEL — BEYOND SCOPE OF CRDR
[signature] JAN 10, 85

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1079

Item(s) Involved: Valve Open-Green Light (Local Panel)

Origin Problem Report 40

HED Description:

Back Flushable Filter Panel 1-1224-P5-FBP Drawing 1X4AN06-290 uses green/open, red/closed valve ilndication - opposite from plant convention.

Originator: [signature] / Jan 8, '85
Signature Date

Proposed Resolution: Category: 3

Use red/open, green/closed convention to match rest of plant.

CRDR Team Approval [signature] / FEB 26, '85
(Team Member Signature) Date

8 Jan '85

REA Number _____ or Work Order Number _____

1 Pages Attached

CANCEL - BEYOND SCOPE OF CRDR. [signature] JUN 10, '85

REA NO. _____ REV. ____ PAGE 1 OF 2

REQUEST FOR ENGINEERING ASSISTANCE

Orig. Ed Kozinsky (Name) Date 1/8/85 Phone X4202 S/U System(s): HC

REA Title: Back Flushable Filter Panel - Valve Lights

Statement of problem:

Back Flushable Filter Panel 1-1224-P5-FBP. Uses green/open, red/closed valve position indication. This is opposite from the plant design convention and will lead to confusion and errors.

Proposed Solution:

Revise to red/open, green/closed convention.

Reference Documents:

Human Engineering Discrepancy 1079
1X4AN06-290

Nuclear Operations Disposition

Approve Reject

Lead Test Supervisor: _____ Date: _____

Pre-op Test Superintendent: _____ Date: _____

Initial Test Program Manager: _____ Date: _____

FIGURE 1

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1080

Item(s) Involved: BLENDER METER LABELS

Origin PR-41

HED Description:

FQI-110 & FQI-111 LABELING DOES NOT DESCRIBE PARAMETER INDICATED.

Originator: [signature] Signature / TAD 11/8/85 Date

Proposed Resolution:

Category: 3

RELABEL

FQI-110 "BORIC ACID TO BLENDER"

FQI-111 "TOTAL MAKEUP"

CRDR Team Approval [signature] (Team Member Signature) / FEB 26, '85 Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1081

Item(s) Involved: PANAL LABELS

Origin LMD SCHECKLIST LMD-1

HED Description:

SOME LABELS ARE NOT WITHIN THE LIMITS FOR STROKE WIDTH/CHAR HEIGHT RATIO & CHAR. WIDTH/CHAR HEIGHT RATIO

Originator: Riley R. Johnson 1-17-85
Signature Date

Proposed Resolution: Category: 4A

NO ACTION ON MCB, HVAC, PCP SINCE PANEL LABELS ARE NOT USED BY THE OPERATORS; PANEL IDENTIFICATION IS PICKED UP IN TRAINING. NO ACTION ON SHUTDOWN PANELS TO SIMPLY INCREASE LETTER SIZE, BUT NEW ENGRAVINGS WILL MEET GUIDELINES.

CRDR Team Approval S N Kozinski / FEB 26, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1082

Item(s) Involved: ALPHANUMERIC CHARACTERS ON CONTROL BOARDS

Origin LMD CHECKLIST LMD-2

HED Description:

IN SOME CASES THE HEIGHT OF THE CHARACTERS ARE NOT WITHIN THE MINIMUM HEIGHT.

Originator: Riley R. Johnson 11-17-85
Signature Date

Proposed Resolution: Category: 4A

NO CHANGE. COMPONENT LABEL LETTER SIZE IS LARGE ENOUGH FOR ACTUAL VIEWING DISTANCE, THOUGH ZLB LEGENDS ARE BELOW GUIDELINE SIZES, THEY ARE THE MAXIMUM PRACTICAL FOR THE COMPONENT DESIGN.

CRDR Team Approval _____ 1 FEB 26, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1083

Item(s) Involved: ELECTRICAL mimic ON QMCB B2

Origin LMD CHECKLIST LMD-6

HED Description:

mimics ON QMCB B2 HAVE UNLABELED disconnects ON THE LINES FROM THE MAIN GENERATOR & going TO GOSHEN NO. 2

Originator: Ruby R. Johnson 11-17-85
Signature Date

Proposed Resolution:

Category: 3

LABEL DISCONNECTS IN THE SAME STYLE AS OTHER DISCONNECT LABELS.

CRDR Team Approval [signature] 1 FEB 26, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number ~~HT 1088~~ 1084

Item(s) Involved: QEAB mimic LINES

Origin LMD CHECKLIST LMD-10

HED Description:

MIMIC LINES OVERLAP ON THE 230KV SECTION ON THE LEFT OF THE QEAB

Originator: Riley R. Johnson 1-17-85
Signature Date

Proposed Resolution:

Category: 3

MODIFY MIMIC TO SHOW CONNECTIONS AND BREAKS.

CRDR Team Approval _____ FEB 26, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1085

Item(s) Involved: DISPLAYS AND THEIR CONTROLS

Origin LMD CHECKLIST LMD-14

HED Description:

THE FOLLOWING DISPLAYS ARE NOT ABOVE OR TO THE LEFT OF THEIR CONTR

~~QMCB~~ QMCB - SG RECORDERS ARE TO THE RIGHT OF THE FW CONTROL VALVES, ACCUMULATOR N_2 PRESSURE INDICATORS ARE TO THE RIGHT OF THE VENT CONTROLS, PRESSURIZER SPRAY VALVE IS TO THE LEFT OF THE PRESSURE INSTURMENT, MAIN FEED PUMP BEARING OIL INDICATORS ARE TO THE RIGHT OF THE CONTROLLERS, AUX STEAM TO THE HEATERS SAFSB INDICATORS ARE RIGHT OF THE CONTROLS

Originator: Riley R. Johnson 11-17-85
Signature Date

Proposed Resolution: Category: 4A

NO CHANGE. THIS IS THE GENERAL CONVENTION FOR THESE CONTROL/INDICATOR MODULES. SIDE BY SIDE, MODULAR CONSTRUCTION REDUCES THE PROBABILITY OF ERROR. SG LEVEL RECORDERS, FEED CONTROLLERS WILL BE TIED TOGETHER BY HIERARCHICAL LABELS (HED-10.4)

CRDR Team Approval S. N. Kozinski 1 FEB 26, '85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1086

Item(s) Involved: [illegible]

Origin PR SO

HED Description:

[illegible]

Originator: [illegible] [illegible]
Signature Date

Proposed Resolution: Category: 3

[illegible]

CRDR Team Approval [illegible] [illegible]
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1087

Item(s) Involved: CONTROL ROOM FURNITURE

Origin OC-5

HED Description: PLANNED CIRCULAR BOOKCASE OBSTRUCTS PLANT OPERATORS VIEW OF SPDS TERMINAL. PROTEUS TERMINAL AND MODULAR COVER OBSTRUCTS TURBINE OPERATORS VIEW OF TURBINE AND SWITCHYARD PANELS.

Originator: [signature] / 27 FEB 85
Signature Date

Proposed Resolution: Category: 3

REVISE BOOKCASE DESIGN (SMALLER) AND ADD BOOKCASE SPACE AT OUTER PERIMETER SURFACE OF OPERATORS DESK MODULES. DELETE MODULAR COVERS. SINGLE PERMS TERMINAL IS DELETED (REA-1-85-319) MOVE PROTEUS TERMINAL TO NW OPERATORS DESK WHERE IT WILL NOT BLOCK VIEW OF BOARDS. ADD PERFORATED METAL COWL AT BACK OF TERMINAL TO CONCEAL WIRES.

CRDR Team Approval [signature] / MAR 13, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1088

Item(s) Involved: CVCS PANEL SECTION

Origin OPERATOR EXPERIENCE QUESTIONNAIRE

HED Description:

CVCS ON MCB IS NOT FUNCTIONALLY ARRANGED AND IS CONFUSING TO OPERATE. FLOW PATHS ARE NOT EVIDENT IN CONTROL LAYOUT

Originator: [signature] / FEB 28, 85
Signature Date

Proposed Resolution: Category: 2

REARRANGE CVCS PANEL LAYOUT

CRDR Team Approval [signature] / MAR 13, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1089

Item(s) Involved: BIT VALVES ON CVCS PANEL

Origin OC-7

HED Description:

BORON INJECTION TANK VALVES ARE TO BE DISCONNECTED BUT LEFT INSTALLED IN PANEL.

THESE DEAD SWITCHES WILL ADD TO CROWDING IN CVCS PANEL AND SLOW OPERATIONS IN EOP RESPONSE.

Originator: [signature] / FEB 28, '85
Signature Date

Proposed Resolution: Category: 1

REMOVE DISCONNECTED HAND SWITCHES FROM THE PANEL. FILL HOLES WITH METAL BLANKS.

CRDR Team Approval [signature] / MAR 13, '85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1090

Item(s) Involved: MCB LABELS - WHITE LETTERS

Origin OC-22

HED Description:

LABELS ARE WHITE ON DARK BACKGROUND IN MANY CASES, NOT DARK ON WHITE AS RECOMMENDED

Originator: [signature] MAR 1, 85
Signature Date

Proposed Resolution: Category: 4A

NO ACTION. WHITE ON DARK OFFERS ADEQUATE CONTRAST AND LESS POTENTIAL FOR DISTRACTION WHICH A PATCH OF WHITE, CATCHING THE EYE, COULD CAUSE.

CRDR Team Approval [signature] / MAR 13, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1091

Item(s) Involved: NI ~~for PR, PRFlyDiff, IR, IRSUR, SR, SRSUR~~

Origin GENERAL PANEL Checklist (G-2)

HED Description: Indicators are ~~laid~~ PANEL laid out in decreasing numerical order from left to right.

Originator: [signature] 1/31/85
Signature Date

Proposed Resolution: Category: 2

Rearrange NI's in ~~decreasing~~ INCREASING order but leave groupings as is.
SK 11-4-85

CRDR Team Approval [signature] 11-4-85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1092

Item(s) Involved: Steam Generator Level & Pressure Indicators.

Origin General Panel Checklist (G-2)

HED Description: Level & Pressure Indicators are not in numerical order.

Loop 1	LI-518, 519, 517, 551	PI-514A, 516A, 515A
Loop 2	LI-528, 529, 527, 552	PI-524A, 526A, 525A
Loop 3	LI-538, 539, 537, 553	PI-534A, 536A, 535A
Loop 4	LI-548, 549, 547, 554	PI-544, 546, 545

Originator: [signature] 13/1/85
Signature Date

Proposed Resolution: Category: 4A

S/G Levels & pressure indicators are manually looked at by loop (S/G 1, 2, 3, or 4) and not by indicator number.

CRDR Team Approval [signature] 1 FEB 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1093.

Item(s) Involved: Containment Pressure Indicators

Origin General Panel Checklist (G-2)

HED Description: Containment Pressure Indicators are not in numerical order.

PI-935 PI-937
PI-934 PI-936.

Originator: [signature] 13/1/81
Signature Date

Proposed Resolution:
Order not important,

Category: 4A

CRDR Team Approval [signature] 1 MAY 8, 81
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1094

Item(s) Involved: Indicators using Roman Numerals (see Desc)

Origin General Panel Checklist (G-3)

HED Description: The following Indicators use Roman Numerals in Label Description of Meter:

(4) PRZR Pressure
(12) RCP Flow
(16) S/G Level
(12) S/G Pressure
(4) Containment Pressure

Originator: [signature] 13/1/85
Signature Date

Proposed Resolution: Category: 4A

No action, Channel designation aids in locating bistables for tripping bad channels.

CRDR Team Approval [signature] 1 MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1095

Item(s) Involved: Generator Sync lights; Auto Sync lights

Origin GENERAL PANEL Checklist (5-6)

HED Description: Sync lights for Main Generator and Auto Sync lights for Main & Diesel Generators do not have labels.

Originator: [signature] 1/31/85
Signature Date

Proposed Resolution:

Category: EK 3

LABEL LIGHTS.

CRDR Team Approval [signature] /
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1096

Item(s) Involved: QMCB & QEAB Meters.

Origin General Panel Checklist (G-8)

HED Description: Most meters have vertical orientation for ~~Units~~ 5&6 Units 5/1/86

Originator: [signature] 13/1/85
Signature Date

Proposed Resolution: Category: A

No Action. Only practical way on vertical meters.

CRDR Team Approval [signature] 1 MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1097

Item(s) Involved: Extraction Steam Drain MOV's.

Origin General Panel Checklist (G-12)

HED Description: HS-43028; ~~HS-43038~~ HS-43048, 53, 58 have two sets of open/close lights each without directions as to which light goes with which valve (Each HS operates two valves)

Originator: [signature] 11.31.84
Signature Date

Proposed Resolution: Category: 3

Re-label switch plate with valve numbers identifying lights.

CRDR Team Approval [signature] 1 Nov 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 109B

Item(s) Involved: Turning Gear Engaged (HS-6541A)

Origin General PANEL Checklist (G-12)

HED Description: Switch has 3 red lights with no legend present

Originator: [signature] 13/18/5
Signature Date

Proposed Resolution: Category: 3

Label switch plate lights as to function

CRDR Team Approval [signature] IN AY 8/15
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1099

Item(s) Involved: Amber "Trip" Lights for PCB's & Motors

Origin General Panel Checklist (G-12)

HED Description: No legend exist for meaning of Amber Trip Lights.

Originator: [signature] 13/1/85
Signature Date

Proposed Resolution: Category: 4a.

5.5.A 5/1/85 ~~Legend not necessary due to~~
Amber trip light is a convention and no legend is required.

ADEQUATELY COVERED IN TRAINING;

CRDR Team Approval [signature] 1 MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1100

Item(s) Involved: White disagreement light on AFW valves.

Origin General Panel Checklist (G-12)

HED Description: No legend exist as to meaning of white lights on AFW injection Valves.

Originator: [signature] 13.1.85
Signature Date

Proposed Resolution:

Category: ~~SA~~ 3

White light is on if VLV not full open when AFW actuation is present. Explaining logic on label too wordy. No hardware change needed. Add to training on meaning of light.

CRDR Team Approval [signature] MAY 14.85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/8

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1101

Item(s) Involved: MN & Aux Steam Sprayer HS-6194.

Origin General Panel Checklist (G-12)

HED Description: Switch operates two valves and the two sets of open/close lights are not identified as to which light goes with which valve

Originator: [signature] 13/1/85
Signature Date

Proposed Resolution: Category: 3

Label switch plate to identify lights.

CRDR Team Approval [signature] MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1152

Item(s) Involved: SGFP Vacuum Reslt HS-3167; 3168.

Origin General Panel Checklist (G-12)

HED Description: HS's have 3 lights (1 red; 2 Amber) and NO Legend to describe lights function.

Originator: [signature] 3/18/85
Signature Date

Proposed Resolution: Category: 3

Label switch plate to identify lights

CRDR Team Approval [signature] 1 MAR 6,85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1103

Item(s) Involved: RCP Lift pump Blue light.

Origin General Panel Checklist (G-12)

HED Description: Blue light on RCP Lift pump does not have a legend describing blue light function.

Originator: [signature] 1/31/85
Signature Date

Proposed Resolution: Category: 4A.

Light is a start permissive for RCP (oil pressure sufficient). This is taught in training and no legend required.

CRDR Team Approval [signature] MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1104

Item(s) Involved: CVCS Chiller Switch (BIRS chiller)

Origin General Panel Checklist (G-12)

HED Description: Switch has 3 clear lights without legend as to lights function.

Originator: [signature] 3/11/85
Signature Date

Proposed Resolution: Category: 3

~~Label~~ 3/4/85
Label lights to indicate function.

CRDR Team Approval [signature] 3/11/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1105

Item(s) Involved: HS-10351 - Thermal Regen Select Switch.

Origin General Panel Checklist

HED Description: No legend exist as to function of Lights on hand. Switch (3 white lights)

Originator: [signature] 1/31/85
Signature Date

Proposed Resolution: Category: 3

Label lights to indicate function

CRDR Team Approval [signature] 1 Feb 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1106.

Item(s) Involved: Toggle & Rocker Switches

Origin GENERAL PANEL Checklist (G-14)

HED Description: Toggle & Rocker Switches are not consistently vertical or horizontal.

Vertical
AC/DC Regulation Main Gen.
QEAB Sync check Bypass
QEAB 'R' Switches.

Horizontal
Raise/Lower on Gen. Panel.
S/G Level; Steam: Feed flow Selectors.

Originator: [signature] 13.1.85
Signature Date

Proposed Resolution:

Category: 4A

DIRECTIONS LABELED AND LIMITED CHOICE OF DIRECTION MAKES ERRORS UNLIKELY. NO ACTION

CRDR Team Approval [signature] 1 Nov 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1107.

Item(s) Involved: Indicator without Engineering Units.

Origin General PANEL Checklist

HED Description: Following Indicators use "%" as process units: (19 total)

RCP Flow Indicators
CST Level
RWST Level
VCT Level
S/G Level
Containment Sump Levels

NSCW Basin levels.
~~H_2 monitor (Containment)~~ OK
Accumulator levels
Containment Sump level
BAST Level
CVCS Chiller Surge Tank
Pressurizer Level
AT indicator
OPAT indicator

OTAT indicator
Steam Dump demand
Turbine Impulse Indicator
AFW valve position.

Originator: [signature] 13/1/85
Signature Date

Proposed Resolution: Category: 3

Provide tank book (Gallons - % curves) for tanks.
Other parameters, % display is appropriate.
Rescale containment recirc sump levels to inches to match PSMS display per RG 1.97. Revise EOP's

CRDR Team Approval [signature] MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1108-

Item(s) Involved: Pointer obstruction of process units.

Origin GENERAL PANEL Checklist

HED Description: Indicators using single characters for process units (OF, 70, etc) can be obscured by pointer.

Originator: [signature] 1/31/85
Signature Date

Proposed Resolution: Category: 4A

CAN LOOK AROUND POINTER.
POINTER SELDOM AT THAT POSITION, INST. LABEL IMPLIES UNITS

No ACTION.

CRDR Team Approval [signature] MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1109.

Item(s) Involved: Separation of Pointer and Scale.

Origin General Panel Checklist (G-26)

HED Description: Electrical meters have ~ 1/8" between pointer tip and process units, (Round type meters).

Originator: [signature] 3/1/85
Signature Date

Proposed Resolution: Category: 4A.

These meters are very coarse scales so the 1/8" gap poses no problem. Not used for precise readings.

CRDR Team Approval [signature] 1 MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1110.

Item(s) Involved: Indicators with greater than 9 grads between numbers

Origin General Panel Checklist (G-28)

HED Description: Many QMCB Indicators has >9 graduations between numbered markings.

Originator: [signature] 1 3/1/85
Signature Date

Proposed Resolution: Category: 4A

THE INDICATORS ARE ADEQUATELY GRADUATED FOR THE ACCURACY OF READING REQUIRED, AND MAJOR AND MINOR GRADUATIONS ARE ADEQUATE. NO ACTION.

CRDR Team Approval [signature] 1 JAN 27, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1111

Item(s) Involved: NR-45 (Fisk/AFD Recorder)

Origin General Panel Check-list (G-45)

HED Description: No requirement to mark chart as scale is changed from SR, IR, PR recording.

Originator: [signature] 3/1/85
Signature Date

Proposed Resolution: Category: 3

Incorporate annotation of chart recorders in Conduct of Operations or other appropriate procedure.

CRDR Team Approval [signature] 1 MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1112

Item(s) Involved: Multipoint Recorders.

Origin General Panel Checklist (G-46)

HED Description: Single point recording is not available on Multipoint recorders in Control room. 3/1/85

Originator: [signature] 1/31/85
Signature Date

Proposed Resolution: Category: 4 2 ISK JUNE 17, 85

Replace with L+N Recorder 250 or equivalent.
Same as 1761 1052.

CRDR Team Approval [signature] 1 MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/8

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1113.

Item(s) Involved: Rod Bank Step Counters.

Origin General Panel Checklist (G-48)

HED Description: Display (counter) is recessed ~~below~~ SSH 3/1/85 Below panel elevation.

Originator: John Hopkins 3/1/85
Signature Date

Proposed Resolution: Category: 4A

BLACK/WHITE LETTERS PROVIDE READABILITY EVEN RECESSED NO ACTION.

CRDR Team Approval S A Kopinski 3/4/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1114

Item(s) Involved: MLB 5+6

Origin TA E-0 STEP 9+10

HED Description:
ONE CCW AND NSCW PMP LIGHT IS NORMALLY OFF IN A BLOCK OF 'ON' LIGHTS FOR SI.

RO's PREFER THIS AS IT GIVES STATUS OF ALL PUMPS ON MLB. ALTERNATIVE IS TO DELETE THE 3RD PUMP LIGHT (2 NORMALLY START)

Originator: [signature] / MAR 24, 85
Signature Date

Proposed Resolution: Category: 4A

LEAVE AS IS. TO PROVIDE MORE INFORMATION TO OPERATOR.

CRDR Team Approval [signature] / JUN 27, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1115

Item(s) Involved: PI 403, 405, PR 403

Origin S&II TA

HED Description: E0P E-0 STEP 16 CHECKS
P < 1610 MSTRS READ IN 50 PSIG INCREMENTS,
TOO FINE FOR MSTR SCALE.
E-0-21 < 1373 PSIG - SAME PROBLEM.

Originator: [signature] / MAR 29, 85
Signature Date

Proposed Resolution: Category: 3

REVISE PROCEDURE TO THE NEAREST
CONSERVATIVE 1/2 GRADATION (25#) VALUE

CRDR Team Approval [signature] / MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1116

Item(s) Involved: PI 408, 418, 428, 438

Origin TA

HED Description:

RCS PRESSURE < 285 < 1373
EOP E-0 STEP 16 E0, rev 21
METERS IN 20 PSIG INCREMENTS
TOO FINE FOR METER SCALE

Originator: [signature] / MAR 29, 85
Signature Date

Proposed Resolution: Category: 3

REVISE PROCEDURE TO NEAREST CONSERVATIVE
1/2 GRADUATION (10 PSI) READING.

CRDR Team Approval [signature] / MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/86

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1117

Item(s) Involved: CIA, CVI, CS STATUS

Origin TA

HED Description:

NO STATUS OF CIA SIGNAL

NEED TO SEE CHANGES ON RESET

AND CIA ~~annunciator~~ on ALB

OR LIGHTS ON SWITCHES

Originator: [signature] / 24MAR'87
Signature Date

Proposed Resolution: Category: 4

~~Add~~ CIA, CVI, and CS ACTUATION

SIGNAL STATUS TO BPLB OR ANNUNCIATOR.

ALB.

CRDR Team Approval [signature] / MAR 87
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

SAME AS ESP DISCREPANCY # 88

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1118

Item(s) Involved: SG PI's

Origin TA

HED Description:

E-3 step 13

CANT READ ~~285~~ 264 PSIG

FR-H.1 S-P 7 CANT READ 665 PSIG

FR-C.1 S-P 11 CANT READ 124 PSIG

Originator: [signature] / 29 MAR 85
Signature Date

Proposed Resolution: Category: 3

REVISE PROCEDURE TO NEAREST CONSERVATIVE 1/2 GRADATION (~~10~~ 25 PSI) READING

CRDR Team Approval [signature] / MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1119

Item(s) Involved: SG PRESSURE

Origin TA E-3 STEP 14

HED Description:

SG PRESSURE IN 5 # ~~5~~
METER IN 50 #

USE ~~5~~ 50 OR 100 # divisions

Originator: [signature] 29 MAR 85
Signature Date

Proposed Resolution: Category: 3

REVISE PROCEDURE TO NEAREST CONSERVATIVE 25 # READING.

CRDR Team Approval [signature] 1 MAY 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1120

Item(s) Involved: COMMUNICATIONS TO RCP SEAL THROTTLE VLVS

Origin TA 20A E-0 STEP 21, ES02 17

HED Description:

NO PLANT COMMUNICATION AT RCP THROTTLE VLVS. COMM NEEDED FOR EOP SUPPORT.

Originator: [signature] 12 MAR 85
Signature Date

Proposed Resolution: Category: 2

RADIO PAGE OR SOUNDPOWER PHONE AT THROTTLE VLV STATION.

CRDR Team Approval [signature] MAR 5, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1121

Item(s) Involved: PCP ALARM [illegible]

Origin TA SCENARIO 5A

HED Description:

PCP ALARM [illegible] IS NOT NOTICED UNTIL FRONT MCB ALARMS ARE SILENCED. NEEDS MORE DISTINCTIVE SOUND.

Originator: [signature] / 7/26/85
Signature Date

Proposed Resolution:

Category: 3

ADJUST PITCH TO DIFFERENTIATE

CRDR Team Approval [signature] / JUN 27, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1122

Item(s) Involved: ERF Radiation Monitor Alarm

Origin TA 7A F-0

HED Description:

Nuisance alarm from SR SR

Positive due to noise at low

SR counts.

Originator: [signature] [illegible]
Signature Date

Proposed Resolution: Category: 3

Smooth SUR or increase to >0 setpoint to

stop nuisance alarm

CRDR Team Approval [signature] [illegible]
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1123

Item(s) Involved: STEAM TABLES

Origin TA 7A ES-0.2 STEP 12

HED Description:

STEAM TABLES NEEDED FOR BACKUP CALCULATION AND FOR QUICK REFERENCE.

Originator: [signature] / APR 1, 85
Signature Date

Proposed Resolution:

Category: ~~3A~~ 3

ENGRAVE STEAM TABLES AND PLACE ON 1B1 (MS VLV AREA)
USE SATURATION CURVE ~~+30° SUBCOOLED~~? OK
VALUES AND ENGRAVE IN TABLE FORM.

CRDR Team Approval [signature] / MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1124

Item(s) Involved: ERF Saturation Curve

Origin TA E50.2 5-SP 13 7A

HED Description:

Cooldown requires coordination of subcooling and pressure temperature limits.

Originator: S A Kozinski 1/16/85
Signature Date

Proposed Resolution:

Category: 3

Add PT to a subcooling curve.
Use 100° cooldown curves for T.S. 3.4.9.

CRDR Team Approval S A Kozinski 1/16/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/8

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number HED 1125

Item(s) Involved: _____

Origin TA 6A ECA 0.0 S-SP 3.6

HED Description:
INADEQUATE ~~AT~~ EMERGENCY LIGHTING AT
PCP AND ~~ECA~~ @ HVC INADEQUATE IN
SIMULATOR. CHECK CONTROL ROOM PLANS
SAME AS EOP DISCREPANCY 86.6K

Originator: _____ 4/24/85
Signature Date

Proposed Resolution: Category: _____

CRDR Team Approval _____ /
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1126

Item(s) Involved: CIA STATUS - NUMI

Origin TA

HED Description:

THERE IS NO STATUS OF CIA SIGNAL

ADD TO ANNUNCIATOR.

CVI + CS ALSO

Originator: [signature] / APR 4/1
Signature Date

Proposed Resolution:

Category: _____

CANCEL
SAME AS 1117

CRDR Team Approval _____ /
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1127

Item(s) Involved: PLANT LABELS - ROOM NAMES/#'s

Origin TA

HED Description:

INCLUDE ESP ROOM #/NAME FOR LOCATION OF REMOTE OPERATING IN PLANT ROOM LABELS.

Originator: [signature] / 4/24/85
Signature Date

Proposed Resolution: Category: 3

ESP
REVISE 1 PROCEDURE TO INCLUDE ROOM #/NAME FOR REMOTE COMPONENTS.

CRDR Team Approval [signature] / 4/25/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1128 ~~1128 dc~~

Item(s) Involved: GROUP MONITOR LIGHT ALARM

Origin TA SCENARIO 2A

HED Description:
NORMAL ALARMS ON AT POWER, VALID ALARM ONLY FOR SI CONDITION?

Originator: [signature] / APR 4, 85
Signature Date

Proposed Resolution: Category: 4

ADD LOGIC TO ALARM ONLY WHEN SI SIGNAL IS PRESENT.

CRDR Team Approval [signature] / APR 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1129

Item(s) Involved: NLB LIGHTS - FILL BLANKS

Origin TA 2A CR 51

HED Description:

NLB LIGHTS ON IN IRREGULAR PATTERN. LIGHT BLANKS - FILL OUT BLOCKS OR ROWS.

Originator: [signature] 1/APR 85
Signature Date

Proposed Resolution: Category: 4

HARDWARE BLANK LIGHTS OR OR LIGHT ON SI SIGNAL PRESENT TO FILL OUT BLOCKS OR ROWS.

CRDR Team Approval [signature] 1/MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

RELAT. 3. REMOVE LIGHT BULBS AND PAINT BLANK TILES FLAT BLACK. [signature] JUN 10, 85

REV:	0
DATE:	10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1130

Item(s) Involved: AFW FLOW IND. 2FM

Origin TP 23a FR-141 Step 2

HED Description:

CAN NOT READ AFW FLOW TO 550 GPM.

CHANGE TO 600 GPM OR RICH ON PSMS OR CPDS/SPDS

Originator: [signature] / APR 4, 85
Signature Date

Proposed Resolution: Category: 3

REVISE SIM TO ~~PATCH~~ MATCH CONTROL ROOM.

CONTROL ROOM METERS SHOW:

CONFIRM MAJOR MARK ABOVE 0 IS '100.' AND RELABEL METER FACE TO SHOW 100.

600

[blank] ← MARK '100'

0

CRDR Team Approval [signature] / APR 4, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1131

Item(s) Involved: ERF HEAT SNK TREE – AFW AVAIL.

Origin TA 23a. E-0 FR-H.1 Step 2

HED Description: No RED PATH. Logic upgrade needed.
Current noise on flow or ΔP does not flag valves out of line.
Use flow > 550 to set flag before relying on ΔP available. This will check normal VLV L/U at beginning of scenario

Originator: [signature] / 10/24/84
Signature Date

Proposed Resolution: Category: 3

Revise logic on ERF to set flag on initial AFW flow > 550 GPM. If flow later goes < 550 GPM check sufficient Pump ΔP available to provide > 550 GPM.

CRDR Team Approval [signature] / 10/24/84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

ΔOP discrepancy 116. EK May 14, 85
Simulator DR 442

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1132

Item(s) Involved: TURBINE TRIP STATUS LIGHTS

Origin TA 1HA EO STEP 2

HED Description:

~~A~~ 2LB LIGHTS ARE ~~HORIZONTAL~~ HORIZONTAL FOR 3 ONLY, ~~VERTICAL~~ VERTICAL FOR ALL OTHERS ON THAT B.X.

REARRANGE.

MAY BE NEGATIVE TRAINING EFFECT.

Originator: [signature] / APR 05

Signature Date

Proposed Resolution: Category: 4A

NO ACTION, MINOR DEVIATIONS FROM CONVENTION AND CURRENT CONFIGURATION USED IN TRAINING AS QUICK CHECK ON T.T. SWAPS

CRDR Team Approval [signature] / APR 05

(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number ~~18A~~ 6K 1133

Item(s) Involved: CALCULATOR FOR CONTROL ROOM

Origin TA 1PA AND OTHERS

HED Description:

CALCULATOR NEEDED IN C.R TO DO PIT SETTING CALCULATIONS. & ENSURE CALCULATOR IN C.R. ~~&R~~ AND ADD FUNCTION TO ERF.

Originator: [signature] 1 APR 85
Signature Date

Proposed Resolution: Category: 3

INSTALL DESK CALCULATOR IN C.R.

CRDR Team Approval [signature] 1 APR 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1134

Item(s) Involved: ERF ALARM - SG WR LVL 25%

Origin TA 1.P.A FRH-1 STEP 9

HED Description:

NEED 25% WR S/G LEVEL FOR LOSS OF HEAT SINK F.R. PROCEDURE. MAKE MODE 0 W.R. 25% ALARM. OPERATORS FEEL FOR HAVE SUFFICIENT EMPHASIS.

Originator: [signature] / APR 1984
Signature Date

Proposed Resolution:

Category: 3

CHANGE LOW ALARM ON W.R S/G LVL TO 25% IN MODE 0.

CRDR Team Approval [signature] / APR 18 '84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1135

Item(s) Involved: CS Suction Valve from Refueling Water Storage Tank/Sump

Origin TA 25-A 6a ECA 1.1 Step 6 ~~ECA 1.1 Step 3~~ EK

HED Description:

CS suction from sump not adequately labeled.

Originator: [signature] 1/28/85
Signature Date

Proposed Resolution: Revise HS labels

Category: 3

CRDR Team Approval [signature] 1/28/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1136

Item(s) Involved: H. GROUND MONITOR CONTROLS

Origin TA 3A 19221 SHT 8 (FRC.1) ~~SHT 1 FRC 12~~

HED Description: STARTUP REFERS TO PROCEDURE.
LONG. ENGRAVE S/U FROM STANDBY ON
LOCAL PLATE
COMMON MOV ALARM ON H. MONITOR-
WHAT DOES IT MEAN?

Originator: [signature] 10/23/84
Signature Date

Proposed Resolution: Category: 3

ENGRAVE S/S FROM STANDBY AT PCP.

SUPPLEMENT ALARM LABEL

CRDR Team Approval [signature] 10/23/84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 137

Item(s) Involved: RAD MONITOR SELECTOR CUBICLE

Origin TA 25-A E-0 STEP 29

HED Description:

NEED MORE LOCATION INFO. WITH CUBICLE IS SELECTED.

Originator: [signature] 1/22/85
Signature Date

Proposed Resolution: Category: _____

CRDR Team Approval _____ /
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1138

Item(s) Involved: SI, CNMT I/I P ADVERSE CNMT

Origin TA, PA, E-0, STEP 3

HED Description:

SI occurs on 4# CNMT, giving ADVERSE CNMT. Add "ADVERSE CNMT" TO ANNUNCIATOR WINDOW on SI ~~or~~ ~~"CNMT HI-1 PRESS ALERT"~~ SK

Originator: [signature] / APRIL 85
Signature Date

Proposed Resolution: Category: 3

ADD 'ADVERSE CNMT' TO SI ANNUNCIATOR.

CRDR Team Approval [signature] / APRIL 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1139

Item(s) Involved: MLB 2, AFW CTM (SPEC VLV

Origin TA & A

HED Description:
MS VLVS CLR TO AFW PMP C
ARE IN MLB TRAIN A+B MLB 1, 2
POSS CONFUSION, NOM NOTED IN EOP
VALIDATION.

Originator: [signature] Signature Date

Proposed Resolution: Category: 4A

NO ACTION SINCE NO CONFUSION NOTED
AND THESE ARE TRAIN A + B POWERED VLVS

CRDR Team Approval [signature] (Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 114

Item(s) Involved: PROCESS ALARM CRT

Origin TA FA

HED Description:
CONTROLS FOR ALARM CRT ARE AT
OTHER CRT, BEYOND VIEWING DISTANCE.
MAY NEED CONTROLS (2 BUTTONS) ON BOARD.

Originator: [signature] / APR 5, '85
Signature Date

Proposed Resolution:

Category: 4

ADD ALARM CRT CONTROLS AT
1C1.

CRDR Team Approval [signature] / APR 8, '85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1141

Item(s) Involved: LETDOWN [illegible] CONTROL

Origin TA 2.6.A CCAPS walk-by

HED Description:

TRIP PUT IS REVERSE ACTING LEVEL PUSH [illegible]
LEVEL ↑ PUT ↑ LEVEL B/C ↓ VLV POSITION.

OPERATOR KNEW & OPERATED CORRECTLY, BUT
NOTED REVERSE ACTION. SEEMS TO INCREASE
ADDITIONAL TRAINING CONCERN

Originator: [signature] 10/24/84
Signature Date

Proposed Resolution: Category: 3

ADD "OPEN" & "SHUT" TO REVERSE
ACTING CONTROLLER MANUAL PUSHBUTTONS

CRDR Team Approval [signature] 10/24/84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1142

Item(s) Involved: H2 Analyzer Monitor

Origin TA 1A Freight/Freight

HED Description:

H_2 ANALYZER IS NORMALLY IN STANDBY AND INDICATES ZERO ON METERS, RECORDER, PMS, SPDS. NO INDICATION THAT IT IS ISOLATED NEAR METERS.

Originator: [signature] 10/23/85
Signature Date

Proposed Resolution:

Category: 2

ADD INOP STATUS LIGHT AT 1A1 OR DRIVE METERS OFF SCALE LOW. WHEN DETECTOR IS OFF OR STANDBY.

CRDR Team Approval [signature] 10/23/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1143

Item(s) Involved: PUMP SWITCHES, [illegible]

Origin TA, [illegible]

HED Description:
PUMP SWITCHES AND CASING CONTROLS ARE
CONSIDERED DIFFICULT TO LOCATE IN ARRAYS OF
VALVES. HANDLE SHAPES DO NOT STAND OUT.

Originator: [illegible] Analyst
Signature Date

Proposed Resolution: Category: 3

USE LABEL WITH BOLD LETTERS FOR PUMPS IN
EACH SYSTEM. SIP, RHR, CCP, SLI, CS.

CRDR Team Approval [illegible] Analyst
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1144

Item(s) Involved: MLB LIGHT 1 — BLANK TILE 1

Origin TA 19A E-0 STEP 6, 7, 8, 9, 10, 11, 12

HED Description:

PATTERN OF MLB LIGHTS 1 [illegible].
INCREASED WORK LOAD TO IDENTIFY OUT OF
POSITION EQUIPMENT.

1129
RS SK.

CANCEL
SEE

Originator: [signature] 1 APR 85
Signature Date

Proposed Resolution:

Category: _____

LIGHT BLANK TILE -
GIVE BLOCK OR ROW OF LIGHTS

CRDR Team Approval [signature] 1 APR 85 SK.
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number ~~1145~~ 1145

Item(s) Involved: MAIN STEAMLINE PRESSURE INSTRUMENTS
PI 514A, 515A, 516A, 524A, 525A, 526A, 534A, 535A, 536A, 544A, 545A, 546A

Origin TA

HED Description:

EO step 13 checks pressure at 585 PSI. The meter increments are 20 PSI.

Originator: Ricky Johnson 10-4-16-85
Signature Date

Proposed Resolution:

Category: _____

CANCEL
SAMS AS 1118

CRDR Team Approval _____ /
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1146

Item(s) Involved: RCS TEMPERATURE INDICATORS

Origin TA

HED Description:

EO step 19 requires temperature to be verified at 557°F. Meter increments are 10°F.

Originator: Cathy C. Tolson 11-16-85
Signature Date

Proposed Resolution:

Category: 4A

ADEQUATELY COVERED IN TRAINING. CHECK IS TRENDING TO 557° WHICH IS AN APPROX. AVG STABILIZED VALUE, NOT A CHECK READING. NOW GRADATION OF 557°F IS SUFFICIENTLY CLOSE. NO ACTION

CRDR Team Approval [signature] 11/12/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1147

Item(s) Involved: RCS PRESS METERS

Origin _____

HED Description:

EO step 21 checks pressure < 1373 PSI. meter increments are 50 PSI.
ALSO EO, 35.: EO, CAUTION:

Originator: Riley R. Johnson 11-16-84
Signature Date

Proposed Resolution: Category: _____

CANCEL
SAME AS 1116

CRDR Team Approval _____ /
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1148

Item(s) Involved: CNMT SPRAY FLOW METERS

Origin TA E-0 STEP 14 RNO

HED Description:

Meter ~~is inaccurate~~ appears to be log scale. 80 GPM in not clearly indicated.

Originator: Ricky R. Johnson 11-16-85
Signature Date

Proposed Resolution: Category: 3

REMARK METER FAILS TO SHOW 80 GPM.

CRDR Team Approval [signature] 11/18/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number ~~1145~~ 1149

Item(s) Involved: RVLIS RECORDER POINTER

Origin TA 27A 5-SP 6 FRC.1

HED Description:

BLUE PEN ON BACK OF RECORDER IS INVISIBLE.

PUT RED PEN IN BACK, BLUE IN FRONT.

RU MISTOOK WIDE RANGE FOR UPPER HEAD LEVEL. CONSIDER NAME CHANGE?

Originator: [signature] / APR 9, 85
Signature Date

Proposed Resolution: Category: 3

PAINT BLUE PEN RED AND RED PEN BLUE, CHANGE INK COLORS AND RECORDER LEGEND PLATES.

CRDR Team Approval [signature] / NOV 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1150

Item(s) Involved: SPDS USERS GUIDE

Origin TA

HED Description:

Need AN SPDS USERS GUIDE IN THE SIMULATOR

Originator: Riley R. Johnson 4-16-85
Signature Date

Proposed Resolution:

WRITE SOP. ~~ADD~~

Category: 3

CRDR Team Approval _____ 4/18/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____ Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1151

Item(s) Involved: RCP STATUS

Origin TA

HED Description:

Need to INVESTIGATE THE POSIBILITY OF ARRANGING A GROUP ON THE SPDS WHICH WILL ALLOW A QUICK MEANS OF EVALUATING RCP CONDITIONS.

Originator: Ricky L. Johnson 4-16-85
Signature Date

Proposed Resolution: Category: 3

ADD RCP STATUS SIMILAR TO PLOTEUS DISPLAY

CRDR Team Approval [illegible] 10/23/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

REV:	0
DATE:	10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1152

Item(s) Involved: INSTURMENT AIR ANNUNCIATOR

Origin TA

HED Description:

THERE IS NO ANNUNCIATOR FOR LOSS OF INSTURMENT AIR TO CONTAINMENT

Originator: Riley R. Johnson 4-16-85
Signature Date

Proposed Resolution: Category: 4

ADD LOW CNMT INST AIR PRESSURE ALARM.

CRDR Team Approval _____ 4/24/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1153

Item(s) Involved: CONTROL ROD SWITCH

Origin OBSERVATION

HED Description:

CONTROL ROD SWITCH ~~SHEERS~~ HANGS UP IN THE WITHDRAW POSITION

Originator: Ruby R. Johnson 4-18-85
Signature Date

Proposed Resolution: Category: 1

SMOOTH PLASTIC AREA CAUSING SWITCH STICK.

CRDR Team Approval [signature] 4/18/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1154

Item(s) Involved: AUX LEAK DETECTION LABELS

Origin TA SCENARIO 2S-A TEST EO STEP 9

HED Description:

AUXILARI LEAK DETETION SYSTEM DOES NOT HAVE LOCATIONS FOR CHANNELS LABELED.

'LEVEL D' — AND 'ASX BLDG'

Originator: [signature] / APR 19, 85
Signature / Date

Proposed Resolution: Category: 3

ADD SUPPLEMENTAL LABELS AT TOP OF RLB AND REVISE ENGRAVING TO CLARIFY LOCATION.

CRDR Team Approval [signature] / MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1155

Item(s) Involved: RELIEF VLV TEMPERATURE RECORDER

Origin TA SUMMER. 25A TEST

HED Description:

VALVE NUMBERS ARE CONFUSING AND ERROR PRONE ON TAILPIPE TEMP, MULTIPOINT RECORDER.

Originator: [signature] 1 APR 9,85
Signature Date

Proposed Resolution:

Category: 3

ADD VLV LABEL NAMES TO RECORDER LIST.

CRDR Team Approval [signature] 1 APR 9,85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1156

Item(s) Involved: RVLIS RECORDER

Origin TA SCENARIO 2STA POST FREEZING

HED Description:

FULL, DYNAMIC, AND UPPER SCALE LEVELS ARE CONFUSING. SUPPLEMENT RECORDER LABEL WITH Rx VESSEL DIAGRAM. CONSIDER D BASE REFERENCE FOR FULL & UPPER SCALE. THIS IS ALSO A TRAINING ITEM. POST NORMALS FOR < 4 R.C.P.

Originator: [signature] 4APR84
Signature Date

Proposed Resolution:

Category: 3

POST MIMIC AND NORMAL DYNAMIC VALUES

CRDR Team Approval [signature] 4 APR 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1157

Item(s) Involved: ROD DRIVE MG / 480V BREAKERS

Origin TA SCENARIO 25A TEST EOS STA 1 RNO

HED Description:

THE 480V DIST BREAKERS TO BE OPENED ON AN ATWT NEED TO BE HIGHLIGHTED.

Originator: [signature] 1 APR 19, 85
Signature Date

Proposed Resolution: Category: 3

ADD SUPPLEMENTAL LABELS BELOW MIMIC.

ROD DRIVE MG SET

CRDR Team Approval [signature] 1 MAY 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 115P

Item(s) Involved: MLB POWER

Origin TA SCENARIO 16A TEST, 6A ECA 0.0

HED Description:

MLB's GO OFF ON LOSS OF OFF-SITE POWER.
THESE SHOULD BE VITAL AC TO
SUPPORT EOP's

Originator: [signature] / APR 9, 85
Signature Date

Proposed Resolution:

Category: 4

POWER MLB's FROM VITAL POWER.

CRDR Team Approval [signature] / MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

POWER IS VITAL ALREADY. MODIFY SIMULATOR
CANCEL HED. OK. EOP DISC # 75 OK

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1159

Item(s) Involved: LETDOWN ORIFICE LABELS

Origin TA 17A TEST 6.1.1 STEP 13

HED Description:
ORIFICE FLOWS ARE RESIZED AT LOW PRESSURE, DO NOT NAME IN GPM.

Originator: [signature] 19 MAR 85
Signature Date

Proposed Resolution: Category: 4A

TRAINING COVERS RESIZED FLOW AT RESIZED PRESSURE. LABEL ORIFICES BY GPM AS PLANNED. HED 1012.

CRDR Team Approval [signature] 1 MAY 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1160

Item(s) Involved: ERF TRENDS - COOLDOWN

Origin TA 23A TEST ES 0.2 STEP 6

HED Description:

COOLDOWN TREND DIFFICULT TO USE.

ADD 100°F/HR SLOPE ON TEMP TREND.

Originator: [signature] 1 APR 19, 85
Signature Date

Proposed Resolution:

Category: 3

ADD 100°F/HR SLOPE TO

RCS TEMP PLOT ON SPDS.

CRDR Team Approval [signature] 1 MAY 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1161

Item(s) Involved: MCB SWITCHES

Origin 7A 23A TEST

HED Description:

OPERATORS CAN NOT TELL WHICH VLVS ARE AOV, WHICH MOV, WHICH HOLD TO OPERATE, WHICH RETAIN CONTACTS

(DAVE MARLER MAY LISTS FROM LOSS OF AIR STUDY.)
OR MAKE EXCEPTIONS + TRAIN ON MAINT.

Originator: [signature] 1 APR 19, 85
Signature Date

Proposed Resolution: Category: 3

ADD SUPPLEMENTAL LABEL W/ STICKER TO (HOLD TIME VLVS). NOT ENGRAVED.

CRDR Team Approval [signature] 1 APR 19, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1162

Item(s) Involved: EOP CONTROL BANDS 'AT'

Origin TA SCENARIO 7A ES 0.1

HED Description:

~~Do not se~~
INSTRUCTIONS TO CONTROL A PARAMETER 'AT' A VALUE ARE OFTEN RESTRICTIVE AND IMPLIED CONTROL BANDS ARE SUBJECT TO MISINTERPETATION.

Originator: [signature] 1 APR 29, 85
Signature Date

Proposed Resolution: Category: 3

REVISE PROC. OR IMPLEMENT TRAINING TO CONTROL AT APPROXIMATE VALUE.

CRDR Team Approval [signature] 1 MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1163

Item(s) Involved: STM LINE/PRZR TRIPS - RATE SENSITIVE

Origin TA SCENARIO 11A ES 02 STEP 9

HED Description:

OPERATOR CAN NOT TELL NEARNESS TO SETPOINT FOR RATE SENSITIVE TRIPS — STEAM LINE PRESSURE
— PRZR PRESSURE

OFTEN RESULTS IN STEAM LINE RATE TRIP AS SOON AS LOW P TRIP IS BLOCKED

Originator: [signature] 1 MAR 29, 85
Signature Date

Proposed Resolution: Category: CANCEL

SIMULATOR ANAMOLY. NO RATE TRIPS AT CATAWBA, CALLAWAY, FARLEY ETC
PAUL KOCHSKY. TELECON. REVISE SIMULATOR.

CRDR Team Approval [signature] 1 MAY 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

SAME AS ES OP/SIMULATOR DR # 435. EK MAY 85

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1164

Item(s) Involved: ECCS LINEUP DRAWING

Origin TA SCENARIO 11A ES 1.3 STEP 3

HED Description:

ECCS LINEUP IS DIFFICULT TO FOLLOW IN PROCEDURES.

Originator: [signature] / APR 24, 85
Signature Date

Proposed Resolution: Category: 3

ADD SIMPLIFIED ECCS LAYOUT TO PROCEDURE.

ADD ECCS P-ID TO ERF COMPUTER.

CRDR Team Approval [signature] / 10-24-85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1165

Item(s) Involved: LOCKED OUT VLV STATUS / IDENTITY

Origin TA SCENAR. 11A E-1 STEP 17

HED Description:

VALVES WITH LOCKOUTS CAN NOT BE READILY IDENTIFIED.

Originator: [signature] / APR 29, 85
Signature Date

Proposed Resolution:

Category: ~~APR 29, 85~~ 3

ADD 'LOCK OUT' OR SYMBOL CODE TO HS PLATE

ADD 'LOCK OUT' MANIPULATIONS TO PROCEDURES.

CRDR Team Approval [signature] / APR 29, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1166

Item(s) Involved: RHR BYPASS VLV HC-606A/607A
ES 0.2 STEP 18

Origin I A SCENARIO 2 | A ~~PAGE 13 of 11 - A~~

HED Description:
BYPASS VLV HAS REVERSE INDICATION ON CONTROLLER.

Originator: [signature] / APR 29 '85
Signature Date

Proposed Resolution: Category: 3

ADD "OPEN" & "STEM" SUPPLEMENTAL LABELING TO CONTROLLER.

CRDR Team Approval [signature] / MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1167

Item(s) Involved: RHR Hot Leg Suction Vlvs

Origin TA SCENAR 2.1.A ~~PROC 1.3.11 A~~ ES 0.2 STEP 18 etc

HED Description:

Hot Leg suction Vlvs 8701 A, B
and 8702 A, B are misleadingly labeled.

Revise Label

Originator: [signature] / APR 29, 85
Signature Date

Proposed Resolution: Category: ?

Relabel as Hot Leg Suction
vice 'RHR Blocking Vlv'

CRDR Team Approval [signature] 10/24/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1168

Item(s) Involved: FEED CONDUCTIVITY ALARM - NUISANCE

Origin ~~N~~ "C" TA SCENARIO 21A

HED Description:

FEEDWATER CONDUCTIVITY ALARM ON PCP 11 NUISANCE ALARM IN POST TRIP/FEED ISOLATION BUT REQUIRED OPERATOR TO LEAVE MCB TO CHECK

Originator: [signature] / APR 26, 85
Signature Date

Proposed Resolution: Category: 4

BLOCK ALARM ON FEED WATER ISOLATION OR MFP TRIP. REINSTATE WHEN BLOCK AND TRIP CLEAR

CRDR Team Approval [signature] / MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1169

Item(s) Involved: SI/CNMT PRESS ALARM

Origin TA SCENARIO 21A ES 1.2/6, 11, 12, 13

HED Description:

ADVERSE CONTAINMENT CONDITIONS PER EOP'S
OCCUR IF CNMT HI PRESS SI OCCURS
AT 4 PSIG.

Originator: [signature] / APR 26, 85
Signature Date

Proposed Resolution:

Category: 3

ADD 'ADVERSE CNMT' TO
ANNUNCIATOR LEGEND TO SUPPORT EOP'S
CODE RED. COLOR

CANCEL AS 1138
SAME

CRDR Team Approval _____ / 5/6/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1170

Item(s) Involved: FIRST OUT ANNUNCIATOR

Origin TA SCENARIO 2A EO STEP 4

HED Description: FIRST OUT SHOULD LOCK IN EVEN IF CLEARED. IF CONDITION CLEARES, ALARM CODE AWAY AND DIAGNOSIS IS DIFFICULT

Originator: [signature] / APR 26, 85
Signature Date

Proposed Resolution: Category: NA

CANCEL. THIS IS A SIMULATOR ANOMOLY. THE FIRST OUT WILL BE DISTINCTIVELY FLASHED UNTIL ACKNOWLEDGED. IT CAN THEN BE CLEARED IF THE ALARM CONDITION NO LONGER EXISTS

CRDR Team Approval [signature] / JUNE 7, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1171

Item(s) Involved: PCP AND QHVC EMERGENCY LIGHTS

Origin TA SCENARIO 6A SIM 3E-6/ECA 0.0

HED Description:
SIMULATOR EMERGENCY LIGHTING IS INADEQUATE AT PCP AND QHVC. CHECK CONTROL ROOM.

Originator: [signature] / APR 26, 85
Signature Date

Proposed Resolution:

Category: _____

CANCEL
SAME AS 1125
ek

CRDR Team Approval _____ /
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1172

Item(s) Involved: REMOTE VALVE LOCATIONS

Origin TA SCENARIO 4A FR-S.1 STEP 7

HED Description:

PROCEDURE SPECIFIES VALVES IN REMOTE LOCATIONS WITHOUT GIVING ANY LOCATION INFORMATION.

Originator: [signature] / APR 26, '85
Signature Date

Proposed Resolution: Category: _____

HAVE Room #, Room NAME, AND MASTER VLVS ON Room SIGNS PER OPS 1006-C.
USE Room #/NAME IN EOP FOR REMOTE VLVS.

CANCEL
SAME AS 1127

CRDR Team Approval _____ /
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1173

Item(s) Involved: SWITCH HOUSE BUS MIMIC

Origin PR 12

HED Description:

MIMIC BUS IS CONTINUOUS AT CROSSINGS

Originator: [illegible] / MAY 7, 85
Signature Date

Proposed Resolution:

CUT MIMIC PLASTIC TO SHOW CROSSINGS.

Category: 3

CRDR Team Approval [illegible] / MAY 8, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

___ Pages Attached

CANCEL - BEYOND SCOPE OF CRDR
[illegible] JUNE 13, 85

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1174

Item(s) Involved: ALB9-E2 K TURB TRIP OR Rx TRIP

Origin PR 1

HED Description:

WINDOW ALB9-E2 SAYS
"Rx TRIP DUE TO TURB TRIP"

SHOULD BE
"TURBINE TRIP DUE TO REACTOR TRIP"

1X6AV01-245-3

Originator: [signature] 1 MAY 84
Signature Date

Proposed Resolution: Category: 3

REVISE ENGRAVING.

CRDR Team Approval [signature] 1 MAY 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV:	0
DATE:	10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1175

Item(s) Involved: LIC-580 SG 4 FW BYPASS LABEL #

Origin PR-2

HED Description:

LIC 580 NAMEPLATE IS MISNUMBERED 3-90.

Originator: [signature] / MAY 7, '85
Signature / Date

Proposed Resolution: Category: 3

REVISE ENGRAVING.

CRDR Team Approval [signature] / MAY 7, '85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

REV:	0
DATE:	10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1176

Item(s) Involved: BFIV LABELS

Origin PR-6

HED Description:

BFIV- 1HV 15-196/7/8/9 ARE LABELED

" SG1 AFW BYPASS

2
1
4

MISLEADING AS AFW FLOW

Originator: [signature] 1 MAY 85
Signature Date

Proposed Resolution: Category: 3

REVISE LABEL BYPASS FEED ISOLATION VALVE - BFIV

USE MFIV, BFRV, MFRV FOR OTHER

MAIN FEED VALVES

CRDR Team Approval [signature] 1 MAY 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1177

Item(s) Involved: AFW VALVE LAYOUT

Origin PR-7

HED Description:
AFW VLVS TO SG's IS ERROR
LIKELY FOR MD AFW VLVS.

Originator: [signature] / MAY 7, '85
Signature Date

Proposed Resolution:

Category: 3

USE LARGE SIG #'s ON HS.
RETAIN CURRENT LAYOUT, RECOGNIZING THAT PMP ORDER IS REVERSED, BUT MODS DO NOT IMPROVE SITUATION DUE TO TIGHT BOARD.

CRDR Team Approval [signature] MAY 8, '85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/8

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1178

Item(s) Involved: AUX SHUTDOWN - PORV/CVPS LOCAL/REMOTE

Origin PR-8

HED Description:

WITH BOTH PORV & CVPS TRANSFER SWITCHES IN "LOCAL", LOCAL CONTROL IS DISABLED.

Originator: [signature] / MAY 7, 85
Signature Date

Proposed Resolution:

Category: 3

LABEL SWITCHES WITH WARNING TO PLACE ONLY ONE IN LOCAL.

SPACE AVAILABLE PER
1X5AB01-55-6

CRDR Team Approval _____ /
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1179

Item(s) Involved: TI 4142 TANK TREF DEVIATION

Origin PR-13

HED Description:

DEVIATION METER DIRECTION VIOLATES POPULATIONAL STEREOTYPE

UP IS COLD
DOWN IS HOT

Originator: [signature] / MAY 1, 85
Signature Date

Proposed Resolution: Category: 3

~~REVISE INSTRUCTIONAL TO REFLECT CORRECT~~ OR ~~RECALIBRATE METER~~, OR
RECABEL METER " $T_{REF} - T_{AVE}$
ADD "HOT" & "COLD" TO METER SCALE OR BEZEL.

CRDR Team Approval [signature] / MAY 14, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1180

Item(s) Involved: SG ARV's SEQUENCE

Origin PR 15, G2

HED Description: ARV SEQUENCE IS "1 4 2 3"
DUE TO FIRE SEPARATION CRITERIA FOR TRAIN A/B

Originator: [signature] 10/24/84
Signature Date

Proposed Resolution: Category: 4

RELABEL WITH PROMINENT TRAIN/LOOP #'s.

RELOCATE STEAM DUMP CONTROLS AND REARRANGE ARV's.

CRDR Team Approval [signature] 10/24/84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1181

Item(s) Involved: CVCS BLENDER VLV LAYOUT/LABELS

Origin PR - 17

HED Description:

BORIC ACID AND RMW VLVS ARE NOT CONSISTENT WITH P&ID'S RIGHT, LEFT

SUGGESTION TO SWAP HS 110A/111A AND 110B/111B

+ RELABEL HS 111B 'BLENDER OUTLET TO VCT'

HS 110B 'BLENDER OUTLET TO CHARGING PUMPS'

Originator: [signature] / MAY 8, 85
Signature Date

Proposed Resolution:

Category: ~~3~~ 2 EK

RELABEL AS 111B + 110B

SWAP HS 110A + 111A ONLY

CRDR Team Approval [signature] / MAY 14, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1182

Item(s) Involved: HELB TEMP SW LABELS

Origin PR :?

HED Description:

HIGH ENERGY LINE BREAKS TEMP SELECTOR USES RUM #'s. NEED RUM/EQUIP NAME TO AID OPERATOR

Originator: [signature] / MAY 8, 85
Signature Date

Proposed Resolution: Category: 3

REVISE / SUPPLEMENT LABEL WITH RUM NAME.

CRDR Team Approval [signature] / MAY 14, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1183

Item(s) Involved: MAN STM LOW PRESS SI BLOCK LABEL

Origin PR 22

HED Description:
LABEL IS MISLEADING, REVISE.

Originator: [signature] / MAY 8, 85
Signature / Date

Proposed Resolution: Category: 3 DK

~~REVISE LABEL.~~ DK

RELABEL " LOW STM PRESS "
" SI/SLI BLOCK "

CRDR Team Approval [signature] / MAY 14, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1184

Item(s) Involved: EMERG BORATE VLV LABELS - CCP #'s

Origin PR 27

HED Description:

LABELS ON ~~HHS~~ HV 8439 & 8104

REFER TO CHG PP #

SHOULD BE CCP-A & CCP-B

TAG NUMBERS NOT USED IN OPERATIONS

Originator: [signature] / MAY 8, 85
Signature Date

Proposed Resolution: Category: 3

REVISE LABEL TO EMERG USE BORATE
TO CCP-A / CCP-B

CRDR Team Approval [signature] / MAY 14, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1185

Item(s) Involved: HS LABELS

Origin PR 28, 29

HED Description: Post LABELS on: PRZR SPRAY PCV-455C A, B, C
HV-8098

Originator: [signature] MAY 8, 85
Signature Date

Proposed Resolution: Category: 3

REVIEW LABELS, REVISE AS NEEDED.

CRDR Team Approval [signature] MAY 14, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1186

Item(s) Involved: CNMT ISO VLVS

Origin PR 30

HED Description:

LETDOWN ISO. VLVS HV-8160, 8152 NOT IDENTIFIED AS CNMT ISO VLVS - REVISE

OTHER CNMT ISO VLVS SHOULD BE IDENTIFIED PRT FILL, REC RC, ISO ~~7126, 7150~~, 8093, 8028 RCDT VENT + DISCH 7136, 8702C, 7126, 7150

Originator: [signature] 1 MAY 84
Signature Date

Proposed Resolution: Category: 3

ADD SUPPLEMENTAL LABELS (STICK ON) WITH "CI", "SI", "CVI" TO VALVES IN EOP CHECKLISTS.

CRDR Team Approval [signature] 1 MAY 14, 84
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1187

Item(s) Involved: HS-40058, HS-40059 (CNMT SPRAY RESETS)

Origin PR-31, PR-43

HED Description:
ESCUTCHEON PLATES ARE NOW ~~YELLOW~~ RED IN COLOR. CHANGE TO YELLOW
ALSO EVALUATE OTHER RESET SWITCH COLORS FOR POSSIBLE CHANGES.

Originator: Ricky R. Johnson 5-14-85
Signature Date

Proposed Resolution: Category: X

CANCEL
THIS COLOR MATCHES THE SYSTEM
COLOR CONVENTION.

CRDR Team Approval [signature], 10/23/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1188

Item(s) Involved: HS-7760 A&B (Rx MU WTR) ALSO HS 7773

Origin PR-37

HED Description:

LABELED INCORRECTLY, ALSO CHECK OTHER Rx MU WTR VLVS FOR POSSIBLE RELABELING.

Originator: Ruby R. Johnson / 5-14-85
Signature Date

Proposed Resolution: Category: 3

REVISE LABELS

CRDR Team Approval Ruby R. Johnson / 5-16-85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1189

Item(s) Involved: ANNUNCIATOR REFLASH

Origin PR 45

HED Description:

ANNUNCIATORS THAT PRESENTLY HAVE REFLASH ARE SEEMINGLY SINGLE INPUT UNITS. IF SO, THIS NEGATES THE NEED FOR REFLASH

Originator: Ricky R. Johnson / 5-14-85
Signature Date

Proposed Resolution: Category: _____

CRDR Team Approval _____ / _____
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1190

Item(s) Involved: LIC-0415 (CST/HOTWELL LEVEL)

Origin PR-47

HED Description:

CAN'T DETERMINE FROM PRESENT LABEL THE DIRECTION OF INTENDED FLOW (TO HOTWELL OR TO CST)

Originator: Riley R. Johnson 5-14-85
Signature Date

Proposed Resolution:

Category: 3

REVISE LABEL

CRDR Team Approval Riley R. Johnson 5-16-85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1191

Item(s) Involved: CR-20372 (SGBD CONDUCTIVITY)

Origin PR-48

HED Description:

RED & BLUE PENS NEED TO DESIGNATION ON RECORDER LABEL. ALSO CHECK OTHER RECORDERS FOR PROPER LABELS.

Originator: Ricky R. Johnson 5-14-85
Signature Date

Proposed Resolution: Category: 3

CONFIRM IN CR & REVISE LABEL

CANCEL

CRDR Team Approval Ricky R. Johnson 5-16-85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

CANCEL. ERROR IN SIMULATOR NOT IN C.R.
CORRECT SIMULATOR TO MATCH C.R.
[illegible] JUN 27 '85

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1192

Item(s) Involved: HS-6885 (EMERG SEAL OIL PUMP)

Origin PR-51

HED Description:
SWITCH MISLABELED AS VACUUM PUMP.

Originator: Riley R. Johnson 5-14-85
Signature Date

Proposed Resolution: Category: 3

REVISE LABEL

CRDR Team Approval Riley R. Johnson 5-16-85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1193

Item(s) Involved: HC-442A (Rx HEAD VENT THROTTLE)

Origin PR52

HED Description:

LABELED ~~INCORRECTLY~~ AS ARE REVERSED BETWEEN HIC AND ZI.

Originator: Riley R. Johnson 15-14-85
Signature Date

Proposed Resolution: Category: X

CANCEL
SAME AS HED 1194.

CRDR Team Approval E A Kopinski 1 JUN 27 '85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1194

Item(s) Involved: HC-943A & ZI-943A (ACCUM N_2 VENTS)

Origin PR-53

HED Description:

LABELS REVERSED BETWEEN HC AND ZI. SEEMS TO BE A COMMON PROBLEM THROUGHOUT THE CONTROL ROOM.

Originator: Ruby R. Johnson / 5-14-85
Signature Date

Proposed Resolution: Category: 3

REVERSE LABELS TO MATCH

PRINT 1XGAV02-46, 47, 48, 49, 50, 60.

AND LABEL LIST 1XGAV02-259

CRDR Team Approval E M Kopinski / JUN 27, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1195

Item(s) Involved: PERMISSIVE STATUS LIGHTS

Origin PR-60

HED Description:
SEVERAL OF THE LIGHTS ILLUMINATE WHEN THE PERMISSIVE COMES IN, IE P6 ILLUMINATES @ 10^-10 ICA, WHILE OTHERS ARE ILLUMINATED WITHOUT THE PERMISSIVE, IE P7 & P9

Originator: Riley R. Johnson 15-14-85
Signature Date

Proposed Resolution: Category: 3

REVISE P-9 WINDOW TO "TURB TRIP/Rx TRIP"
BLOCKED
P-9

CRDR Team Approval Riley R. Johnson 15-16-85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____Pages Attached

DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1196

Item(s) Involved: HS-8439 & HS 8104 (EMERG BORATION)

Origin PR-57

HED Description:

WHEN THESE VALVES ARE OPENED YOU MAY OR MAYNOT GET FLOW, AS THE TRANSFER PUMPS MAY NOT BE RUNNING. CONSIDER ADDING AN AUTO START TO THE PUMPS WHEN THE VALVES ARE OPENED.

Originator: Ricky R. Johnson 15-15-85
Signature Date

Proposed Resolution: Category: 4

INSTALL AUTO START ON PUMPS WHEN VALVES OPEN.

CRDR Team Approval Ricky R Johnson 15-16-85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1197

Item(s) Involved: 125 VDC AMMETERS

Origin PR-63

HED Description:

Add SUPPLEMENTAL LABELS TO 125VDC AMMETERS TO INDICATE "CHARGE" OR "DISCHARGE"

Originator: Riley R. Johnson 5-15-85
Signature Date

Proposed Resolution: Category: 3

Add "CHARGE"/"DISCHARGE" LABEL

CRDR Team Approval Riley R. Johnson 5-16-85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

___Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1198

Item(s) Involved: CI-B ACTUATION & RESET

Origin PR-54

HED Description:

~~CI~~ OF
CNMT ISO. PHASE B
HAS NO RESET

Originator: _____ / _____
Signature Date

Proposed Resolution: Category: 2

REMOVE ACTUATION & RESET A.S.
REMOVE ANNUNCIATOR WINDOW.

CRDR Team Approval _____ 11/14/85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1199

Item(s) Involved: HANDSWITCH ENGRAVING

Origin PR-38, PR-44

HED Description:

LABELS FOR HS-8875B (ACCUM N_2), HS-2859C (TB SMOKE SYSTEM), ~~AND HS-~~ NEED TO BE REVISED TO MORE CLEARLY INDICATE FUNCTION.

Originator: Ruby R. Johnson 5-16-85
Signature Date

Proposed Resolution:

REVISE LABELS

Category: 3

CRDR Team Approval Ruby R. Johnson 5-20-85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

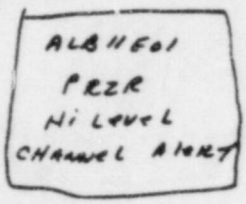
HED Number 1200

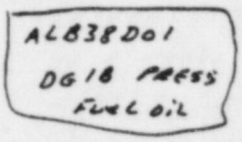
Item(s) Involved: ANNUNCIATOR WINDOWS

Origin PR-66 & PR-67

HED Description:

ALB11E01 & ALB38D01 ENGRAVING DOES NOT ADEQUATELY REFLECT INDICATE THE INTENDED MESSAGE.





Originator: Riley R. Johnson 5-16-85
Signature Date

Proposed Resolution: Category: 3

REVISE ENGRAVINGS

CRDR Team Approval Riley R. Johnson 5-20-85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1201

Item(s) Involved: 1NA05 VM SW LABEL

Origin PR-65

HED Description:

BOTH 1NA05 VM SWITCHES ARE LABELED ~~"INCOMING"~~ "NORM INCOMING". ONE OF THEM IS MISLABELED AND SHOULD READ "ALT INCOMING".

Originator: Ricky R. Johnson 5-16-85
Signature Date

Proposed Resolution:

Category: 3

REVISE LABEL

CRDR Team Approval Ricky R. Johnson 5-20-85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1202 (EAB)

Item(s) Involved: DG ANNUNCIATOR REFLASH ON FAULT

Origin EOP VALIDATION DISCREPANCY 87

HED Description:

ON EMERG BUS FAULT DG STARTS BUT WILL NOT LOAD. EVERY 90 SEC.

LOW JACKET WTR PRESS & DG FAIL TO START ANNUNCIATORS REFLASH — NUISANCE

1X5DN107-2, 1X4AK01-42
PS-221A
ALB 30 F-5

Originator: [signature] MAY 18,85
Signature Date

Proposed Resolution: Category: _____

CRDR Team Approval _____ /
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

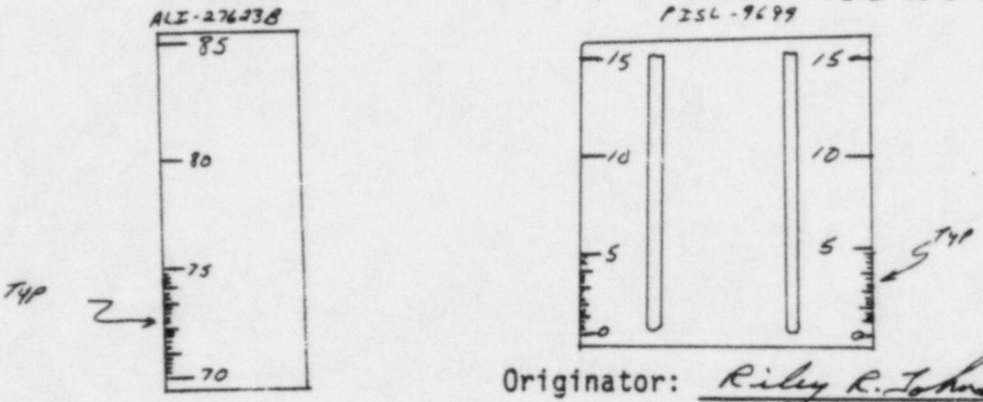
HED Number 1203

Item(s) Involved: ALI-27623B (RIVER CANAL) & PISL-9699 (H_2 TO ECDT)

Origin GENERAL PANEL CHECKLIST, QPCP G-28

HED Description:

INDICATORS HAS 24 DIVISIONS BETWEEN NUMERALS



Originator: Riley R. Johnson 16-4-85
Signature Date

Proposed Resolution: Category: 4A

The major and minor divisions are distinct and there is little potential for misreading. Also neither inst. is safety related.

NO ACTION.

CRDR Team Approval [signature] 1 JUN 27 '85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1204

Item(s) Involved: PUSH-TO-TEST PUSHBUTTONS

Origin GENERAL PANEL CHECKLIST, QPCP 6-40

HED Description:

PUSH-TO-TEST PUSHBUTTONS ON STATUS LIGHT BOARDS AREN'T UNEQUE.

Originator: Ricky R. Thomson 16-6-85
Signature Date

Proposed Resolution: Category: 4A

TEST BUTTONS ARE PHYSICALLY OFFSET FROM OTHER LIGHTS AND ARE LABELED TEST.

CRDR Team Approval [signature] 1 JAN 10, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1205

Item(s) Involved: ATR-50301, ATR-50302 & ASR-50300 (MET TOWER Recorders)

Origin GENERAL PANEL CHECKLIST, QPCP G-44

HED Description:

RECORDERS HAVE ~~RED~~ LABELS FOR PEN-1/PEN-2 BUT PENS ARE RED & BLACK

Originator: Riley R. Johnson 6-6-85
Signature Date

Proposed Resolution: Category: 3

REVISE LABEL TO 'RED' & 'BLACK' PENS.

CRDR Team Approval [signature] 1 JUN 12, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1206

Item(s) Involved: ABBREVIATION SURVEY

Origin ABBREVIATION + ACRONYM SURVEY

HED Description:

NOMENCLATURE NOT STANDARDIZED

SEE AAS.

Originator: [signature] / Date
Signature

Proposed Resolution:

REVISE LABELS PER APPROVED ABBREV. LIST.

Category: 3

CRDR Team Approval [signature] / JUN 10, 85
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1207

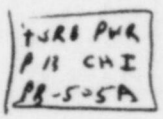
Item(s) Involved: P-13 LIGHTS AND PI-505/506 SEQUENCE RVS

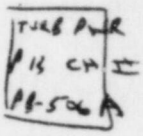
Origin PR-68

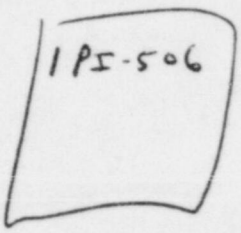
HED Description:

P-13 BISTABLES ORDERED ON TSLB-2

METERS PRE ORDERED







Originator: _____ / _____
Signature Date

Proposed Resolution: Category: _____

REVERSE PI's TO MATCH BISTABLES AND SEQUENCE INST. 505, 506.

CRDR Team Approval _____ / _____
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

DATE: 10/23/8

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1208

Item(s) Involved: ANNUNCIATOR ENGRAVING - ALB34

Origin PR 69

HED Description:

"1" AND "I" NOT DISTINGUISHABLE.

ENGRAVING IS ERROR.

LIST ATTACHED. (4 PAGES)

Originator: [signature] / Jul 29, 85
Signature Date

Proposed Resolution: Category: _____

CRDR Team Approval _____ /
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

____Pages Attached

ABB34 -

34B04- Sh.d Read: Bat Chargers, 1BD1CA Trouble
Should Read Bat Chargers, 1BD1CA 1BD1CB, Trouble

34C01- Sh.d Read: 120V AC PNL, 1BY1B Trouble
Should Read: 120VAC Panels 1BY1C 1BY2B, Trouble

34D22- Should Read: Inverters [illegible] Trouble
Should Be: [illegible]

34D17- Should Read: Bat Chargers [illegible] Trouble
Should Be: [illegible]

34D26- Should Read: Bat Chargers [illegible] Trouble
Should Be: Bat Chargers (No change req.)

34E01- Sh.d Read: Bat Charger, 1AD1CA Trouble.
Should Read: Bat Chargers, 1AD1CA 1AD1CB, Trouble.

34E02- Sh.d Read: Inverter, 1AD1I1 Trouble
Should Be: Inverters, 1AD1I1 1AD1I11, Trouble.

ALB34- INVERTER

1ED12 1BL112

TROUBLE

1ED2 INVERTER

1AL111 1AL111

TROUBLE

1AL111 1AL111

TROUBLE

1ED07 INVERTER

1DD113V

TROUBLE

12-8-3

ALB34-

34F04 INVERTER
[illegible] TROUBLE

34F05 125V L[illegible] FAIL
[illegible] TROUBLE

[illegible] INVERTER
[illegible] TROUBLE

AWB34 (Cont)

34E03 - E.d Read: 120V AC PNL, 1AY1A Trouble

Check Re: 120V AC Panels, 1AY1A 1AY2A, Trouble.

34E04 - E.d Read: Ext Charger, ICD1CB Trouble.

Check Re: Check Wiring (No engraving)

34FC1 - E.d Read: Ext Charger, AC1CB Trouble

Check Re: Check Wiring (No engraving)

DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number 1209

Item(s) Involved: ROD CONTROL STARTUP RESET SWITCH

Origin PR-71

HED Description:

ACCIDENTAL MANIPULATION OF ROD CONTROL ~~RE~~ STARTUP RESET SWITCH WIPES OUT ROD PROGRAM.

MUST NOT BE OPERATED AT POWER.

Originator: [signature] / JUN 29, 84
Signature / Date

Proposed Resolution:

Category: _____

REMOVE HANDLE AND KEEP ADMINISTRATIVE CONTROL SINCE IT IS USED ONLY DURING STARTUP.

1-HS-40038

CRDR Team Approval _____ / _____
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached

REV: 0
DATE: 10/23/84

VOGTLE ELECTRIC GENERATING PLANT
HUMAN ENGINEERING DISCREPANCY (HED)

HED Number ~~1209~~ 1210 BK

Item(s) Involved: ANNUNCIATOR TEST BUTTON

Origin COMMUNICATION SURVEY BY DAN NELSON

HED Description:

INADVERTENT PUSHING OF TEST BUTTON DURING CASUALTY DISRUPTS OPERATIONS AND DISTRACTS ALL OPERATORS MOMENTARILY.

Originator: [signature] / JUN 29 '84
Signature Date

Proposed Resolution: Category: _____

GUARD TEST BUTTON WITH FLIP UP COVER.

CRDR Team Approval _____ / _____
(Team Member Signature) Date

REA Number _____ or Work Order Number _____

_____ Pages Attached