

The following HED  
Implementation  
Documents or  
Dispositions Have Been  
Modified  
See Addendum For  
Update

HED 12001	HED 51028
HED 15006	HED 51030
HED 16006	HED 51033
HED 17009	HED 92002
HED 21001	HED 92003
HED 31009	HED 92015
HED 31037	HED 92018
HED 41001	HED 92019
HED 41007	HED 92027
HED 41012	HED 92029
HED 41020	HED 92078
HED 41028	HED 92091
HED 51001	HED 92107
HED 51004	HED 92111
HED 51010	HED 98039
HED 51027	HED 98044

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED NO: 1.2.001

TITLE:

Controls not 3 inches away from front edge of the benchboard.

DISPOSITION:

The two pushbuttons (HS 2400 and 2429) listed on panel C5713 are within 3 inches of the panel edge. Accidental actuation of either of these pushbuttons would not damage the turbine generator lube oil system, but would create misleading alarm conditions for the operator. It was concluded the two pushbuttons should be provided with collars to prevent accidental actuation. MOD 88-0092 will implement this change.

CHANGE TO DISPOSITON/JUSTIFICATION:

The modification has been accomplished under Simple Configuration Change (SCC) 88-1190.



HED NO: 12001      DATE OF ORIGIN: 09/01/83      REVISION DATE: 06/08/88  
TITLE: CONTROLS NOT 3 INCHES AWAY FROM FRONT EDGE OF THE BENCHBOARD

=====

DATA SOURCE: ANTHROPOMETRIC MEASUREMENTS

TASK PLAN: TP-1.2B1.1(1.1)

0700 PARA: 6.1.2.2D(1)

SPECIAL STUDY: CONTROLS  
ANNUNCIATOR  
SFRCS

RELATED HED(S):

=====

PROBLEM DESCRIPTION:

THE CONTROLS LISTED ARE NOT SET BACK A MINIMUM OF 3 INCHES FROM THE  
FRONT EDGE OF THE BENCHBOARD

SPECIFIC ERROR:

ACCIDENTAL ACTIVATION OF CONTROLS.

=====

INITIAL ASSESSMENT CATEGORY: III      REASSESSMENT CATEGORY: NONE

DISPOSITION/JUSTIFICATION:

1. SFRCS SPECIAL STUDY

VALVES FW 786 AND FW 790 WERE CONVERTED TO LOCKED-OPEN MANUAL  
VALVES BY FCR 85-0090 AND HAND SWITCHES HIS 786 AND HIS 790 WERE  
SPARED. SPARE SWITCH HIS 786 WAS LATER REPLACED WITH HIS 5891 BY  
FCR 85-0167. SPARE SWITCH HIS 790 WILL BE REMOVED BY FCR 85-0109.

HAND SWITCHES HIS 360 AND HIS 388 WERE INITIALLY TO BE RELOCAT-  
ED BY FCR 87-0066. HOWEVER, THE VALVES ARE BEING REPLACED AND  
AUXILIARY FEED WILL BE CONTROLLED FROM THE SFRCS PANEL BY  
FOXBORO LEVEL CONTROLLERS LIC 6451 AND LIC 6452. FCR 86-0330  
IMPLEMENTS THIS CHANGE.

THE SET-BACK CRITERION IS ADEQUATELY MET WITH THE ABOVE CHANGES.

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

RELATED MODs: 85-0090 85-0109 85-0167 86-0330 87-0066 88-0092

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FINAL DISPOSITION APPR: L. SIMON /S/      DATE: 06/02/88

HED NO: 12001

2. ANNUNCIATOR SPECIAL STUDY

ANNUNCIATOR CONTROL HS 2993 MEETS THE 3 INCH MINIMUM SET-BACK GUIDELINE AND CONSEQUENTLY IS NOT DISCREPANT.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-88-00936).

3. CONTROLS SPECIAL STUDY

THE SIX MAKE-UP PUMP CIRCUIT BREAKER CONTROLS ON C5704 ARE CMC SWITCHES WHOSE CONTROL KNOBS ARE, IN FACT, GREATER THAN THREE INCHES FROM THE CONSOLE EDGE AND ARE NOT DISCREPANT. THE LEGEND LIGHTS IN THE LOWER SECTION OF THE CMC SWITCHES EXTEND TO WITHIN THREE INCHES OF THE CONSOLE. HOWEVER, THESE ARE FOR DISPLAY PURPOSES ONLY AND HAVE NO EFFECT ON, OR CONTROL OF, THE BREAKERS.

THE TWO PUSHBUTTONS (HS 2400 AND HS 2429) LISTED ON PANEL C5713 ARE WITHIN THREE INCHES OF THE PANEL EDGE. ACCIDENTAL ACTUATION OF EITHER OF THESE PUSHBUTTONS WOULD NOT DAMAGE THE TURBINE GENERATOR LUBE OIL SYSTEM, BUT WOULD CREATE MISLEADING ALARM CONDITIONS FOR THE OPERATOR. IT WAS CONCLUDED THAT THE TWO PUSHBUTTONS SHOULD BE PROVIDED WITH COLLARS TO PREVENT ACCIDENTAL ACTUATION. MOD 88-0092 WILL IMPLEMENT THIS CHANGE.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-88-01721).

DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 3

HED NO: 12001

PANEL ID: C5702

COMPONENT IDENTIFICATION

HS 2993 ANNUN. TEST

SPECIAL  
STUDY

ANNUN

PANEL ID: C5704

COMPONENT IDENTIFICATION

HIS MU 24A1 M.U.P.1 A.C.OIL PMP E-11-D  
HIS MU 24A2 M.U.P.1 D.C.OIL PMP DCMCC1  
HIS MU 24A3 M.U.P.1 AUX GEAR OIL PMP E-11-D  
HIS MU 24B1 M.U.P.2 A.C. OIL PMP F-11-C  
HIS MU 24B2 M.U.P.2 D.C. OIL PMP DCMCC2  
HIS MU 24B3 M.U.P.2 AUX GEAR OIL PMP F-11-C

CTRL  
CTRL  
CTRL  
CTRL  
CTRL  
CTRL

PANEL ID: C5709

COMPONENT IDENTIFICATION

HIS 360 DISCH VLV (AF 360)  
HIS 388 DISCH VLV (AF-388)  
HIS 786 SWITCH REMOVED  
HIS 790 SWITCH SPARED

SFRCS  
SFRCS  
SFRCS  
SFRCS

PANEL ID: C5713

COMPONENT IDENTIFICATION

HS 2400 T-G MTR SUCT PMP TEST  
HS 2429 T-G EBOP TEST

CTRL  
CTRL

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

HED NO: 12001

TITLE: CONTROLS NOT 3 INCHES AWAY FROM FRONT EDGE OF THE BENCHBOARD

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REMARKS:

REMARKS INTENTIONALLY BLANK



DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED NO: 1.5.006

TITLE:

Inadequate Illumination Levels

DISPOSITION:

Modification 88-0110 will correct the lighting levels over panel C5715 - C5718.

CHANGE TO DISPOSITION/JUSTIFICATION:

Simple Configuration Change (SCC) 89-0868 corrected the lighting levels over panel C5715 - C5718.



HED NO: 15006

DATE OF ORIGIN: 10/20/83

REVISION DATE: 06/30/88

TITLE: INADEQUATE ILLUMINATION LEVELS

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DATA SOURCE: ANTHROPOMETRIC MEASUREMENTS

TASK PLAN: TP-1.5B1.3(3.1)

0700 PARA: 6.1.5.3A

SPECIAL STUDY: LIGHTING & ILLUMINATION  
PAM PANELS

RELATED HED(S): 15001 15002 15003

## =====

## PROBLEM DESCRIPTION:

PANELS LISTED HAVE AREAS IN WHICH THE INCIDENT ILLUMINATION LEVELS  
ARE LESS THAN 20 FTC.

## SPECIFIC ERROR:

LABEL/DISPLAY READING ERRORS -- DELAY/ERROR IN LOCATING COMPONENTS.

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INITIAL ASSESSMENT CATEGORY: IIC REASSESSMENT CATEGORY: NONE

## DISPOSITION/JUSTIFICATION:

## 1. PAM SPECIAL STUDY - PANELS C5798, C5799

BY OBSERVATION, THE DARKEST AREA ON EACH OF THE PAM PANELS APPEARS  
TO BE AT THE TOP - DIRECTLY UNDER THE CRT SUPPORTS. THE SHADOW  
FROM THESE SUPPORTS EXTENDS DOWNWARD AND FADES AWAY AT APPROXIMATE-  
LY 10 INCHES FROM THE TOP. THE DARK AREA CREATES AN OBVIOUS SHADOW  
NEAR THE SUPPORT WHICH PROVIDES THE GREATEST LIGHT DARK CONTRAST.

LAYOUT OF THE PAM PANELS WILL BE MODIFIED DURING THE 5 RFO. THE  
SHADOW WILL NOT INTERFERE WITH THE NEW LAYOUT AS ALL COMPONENTS  
AND COMPONENT LABELS WILL BE BELOW THE 10 INCH SHADOW.

DISPOSITION APPR. (PAM PANELS) L. SIMON /S/ DATE 9/25/87

## 2. LIGHTING AND ILLUMINATION SPECIAL STUDY

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

RELATED MODS: 88-0110

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FINAL DISPOSITION APPR: L. SIMON /S/ DATE: 06/25/88

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
DISPOSITION/JUSTIFICATION CONTINUATION SHEET

PAGE 2

HED NO: 15006

THE LIGHTING SURVEY PERFORMED IN 1983, DURING THE CONTROL ROOM DESIGN REVIEW, INDICATED UNACCEPTABLE LIGHTING LEVELS AT BACK PANELS C5715 (10-13 FTC), C5716 (16-22 FTC), C5717 (17-20 FTC), AND C5718 (14-30 FTC). THE MINIMUM ILLUMINATION LEVEL FOR THESE AREAS IS 20 FTC. THE PAM PANELS, C5798/99 WERE ALSO LISTED AS DISCREPANT; HOWEVER, THE MEASURED ILLUMINATION LEVELS (23-33 FTC) AND EVALUATION IN THE PAM SPECIAL STUDY INDICATE OTHERWISE. THE OPERATORS DESK (C5701) IS ALSO LISTED AS DISCREPANT AS THE MEASURED LEVELS RANGED FROM 39-43 FTC. THIS IS LESS THAN THE 50 FTC MINIMUM FOR READING HANDWRITTEN MATERIAL (PENCIL) BUT SATISFACTORY FOR THE 20-50 FTC REQUIREMENT FOR READING PRINTED MATERIAL. THE 1983 SURVEY DID NOT INDICATE WHETHER ALL LIGHTS WERE ON AND/OR THE CLEANLINESS OF THE LIGHTING HARDWARE.

CONTROL ROOM LIGHTING MEASUREMENTS WERE RETAKEN ON 12/18/87. RESULTS ARE PROVIDED IN MPR LETTER TO S. VEALE (EXT-88-00666). IT WAS NOTED THAT ONE STRING OF FLUORESCENT LIGHTS IS LOCATED OVER PANELS C5715-17 RATHER THAN ABOVE THE FRONT. ALSO DUCT WORK WHICH RUNS ABOVE, AND DIRTY DIFFUSER GRATES CONTRIBUTE TO DEGRADED LIGHTING IN THIS AREA. IT WAS ALSO NOTED THAT 2 STRINGS OF LIGHTS WERE OUT FROM PANEL C5722 TO THE RIGHT CONSOLE C5711-14.

THE MEASUREMENTS ON 12/18/87 CONFIRMED THAT LIGHTING LEVELS AT PANELS C5715 THROUGH C5718 WERE TOO LOW. LEVELS RANGED FROM 9-10 FTC AT C5715 TO 13-16 FTC AT C5718. THE ILLUMINATION SPECIAL STUDY CONCLUDED THAT THE LIGHTING FIXTURES IN THIS AREA SHOULD BE MOVED OR CHANGED TO FOUR-BULB FIXTURES. THE DIFFUSERS SHOULD BE CLEANED.

IT WAS ALSO NOTED THAT THE LIGHTING LEVELS AT PANEL C5722 WERE MARGINAL (15-19 FTC). THIS IS LIKELY DUE TO THE THREE FIXTURES IN THIS AREA WHICH HAVE BURNED OUT OR MISSING BULBS. THESE FIXTURES SHOULD BE RETURNED TO OPERATION.

LIGHTING AT THE OPERATOR'S DESK (C5701) RANGED FROM 43-57 FTC. OPERATORS REPORTED THAT LIGHTING AT THE DESK IS SATISFACTORY. NO MODIFICATIONS TO THE LIGHTING IN THIS AREA ARE NECESSARY.

MODIFICATION 88-0110 WILL CORRECT THE LIGHTING LEVELS OVER PANELS C5715-C5718.

WORK REQUESTS 88-1662 AND 88-1663 WERE ISSUED TO CLEAN THE DIFFUSERS AND REPLACE THE BURNED-OUT BULBS (MWO 1-88-1511-00).

FOR FURTHER DISCUSSION SEE MPR LETTERS TO L. SIMON (EXT-88-00666) AND MPR LETTER TO S. VEALE (EXT-88-00665). NOTE: MPR LETTER TO L. SIMON, EXT-88-01157 PROVIDED CORRECTIONS TO TYPOGRAPHICAL

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
DISPOSITION/JUSTIFICATION CONTINUATION SHEET

PAGE 3

HED NO: 15006

ERRORS IN EXT-BB-00665.



DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 4

HED NO: 15006

PANEL ID: C5701

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

OPERATOR'S DESK

ILLUM

PANEL ID: C5715

COMPONENT IDENTIFICATION

ELECTRICAL DISTRIBUTION PANEL

ILLUM

PANEL ID: C5716

COMPONENT IDENTIFICATION

EMERGENCY SAFETY FEATURES PANEL

ILLUM

PANEL ID: C5717

COMPONENT IDENTIFICATION

SFAS MANUAL ACTUATION PANEL

ILLUM

PANEL ID: C5718

COMPONENT IDENTIFICATION

REACTOR COOLANT PANEL

ILLUM

PANEL ID: C5719

COMPONENT IDENTIFICATION

FAN PANEL

PAM

PANEL ID: C5720

COMPONENT IDENTIFICATION

PAM PANEL

PAM

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

HED NO: 15006

TITLE: INADEQUATE ILLUMINATION LEVELS

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REMARKS:

REMARKS INTENTIONALLY BLANK



DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED NO: 1.6.006

TITLE:

Signal Discrimination.

DISPOSITION:

FCR 79-0322-12 removed the audible alarm from C5765 Victoreen Panel.

CHANGE TO DISPOSITION/JUSTIFICATION:

VDCN 7749-M340-6-10-B Page 1 of 3 deleted non-functional Annunciator Panel. Annunciator has been previously disconnected. The HED portion of the modification has been completed.

HED NO: 16006

DATE OF ORIGIN: 10/11/83

REVISION DATE: 06/08/88

TITLE: SIGNAL DISCRIMINABILITY

=====

DATA SOURCE: OBSERVATION CHECKLISTTASK PLAN: TP-1.6B6(6) TP-1.6B3

0700 PARA: 6.2.2.2C

SPECIAL STUDY: NOISE & COMMUNICATIONRELATED HED(S): 21010 31009

## =====

PROBLEM DESCRIPTION:

THE ALARMS LISTED CANNOT BE DISTINGUISHED FROM AMBIENT NOISE.

SPECIFIC ERROR:

DELAY OR FAILURE TO RECOGNIZE ALARM.

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INITIAL ASSESSMENT CATEGORY: III REASSESSMENT CATEGORY: NONEDISPOSITION/JUSTIFICATION:

THE AUDIBLE ALARM ON THE FIRE AND RADIATION PRINTER (C5731) HAS BEEN REMOVED FROM SERVICE AND IS NOT NECESSARY AS ANNUNCIATOR WINDOW 9-4-3 KEYS THE OPERATOR TO CHECK THE PRINTER (FCR 79-0189 ADDED THIS WINDOW WHICH IS ENGRAVED "UNIT FIRE OR RADIATION TROUBLE").

THE AUDIBLE ALARM FOR SPDS IS NOT NECESSARY AS SPDS IS NOT A PRIMARY ALARM CONSOLE DURING NORMAL OPERATION. ALARM CONDITIONS ON SPDS ARE INDICATED BY FLASHING INFORMATION ENCLOSED IN A BOX TOWARD THE BOTTOM OF THE SCREEN. THE SPDS TERMINAL IS TYPICALLY MANNED WHEN IT IS BEING ACTIVELY UTILIZED. THE AUDIBLE ALARM WILL BE REMOVED BY RFCA 88-0621.

PANEL C5785 WAS REMOVED IN 1986 BY FCR 81-0100. FCR 79-0322 REMOVED THE AUDIBLE ALARM FROM THE C5765 VICTOREEN PANEL.

RELATED MODs: 79-0189 79-0322 81-0100

=====

FINAL DISPOSITION APPR: L. SIMON /S/ DATE: 06/02/88

DAVIS-BESSE

HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

HED NO: 16006

PANEL ID: C5731

COMPONENT IDENTIFICATION

FIRE PROTECTION ALARM

PANEL ID: C5765

COMPONENT IDENTIFICATION

CONTROL ROOM RADIATION MONITOR ALARM

PANEL ID: C5785

COMPONENT IDENTIFICATION

FIRE ALARM

PANEL ID: N/A

COMPONENT IDENTIFICATION

SPDS AUDIBLE ALARM

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

SPECIAL  
STUDY



DAVIS-BESSE  
HED REMARKS

PAGE 3

HED NO: 16006

TITLE: SIGNAL DISCRIMINABILITY

=====

REMARKS:

REMARKS INTENTIONALLY BLANK

UNIT NO. 1	SYSTEM RMS, SUS 79	PLR NO. 79-322	PAGE 1
PROPOSED CHANGE, TEST, EXPERIMENT (Attach additional sheets if necessary)		COMPONENT/EQUIPMENT NO. RE 1822 A and B	

RE 1822 A and B must be changed to monitor mobile gas concentrations up to 200  $\mu\text{Ci/cc}$ . (This replaces voided FCR 77-255). Make sure that the monitors are measuring gases at one atmosphere or that there are provisions to know the pressure of the gases in the monitor.

REASON FOR CHANGE (Attach additional sheets if necessary)

On 8/27/79, the upper range of RE 1822 A and B was exceeded. If the station has a normal or forced shutdown, cooldown could take a month or more because ETS require continuous monitoring of WGD during release. The only way a release could be made without deliberately violating ETS is to allow the 5.3 day Xe-133 to decay to get back to within the range of the monitors.

PROPOSED START/COMPLETION DATE ASAP	REASON FOR DATES The upper range of the monitors has been exceeded
PRIORITY CODE 6	REQUESTOR D. W. Giden
SECTION C & HP	DATE 8/28/79

☒ Nuclear Safety Related ☐ ASME ☐ Non-Nuclear Related

SAFETY REVIEW

Yes ☐ No ☒ NSR changes in the facility as described in the PSAR.

Yes ☐ No ☒ NSR changes in the procedures as described in the PSAR.

Yes ☐ No ☒ NSR test or experiment not described in the PSAR.

Yes ☐ No ☒ A change in the Technical Specifications

SAFETY EVALUATION

Yes ☐ No ☒ The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Safety Analysis Report may be increased.

Yes ☐ No ☒ A possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report may be created.

Yes ☐ No ☒ The margin of safety as defined in the bases for any Technical Specification is reduced.

NOTE: If any of the above Section are "YES", a Safety Evaluation shall be performed.

NOTE: If any of the above Section are "Yes", an "UNREVIEWED SAFETY QUESTION" is involved, and the change may not be made without NRC concurrence.

SECURITY REVIEW

Yes ☐ No ☒ Decrease in the effectiveness of the Industrial Security Plan.

NOTE: If the security review indicates yes, then the change may not be made without NRC concurrence.

- 1-5 Restraint to Operating License Modes 1, 2, 3, 4, or 5 respectively.
- 6 Reserved for Special High Priority Items - These are items that ARI affecting either Station Generating Capacity or T.S. Action Statements or personnel safety.
- 7 Work is required at the earliest convenience - These are items that WILL affect either Station Generating Capacity or T.S. Action Statements or personnel safety.
- 8 Work is required, but it does not fall in any of the above categories.
- 9 Work is highly desirable.
- 0 Work is desirable but can be done later.

SUPERVISOR JTA	DATE 8/31/79	D-B STATION SUPERINTENDENT T.D. Murray	DATE 8/31/79	GEN. SUPERINTENDENT PEAC	DATE
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DND70A1P

DOCUMENT TYPE/ #: FOR / 79-0322-12 ORIGINATOR: JWEAY  
COMMITMENT / #: / ORIGIN DATE: 09/24/81  
COMMITMENT DATE: ORIGIN GROUP: BECH  
A/E EQUIP #: RE1822 A&B ENTERED BY: HMLEIS  
EQUIPMENT NAME: WASTE GAS RADIATION MONITOR  
PRIM SUBSYS #: 079-01 ESTIMATE START: 09/24/81  
FUND ACCT #: 3392-1 ESTIMATE COMPL: 09/24/82  
DESCRPTN SUMMARY: VDCNS,COREDRIILL RELATED DOCS: YES  
RECORDS MGMT LOC:  
REVISION: PRIORITY CODE: 01 GROUP CODES: 07 09  
NSR: NSR BUDGET TYPE: MNT JOB ORDER #:  
TASK NUMBER: SEC REV REQD: NO RESP NFE ENG: MLBORY  
PLANT STATUS: OUTG SAR EVAL REQD: YES RESP STAT ENG: JDSWAR  
QA INSP CODE: NO LIC AMEND #: SAR SECT:  
OTHER SUBSYS #:  
DESCRIPTION: THIS SUPPLEMENT INCLUDES VDCNS,COREDRIILL/OUTOUT AND  
RECOMMENDED TEST OUTLINE. RACK CHASSIS,VICTOREEN 844-7,WILL BE INSTALLED IN  
VACATED POSITION TO ACCOMMODATE TWO MONITORS,RE600 AND RE609  
CUR STEP DSC: IMPLEMENTATION EST COMPL DATE: 07/25/86 STATUS: HOLD

DAVIS-BESSE NUCLEAR POWER STATION UNIT 1  
FACILITY CHANGE REQUEST IMPLEMENTATION SUPPLEMENT  
FOR ENGINEERING ACTION AND APPROVAL

19.FCR NO. *H-322*

REV. 0

SUPP. 12

ADDITION/CHANGE TO WORK PACKAGE AND REASON (Attach Additional Sheets If Necessary)

SEE LETTER NO. BT-*12258* FOR WORK PACKAGE*See BT 12258 and its attachments*

APPROVED FOR IMPLEMENTATION

## 21. ALARA REVIEW REQUIRED

☐ Yes ☒ No

## 22. CHANGES IN FACILITY AS DESCRIBED IN FSAR

☐ No ☒ Yes (If Yes, Safety Evaluation Required)

## 23. QA REQUIRED

☐ No ☒ Yes (If Yes, Reason)☒ NSR☐ FP☐ PICA☒ Q CORE DRILL☐ ASME☐ ISI☐ SEISMIC☐ OTHER

## 24. SAFETY REVIEW

- a. Yes ☒ No ☐ NSR change in the facility.
- b. Yes ☐ No ☒ NSR changes in the procedures as described in the FSAR.
- c. Yes ☐ No ☒ NSR test or experiment not described in the FSAR.
- d. Yes ☐ No ☒ A change in the Technical Specifications or Operating License.

NOTE: If any of the above sections are marked YES, check one box below and go to Block 25.

- ☒ Previous written Safety Evaluation in Supplement No. 0 applies.
- ☐ Written Safety Evaluation attached or referenced.
- ☐ PICA and/or Q Core Drill ONLY.

## 25. SAFETY EVALUATION

- a. Yes ☐ No ☒ The probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Safety Analysis Report may be increased.
- b. Yes ☐ No ☒ A possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report may be created.
- c. Yes ☐ No ☒ The margin of safety as defined in the bases for any Technical Specification is reduced.
- d. Yes ☐ No ☒ An analysis is attached if any of the above is marked YES.

NOTE: If any of the above sections are YES, an 'UNREVIEWED SAFETY QUESTION' is involved, and the change may not be made without NRC concurrence.

## 26. SECURITY REVIEW

☐ Yes ☒ No Decrease in the effectiveness of the Industrial Security Plan.NOTE: If the Security Review indicates YES, then the change may not be made without NRC concurrence.

## 27. ENGINEERING SUMMARY OF PLANS AND PRECAUTIONS

*Implement per the attached BT 12258. also included for information is FCN 1512.*

INFORMATION ONLY

## 28. PREPARED BY

## DATE

## 29. RESPONSIBLE AREA/ORGANIZATION

OR INDIVIDUAL FOR IMPLEMENTATION

## 30. REVIEW AND APPROVAL FOR IMPLEMENTATION

## ENGINEERING

## DATE

## 30b. SRB CHAIRMAN

## DATE

## 30c. STATION SUPT.

## DATE

## 31. IF LICENSE AMENDMENT, APPROVED BY CNRB

MTC

DATE

Bechtel Associates  
Professional Corporation (Ohio)

15740 Shady Grove Road  
Gaithersburg, Maryland 20760



Mr. J. F. Helle  
Facility Engineering Manager  
The Toledo Edison Company  
P. O. Box 929  
Toledo, Ohio 43652

SEP 23 1981

Dear Mr. Helle:

The Toledo Edison Company  
Davis-Besse Nuclear Power Station  
Bechtel Job 12501  
FCR NO. 79-322, SUPPLEMENT NO. 12  
WGD DISCHARGE RADIATION MONITOR  
File: 0270, 1496, 0667  
BT-12258

Attached are fifteen (15) prints and one (1) reproducible of the required documents, as listed on the Checklist, to implement Facility Change Request Number 79-322, Supplement No. 12 on the Waste Gas Decay Tank Discharge Radiation Monitor.

Please note that although this FCR has been designated as "Nuclear Safety Related", the FCR package includes only "Non-Nuclear Related" materials. Included are VDCNs showing the annunciator being removed from cabinet No. 5 of C5765. Rack chassis, Victoreen 844-7, will be installed in this vacated position to accommodate two monitors, RE 600 and RE 609. The rack chassis is being procured by Bechtel under MR 79-322-30. Also included is a recommended test outline and a coredrill/cutout report.

This supplement incorporates FCN 1512.

Additional supplements are required for issuing vendor drawings.

We will incorporate the FCR documents into our drawings upon receipt of notification from you that all work has been completed.



Mr. J. F. Helle

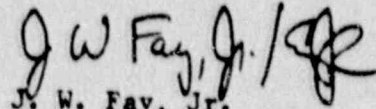
- 2 -

SEP 23 1981

BT-12258

If you have any questions, please contact us.

Very truly yours,



J. W. Fay, Jr.  
Project Engineer

JWF/BRS/cpt

Attachment: See FCR Checklist

cc: C. R. Domeck w/2  
C. T. Daft w/o  
R. Rosenthal w/o  
C. Kahn w/2  
R. A. Brown w/1  
B. Beyer w/1  
R. G. Schuerger w/o  
A. Wofford w/1  
Nuclear Construction Manager w/1 reproducible

DAVIS-BESSE NUCLEAR POWER STATION  
UNIT NO. 1



FCR CHECKLIST

FCR No. 79-322 SUPPLEMENT No. 12

DOCUMENT	REQ.	DOCUMENT	REQ.	DOCUMENT	REQ.	DOCUMENT	REQ.
1. Vendor Dwgs.		16. Instr. Mounting Details	N/R	31. Raceway Schedule	N/R	46. ISI Review Sheet(s)	*
2. VDCN	*	17. Control Board Layouts		32. Annunciator Dwgs.		47. FHA Review Sheet(s)	*
3. DCN		18. Adverse Environment (PICA)		33. Penet. Term. List		48. Safety System Review Sheet(s)	N/R
4. Piping Dwgs.		19. Level Setting Diagrams		34. Comp. Term. List		49. Coredrill/Cutout Reports	*
5. Isometrics		20. Elec. Single Line Dwgs.		35. Light & Comm. Dwgs.		50. Electric Equip. Mounting Details	N/R
6. FSK's		21. Conduit/Tray Layout Dwgs.		36. Meter & Relay Dia.		51. TEST OUTLINE	*
7. Equip. Location Dwgs.		22. Schematics		37. Raceway Cards			
8. Hanger Sketches		23. Connection Diagrams		38. Cable Pull Cards			
9. Anchor Sketches		24. Block Diagrams		39. Cable Connect Cards			
10. Load Sheets		25. Relay Setting Shts.		40. SAR			
11. Instruction Manuals		26. MCC Index		41. Bill of Materials	N/R		
12. Specifications		27. Details, Junction Box		42. Specification Change Letter	N/R		
13. Requisitions		28. Light Panel Schedules		43. Testing Requirements	N/R		
14. Logic Diagrams		29. 120V Pwr. Panel Dwgs.		44. Civil Drawings	N/R		
15. Instr. Install. Detail		30. Circuit Schedule		45. EIT Review Sheet(s)	*		

\* Denotes document(s) required for this FCR. N/R denotes Not Required.

ENCLOSURE TO FCR NO. 79-322 SUPPLEMENT NO. 12

DOCUMENT NO.	REV.	TITLE
		FHA Review SHEET
		EIT " "
		ISI " "
7749-N-440-6-10-13	B1	VDCN FOR DRAWING NO. 904761 SH. 5 (3 pages)
	7	BILL OF MATERIALS (5 pages)





DAVIS - BESSE NUCLEAR POWER STATION  
UNIT NO. 1  
FCR CHECKLIST  
(CONTINUATION SHEET)

ENCLOSURE TO FCR NO. 79-322 SUPPLEMENT NO. 12

DOCUMENT NO.

REV.

TITLE

1147 0

34

Recommended Test Outline (3 pages)

7749-C-207 34 CoreDrill/Cutout Report No. 1-31 INC FCN 1512

DAVIS-BESSE NUCLEAR POWER STATION  
UNIT No. 1  
FIRE HAZARD ANALYSIS REVIEW OF FACILITY  
CHANGE REQUEST (FCR)

Sheet 1 of 1

FCR No. <u>79-322</u> Suppl. <u>12</u>	Equipment and / or Structure Added / Modified <div style="text-align: right; font-size: small;">FCN 1512 TEST OUTLINE</div> Rack chassis installed in ann. panel of Victoreen cabinet #5 to accommodate RE-600 and RE-609	Room(s) <u>502</u>
---	--	-----------------------

	Safety Related	Non-Safety Related
1. Component Classification	<input checked="" type="checkbox"/>	<input type="checkbox"/>

2. Is this a change, to a component and/or structure, that requires FIRE HAZARD ANALYSIS?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
---	---------------------------------	---

3. Does this change adversely affect the analysis set forth in Davis-Besse Unit 1 FIRE HAZARD ANALYSIS REPORT?	YES <input type="checkbox"/>	NO <input checked="" type="checkbox"/>
--	---------------------------------	---

4. Does this change meet the requirements set forth in APCSB BTP 9.5-1, Appendix A and 10CFR 50 Appendix R, Sections III.G, III.J and III.O?	YES <input checked="" type="checkbox"/>	NO <input type="checkbox"/>
--	--	--------------------------------

5. If YES to 2 and/or 3, provide evaluation indicating the effects on SAFE (COLD) SHUTDOWN and provide a revision to the FIRE HAZARD ANALYSIS REPORT on a FHAR CHANGE NOTICE form.

6. If NO to 4 and change is mandatory, provide justification.

Responsible Engineer <u>[Signature]</u>	Date <u>9/14/81</u>
Licensing Engr. <u>[Signature]</u>	Date <u>9/22/81</u>
Fire Protection Engr. <u>[Signature]</u>	Date <u>9/23/81</u>
Grp. Supv. <u>[Signature]</u>	Date <u>9/23/81</u>

DAVIS-BESSE NUCLEAR POWER STATION  
UNIT No. 1  
EIT REVIEW SHEET FOR FACILITY  
CHANGE REQUEST

Sheet 1 of 1

FCR No. <u>79-322</u>  Suppl. <u>12</u>	Equipment Added/Modified <span style="float: right;">FCN 1512 TEST OUTLINE</span> <i>Rack chassis installed in annunciator panel of Victoreen cabinet #5 To accommodate RE 600 and RE 609</i>	Room (s)  <u>502</u>
PICA Required? <i>No.</i>		
Is this equipment required for safe (cold) shutdown? <i>No.</i>		
Will this change affect other equipment which is required for safe shutdown? <i>No.</i>		
Evaluation and Comments:  <div style="text-align: center; font-size: 1.2em;"> <i>Rack chassis being added to accommodate RE600 and RE609. No new adverse environment will be created</i> </div>		
Responsible Engr. <i>[Signature]</i>  Grp. Supv. / <del>EIT Rep</del> <i>[Signature]</i>		Date <u>9/14/81</u>  Date <u>9/23/81</u>



DAVIS-BESSE NUCLEAR POWER STATION  
UNIT No. 1  
INSERVICE INSPECTION (ISI) REVIEW OF FACILITY  
CHANGE REQUEST (FCR)

Sheet 1 of 1

FCR No. <u>79-322</u>  Suppl. <u>12</u>	Equipment Added/Modified <span style="float: right; font-size: small;">FCN 1512 TEST OUTLINE</span> <i>Rack chassis installed in annunciator panel of Victrola cabinet #5 To accommodate RE 600 and RE 609</i>	Room(s)  <u>502</u>										
1. Component Classification <table style="width: 100%; font-size: small;"> <tr> <td style="text-align: center;">ASME Section III Class I</td> <td style="text-align: center;">Class 2</td> <td style="text-align: center;">Class 3</td> <td style="text-align: center;">ANSI B-31.1</td> <td style="text-align: center;">Other</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>			ASME Section III Class I	Class 2	Class 3	ANSI B-31.1	Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ASME Section III Class I	Class 2	Class 3	ANSI B-31.1	Other								
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>								
2. Is this change to a component that requires ISI? <table style="width: 100%; font-size: small;"> <tr> <td style="text-align: center;">YES</td> <td style="text-align: center;">NO</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>			YES	NO	<input type="checkbox"/>	<input checked="" type="checkbox"/>						
YES	NO											
<input type="checkbox"/>	<input checked="" type="checkbox"/>											
3. Does this change affect performance of ISI that is required for any other component? <table style="width: 100%; font-size: small;"> <tr> <td style="text-align: center;">YES</td> <td style="text-align: center;">NO</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </table>			YES	NO	<input type="checkbox"/>	<input checked="" type="checkbox"/>						
YES	NO											
<input type="checkbox"/>	<input checked="" type="checkbox"/>											
4. If <u>YES</u> to 2 and/or 3, provide evaluation  <div style="text-align: center; font-size: large;">             NOT within the scope of ASME Section <u>IX</u> </div>												
Responsible Engr. <u><i>[Signature]</i></u> Grp. Supvr. / <del>ISI Rep</del> <u><i>[Signature]</i></u>		Date <u>9/16/81</u> Date <u>9/23/81</u>										





BECHTEL  
GAITHERSBURG, MD.

# VENDOR DRAWING CHANGE NOTICE

JOB NO.	DRAWING NO.	REV. NO.
12501	904761 SH 505	81
VDCN NUMBER		
7749. M-340-6-10-B		
Vendor VICTOREEN		

OTHER DOCUMENTS AFFECTED BY THIS CHANGE:

SEE FCR 79-322- SUPPLEMENT 12 CHECKLIST

PAGE 1 OF 3

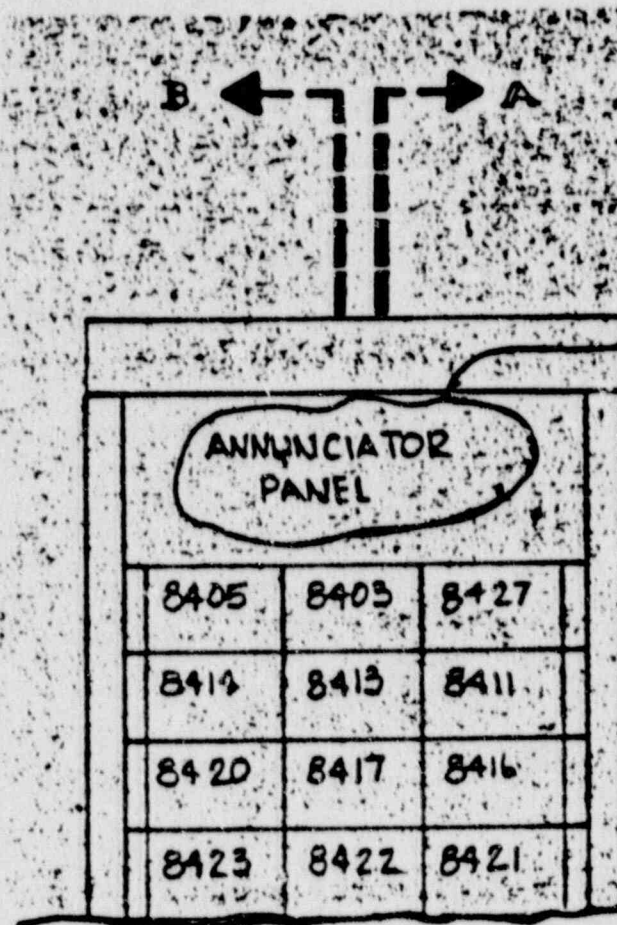
REASON FOR CHANGE:

SEE FCR 79-322

DISPOSITION OF AFFECTED MATERIAL ☐ RWORK ☐ SCRAP ☐ USE AS IS ☐ AS NOTED

DESCRIPTION OF CHANGE:

ANNUNCIATOR Internal View From Rear of Cabinet  
HAS BEEN  
DISCONNECTED  
AND REMOVED



\* Non-Functional Annunciator HAS BEEN  
Removed.

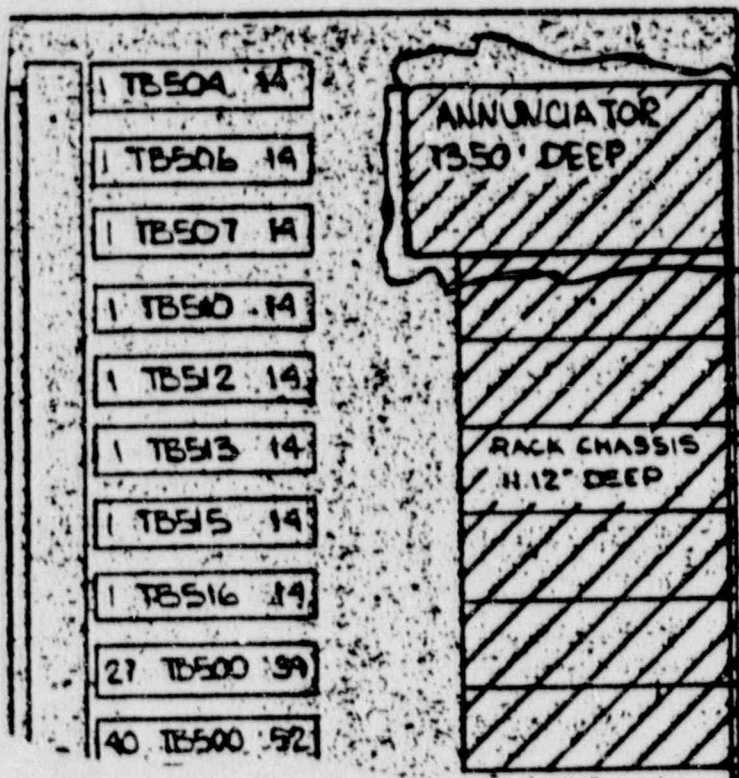
REVIEWED WITHOUT COMMENT	ARCHITECTURAL	CIVIL	CONTROL SYS.	ELECTRICAL	PLANT DES. ENG.	PLT. DES. LAYOUT	MECHANICAL
	N/A	N/A	N/A	BMT	N/A	N/A	N/A
ORIGINATOR	CHECKED BY		GROUP SUPERVISOR		PROJECT ENGINEER		DATE
B. J. Brown	A. P. D. Martin		R. J. Smith		E. G. Taylor		9-23-81



BECHTEL  
GAITHERSBURG, MD.

# VENDOR DRAWING CHANGE NOTICE

JOB NO.	DRAWING NO.	REV. NO.
12501	SH 5 of 5 904761	B1
VDCN NUMBER 7749-M-340-6-10-13		
CONTINUATION SHEET		
PAGE 2	OF	3

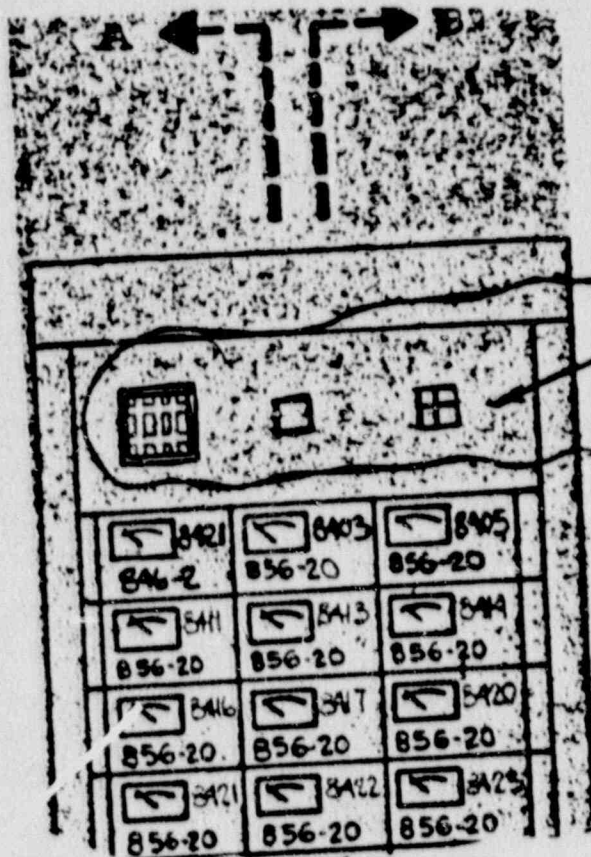




BECHTEL  
GAITHERSBURG, MD.

# VENDOR DRAWING CHANGE NOTICE

JOB NO.	DRAWING NO.	REV. NO.
12501	SH 5 OF 5 904761	B1
VDEN NUMBER 7749-M-340-6-10-B		
CONTINUATION SHEET		
PAGE 3	OF 3	



904804 Annunciator  
Panel

Area of  
change  
TO BE REMOVED



DAVIS BESSE NUCLEAR POWER STATION  
BILL OF MATERIALS

(11) REV. 7 DATE 9-23-81

(12) FOR NO 79-322

SUPPL. NO. 12

(14) RADIATION MONITOR SYSTEM

(15) PAGE 1 OF 5

(17) ITEM NO.	(16) MATERIAL	(18) QTY.	(19) ORDER BY	(20) P.O. NO. & DATE	(21) NAME OF VENDOR	(22) Scheduled Date	(23) Prop. Ship Date	(24) INSUR.	(25) EXPD. BY	(26) SHOP INSP. BY	(27) REMARKS/DOCUMENTATION	(28) FIELD NEED DATE
1	VOLUME ASSEMBLY WITH GM DETECTOR AND RATEMETER	2	TECO		VICTOREEN			NOT			SEE DATA SHEET 79-322-1	9/80
2	PRESSURE TRANSMITTER	1	TECO		GOULD			NOT			SEE DATA SHEET 79-322-2 REF.	5/80
3	BETA SCINTILLATOR 843-200	1	TECO		VICTOREEN	SHIPPED		NOT	N/R	N/R	IN STOCK DIRECT	
4	CALIBRATION BUTTON Sr-90	1	TECO		VICTOREEN	SHIPPED		NOT	N/R	N/R	REFERENCE FOR 843-200	9/24
5	DELETED										IN STOCK	9/24
6	POWER SUPPLY Mod LCS-A-48	1	TECO		LAMBDA			NOT	N/R	N/R	DELETED (HEM)	
											SEE DATA SHEET 79-322-3 REF. SPEC	5/80
											12501-M-324N	

(17) 900: ARCH 1/4 CIVIL 1/4 CS 1/4 ELEC 1/4 MECH 1/4 PLT DES ENG 1/4 PLT DES LAYOUT 1/4

\*ITEMS ARE SUBJECT TO THE PROVISIONS OF 10 CFR 21

171

DAVIS - BESSE NUCLEAR POWER STATION  
BILL OF MATERIALS

(1) REV. 7 DATE 9-23-81 4 5 6 7

(2) FCR No. 79-322

SUPPL. NO. 12

(3) Unit NO. 1

(4) RADIATION MONITOR SYSTEM

(5) PAGE 2 OF 5 2 4

(17)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
ITEM NO.	MATERIAL	QTY.	ORDER BY	P.O. NO. & DATE	NAME OF VENDOR	Scheduled Date Prop. Ship Date	NSR NOT	EXPED. BY	SHOP INSP. BY	REMARKS/DOCUMENTATION	FIELD NEED DATE
7	3/4" x 3/4" x 3/4" SOCKETWELD TEE	1	TECO		- STOCK		NOT	N/R	N/R	PER HSC PIPE CLASS	5/80 <u>2</u>
8	3/4" " SOCKETWELD 90° ELBOW	1	TECO		- STOCK		NOT	N/R	N/R	PER HSC PIPE CLASS	5/80 <u>2</u>
9	3/4" SOCKETWELD DIAPHRAGM VALVE	1	TECO		STANDARD		NOT	N/R	N/R	PER HSC PIPE CLASS	5/80 <u>6</u>
10	3/4" PIPE SCHD 40S	1 FT	TECO		- STOCK		NOT	N/R	N/R	PER HSC PIPE CLASS	5/80 <u>2</u>
11	TUBING 3/8" O.D. x .065" WALL - SA 213 TP 304SS	2 1/2 FT	TECO		- STOCK		NOT	N/R	N/R	STOCK	5/80 <u>2</u>
12	VALVE MK NO. J-9	1	TECO		DRAGON (stock)		NOT	N/R	N/R		5/80 <u>2</u>
13	TEE-TUBE 3/8" T. comp x 3/8" T. comp x 1/4" NPT	1	TECO		STOCK					Swingstock NO. SS-600-3TMT	5/80 <u>2</u>

(17) BPD: ARCH NA CIVIL NA C.S. NA ELEC NA MECH NA PLT. DES. ENG NA PLT. DES. LAYOUT NA

\*ITEMS ARE SUBJECT TO THE PROVISIONS OF 10 CFR 21



DAVIS-BESSE NUCLEAR POWER STATION  
BILL OF MATERIALS

(1) REV. 7 DATE 9-23-81 4367

(2) FCR No. 79-322 SUPPL. NO. 12 (3) Unit NO. 1

(4) RADIATION MONITOR SYSTEM

(5) PAGE 3 OF 5 2A

(11)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
ITEM NO.	MATERIAL	QTY.	ORDER BY	P.O. NO. & DATE	NAME OF VENDOR	Scheduled Date	NSR	EXPED. BY	SHOP INSP. BY	REMARKS/DOCUMENTATION	FIELD NEED DATE
14	Plug 3/8" Tube	1	TECO		- Stock		NOT	N/R	N/R	SWAGelok A10 SS-600-P	5/80
15	Adaptor 1 3/4" PSW X 3/8" TSW	1	TECO		Stock		NOT	N/R	N/R	Cajon A10 SS-12-MPN-A-6TSW	5/80
16	Tube Steel 6" X 6"	2'-1"	TECO		Stock		NOT	N/R	N/R		5/80
	Q 24.82"/FT ASTM A500										
17	Bolt 1/2"-20 X 5/8"	4	TECO		Stock		NOT	N/R	N/R		5/80
	C.S. Hex Head										
18	Bolt 1/2"-20 X 1 1/4" C.S.	2	TECO		Stock		NOT	N/R	N/R		5/80
	Hex Head w/ Nut										
19	Bracket-PI. No. 5547				UNISTRUT		NOT	N/R	N/R		5/80
					(Stock)						

(17) STD: ARCH/PL CIVIL/AC/STB ELEC/PL2-MECH/4/PLT DES ENG/PLT DES LAYOUT/4/PL

\*ITEMS ARE SUBJECT TO THE PROVISIONS OF 19 CFR 21



DAVIS BESSE NUCLEAR POWER STATION  
BILL OF MATERIALS

(1) REV. 7 DATE 9-23-81 9-23-81

(2) FOR NO. 79-322

SUPPL. NO. 12

(3) Unit

NO. 1

(4) RADIATION MONITOR SYSTEM

(5) PAGE 4 OF 5

(18)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
ITEM NO.	MATERIAL	QTY.	ORDER BY	P.O. NO. & DATE	NAME OF VENDOR	Scheduled Date Prop Ship Date	RSR NOT	EXPED. BY	SHOP INSP. BY	REMARKS/DOCUMENTATION	FIELD NEED DATE
20	HILTI-Kwik BOLT 1/2" Ø x 3 3/4" LG w/ FLAT WASHER AND HEX NUT	4	TECO		HILTI (STOCK)		NOT	N/R	N/R		5/80
21	1-5V To 0-1V SIGNAL CONVERTER	1	TECO	STOCK	ACTION PPE		NOT	N/A	N/A	Cat. No. 4300-1161	5/80
22	RESISTOR 250 Ω	1	TECO	STOCK	STOCK		NOT	N/A	N/A		
23	RESISTOR VARIABLE To 2K Ω	1								FIELD To FABRICATE	
24	RESISTOR 10 Ω	1								0-1V To 0-10mv	
										Variable Potentiometer PDCN	
										7749-M340-9-13-7	
25	CONDUIT- 3/4" RS	275'	TECO				NOT	N/A	N/A		N/D
26	CONDUIT- 2" RS	10'	TECO				NOT	N/A	N/A		N/D

117 BPD: ARCH. 2/4 CIVIL/A C.E. 2/4 ELEC. 2/4 MECH/A PLY. DES. ENG. 2/4 PLY. DES. LAYOUT N/A

\*ITEMS ARE SUBJECT TO THE PROVISIONS OF 19 CFR 21

DAVIS-BESSE NUCLEAR POWER STATION  
BILL OF MATERIALS

(11) REV. 7 DATE 9-23-81 567

(12) FCR No. 79-322 SUPPL. NO. 12 (13) Unit NO. 1

(15) PAGE 5 OF 5

(14) RADIATION MONITOR SYSTEM

(17) ITEM NO.	(5) MATERIAL	(7) QTY.	(8) ORDER BY	(9) P.O. NO. & DATE	(10) NAME OF VENDOR	(11) Scheduled Date	(12) NSR	(13) EXPD. BY	(14) SHOP INSP. BY	(15) REMARKS/DOCUMENTATION	(16) FIELD NEED DATE
27	CABLE TYPE "LTD" SHIELDED TWISTED PAIR #16 AWG INSTRUMENTATION CABLE	240'	TECO		GEORGE SAMUEL MOORE CO.		NSR	TECO	TECO	ITEM #1 SPECIFICATION 12501-E-17A	N/D
28	CABLE TYPE "LRB" BELDEN CABLE NO. B282	575'	TECO		BELDEN		NSR	TECO	N/A	-	N/D
29	INDICATOR, VERTICAL GE-180	2	TEC		GENERAL ELECTRIC		NOT	TEC	N/A	SPEC M-324N REF DATA SHEET 79-322-4 APPA P/R 197701	10/81
30	RACK CHASSIS	2	BROWN		VICTOREEN		NOT	P/R	N/A	SEE SPEC. 12501-M SHOAQ REV. 3. PURCHASED UNDER MR # 79-322-30	

(18) PCB ARCH N/A CIVIL N/A CST N/A ELECT N/A MECH N/A PLY DES ENGR N/A P.T. DES LAYOUT N/A

\*ITEMS ARE SUBJECT TO THE PROVISIONS OF 10 CFR 21



BECHTEL  
GAITHERSBURG, MD

# RECOMMENDED TEST OUTLINE (REV. 0)

JOB NO.	PAGE	OF
12501	1	3
FCR NO.	SUPPL.	
79-322	12	

TITLE: Waste Gas Radiation Monitors Test

1.0 Equipment Needed

1.1 None

2.0 Limits and Precautions

Safety tagging procedure AD1803 and TED Safety Procedure will be in effect and followed.

3.0 Prerequisites

3.1 The Shift Foreman has been notified and approves of the start of this test.

Verified \_\_\_\_\_ Date \_\_\_\_\_

3.2 Instrument check source power is available to the following radiation monitors:

RE-1822A  
RE-1822B  
RE-1822C  
RE-1822D  
RE-600  
RE-609

Verified \_\_\_\_\_ Date \_\_\_\_\_

4.0 Test Method

4.1 Switch on the check source for radiation monitor RE-1822A on panel C5765A and observe that the indicator RI-1822A, on panel C1702, indicates.

Verified \_\_\_\_\_ Date \_\_\_\_\_

4.2 Switch off the check source for radiation monitor RE-1822A on panel C5765A and observe that there is no indication on indicator RI-1822A.

Verified \_\_\_\_\_ Date \_\_\_\_\_

ORIGINATOR <i>Michael S. Patel</i>	S. U. SUPERVISOR <i>[Signature]</i>	GROUP SUPERVISOR <i>[Signature]</i>	PROJECT ENGINEER <i>[Signature]</i>	DATE 9-23-81
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BECHTEL  
CALIFORNIA RESOURCES INC.

# RECOMMENDED TEST OUTLINE (REV. 0)

JOB NO.	PAGE	OF
12501	2	3
PCR NO.	SUPP.	
79-322	12	

- 4.3 Switch on the check source for radiation monitor RE-1822B on panel C5765C and observe that indicator RI-1822B, on panel C1702, indicates.

Verified \_\_\_\_\_ Date \_\_\_\_\_

- 4.4 Switch off the check source for radiation monitor RE-1822B on panel C5765C and observe that there is no indication on indicator RI-1822B.

Verified \_\_\_\_\_ Date \_\_\_\_\_

- 4.5 Switch on the check source for radiation monitor RE-1822C on panel C5765C and observe that the indicator RI-1822C on panel C1702 indicates.

Verified \_\_\_\_\_ Date \_\_\_\_\_

- 4.6 Switch off the check source for radiation monitor RE-1822C on panel C5765C and observe that there is no indication on indicator RI-1822C.

Verified \_\_\_\_\_ Date \_\_\_\_\_

- 4.7 Switch on the check source for radiation monitor RE-1822D on panel C5765A and observe that the indicator RI-1822D, on panel C1702, indicates.

Verified \_\_\_\_\_ Date \_\_\_\_\_

- 4.8 Switch off the check source for radiation monitor RE-1822D on panel C5765A and observe that there is no indication on indicator RI-1822D.

Verified \_\_\_\_\_ Date \_\_\_\_\_

- 4.9 Switch on the check source for radiation monitor RE-600 on panel C5765C and observe that the indicator RI-600, on panel C1702, indicates.

Verified \_\_\_\_\_ Date \_\_\_\_\_

- 4.10 Switch off the check source for radiation monitor RE-600 on panel C5765C and observe that there is no indication on indicator RI-600.

Verified \_\_\_\_\_ Date \_\_\_\_\_



BECHTEL  
SALTHERSBURG MD

# RECOMMENDED TEST OUTLINE (REV. 0)

JOB NO.	PAGE	OF
2501	3	3
FCR NO	SUPPL.	
79-322	12	

- 4.11 Switch on the check source for radiation monitor RE-609 on panel C5765A and observe that the indicator RI-609 on panel C1702 indicates.

Verified \_\_\_\_\_ Date \_\_\_\_\_

- 4.12 Switch off the check source for radiation monitor RE-609 on panel C5765A and observe that there is no indication on indicator RI-609.

Verified \_\_\_\_\_ Date \_\_\_\_\_

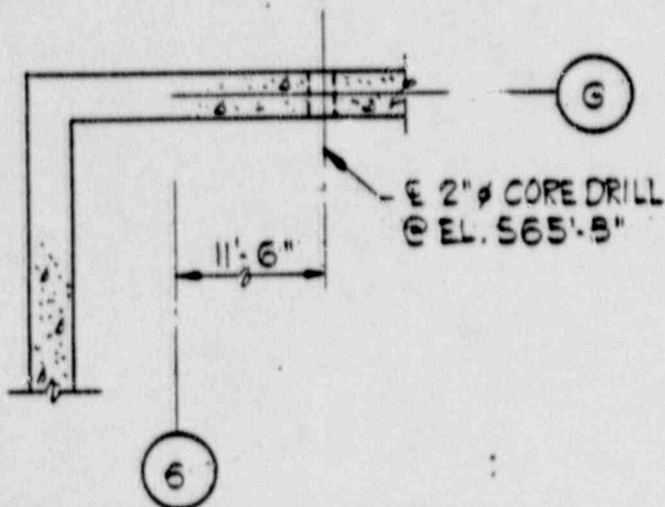


# CORE DRILL / CUT OUT REPORT

JOB NO	DRAWING NO	REV
12501	7749-C-207	34
REPORT NO	PAGE	OF
1-31	FOR 74-522	5

REV	DATE

INCORPORATES FCN 1512



## NOTES:

1. AFTER CONDUIT IS INSTALLED, FILL HOLE WITH SILICONE FOAM MATERIAL PER SPEC. 7749-M-255Q.
2. TOLERANCE FOR LOCATION OF CORE DRILL:  $\pm 1"$  EACH WAY.

PART PLAN AT EL. 565'-0"  
AUXILIARY BUILDING

NOTE: SEE REVERSE SIDE FOR INSTRUCTIONS

FIRE BARRIER - ☒ YES ☐ NO  
NEGATIVE PRESSURE BOUNDARY - ☒ YES ☐ NO

ARCHITECTURAL	ELECTRICAL	PLANT DESIGN ENG	PLANT DESIGN LAYOUT	MECHANICAL	CONTROL SYSTEMS
AK.	2008/10/01	N/A	N/A	APD	APD
BY	CHKD	CIVIL GROUP SUPERVISOR APPROVAL	PROJECT ENGINEER APPROVAL	DATE	
RAL	T	[Signature]	[Signature]	9/23/11	

CONSTRUCTOR					FIELD G C VERIFICATION			REMARKS:
NUMBER OF REBARS CUT					ITEM	SIGNATURE	DATE	
WALL	H.P.	MOR	VERT	DIAG	FIRE BARRIER RESEAL (TEMPORARY)			
	P.P.				FIRE BARRIER RESEAL (PERMANENT)			
	E-W	TOP	BOT	DIAG	NEG PRESSURE BOUNDARY RESEAL (TEMPORARY)			
	N-S				NEG PRESSURE BOUNDARY RESEAL (PERMANENT)			
FIELD CONST. ENGR.					DATE			

DESCRIPTION / LOCATION

(2) REVIEW

(3) RECORD





BECHTEL  
GAITHERSBURG, MD.

# VENDOR DRAWING CHANGE NOTICE

7749	904761 SH 3055	REV. NO. G
VDCN NUMBER 7749-M-340-6-12-24		
Vendor VICTOREEN		
PAGE 1	OF 2	

OTHER DOCUMENTS AFFECTED BY THIS CHANGE:

SEE FCR 79-322, SUPPL 14 CHECKLIST

REASON FOR CHANGE:

FCR 79-322, SUPPL 14

DISPOSITION OF AFFECTED MATERIAL: ☐ REWORK ☐ SCRAP ☐ USE AS IS ☒ AS NOTED

DESCRIPTION OF CHANGE:

INFORMATION ONLY

RACK #3

<input type="checkbox"/> 842-11 2025A	<input type="checkbox"/> 842-31 2025B
<input type="checkbox"/> 842-11 2025C	<input type="checkbox"/> 844-90 2025
<input type="checkbox"/> 842-31 177FB	<input type="checkbox"/> 842-31 1822B
<input type="checkbox"/> 842-31 1770B	<input type="checkbox"/> 842-11 (MODIFIED) 1822D
<input type="checkbox"/> 842-11 5405A	<input type="checkbox"/> 842-31 5405B
<input type="checkbox"/> 842-11 5405C	<input type="checkbox"/> 844-90 5405

THIS VDCN SUPERSEDES  
VDCN 7749-M-340-6-9-8

TO BE NO COMMENT  
EDISON

AREA OF CHANGE

RECORDED #3  
12 point

DATE	7-1-84	FOR INC
DOC.	—	

FIELD VERIFICATION OF CHANGE (Q-Only) - ACCEPTED

TED - QC 1188/D818

VIEWED WITHOUT COMMENT	ARCHITECTURAL N/A	CIVIL N/A	CONTROL SYS. PAT	ELECTRICAL N/A	PLANT DES. ENG. N/A	PLT. DES. LAYOUT N/A	MECHANICAL N/A
ORIGINATOR	CHECKED BY		GROUP SUPERVISOR		PROJECT ENGINEER		DATE
DeHutton	R. M. Hutton		E. Marshall		J. W. Fay		11-14-83

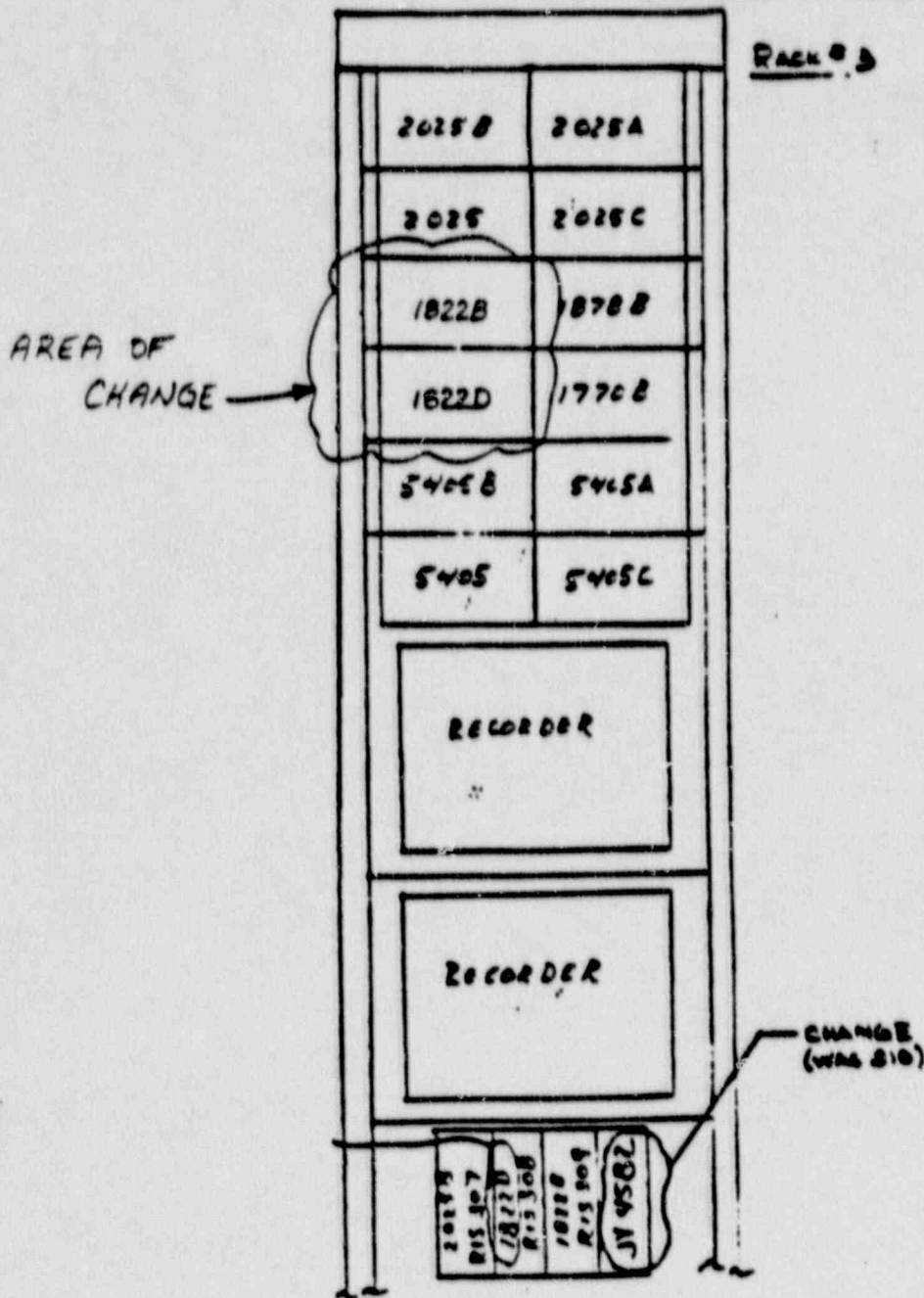


BECHTEL  
GAITHERSBURG, MD.

# VENDOR DRAWING CHANGE NOTICE

JOB NO.	DRAWING NO.	REV. NO.
7749	904761 SH 9 OF 5	G
VDN NUMBER 7749-M-340-6-12-24		
CONTINUATION SHEET		
PAGE	2	OF 2

THIS VDCN SUPERSEDES VDCN 7749-M-340-6-9-8 :





BECHTEL  
GAITHERSBURG, MD.

# VENDOR DRAWING CHANGE NOTICE

JOB NO.	DRAWING NO.	REV. NO.
7749	904761 SH 10F5	B3
VDEN NUMBER		
7749-M-340-6-12-25		
Vendor VICTOREEN		

OTHER DOCUMENTS AFFECTED BY THIS CHANGE:

SEE FCR 79-322 SUPPL 14 CHECKLIST

PAGE 1 OF 2

REASON FOR CHANGE:

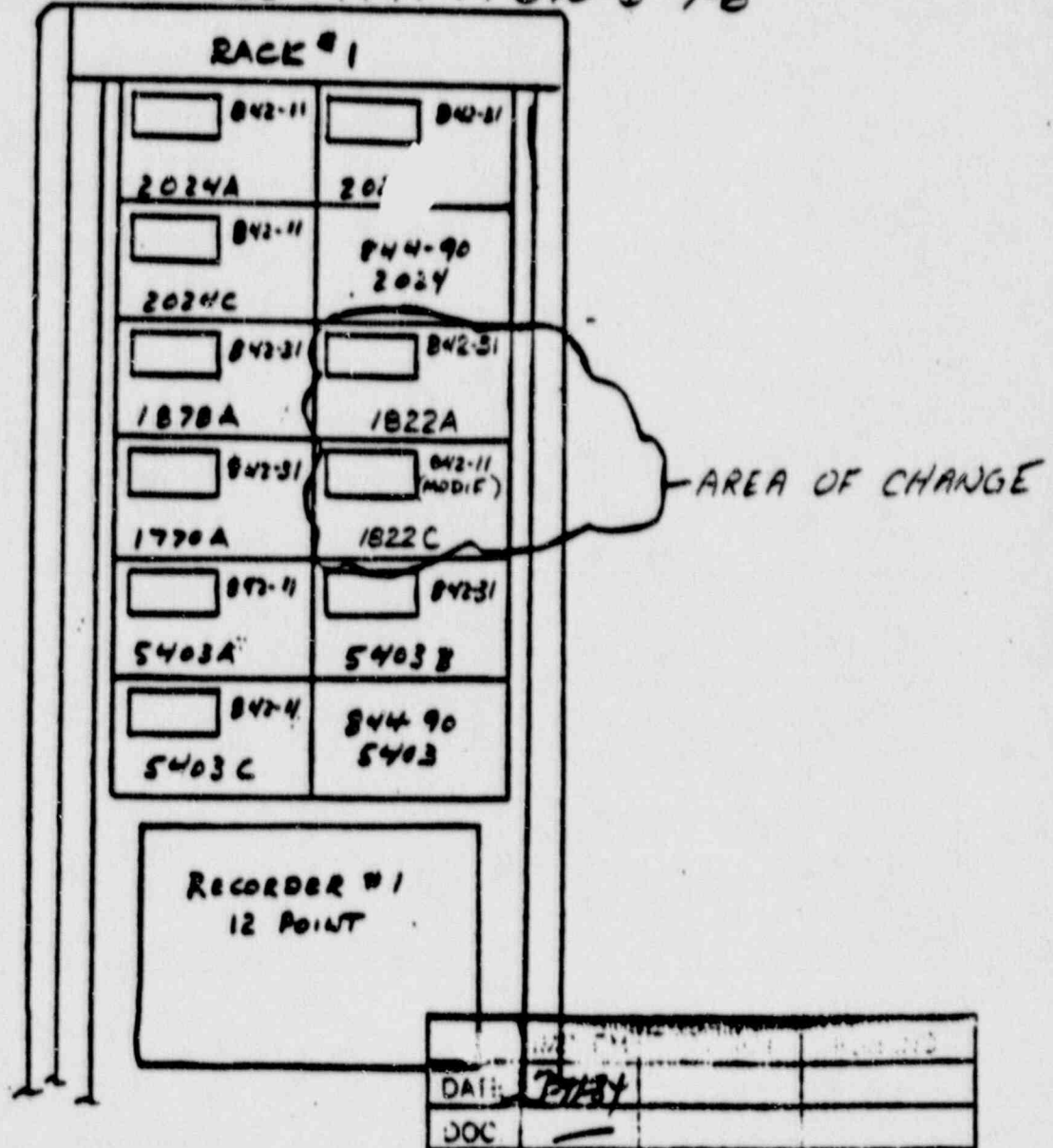
FCR 79-322, SUPPL 14

DISPOSITION OF AFFECTED MATERIAL ☐ REWORK ☐ SCRAP ☐ USE AS IS ☒ AS NOTED

DESCRIPTION OF CHANGE:

THIS VDCN SUPERSEDES VDCN 7749-M-340-6-9-6

INFORMATION ONLY



FIELD VERIFICATION OF CHANGE (Q-Only) - ACCEPTED

TED - QC INSD/DIS

REVIEWED WITHOUT COMMENT	ARCHITECTURAL N/A	CIVIL N/A	CONTROL SYS PAT	ELECTRICAL N/A	PLANT DES. ENG. N/A	PLT. DES. LAYOUT N/A	MECHANICAL N/A
ORIGINATOR D. Hutto	CHECKED BY R. W. Hutto	GROUP SUPERVISOR E. Marshall	PROJECT ENGINEER S. J. Jay	DATE 11-14-83			





BECHTEL  
SAITHERSBURG, MD.

# VENDOR DRAWING CHANGE NOTICE

JOB NO.	DRAWING NO.	REV. NO.
7749	904761 SH 10F5	B3
VDCN NUMBER 7749-M-340-6-12-25		
CONTINUATION SHEET		
PAGE	2	OF 2

RACK # 1

THIS VDCN SUPERSEDES  
VDCN 7749-M-340-6-9-6

AREA OF  
CHANGE

2024B 2024A

2024 2024C

1822A 1878A

1822C 1770A

5403B 5403A

5403 5403C

RECORDER

2024B  
R15107

2024A  
R15101

1822C  
R15108

2024C  
R15102

1822A  
R15109

1878A  
R15103

5403B  
R15110

1770A  
R15104

5403C  
R15106

5403A  
R15105

CHANGE  
(WAS 609)



BECHTEL  
GAITHERSBURG, MD.

# VENDOR DRAWING CHANGE NOTICE

JOB NO.	DRAWING NO.	REV. NO.
7749	904546 SH 2054	B2
VDCN NUMBER		
7749-M-340-21-18-6		
Vendor VICTOREEN		
PAGE	1	OF 1

OTHER DOCUMENTS AFFECTED BY THIS CHANGE:

SEE FCR 79-322 SUPPL 14 CHECKLIST

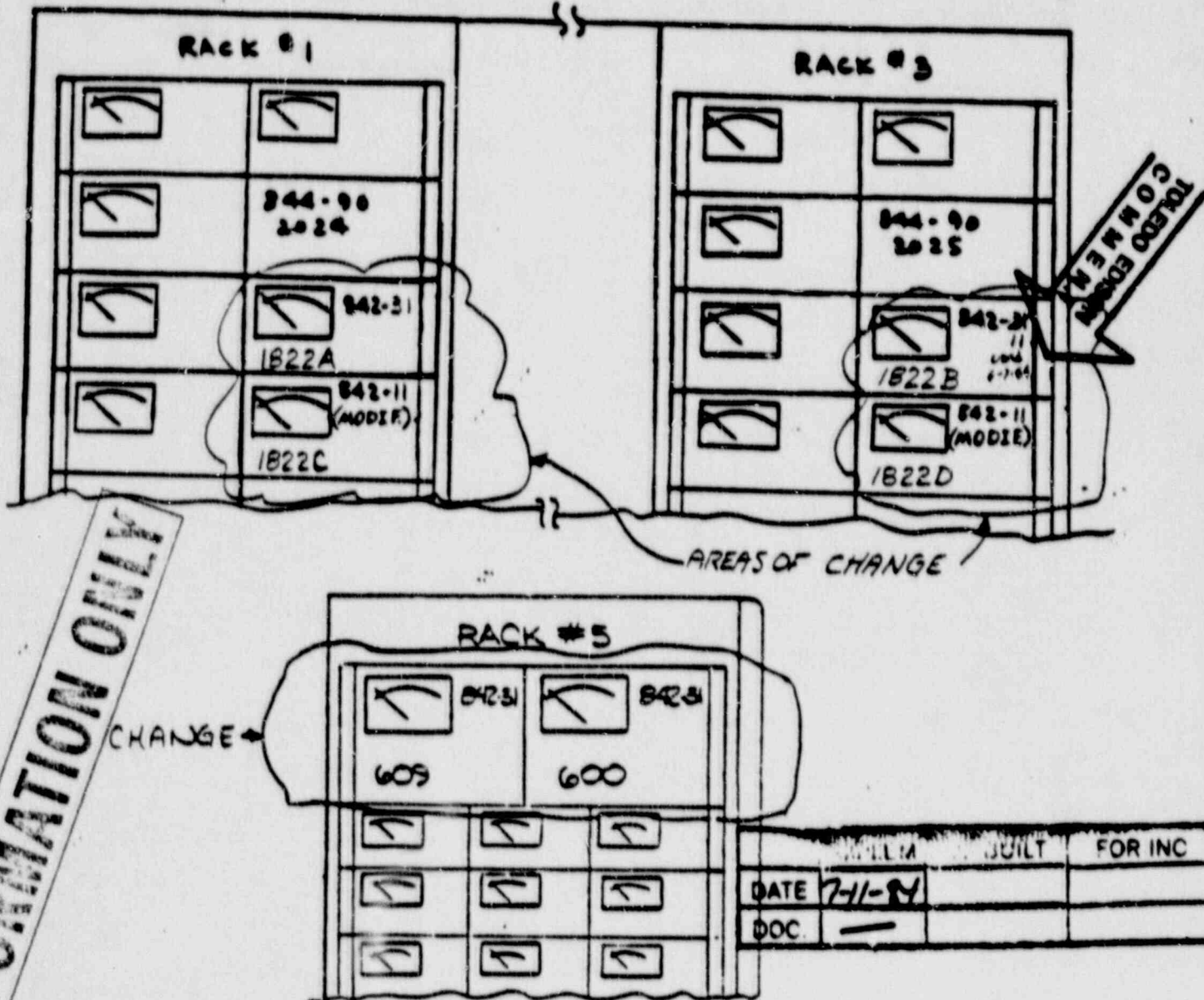
REASON FOR CHANGE:

FCR 79-322 SUPPL 14

DISPOSITION OF AFFECTED MATERIAL ☐ REWORK ☐ SCRAP ☐ USE AS IS ☒ AS NOTED

DESCRIPTION OF CHANGE:

THIS VDCN SUPERSEDES VDCN 7749-M-340-21-16-3



DATE	7-1-84	DATE		DATE	
DOC		DOC		DOC	

FIELD VERIFICATION OF CHANGE (Q-Only) - ACCEPTED

TED - QC INSD/D018

REVIEWED WITHOUT COMMENT	ARCHITECTURAL	CIVIL	CONTROL SYS.	ELECTRICAL	PLANT DES. ENG.	PLT. DES. LAYOUT	MECHANICAL
	N/A	N/A	PAT	N/A	N/A	N/A	N/A
ORIGINATOR	CHECKED BY		GROUP SUPERVISOR		PROJECT ENGINEER		DATE
D. Kuttan	Robert W. Smith		K. Kinnally		G. W. Jones		11-14-83

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED NO. 1.7.019

TITLE:

Operators being shocked while replacing bulbs.

DISPOSITION:

Evaluation in the Engineering special study has established that the problem is confined to the 120 V bulbs used on the switchyard panel (C5723). Although some corrective steps have been taken (caution labels and proper tools), they have not been completely effective and incidents of shorting have continued. RFM 87-1252 has been issued requesting correction of the problem.

CHANGE TO DISPOSITION/JUSTIFICATION:

FCR 87-1208 was not fully implemented during the 6RFO. That portion of the modification which required an outage to complete has been accomplished. The remainder of the modification will be completed during the 7th Cycle. Completion of the modification will continue to be tracked by the DCRDR Database.



HED NO: 17009

DATE OF ORIGIN: 07/22/83

REVISION DATE: 06/08/88

TITLE: OPERATORS BEING SHOCKED WHILE REPLACING BULBS

=====

DATA SOURCE: OPERATOR SURVEY/QUESTIONNAIRETASK PLAN: TP-1.7B6(14)0700 PARA: 6.3.3.1C(2)SPECIAL STUDY: ENGINEERINGRELATED HED(S): 17003 17011

## =====

PROBLEM DESCRIPTION:

FOUR OPERATORS REPORTED THAT THEY HAD BEEN SHOCKED WHILE REPLACING A BULB.

SPECIFIC ERROR:

RESISTANCE TO CHANGING BULBS.

=====

INITIAL ASSESSMENT CATEGORY: ICREASSESSMENT CATEGORY: NONEDISPOSITION/JUSTIFICATION:

EVALUATION IN THE ENGINEERING SPECIAL STUDY HAS ESTABLISHED THAT THE PROBLEM IS CONFINED TO THE 120 V BULBS USED ON THE SWITCHYARD PANEL (C5723). ALTHOUGH SOME CORRECTIVE STEPS HAVE BEEN TAKEN (CAUTION LABELS AND PROPER TOOLS), THEY HAVE NOT BEEN COMPLETELY EFFECTIVE AND INCIDENTS OF SHORTING HAVE CONTINUED. RFM 87-1252 HAS BEEN ISSUED REQUESTING CORRECTION OF THE PROBLEM.

FOR FURTHER DISCUSSION, SEE MPR LETTER TO L. SIMON (EXT-87-08796).

RELATED MODs: 87-1252

=====

FINAL DISPOSITION APPR: L. SIMON /S/DATE: 06/02/88

DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

HED NO: 17009

PANEL ID: N/A

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

CONTROL ROOM COMPONENT BULBS

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

DAVIS-BESSE  
HED REMARKS

PAGE 3

HED NO: 17009

TITLE: OPERATORS BEING SHOCKED WHILE REPLACING BULBS

=====

REMARKS:

REMARKS INTENTIONALLY BLANK



# DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT ADDENDUM

HED NO: 2.1.001

TITLE:

No procedure for handling communications during an emergency.

DISPOSITION:

Headsets are stored in boxes throughout the plant. Metal boxes will be installed by FCR 83-0129 SUPP 1.

CHANGE TO DISPOSITION/JUSTIFICATION:

FCR 83-0129 is not being supported as a "Firm" commitment, and the selection for accomplishment during the 6RFO is dependent upon the priorities set by the Work Scope Committee.

Rational for non-Inclusion in 6RFO:

The HED portion of this item was resolved by of the existing Plant Procedure (AD 1839). The disposition contains a statement concerning Metal Boxes will be installed by FCR 83-0129 Supp 1. Headset storage throughout the plant in metal boxes has a minimal impact on the "Burden" placed on the control room operator. Installation of metal boxes does not require an outage for it's accomplishment and has no relationship to HED 2.1.001.

HED NO: 21001      DATE OF ORIGIN: 11/01/83      REVISION DATE: 06/13/88  
TITLE: NO PROCEDURE FOR HANDLING COMMUNICATIONS DURING AN EMERGENCY

=====

**DATA SOURCE:** OBSERVATION CHECKLIST

**TASK PLAN:** TP-2.1B3(3)  
**OTOO PARA:** 6.2.1.1C  
**SPECIAL STUDY:** NOISE & COMMUNICATION

**RELATED HED(S):**

=====

**PROBLEM DESCRIPTION:**

NO PROCEDURES ARE ESTABLISHED FOR HANDLING COMMUNICATIONS DURING  
AN EMERGENCY OR TRANSIENT.

**SPECIFIC ERROR:**

DELAY IN OBTAINING INFORMATION.

=====

**INITIAL ASSESSMENT CATEGORY:** NONE      **REASSESSMENT CATEGORY:** NONE

**DISPOSITION/JUSTIFICATION:**

THE REQUIRED COMMUNICATIONS ARE IDENTIFIED IN THE EXISTING PLANT  
PROCEDURE (AD 1839) AND OPERATORS CAN GET ASSISTANCE WITH COMMUNICA-  
TIONS IF NEEDED.

HEADSETS ARE STORED IN BOXES THROUGHOUT THE PLANT. METAL BOXES WILL  
BE INSTALLED BY FCR 83-0129 SUPP 1.

SOUND-POWERED PHONES ARE CHECKED QUARTERLY. NO PROBLEMS HAVE BEEN  
FOUND WITH THE CONTROL ROOM GAI-TRONICS HEADSETS.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-88-00705).

**RELATED MODs:** 83-0129

=====

**FINAL DISPOSITION APPR:** L. SIMON /S/      **DATE:** 06/09/88

DAVIS-BESSE

HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

HED NO: 21001

PANEL ID: N/A

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

COMMUNICATION PROCEDURES

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*



DAVIS-BESSE  
HED REMARKS

PAGE 3

HED NO: 21001

TITLE: NO PROCEDURE FOR HANDLING COMMUNICATIONS DURING AN EMERGENCY

=====

REMARKS:

REMARKS INTENTIONALLY BLANK

# DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT ADDENDUM

HED NO: 3.1.009

TITLE:

Alarm signals that startle or irritate.

DISPOSITION:

FCR 79-0322-12 removed the radiation alarm from the C5765 Victoreen Panel.

The Fire Protection Panel (C5796) alarm bell is too loud as confirmed by measurement [14 DB(A) above ambient] and subjective evaluation. The intensity will be reduced to an acceptable level over background by MOD 88-0096. (Note that this fire alarm is a different one than identified on the original HED. Panel C5785 containing the originally identified fire alarm was removed in 1986 by FCR 81-0100.)

CHANGE TO DISPOSITION/JUSTIFICATION:

FCR 79-0322-12 VDCN 7749-M340-6-10 Page 1 of 3 deleted non-functional annunciator panel. Annunciator had been previously disconnected. HED portion of the modification has been completed.

The alarm bell on Fire Protection Panel (C5796) is required to meet Fire Protection Code standards. The reduction in the alarm noise level and still satisfy the Fire Code Standard was so minimal that the implementation of the modification was not justified. On the basis of this evaluation, MOD 88-0096 was subsequently voided.

HED NO: 31009

DATE OF ORIGIN: 07/25/83

REVISION DATE: 06/13/88

FILE: ALARM SIGNALS THAT STARTLE OR IRRITATE

=====

DATA SOURCE: OPERATOR SURVEY/QUESTIONNAIRE  
OBSERVATION CHECKLIST

TASK PLAN: TP-3.1B6(18) TP-3.1B3(11) TP-1.6B6(7)  
0700 PARA: 6.2.2.6B 6.3.2.1C  
SPECIAL STUDY: NOISE & COMMUNICATION

RELATED HED(S): 16002 16005 16006 21012 31010

=====

PROBLEM DESCRIPTION:

SEVEN OPERATORS REPORTED THAT THE ALARMS LISTED STARTLE OR IRRITATE THEM, OR ARE UNCOMFORTABLE AND CAUSE A RINGING IN THE EARS.

SPECIFIC ERROR:

DELAY IN OBTAINING INFORMATION (INTERFERENCE WITH COMMUNICATION).  
OPERATOR STRESS, INTERFERENCE WITH CONCENTRATION.

=====

INITIAL ASSESSMENT CATEGORY: IC REASSESSMENT CATEGORY: NONE

DISPOSITION/JUSTIFICATION:

THE NOISE/COMMUNICATION SPECIAL STUDY GROUP TOOK SOUND LEVEL MEASUREMENTS FOR CONTROL ROOM ALARMS ON NOVEMBER 19, 1987.

MEASUREMENTS SHOW THAT THE ANNUNCIATOR ALARM LEVELS ARE ACCEPTABLE, BUT THE RIGHT ALARM HORN WHEN SOUNDED ALONE IS BORDERLINE LOW AT ONLY 7DB(A) ABOVE BACKGROUND. HOWEVER, OPERATORS REPORT NO PROBLEMS HEARING THE HORN. A SUBJECTIVE EVALUATION MADE WHEN MEASUREMENTS WERE TAKEN CONFIRMED THAT THE RIGHT HORN IS AUDIBLE. THE LEFT HORN AND BOTH ANNUNCIATOR HORNS TOGETHER WERE MEASURED AT 11 AND 12 DB(A) ABOVE AMBIENT, RESPECTIVELY. THEY CAN BE HEARD AND WERE NOT FOUND TO BE STARTLING OR IRRITATING.

THE SPDS ALARM IS BARELY AUDIBLE AT 1DB(A) ABOVE AMBIENT BUT, AS DISCUSSED IN HED 16006, THE AUDITORY PORTION OF THE SPDS ALARM IS NOT NEEDED AND WILL BE ELIMINATED.

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

RELATED MODs: 79-0189 79-0322 81-0100 88-0095 88-0096

=====

FINAL DISPOSITION APPR: L. SIMON /S/ DATE: 06/09/88



DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
DISPOSITION/JUSTIFICATION CONTINUATION SHEET

PAGE 2

HED NO: 31009

THE FIRE PROTECTION PANEL (C5796) ALARM BELL IS TOO LOUD AS CONFIRMED BY MEASUREMENT [14DB(A) ABOVE AMBIENT] AND SUBJECTIVE EVALUATION. THE INTENSITY WILL BE REDUCED TO AN ACCEPTABLE LEVEL OVER BACKGROUND BY MOD 88-0096. (NOTE THAT THIS FIRE ALARM IS A DIFFERENT ONE THAN IDENTIFIED ON THE ORIGINAL HED. PANEL C5785 CONTAINING THE ORIGINALLY IDENTIFIED FIRE ALARM WAS REMOVED IN 1986 BY FCR 81-0100.)

THE AREA RADIATION ALARM (RIL 8430) IS ALSO TOO LOUD, AND IS VERY IRRITATING AT 28 DB(A) ABOVE AMBIENT. THERE IS MUCH REDUNDANCY IN THE CONTROL ROOM AREA TO INDICATE HIGH CR RADIATION. A LIGHT WITH A RED LENS ON TOP OF THE ALARM BOX ILLUMINATES DURING AN ALARM CONDITION. THERE IS ALSO A MAIN ANNUNCIATOR WINDOW (9-4-3) (WITH AUDITORY ALARMS) AS WELL AS A PRINTOUT ON THE ALARM CRT AND LINE PRINTER. AS SUCH, THE AREA RADIATION AUDITORY ALARM WILL BE ELIMINATED BY MOD 88-0095. THE LIGHT AND OTHER REDUNDANT INDICATIONS WILL BE RETAINED.

FCR 79-0322 REMOVED THE RADIATION ALARM FROM THE C5765 VICTOREEN PANEL. FCR 79-0189 ADDED WINDOW 9-4-3 ("UNIT FIRE OR RADIATION TROUBLE").

THE SWITCHYARD ANNUNCIATOR (C5725) WAS MEASURED AT 11DB(A) ABOVE AMBIENT AND IS CONSIDERED TO BE AT AN ACCEPTABLE AUDITORY LEVEL.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-88-01157).

DAVIS-DEBBE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 3

NO: 31009

PANEL ID: C5725

COMPONENT IDENTIFICATION

SWITCHYARD ANNUNCIATOR

SPECIAL  
STUDY

PANEL ID: C5765

COMPONENT IDENTIFICATION

CONTROL ROOM RADIATION MONITOR ALARM

PANEL ID: C5785

COMPONENT IDENTIFICATION

FIRE ALARM

PANEL ID: C5796

COMPONENT IDENTIFICATION

PANEL 5796 FIRE PROTECTION ALARM BELL

PANEL ID: N/A

COMPONENT IDENTIFICATION

RIL 8430 ANNUNCIATOR BUZZER  
CR RADIATION ALARM

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

DAVIS-BESSE  
HED REMARKS

PAGE 4

HED NO: 31009

TL: ALARM SIGNALS THAT STARTLE OR IRRITATE

=====

REMARKS:

REMARKS INTENTIONALLY BLANK



DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED NO: 3.1.037

TITLE:

Annunciator with inputs from more than one parameter are not avoided.

DISPOSITION:

Add Reflash - If alarm window is in and other another subsequent condition for the same alarm comes in, then that alarm window will begin to flash and the horn will sound. The alarms with an "A" in this column are recommended as candidates for the addition of reflash during the fifth refueling outage. Alarms with a "B" in this column are recommended as candidates for the addition of reflash during the sixth refueling outage.

Local Panel Ack and Reset - An alarm comes in and an operator is sent to a local panel. At that panel he acknowledges the alarm. The alarm window in the control room goes out and will come on again if another subsequent condition for that alarm comes in. Alarms with an "X" in this column are recommended for the addition of this feature during the sixth refueling outage.

CHANGE TO DISPOSITION/JUSTIFICATION:

The reflash implementation was requested in RFM-0078 and the Local Acknowledgment was requested in RFM-0077. The original multiple input review recommended the addition of reflash or local acknowledgment and reset to 42 alarms during the sixth refueling outage. An update of the original review has been performed to take into account recent alarm modifications and to prioritize the need for reflash and local panel acknowledgment/reset. Prioritization was performed to help determine whether alternate corrective action is appropriate for some alarms, i.e. whether additional operator surveillance of some multiple input alarms should be recommended in lieu of hardware changes.

The updated and reevaluated list of alarms is attached. The prioritization was based on the likelihood of the occurrence of multiple inputs concurrently and included consideration of available redundant components and severity of consequences. Four priority levels were used, 1 being the highest priority, identifying those alarms that are most in need of reflash or local panel acknowledgment; priority 4 identifies those alarms where masking of subsequent inputs is least likely or where the consequences of this masking are less severe. As a result of the reevaluation and prioritization, corrective action requiring hardware changes (reflash or local panel acknowledgment/reset) was selected for alarms in the top three priority levels. Additional surveillance of the local components or local alarm panels was recommended for the fourth (lowest) priority level alarms whenever these alarms are lit. To facilitate surveillance of multiple input annunciators that do not have reflash, additional information was added to the annunciator tiles. A letter "M" is engraved in the upper left corner for multiple input alarms and a letter "R" is engraved in the lower left corner for alarm windows that have reflash.

The reflash listed on the attached sheet under RFM 88-0078 were implemented under MODs 88-0208 and 88-0081 for priority 1, 2, and 3 alarms. The local acknowledgments listed on the attached sheet under RFM-0077 were implemented under MOD 88-0209 for the priority 1 and 2 alarms. Reflash for window 6-5-A was deleted from MOD 88-0208 (see memorandum NEO-89-00761 of 7/21/89, copy attached). Reflash for window 16-2-2 was deleted from MOD 88-0208 (see TED letter NED-89-40706 of 7/17/89, copy attached). The design change mentioned in NED-89-40706 for the voltage regulator circuit has been implemented.

## INTRA-COMPANY MEMORANDUM

ED 8214-2

DATE

July 12, 1989

TO

D. T. Eldred, Technologist - Nuclear, I&amp;C Design Engineering

FROM

L. P. Simon, Senior Performance Engineering Technologist

*L. P. Simon*

SUBJECT

MOD 88-0208, Alarm Window 6-5-A

NEO-89-00761

Window 6-5-A, Shaft Vibration High, was listed as requiring reflash. Upon investigation of the best method to provide reflash, it was determined that local reset at the RCP monitoring and diagnostic cabinet will clear the window (even if an alarm condition still exists in the field) and allow reflash on subsequent alarms. As the Control Room cabinet where local reset is performed has a display and a printer listing all alarms as they come in, the present design is considered adequate to inform the operators of any alarm condition on any RCP vibration. It is desired that the operators respond to an alarm by going to the cabinet and performing local reset to allow reflash.

Reflash for window 6-5-A should be deleted from the scope of MOD 88-0208.

A project to upgrade the RCP monitoring and diagnostic system is being pursued by Systems Engineering.

It is suggested that this upgrade include a software change to provide reflash. The objective should be to have the annunciator window stay on when reset on the Control Room panel, even after local cabinet reset and provide reflash for subsequent alarms. This would enhance the present design that gives a clear board in the Control Room (after local cabinet reset), even though an alarm condition exists in the field.

As this is primarily a difference from normal alarm conventions and a turnover concern from an operational perspective, it is suggested that Operations include a once a shift check of the local monitoring and diagnostic cabinet as part of their Control Room readings. This check could be discontinued if and when a software change as described above is made.

LPS/mjb

cc: R. Androsik  
D. Evans  
C. Jaffee  
J. Kasper  
D. Ricci  
A. Zarechnak (MPR)  
Chron File  
PE File





EDISON PLAZA  
100 MADISON AVENUE  
TOLEDO, OHIO 44102-1001

July 17, 1989

TB-8204  
NED-89-40706  
ICC-89-0706  
0273

Bechtel Associates Professional Corporation (Ohio)  
15740 Shady Grove Road  
Gaithersburg, Maryland 20877-1454

Attention: Mr. V. R. Marathe  
Project Manager

Subject: Addition of Annunciator Reflash  
Modification (MOD) 88-0208

Reference: BT 20911 (Window 16-2-2)

Gentlemen:

You are to proceed with the Design Change of the addition of a loss of direct current (DC) voltage relay to the Voltage Regulator Control Circuit as discussed with Louis P. Simon. This is in lieu of the reflash for this window (16-2-2).

Very truly yours,

V. M. Watson  
Design Engineering Manager

DTE/lmk

cc: J. Fay

July 17, 1989  
NED-89-04076

cc: Nuclear Records Management

bcc: D. W. Colditz  
C. Jaffee  
D. E. Setzler  
L. P. Simon  
V. M. Watson

# OUTGOING CORRESPONDENCE TRAVELER

CORRESPONDENCE CONTROL NO. TB-8204  
NED-89-40706, ICC-89-0706, 027

DATE FORWARDED  
7/17/89

DATE FINAL SIGNATURE REQUIRED  
7/17/89

RETURN TO (Author Department)  
Lynn Koch, Design I & C

Bechtel Corporation

SUBJECT  
Addition of Annunciator Reflash Modification 88-0208

## APPROVAL ROUTING

		SIGNATURE	DATE
1205	AUTHOR D. T. Eldred	<i>[Signature]</i>	7/17/89
1205	SUPERVISOR C. R. Butcher	<i>[Signature]</i>	7/17/89
1043	GENERAL SUPERVISOR V. M. Watson	<i>[Signature]</i>	7/15/89
	OTHER:		
	OTHER:		
	MANAGER		
	MANAGER		
	DIRECTOR		
	DIRECTOR		
	PLANT MANAGER		
	VICE PRESIDENT NUCLEAR		

## CORRESPONDENCE TRACKING SYSTEM DATA

DATE RESPONSE REQUIRED

RESPONSIBLE INDIVIDUAL

DATE REQUIRED

DATE RECEIVED



## REFLASH AND LOCAL ACK WINDOWS BY MODIFICATIONS

<u>RFM NO.</u>	<u>PRIORITY</u>	<u>WINDOW</u>	<u>DESCRIPTION</u>	<u>MOD TYPE</u>
88-0077	1.01	1-1-9	EDG1 AIR REC PRESS LO	LOCAL ACK
	1.02	1-3-9	EDG2 AIR REC PRESS LO	LOCAL ACK
	2.13	9-4-4	AUX BLR TRBL	LOCAL ACK
	2.14	9-4-5	AUX STM CNDS&FLASH TKS LVL HI	LOCAL ACK
	4.29	7-1-4	WST GAS DECAY TKS PRESS HI	LOCAL ACK
	4.31	7-2-3	DWDT TBBL	LOCAL ACK
	4.32	7-3-1	BA EVAP TRBL	LOCAL ACK
	4.33	7-3-3	MWDT TRBL	LOCAL ACK
	4.34	7-4-1	CONC DEMIN OR STRG TK TRBL	LOCAL ACK
	4.38	7-5-3	MWMT OR FLT TRBL	LOCAL ACK
	4.39	7-6-1	CWMT OR FLT TRBL	LOCAL ACK
	4.40	9-1-3	WTR TREAT SYS TRBL	LOCAL ACK
	4.41	9-2-3	DEMIN WTR TREAT TRBL	LOCAL ACK

## REFLASH AND LOCAL ACK WINDOWS BY MODIFICATIONS

<u>RFM NO.</u>	<u>PRIORITY</u>	<u>WINDOW</u>	<u>DESCRIPTION</u>	<u>MOD TYPE</u>
88-0078	1.03	10-1-5	MFP1 VIB HI	REFLASH
	1.04	10-1-6	MFP2 VIB HI	REFLASH
	1.05	15-5-1	T-G BRG VIB HI	REFLASH
	2.06	1-5-1	SU XFMR 01 DNGR	REFLASH
	2.07	1-5-2	SU XFMR 02 DNGR	REFLASH
	2.08	1-5-3	AUX XFMR 11 DNGR	REFLASH
	2.09	10-1-3	MFPT1 CTR SYS TRBL	REFLASH
	2.10	10-1-4	MFPT2 CTR SYS TRBL	REFLASH
	2.11	16-2-2	GEN VOLTAGE REG TRBL	REFLASH
	2.12	16-4-6	MN XFMR 1 DNGR	REFLASH
	2.14	6-1-1	RCP VIB HIGH	REFLASH
	2.25	1-5-7	YVA TRBL	REFLASH
	2.26	1-5-8	YVB TRBL	REFLASH
	2.27	1-6-7	ESS BUSS INV TRBL	REFLASH
	2.28	4-6-4	PZR HTR SOURCE FAULT	REFLASH
	3.17	1-3-8	DC PANEL VOLTAGE LO	REFLASH
	3.18	1-4-7	DC SYS 1 BUS TRBL	REFLASH
	3.19	1-4-8	DC SYS 2 BUS TRBL	REFLASH
	3.22	11-1-1	TRVLG SCRNL DIFF	REFLASH
	3.23	11-2-1	TRVLG SCRNL TRBL	REFLASH
	4.15	1-3-5	ESS XFMR CE1-1 TRBL	REFLASH
	4.16	1-3-6	ESS XFMR DF1-2 TRBL	REFLASH
	4.20	1-5-5	ESS XFMR CE1-2 TRBL	REFLASH
	4.21	1-5-6	ESS XFMR DF1-1 TRBL	REFLASH
	4.24	1-3-7	BATT RM VENT TRBL	REFLASH
	4.30	7-2-2	COMPUTER MUX LOSS/XFER OF POWER	REFLASH
	4.32	7-3-1	BA EVAP TRBL	REFLASH
	4.35	7-4-2	CLN WST PRI DEMIN CR FLT TRBL	REFLASH
	4.36	7-4-4	WST GAS SURGE TK TRBL	REFLASH
	4.37	7-5-2	CLN WST REC TK TRBL	REFLASH
	4.42	9-3-3	DEMIN WTR STRG TK TRBL	REFLASH
	9.99	9-2-4	MOD NOT JUSTIFIED BY COST	REFLASH

HED NO: 31037

DATE OF ORIGIN: 11/01/83

REVISION DATE: 06/14/88

TITLE: ANNUNCIATORS WITH INPUTS FROM MORE THAN ONE PARAMETER ARE NOT  
AVOIDED

=====

DATA SOURCE: HISTORICAL DOCUMENT REVIEW

TASK PLAN: TP-3.1B4(1B)

0700 PARA: 6.S.1.2C(1)

SPECIAL STUDY: ANNUNCIATOR

RELATED HED(S): 31024 31025 31026 31027 31028

=====

PROBLEM DESCRIPTION:

ANNUNCIATORS WITH INPUTS FROM MORE THAN ONE PLANT PARAMETER SET-  
POINT ARE NOT AVOIDED.

SPECIFIC ERROR:

MISINTERPRETATION OF ANNUNCIATOR. DELAY IN IDENTIFYING ALARMS.

=====

INITIAL ASSESSMENT CATEGORY: IIA      REASSESSMENT CATEGORY: III

DISPOSITION/JUSTIFICATION:

MANY OF THE DAVIS-BESSE ANNUNCIATOR ALARMS HAVE INPUTS FROM MORE  
THAN ONE PLANT PARAMETER SETPOINT. AS DISCUSSED IN EPRI REPORT  
NP-3448, SUCH MULTIPLE INPUTS SHOULD BE AVOIDED IF:

- DEPENDING ON WHICH CONSTITUENT IS ALARMING, DIFFERENT ACTIONS  
ARE TAKEN AND INFORMATION IS NOT READILY AVAILABLE TO THE  
OPERATOR TO IDENTIFY WHICH CONSTITUENT IS ALARMING.
- THE REQUIRED RESPONSE MUST BE INITIATED IMMEDIATELY, SO THAT  
TAKING TIME TO CONSULT THE CONTROL PANEL OR THE COMPUTER (IF  
APPLICABLE) TO DETERMINE WHICH CONSTITUENT IS ALARMING WOULD  
RISK AN INADEQUATE OPERATOR RESPONSE.
- INFORMATION OR PROTECTION FOR THE OTHER ALARM CONSTITUENTS  
AFTER ANY ONE HAS ACTIVATED THE COMBINED ANNUNCIATOR IS NOT

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

RELATED MODs: 87-1108 87-1110 87-1111 87-1112 87-1113

=====

FINAL DISPOSITION APPR: L. SIMON /S/      DATE: 06/13/88



HED NO: 31037

AVAILABLE TO THE OPERATOR (REFLASH CAN PROVIDE SUCH PROTECTION).

ALL MULTIPLE INPUT ALARMS HAVE BEEN IDENTIFIED AND REVIEWED AGAINST THE CRITERIA IN NP-3448. REVIEW OF THE DAVIS-BESSE MULTIPLE INPUT ALARMS IS SUMMARIZED IN MPR LETTER DATED 11-6, 1987 (EXT-87-09255). ATTACHMENT 2 TO THAT LETTER IDENTIFIES 14 CRITICAL ALARMS FOR WHICH REFLASH CAPABILITY IS RECOMMENDED FOR FIFTH REFUELING OUTAGE IMPLEMENTATION. ATTACHMENT 3 TO THAT LETTER IDENTIFIES AN ADDITIONAL 42 MULTIPLE INPUT ALARMS FOR WHICH REFLASH, LOCAL PANEL ALARM AND RESET, OR COMPUTER POINT ADDITION IS RECOMMENDED FOR SIXTH REFUELING OUTAGE IMPLEMENTATION. ATTACHMENT 4 TO THAT LETTER LISTS THOSE MULTIPLE INPUT ALARMS FOR WHICH NO ACTION IS NEEDED. ATTACHMENT 5 TO THAT LETTER SUMMARIZES THE RECOMMENDATIONS FOR ALL 207 MULTIPLE INPUT ALARMS.

RELATED HEDS ARE 31024, 31025, 31026, 31027 AND 31028. THE ALARMS WHICH WERE LISTED IN THOSE RELATED HEDS WERE REVIEWED AND ARE INCLUDED IN THIS HED.

THE ALARMS WHICH WERE REVIEWED ARE TABULATED IN THE ATTACHED COMPONENT LISTING.

RECOMMENDED ACTIONS ARE SUMMARIZED BELOW WITH THE FOLLOWING DEFINITIONS:

1. ADD REFLASH - IF ALARM WINDOW IS IN AND ANOTHER SUBSEQUENT CONDITION FOR THE SAME ALARM COMES IN, THEN THAT ALARM WINDOW WILL BEGIN TO FLASH AND THE HORN WILL SOUND. THE ALARMS WITH AN "A" IN THIS COLUMN ARE RECOMMENDED AS CANDIDATES FOR THE ADDITION OF REFLASH DURING THE FIFTH REFUELING OUTAGE. ALARMS WITH A "B" IN THIS COLUMN ARE RECOMMENDED AS CANDIDATES FOR THE ADDITION OF REFLASH DURING THE SIXTH REFUELING OUTAGE.
2. CORRECT PROCEDURE - DENOTES A PROCEDURAL PROBLEM WHICH WAS NOTED DURING THE REVIEW PROCESS.
3. LOCAL PANEL ACK & RESET - AN ALARM COMES IN AND AN OPERATOR IS SENT TO A LOCAL PANEL. AT THAT PANEL HE ACKNOWLEDGES THE ALARM. THE ALARM WINDOW IN THE CONTROL ROOM GOES OUT AND WILL COME ON AGAIN IF ANOTHER SUBSEQUENT CONDITION FOR THAT ALARM COMES IN. ALARMS WITH AN "X" IN THIS COLUMN ARE RECOMMENDED FOR THE ADDITION OF THIS FEATURE DURING THE SIXTH REFUELING OUTAGE.
4. ADDITIONAL COMPUTER POINTS ARE RECOMMENDED FOR ALARM 1-6-7 DURING THE SIXTH REFUELING OUTAGE.
5. COMMENTS: SELF-EXPLANATORY.

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
DISPOSITION/JUSTIFICATION CONTINUATION SHEET

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ALARMS	RECOMMENDED ACTION			COMMENTS
	ADD REFLASH	CORRECT PROCEDURE	LOCAL PANEL A&R	
1-1-03	A			MOD 87-1114 ADDS REFLASH
1-1-04	A			MOD 87-1113 ADDS REFLASH
1-1-05	A			MOD 87-1112 ADDS REFLASH
1-1-06	A			MOD 87-1111 ADDS REFLASH
1-1-09			X	
1-2-05		X		AP 3001.16, SP 1105.13
1-2-06		X		AP 3001.17, SP 1105.13
1-3-05	B			
1-3-06	B			
1-3-07	B			
1-3-08	B			
1-3-09			X	
1-3-10	A			MOD 87-1122 ADDS REFLASH
1-3-11	A			MOD 87-1122 ADDS REFLASH
1-4-01	A			MOD 87-1110 ADDS REFLASH
1-4-02	A			MOD 87-1118 ADDS REFLASH
1-4-03	A			MOD 87-1119 ADDS REFLASH
1-4-07	B			
1-4-08	B			
1-5-01	B			
1-5-02	B			
1-5-03	B			
1-5-05	B			
1-5-06	B			
1-5-07	B			
1-5-08	B			
1-6-07	B			ALSO ADD COMPUTER POINTS
4-6-04	B			
5-2-02		X		AP 3005.12, SP 1105.13
6-1-01		X		NO PROCEDURE AVAILABLE, NO RECOMMENDATIONS MADE
7-1-04			X	
7-2-02	B			REVIEW AFTER MOD 84-0083 (DCN E605B-61) IMPLEMENTED
7-2-03			X	
7-3-01			X	MOD 81-0316 AFFECTS WINDOW ADD REFLASH AFTER IMPL.
7-3-03			X	
7-4-01			X	
7-4-02	B			
7-4-04	B			
7-5-02	B			
7-5-03			X	

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
DISPOSITION/JUSTIFICATION CONTINUATION SHEET

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	RECOMMENDED ACTION			COMMENTS
	ADD REFLASH	CORRECT PROCEDURE	LOCAL PANEL A&R	
7-6-01			X	
9-1-01		X	X	AP 3009.03
9-2-03		X	X	AP3009.10; MOD 87-1217
9-2-04				AFFECTS WINDOW
9-3-03	B			ALARM INOPERABLE, NO
9-4-04			X	RECOMMENDATION MADE
9-4-05			X	
9-5-05		X		AP 3009.33
10-1-03	B			
10-1-04	B			
10-1-05	B			
10-1-06	B			
10-2-07	A			MOD 87-1108 ADDS REFLASH
10-2-08	A			MOD 87-1108 ADDS REFLASH
11-1-01	B			
11-1-06		X		AP 3011.06, SP 1105.13
11-2-01	B			
12-1-03				MOD 87-1107 MODIFIES
12-1-04				MOD 87-1107 MODIFIES
12-2-03				MOD 87-1107 MODIFIES
12-2-04				MOD 87-1107 MODIFIES
12-5-03				MOD 87-1107 MODIFIES
12-5-04				MOD 87-1107 MODIFIES
14-1-04	A			MOD 87-1115 ADDS REFLASH
14-1-05	A			MOD 87-1116 ADDS REFLASH
15-3-01		X		AP 3015.13, SP 1105.13
15-5-01	B			
16-1-04		X		AP 3016.04, SP 1105.13
16-2-02	B			
16-3-06	A			MOD 87-1117 ADDS REFLASH
16-4-06	B			



HED NO: 31037

PANEL ID: AP-01

SPECIAL  
STUDYCOMPONENT IDENTIFICATION

1-1-01	BUS A ELEC FAULT TRIP
1-1-02	BUS B ELEC FAULT TRIP
1-1-03	ESSEN BUS C1 SOURCE BRKRS TRIP
1-1-04	ESSEN BUS D1 SOURCE BRKRS TRIP
1-1-05	ESSEN BUS E1 BRKRS NTNM
1-1-06	ESSEN BUS F1 BRKRS NTNM
1-1-09	EMER DG 1 AIR REC PRESS LO
1-2-01	BUS A TO XFMR AC BRKR TRIP
1-2-02	BUS B TO XFMR BD BRKR TRIP
1-2-03	ESSEN BUS C1 VOLTAGE HI HI/LO LO
1-2-04	ESSEN BUS D1 VOLTAGE HI HI/LO LO
1-2-05	ESSEN BUS E1 VOLTAGE LO
1-2-06	ESSEN BUS F1 VOLTAGE LO
1-2-07	EMER DG FO STRG TK 1 LOW LVL
1-2-08	EMER DG FO STRG TK 2 LOW LVL
1-3-05	ESSEN XFMR CE1-1 TRBL
1-3-06	ESSEN XFMR DF1-2 TRBL
1-3-07	BATTERY RM. VENT. SYS. TROUBLE
1-3-08	DC PANEL VOLTAGE LO
1-3-09	EMER DG 2 AIR REC PRESS LO
1-3-10	EMER DG 1 TRBL
1-3-11	EMER DG 2 TRBL
1-4-01	SU XFMR 01 TRBL
1-4-02	SU XFMR 02 TRBL
1-4-03	AUX XFMR 11 TRBL
1-4-07	DC SYST BUS 1 TRBL
1-4-08	DC SYST BUS 2 TRBL
1-4-10	EMER DG 1 FREQUENCY
1-4-11	EMER DG 2 FREQUENCY
1-5-01	SU XFMR 01 DNGR
1-5-02	SU XFMR 02 DNGR
1-5-03	AUX XFMR 11 DNGR
1-5-05	ESSEN XFMR CE1-2 TRBL
1-5-06	ESSEN XFMR DF1-1 TRBL
1-5-07	UPS INSTR BUS INV YVA TRBL
1-5-08	UPS INSTR BUS INV YVB TRBL
1-6-01	SU XFMR 01 TRBL TRIP
1-6-02	SU XFMR 02 TRBL TRIP
1-6-07	ESSEN INSTR BUS INV TRBL
1-6-10	EMER DG 1 LOCKOUT OR TRBL TRIP
1-6-11	EMER DG 2 LOCKOUT OR TRBL TRIP

PANEL ID: AP-02

COMPONENT IDENTIFICATION

2-1-04 BA MIX TK LVL

DAVIS-BESSE  
MED DISCREPANT COMPONENT LISTING

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PANEL ID: AP-02 (Cont'd)

SPECIAL  
STUDY

COMPONENT IDENTIFICATION

2-2-03	BA ADD TK 1 LVL
2-2-04	BA ADD TK 2 LVL
2-3-03	BA ADD TK 1 TEMP
2-3-04	BA ADD TK 2 TEMP
2-4-02	RC LETDOWN OR MU FLT DP
2-5-01	RC LETDOWN TEMP HI
2-5-03	RC MU TK LVL MU16-1
2-5-04	RC MU TK LVL MU16-2
2-6-03	RC MU PMP 1 LUB OIL PRESS LO
2-6-04	RC MU PMP 2 LUB OIL PRESS LO

PANEL ID: AP-03

COMPONENT IDENTIFICATION

3-1-01	CTMT REFUELING CANAL LVL
3-2-02	SFP LVL
3-2-03	SFP DEMIN DP
3-3-01	SFP SKMR FLT DP
3-3-02	SFP PURIF FLOW
3-3-03	SFP DEMIN FLT DP

PANEL ID: AP-04

COMPONENT IDENTIFICATION

4-2-03	CTMT EMER LOCK
4-2-04	RC PRZR RLF VLV OPEN
4-3-02	CTMT PURGE EXH FLT DP
4-3-03	CTMT PRESS DIFF TO ANNUL
4-3-04	RC LOOP 1 HLG PRESS
4-3-05	RC LOOP 2 HLG PRESS
4-4-04	RC PRZR LVL
4-6-02	CTMT RAD HI SFAS CH 1
4-6-03	CTMT RAD HI SFAS CH 2
4-6-04	RC PRZR HTR SOURCE FAULT

PANEL ID: AP-05

COMPONENT IDENTIFICATION

5-1-01	TILT IMBLNCE ROD INS LIMITS
5-1-03	CTMT PRESS ROOT VLV NO
5-1-04	SFAS 120 VAC PWR SUP TRBL
5-1-08	RPS FAN FAIL

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PANEL ID: AP-05

(Cont'd)

SPECIAL  
STUDYCOMPONENT IDENTIFICATION

5-1-09	RCP PWR SUPPLY TRBL
5-1-10	RPS RCP DC MNTR VOLT LO
5-2-01	CRD SAFETY RODS NOT WITHDRAWN
5-2-02	RPS SUP ROD WITHDRAWL INHBT
5-2-03	CC CRD BOOSTER PMP
5-2-05	SFAS TEST TRIP BYPASS INITIATED
5-2-06	RPS, SFAS OR SFRCS CABINET DOOR OPEN
5-2-07	RPS SHUTDOWN BYPASS INITIATED
5-2-08	RPS SHUTDOWN BYPASS HI PRES TRIP
5-2-09	RCP MNTR ALL OFF HALF/FULL TRIP
5-3-01	CRD SEQ FAULT
5-3-09	RPS HI FLUX/NO RCP ON TRIP
5-4-01	CRD ASYM-METRIC ROD
5-4-02	CRD LCO
5-4-03	SFAS RC PRESS <1650 PSIG TRIP BLKD
5-4-04	SFAS RC PRESS <450 PSIG TRIP BLKD
5-4-05	ARTS TEST TRIP
5-4-06	ARTS TRIP
5-4-09	RPS FLUX-DFLUX-FLOW TRIP
5-5-01	SFAS CTMT RAD LOW FAIL
5-5-02	SFAS CTMT PRES LO FAIL
5-5-03	SFAS RC PRESS HI FAIL
5-5-04	SFAS CH 1 OR 3 SEQ ON
5-5-05	SFAS CH 2 OR 4 SEQ ON
5-6-06	BWST LOLO LVL XFER TO EMER SUMP

PANEL ID: AP-06COMPONENT IDENTIFICATION

6-1-01	RCP VIB HI
6-1-02	RCP SEAL IN FLOW LO
6-1-03	RCP SEAL IN FLT DP
6-1-04	RCP SEAL IN TOTAL FLOW
6-4-01	RCP 1-1 SEAL STANDPIPE LVL
6-4-02	RCP 1-2 SEAL STANDPIPE LVL
6-4-03	RCP 2-1 SEAL STANDPIPE LVL
6-4-04	RCP 2-2 SEAL STANDPIPE LVL

PANEL ID: AP-07COMPONENT IDENTIFICATION

7-1-04	WST GAS DECAY TKS PRESS HI
7-2-01	ANNUC SYS TRBL



DAVIS-BESSE  
MED DISCREPANT COMPONENT LISTING

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PANEL ID: AP-07 (Cont'd)

SPECIAL  
STUDY

COMPONENT IDENTIFICATION

7-2-02	COMPUTER MUX. LOSS OF AC/DC PWR
7-2-03	DETERGT WST DRN TK TRBL
7-2-04	WST GAS DISPLACE COVER GAS PRESS HI
7-3-01	BA EVAP TRBL
7-3-02	CPU FAILOVER
7-3-03	MISC WST DT TRBL
7-4-01	CONC DEMIN OR STRG TK TRBL
7-4-02	CLN WST PRI DEMIN OR FLT TRBL
7-4-03	BLANK (REMOVED BY FCR 85-0173)
7-4-04	WST GAS SURGE TK TRBL
7-5-01	CLN WST DE-GASIFIER TRBL
7-5-02	CLN WST REC TK TRBL
7-5-03	MISC WST MNTR TK OR FLT TRBL
7-5-04	RC DT LVL
7-6-01	CLN WST MNTR TK OR FLT TRBL
7-6-02	CLN WST SYS OUT RAD HI
7-6-03	MISC WST SYS OUT RAD HI
7-6-04	WST GAS SYS OUT RAD HI

PANEL ID: AP-08

COMPONENT IDENTIFICATION

8-2-01	RCP 1-1 MTR TRBL TRIP
8-2-02	RCP 1-2 MTR TRBL TRIP
8-3-01	RCP 2-1 MTR TRBL TRIP
8-3-02	RCP 2-2 MTR TRBL TRIP
8-4-01	MFPT 1 TRIP
8-4-02	MFPT 2 TRIP
8-6-01	SFRCS FULL TRIP

PANEL ID: AP-09

COMPONENT IDENTIFICATION

9-1-03	STA WTR TREATMENT SYS TRBL
9-1-04	NEW LUBE OIL STRG TK LVL
9-1-07	FIRE WTR STRG TK LVL
9-2-01	N2 HDR PRESS
9-2-03	STA DEMIN WTR TREATMENT SYS TRBL
9-2-04	USED LUBE OIL STRG TK LVL
9-2-05	STA AIR CMPSR 1 TRIP
9-2-06	STA AIR CMPSR 2 TRBL
9-3-03	UNIT DEMIN WTR STRG TK 1-2 TRBL
9-3-04	DSL OIL STRG TK LVL

DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

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PANEL ID: AP-09 (Cont'd)

SPECIAL  
STUDY

COMPONENT IDENTIFICATION

9-4-01	CTRM FLT FAN 1 DISCH RAD HI
9-4-02	CTRM FLT FAN 2 DISCH RAD HI
9-4-03	UNIT FIRE OR RADIATION TROUBLE
9-4-04	AUX BLR SYS TRBL
9-4-05	AUX STM CNDS & FLASH TKS LVL HI
9-4-06	INSTR AIR DRYER TRBL
9-5-01	VACM SYS DISCH RAD HI
9-5-04	AUX BLR DRUM LVL
9-5-05	UNIT HTG SUPPLY LINE FLOW LO
9-5-07	FIRE WTR DSL PMP SYS TRBL
9-6-01	UNIT VENT RAD HI 4598BA
9-6-02	UNIT VENT RAD HI 4598AA
9-6-04	AUX BLR TRIPPED
9-6-06	INSTR AIR EMR CMPSR TRBL

PANEL ID: AP-10

COMPONENT IDENTIFICATION

10-1-03	MFPT 1 CTR SYS TRBL
10-1-04	MFPT 2 CTR SYS TRBL
0-1-05	MFP, MFPT GEAR OR BFP 1 BRG VIB HI
10-1-06	MFP, MFPT GEAR OR BFP 2 BRG VIB HI
10-2-03	MFPT 1 LUBE OIL TK LVL
10-2-04	MFPT 2 LUBE OIL TK LVL
10-2-07	AFP 1 TRBL
10-2-08	AFP 2 TRBL
10-4-07	AFP 1 IN STRNR DP
10-4-08	AFP 2 IN STRNR DP

PANEL ID: AP-11

COMPONENT IDENTIFICATION

11-1-01	TRVLG SCRIN DIFF >1 IN
11-1-06	CLNG WTR HX OUT TEMP HI
11-2-01	TRVLG SCREEN TRBL
11-3-01	FORE BAY LVL <562 FT
11-3-02	FORE BAY LVL <564 FT
11-3-04	CC SURGE TK SIDE 1 LVL
11-3-06	CC SURGE TK SIDE 2 LVL

PANEL ID: AP-12

COMPONENT IDENTIFICATION

2-1-03	SFRCS CH1 HI LVL/DP HALF/FULL TRIP
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DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

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PANEL ID: AP-12 (Cont'd)

SPECIAL  
STUDY

COMPONENT IDENTIFICATION

12-1-04	SFRCS CH2 HI LVL/DP HALF/FULL TRIP
12-2-01	SG 1 FULL RANGE LVL
12-2-02	SG 2 FULL RANGE LVL
12-2-03	SFRCS CH1 LO LVL/RCP HALF/FULL TRIP
12-2-04	SFRCS CH2 LO LVL/RCP HALF/FULL TRIP
12-4-03	SG 1 LO PRESS / HI LVL TRIP BLKD
12-4-04	SG 2 LO PRESS / HI LVL TRIP BLKD
12-5-01	SG 1 OUT STM TEMP
12-5-02	SG 2 OUT STM TEMP
12-5-03	SFRCS SG1 LO PRESS HALF/FULL TRIP
12-5-04	SFRCS SG2 LO PRESS HALF/FULL TRIP
12-6-01	FW VLV (DELTA)P LOW

PANEL ID: AP-13

COMPONENT IDENTIFICATION

13-1-01	CNDS PMP OR FW HTR 2 OUT CONDUCT HI
13-1-03	LP FW HTR DRN TK 1 LVL
13-1-04	LP FW HTR DRN TK 2 LVL
13-1-05	HP FW HTR 1-4 LVL
3-1-06	HP FW HTR 2-4 LVL
13-2-03	LP FW HTR 1-2 LVL
13-2-04	LP FW HTR 2-2 LVL
13-2-05	HP FW HTR 1-5 LVL
13-2-06	HP FW HTR 2-5 LVL
13-3-02	CNDS DEMIN SYSTEM DP
13-3-03	DEAR STRG TK 1 LVL
13-3-04	DEAR STRG TK 2 LVL
13-3-05	HP FW HTR 1-6 LVL
13-3-06	HP FW HTR 2-6 LVL
13-4-01	CNDS PMP DISCH HDR PRESS
13-4-02	CNDG DEMIN DP
13-5-01	CNDS STRG TK LVL
13-5-02	CNDS DEMIN OUT CONDUCT HI

PANEL ID: AP-14

COMPONENT IDENTIFICATION

14-1-01	ICS/NNI FUSE BLOWN
14-1-02	ICS 24 VDC BUS TRIP
14-1-03	NNI 24 VDC BUS TRIP
14-1-04	EHC CTRL PANEL
14-1-05	EHC CABINET



DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

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HED NO: 31037

PANEL ID: AP-14 (Cont'd)

SPECIAL  
STUDY

COMPONENT IDENTIFICATION

14-2-03	ICS/NNI 11B VAC PWR TRBL
14-3-04	EHC FLUID LVL
14-3-05	LPT EXH VACM TURB TRIP
14-4-06	T-G THR BRG WEAR TURB TRIP
14-5-03	ICS MFP LOSS OR LO DEAR RUNBACK
14-6-05	T-G MECH TRIP VLV

PANEL ID: AP-15

COMPONENT IDENTIFICATION

15-1-03	HPT MN STM PRESS
15-2-02	T-G LIFT PUMP DISCH PRESS LO
15-2-04	MSR 1 1ST STG DT LVL
15-2-05	MSR 2 1ST STG DT LVL
15-3-01	LPT EXH HOOD TEMP HI
15-3-03	T-G LUBE OIL TK LVL
15-3-04	MSR 1 2ND STG DT LVL
15-3-05	MSR 2 2ND STG DT LVL
15-4-02	T-G TURN GEAR NOT ENGAGED OR OPRBL
15-5-01	T-G BRG VIB HI

PANEL ID: AP-16

COMPONENT IDENTIFICATION

16-1-02	GEN VOLTS/HZ HIGH
16-1-04	GEN CLNT AC CTRL VOLTAGE LO
16-1-08	GEN SEAL OIL VACM TK VACM LO
16-2-02	GEN VOLTAGE REG TRBL
16-2-08	GEN SEAL OIL VACM TK LVL
16-3-03	H2 GAS TRLR PRESS LO
16-3-06	MN XFMR 1 TRBL
16-3-08	GEN SEAL OIL DP HI
16-4-03	GEN H2 GAS PRESS
16-4-06	MN XFMR 1 DNGR
16-4-08	GEN SEAL OIL DP LO
16-6-07	GEN ST-CLNT LOSS T-G RNBK
16-6-08	GEN ST-CLNT LOSS TURB TRIP

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

HED NO: 31037

TITLE: ANNUNCIATORS WITH INPUTS FROM MORE THAN ONE PARAMETER ARE NOT AVOIDED

REMARKS:

1. IN ADDITION TO MODS 87-1108 AND 87-1110 THROUGH 87-1113, MODS 87-1114 THROUGH 87-1119 AND 87-1122 PROVIDE REFLASH CAPABILITY TO SELECTED ANNUNCIATORS.

2. THE FOLLOWING MOD INFORMATION ALSO APPLIES TO THIS HED:

MOD 81-0316 (FOR WINDOW 7-3-1) IS CURRENTLY BEING IMPLEMENTED TO ELIMINATE THE NUISANCE ALARM PROBLEM WHICH HAS BEEN ASSOCIATED WITH THIS WINDOW. ADD REFLASH AFTER IMPLEMENTATION.

MOD 84-0083 (FOR WINDOW 7-2-2), WHEN IMPLEMENTED, SHOULD BE FOLLOWED BY A REVIEW FOR MULTI-INPUT APPLICABILITY.

MOD 87-1107 ADDS "SFRCIS TROUBLE" ALARM TO 12-6-2 AND RESOLVES THE MULTIPLE INPUT CONCERNS OF 12-1-3, 12-1-4, 12-2-3, 12-2-4, 12-5-3, AND 12-5-4.

3. THE MULTIPLE INPUT STUDY DID NOT REVIEW THE FOLLOWING MODS FOR MULTIPLE-INPUT EFFECTS, IF ANY. DESIGN WORK AND/OR IMPLEMENTATION HAD NOT PROGRESSED TO THE POINT WHERE THE MODIFICATIONS COULD BE REVIEWED.

MOD	SUBJECT
77-0471	ADDS 16-6-1 (GEN WINDING CORE MNTR HOT SPOT)
82-0118	INVESTIGATES SPARED WINDOW "V950" DRAWING CONTRADICTIONS (14-5-6, 15-5-1?)
86-0021	ADDS ARTS ALARMS (5-3-5, 5-2-6)
86-0069	ADDS EVS ALARM TO AP-09
86-0096-03	ADDS 7-1-1 (SEC HW HTG RECIRC HX OUTLET TEMP HI)
86-0303	ADDS RCS NARROW RANGE LEVEL CHANNELS AND ALARMS
86-0362	ADDS NEW RADIATION ALARMS (9-1-1, 9-1-2)
86-0377	ADDS APPENDIX R SFAS ISOLATION ALARM
86-0432	MU AND PORV CONTROLS (MODIFIES WINDOWS 2-5-2, 2-6-2)
87-1090	ADDS ARTS BYPASS ALARM (5-3-6)
87-1092	ADDS TWO ICS INPUT WINDOWS
87-1101	MODIFIES WINDOWS (14-4-1, 14-4-2)
87-1102	ADDS SFAS SHUTDOWN BYPASS ALARMS (5-1-5, -6, -7)
87-1142	GROUND RELAYING CHANGE: AFFECTS WINDOW 16-4-5
87-1158	ADDS GENERATOR HI-TEMP ALARM
87-1217	DELETE NEUTRALIZING TANK INPUT TO WINDOW 9-2-3
87-1229	RESOLVE DISCREPANCIES BETWEEN "AS-INSTALLED" AND "AS-DESIGNED" ENGRAVINGS. (SEE MOD 87-1085-01)

\*\*\*\*\* REMARKS CONTINUED ON NEXT PAGE \*\*\*\*\*

DAVIS-BESSE  
HED REMARKS CONTINUATION SHEET

PAGE 13

HED NO: 31037

87-1296 : MODIFIES 10-1-3, 10-1-4, 10-4-3, 10-4-4

4. IN THE INTERVAL BETWEEN ORIGINATION OF THIS HED (1983) AND THE MULTIPLE-INPUT REVIEW (1987), SOME ANNUNCIATOR WINDOW MODIFICATIONS HAD BEEN IMPLEMENTED.

THE FOLLOWING LIST TABULATES THESE MODS FOR HISTORICAL PURPOSES:

MOD	WINDOW(S)	COMMENTS
78-0048	9-3-03	ADDED "1-2" TO ENGRAVING (1987)
79-0189	9-4-03	WINDOW CHANGED TO CURRENT NOMENCLATURE (1986)
81-0304	5-2-03	CORRECTED THE NUISANCE ALARM ASSOCIATED WITH THIS WINDOW (1986)
81-0315	7-3-03	CORRECTED THE NUISANCE ALARM ASSOCIATED WITH THIS WINDOW (1985)
81-0317	7-5-02	CORRECTED THE NUISANCE ALARM ASSOCIATED WITH THIS ALARM (1987)
81-0318	7-2-03	CORRECTED THE NUISANCE ALARM ASSOCIATED WITH THIS WINDOW (1985)
84-0189	1-4-10 1-4-11	CORRECTED THE OVER-FREQUENCY OPERATION OF THESE ALARMS (1986)
85-0173	7-4-03	REMOVED "MISCELLANEOUS WASTE EVAPORATOR OR STORAGE TANK TROUBLE" ALARM (1985)
85-0174	1-2-07 1-2-08	CORRECTED THE NUISANCE ALARM ASSOCIATED WITH THESE WINDOWS (1985)
85-0214	16-3-03	CORRECTED THE NUISANCE ALARM ASSOCIATED WITH THIS WINDOW (1986)
85-0217	9-5-01	CORRECTED THE NUISANCE ALARM ASSOCIATED WITH THIS WINDOW (1986)
85-0232	12-1-03 12-1-04 12-2-03 12-2-04 12-5-03 12-5-04	CORRECTED THESE WINDOWS FOR SFRCS LOGIC CHANGES (1986)

\*\*\*\*\* REMARKS CONTINUED ON NEXT PAGE \*\*\*\*\*



DAVIS-BESSE  
HED REMARKS CONTINUATION SHEET

PAGE 14

HED NO: 31037

MOD	WINDOW(S)	COMMENTS
85-0349	1-2-03	MODIFIED RELAY SETTINGS AND RE-LABELED
	1-2-04	WINDOWS TO PRESENT NOMENCLATURE (1986)
86-0002	5-1-08	MODIFIED INPUTS TO RPS FAN FAILURE ALARM (1986)
86-0135	6-1-01	WINDOW ADDED (1986)
86-0179	14-6-03	MODIFIED FOR RUN-BACK: DELETED 14-6-03,
	5-4-02	CHANGED 5-4-02 LEGEND (1986)
86-0320	5-4-03	WINDOWS CHANGED TO CURRENT NOMENCLATURE (1986)
	5-4-04	

5. THE TEXT OF THIS HED REPORT DOES NOT CONSIDER MODIFICATIONS GENERATED AFTER MOD 87-1296, NOR DOES IT REFLECT FCR/MOD NUMBERING CHANGES, VOIDING, OR OTHER ANNUNCIATOR-RELATED CHANGES SUBSEQUENT TO DEC. 1, 1987, EXCEPT FOR THE FOLLOWING:

MOD 88-0077 WAS GENERATED TO ADD LOCAL PANEL ACKNOWLEDGEMENT AND RESET TO THOSE WINDOWS REFERENCED IN EXT-87-09255.

MOD 88-0078 WAS GENERATED TO ADD REFLASH TO THE TYPE "B" WINDOWS NEEDING REFLASH AS LISTED IN EXT-87-09255.

MOD 88-0080 WAS GENERATED TO ADD ADDITIONAL COMPUTER POINTS FOR ALARM 1-6-7 AS RECOMMENDED IN EXT-87-09255.

6. A PROCEDURE CHANGE REQUEST (DATED 12/31/87) WAS GENERATED TO CLARIFY THE PROCEDURAL DISCREPANCIES NOTED IN EXT-87-09255.

# DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT ADDENDUM

HED 4.1.001

TITLE:

Controls that activate a critical function that do not have a moveable cover or guard.

PROBLEM DESCRIPTION:

The controls listed activate a critical function and do not have a moveable cover guard.

CORRECTION TO COMPONENT:

Correct the entry on page 4 for panel C5799 to read:

PANEL ID: C5799

COMPONENT IDENTIFICATION

HIS 4608A LOOP 1 HI POINT VENT

HIS 4608B LOOP 1 HI POINT VENT

HED NO: 41001      DATE OF ORIGIN: 07/19/83      REVISION DATE: 06/09/88  
TITLE: CONTROLS THAT ACTIVATE A CRITICAL FUNCTION THAT DO NOT HAVE A  
MOVEABLE COVER OR GUARD

=====

DATA SOURCE: OPERATOR SURVEY/QUESTIONNAIRE  
HISTORICAL DOCUMENT REVIEW

TASK PLAN: TP-4.1B6(1)  
0700 PARA: 6.4.1.2  
SPECIAL STUDY: CONTROLS

RELATED HED(S): 92064

=====

PROBLEM DESCRIPTION:

THE CONTROLS LISTED ACTIVATE A CRITICAL FUNCTION AND DO NOT HAVE A  
MOVEABLE COVER OR GUARD.

SPECIFIC ERROR:

INADVERTENT ACTIVATION.

=====

INITIAL ASSESSMENT CATEGORY: IIC      REASSESSMENT CATEGORY: NONE

DISPOSITION/JUSTIFICATION:

THE MAJORITY OF THE CITED COMPONENTS NOW HAVE PROTECTIVE COVERS.  
PROTECTIVE COVERS ARE PROVIDED ON ALL BUT THE FOLLOWING:

- BAILEY FEEDWATER CONTROLLERS (C5712) - A COVER WOULD BE DIFFICULT  
TO PROVIDE WITHOUT ITS INTERFERING WITH MANUAL USE OF THE CONTROL.  
THE CONTROL ALSO IS NOT A TRIP-TYPE DEVICE. IT WAS CONCLUDED THAT  
NO COVER IS REQUIRED ON THESE CONTROLS.
- ELECTRICAL PANEL (C5715) - IT IS IMPRACTICAL TO GUARD ALL THE  
INDIVIDUAL BREAKERS ON THE ENTIRE ELECTRICAL PANEL. AN EDGE  
GUARD IS ALREADY PROVIDED. IT WAS CONCLUDED THAT NO FURTHER  
PROTECTION IS REQUIRED.
- REACTOR COOLANT PUMPS (C5718) - THESE ARE PISTOL GRIP SWITCHES;  
HOWEVER, THEY HAVE A TRIP ACTION. THERE HAVE BEEN NO INSTANCES  
OF ACCIDENTAL TRIPPING AND IT WAS CONCLUDED THAT THE POTENTIAL

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

RELATED MODs: 84-0132   84-0202   85-0015   87-0092

=====

FINAL DISPOSITION APPR: L. SIMON /S/      DATE: 06/09/88



DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
DISPOSITION/JUSTIFICATION CONTINUATION SHEET

PAGE 2

HED NO: 41001

TO TRIP A PUMP ACCIDENTLY IS SMALL AND THAT PROTECTIVE COVERS  
ARE NOT REQUIRED.

THE CONTROLS SPECIAL STUDY GROUP ALSO NOTED THAT HANDLES HAVE BEEN  
REMOVED ON SOME ELECTRICAL BREAKERS ON C5722 AND C5723 TO ENSURE  
AGAINST ACCIDENTAL TRIPPING.

THIS HED ADDRESSES THE NON-BLOCK SWITCH PORTION OF HED 92064.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-87-10948).

HED NO: 41001

PANEL ID: C5706COMPONENT IDENTIFICATION

HS NI45	RC TRIP
HS NI46	RC TRIP

SPECIAL  
STUDYPANEL ID: C5711COMPONENT IDENTIFICATION

HS 797	MPFT 1 TURB TRIP
HS 798	MPFT 2 TURB TRIP

PANEL ID: C5712COMPONENT IDENTIFICATION

FIC ICS32A	FEEDWATER DEMAND 2
FIC ICS32B	FEEDWATER DEMAND 1

PANEL ID: C5713COMPONENT IDENTIFICATION

HIS 2541	EHC PANEL #2: TRIP
----------	--------------------

PANEL ID: C5715COMPONENT IDENTIFICATION

ALL CONTROLS

PANEL ID: C5717COMPONENT IDENTIFICATION

(HIS-2020)	SPRAY TRIP
(HIS-2021)	SPRAY TRIP
(HIS-2022)	S.F.A.S. TRIP
(HIS-2023)	S.F.A.S. TRIP

PANEL ID: C5718COMPONENT IDENTIFICATION

HIS RC5A1	NO DESCRIPTOR
HIS RC5A2	NO DESCRIPTOR

DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 4

HED NO: 41001

PANEL ID: C5718 (Cont'd)

SPECIAL  
STUDY

COMPONENT IDENTIFICATION

HIS RC5B1 NO DESCRIPTOR  
HIS RC5B2 NO DESCRIPTOR

PANEL ID: C5721

COMPONENT IDENTIFICATION

HIS4869A SG1 STM. PRESS. LOW  
HIS4869B SG2 STM. PRESS. LOW  
HIS4869C SG1/2 (DELTA)P STM./F.W.  
HIS4869D SG1/2 LEVEL HIGH  
HIS4869E SG1/2 LEVEL LOW LOSS OF RCP'S  
HIS4870A SG2 STM. PRESS. LOW  
HIS4870B SG1 STM. PRESS. LOW  
HIS4870C SG1/2 (DELTA)P STM./F.W.  
HIS4870D SG1/2 LEVEL HIGH  
HIS4870E SG1/2 LEVEL LOW LOSS OF RCP'S

PANEL ID: C5798

COMPONENT IDENTIFICATION

HIS 4610A LOOP 2 HI POINT VENT  
HIS 4610B LOOP 2 HI POINT VENT

PANEL ID: C5799

COMPONENT IDENTIFICATION

HIS 4608A LOOP 1 HI POINT VENT  
HIS 4610B LOOP 1 HI POINT VENT  
08

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*



HED NO: 41001

TITLE: CONTROLS THAT ACTIVATE A CRITICAL FUNCTION THAT DO NOT HAVE A  
MOVEABLE COVER OR GUARD  
=====

REMARKS:

THE FOLLOWING MODIFICATION INFORMATION IS LISTED FOR HISTORICAL  
PURPOSES:

1. FCR 84-0132 INSTALLED COVER GUARDS FOR THE DEVICES LISTED ON  
PANELS C5706, C5711, C5713, AND C5717. THE PANEL C5715 EDGE  
GUARD WAS ALSO INSTALLED BY FCR 84-0132.
2. FCR 84-0202 INSTALLED PLEXIGLASS GUARDS OVER HIS 4608A, HIS 4608B,  
HIS 4610A, AND HIS 4610B ON PANELS C5798, AND C5799.
3. FCR 85-0015 INSTALLED COVER GUARDS FOR THE DEVICES LISTED ON PANEL  
C5721.
4. FCR 87-0092 REMOVES THE PANEL C5721 COMPONENTS AND RELOCATES THEM  
TO C5707 WHERE THEY WILL HAVE PROTECTIVE COVERS.

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED NO: 4.1.007

TITLE:

Controls with strict sequential activation are not interlocked.

DISPOSITION/JUSTIFICATION:

The controls special study group established that no corrective action is needed for the CWRT inlet valves or the RC letdown demineralizer valves since training should be adequate and the consequences of error are not serious.

However, the operation of the MU pump oil pumps is a serious problem which is to be corrected such that false indications are not received. RFA 88-0682 has been written to investigate this problem.

On the control rod drive panel (C5706), a permanent warning label has been added to the prime interlock control.

CHANGE TO DISPOSITION/JUSTIFICATION:

MOD 88-0145 has been implemented to correct the MU pump oil pump problem. This HED item is closed.

HED NO: 41007

DATE OF ORIGIN: 07/19/83

REVISION DATE: 06/09/88

TITLE: CONTROLS WITH STRICT SEQUENTIAL ACTIVATION ARE NOT INTERLOCKED

=====

DATA SOURCE: OPERATOR SURVEY/QUESTIONNAIRE  
HISTORICAL DOCUMENT REVIEW

TASK PLAN: TP-4.1B6(8)  
0700 PARA: 6.4.1.2F  
SPECIAL STUDY: CONTROLS

RELATED HED(S): 41008 92016

=====

PROBLEM DESCRIPTION:

FOUR SPECIFIC PROBLEM AREAS WERE NOTED:

1. CLEAN WASTE RECEIVER TANKS
2. MAKEUP PUMP OIL PUMPS
3. PURIFICATION DEMINERALIZERS
4. CONTROL ROD DRIVE MECHANISMS

SEE "REMARKS" SECTION FOR DETAILS

SPECIFIC ERROR:

INCORRECT OPERATION OF CONTROLS.

=====

INITIAL ASSESSMENT CATEGORY: IIC      REASSESSMENT CATEGORY: NONE

DISPOSITION/JUSTIFICATION:

THE CONTROLS SPECIAL STUDY GROUP ESTABLISHED THAT NO CORRECTIVE ACTION IS NEEDED FOR THE CWRT INLET VALVES OR THE RC LETDOWN DEMINERALIZER VALVES SINCE TRAINING SHOULD BE ADEQUATE AND THE CONSEQUENCES OF ERROR ARE NOT SERIOUS.

HOWEVER, THE OPERATION OF THE MU PUMP OIL PUMPS IS A SERIOUS PROBLEM WHICH IS TO BE CORRECTED SUCH THAT FALSE INDICATIONS ARE NOT RECEIVED. RFA 88-0682 HAS BEEN WRITTEN TO INVESTIGATE THIS PROBLEM.

ON THE CONTROL ROD DRIVE PANEL (C5706), A PERMANENT WARNING LABEL HAS BEEN ADDED TO THE PRIME INTERLOCK CONTROL.

FOR FURTHER DISCUSSION SEE MPR LETTER 70 L. SIMON (EXT-87-10948).

RELATED MODs:

=====

FINAL DISPOSITION APPR: L. SIMON /S/      DATE: 06/09/88



DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

HED NO: 41007

PANEL ID: C5703

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

HIS 1903 RC LETDOWN PURF DEMIN 3 IN  
HIS MU10A RC LETDOWN PURF DEMIN 1 IN  
HIS MU10B RC LETDOWN PURF DEMIN 2 IN

PANEL ID: C5704

COMPONENT IDENTIFICATION

HIS MU 24A1 M.U.P.1 A.C.OIL PMP E-11-D  
HIS MU 24A2 M.U.P.1 D.C.OIL PMP DCMCC1  
HIS MU 24A3 M.U.P.1 AUX GEAR OIL PMP E-11-D  
HIS MU 24B1 M.U.P.2 A.C. OIL PMP F-11-C  
HIS MU 24B2 M.U.P.2 D.C. OIL PMP DCMCC2  
HIS MU 24B3 M.U.P.2 AUX GEAR OIL PMP F-11-C

PANEL ID: C5706

COMPONENT IDENTIFICATION

HC NI44 NO DESCRIPTOR

PANEL ID: C5718

COMPONENT IDENTIFICATION

HIS 1743A CLN WST REC TK 1 IN  
HIS 1747A C/N WST REC TK 2 IN

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

HED NO: 41007

TITLE: CONTROLS WITH STRICT SEQUENTIAL ACTIVATION ARE NOT INTERLOCKED

=====

REMARKS:

PROBLEM DESCRIPTION DETAILS ARE AS FOLLOWS:

1. CLEAN WASTE RECEIVER TANKS (CWRT)

AT LEAST ONE CLEAN WASTE RECEIVER TANK INLET ISOLATION VALVE MUST BE OPEN PRIOR TO DIVERTING LETDOWN FLOW TO THE CWRT'S VIA 3-WAY VALVE MU 11.

2. MAKEUP PUMP OIL PUMPS

A PROBLEM WAS IDENTIFIED WITH THE MAKEUP PUMP LUBE OIL PUMP INTERLOCKS. IF THE STARTING AND STOPPING FUNCTIONS ARE NOT OPERATED IN THE PROPER SEQUENCE, THE OPERATOR LOSES CONTROL OF THE OIL PUMPS AND A FALSE INDICATION WILL RESULT.

WHEN THIS OCCURS, A BREAKER MUST BE LOCALLY OPENED AND RESET TO RETURN CONTROL OF THE OIL PUMPS TO THE CONTROL ROOM.

3. PURIFICATION DEMINERALIZERS

TO TRANSFER DEMINERALIZER TRAINS, THE SECOND TRAIN MUST BE VALVED IN PRIOR TO ISOLATING THE FIRST TRAIN. IF THIS IS NOT DONE, SOME RELIEF VALVES MAY LIFT AND DUMP THE RCS FLUID TO THE RC DRAIN TANK.

THERE IS NO INTERLOCK TO VERIFY TRAIN AVAILABILITY PRIOR TO TRANSFER.

4. CONTROL ROD DRIVE MECHANISMS

"OUT-OF-SEQUENCE" OPERATION CAN LEAD TO "BURNED-UP" CABINETS.

# DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT ADDENDUM

HED NO: 4.1.012

TITLE:

Controls that are broken or loose on their shafts.

DISPOSITION:

Although not currently loose, the makeup tank level selector (HS MU16), is planned for removal (RFM 87-1227). The removal will be done in conjunction with changes to tank level logic (RFM-87-1094).

CHANGE TO DISPOSITION/JUSTIFICATION:

HS MU16 was removed under Mod 87-1227 in the SRFO and not in conjunction with RFM 87-1094. RFM-87-1094 completion will depend on the priorities set by the Work Scope Committee and is not required for the HED.



HED NO: 41012DATE OF ORIGIN: 07/19/83REVISION DATE: 06/09/88TITLE: CONTROLS THAT ARE BROKEN OR LOOSE ON THEIR SHAFTS

=====

DATA SOURCE: OPERATOR SURVEY/QUESTIONNAIRETASK PLAN: TP-4.1B6(24)0700 PARA: 6.4.1.1E(2) 6.4.1.1E(3)SPECIAL STUDY: OPERATIONSRELATED HED(S):

=====

PROBLEM DESCRIPTION:

CONTROL SWITCHES LISTED ARE LOOSE ON THEIR SHAFTS OR ARE BROKEN.

SPECIFIC ERROR:

INCORRECT OPERATION OF THE CONTROL.

=====

INITIAL ASSESSMENT CATEGORY: NONE REASSESSMENT CATEGORY: NONEDISPOSITION/JUSTIFICATION:

EVALUATION IN THE OPERATIONS SPECIAL STUDY HAS ESTABLISHED THAT THERE ARE NO CHRONIC PROBLEMS WITH LOOSE SWITCHES. REGULAR MAINTENANCE HAS BEEN ESTABLISHED FOR THE GAITRONICS SELECTOR SWITCHES WHICH DO HAVE SOME HISTORY OF LOOSENING.

ALTHOUGH NOT CURRENTLY LOOSE, THE MAKEUP TANK LEVEL SELECTOR (HS MU16), IS PLANNED FOR REMOVAL (RFM 87-1227). THE REMOVAL WILL BE DONE IN CONJUNCTION WITH CHANGES TO TANK LEVEL LOGIC (RFM 87-1094).

=====

RELATED MODs: 87-1094 87-1227

=====

FINAL DISPOSITION APPR: L. SIMON /S/ DATE: 06/09/88

DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

HED NO: 41012

PANEL ID: C5703

COMPONENT IDENTIFICATION

HS MU16 MU TANK LEVEL LT16-1 LT16-2

SPECIAL  
STUDY

PANEL ID: C5718

COMPONENT IDENTIFICATION

NONE GAI-TRONICS SWITCH (NO DESCRIPTOR)

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

HED NO: 41012

TITLE: CONTROLS THAT ARE BROKEN OR LOOSE ON THEIR SHAFTS

=====

REMARKS:

REMARKS INTENTIONALLY BLANK



DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED NO: 4.1.020

TITLE:

Lack of immediate feedback of pushbuttons (Also see HED 9.2 029 Addendum).

DISPOSITION:

The Controls Special Study concluded that engineering work to change the valve light logic so that both lights are on when the valve is stroking should be initiated. If not all valves can be changed at one time, those valves which operate differently will be labeled and included in operator training. This will be implemented by MOD 88-0120.

CHANGE TO DISPOSITION/JUSTIFICATION:

The throttling valves present the greatest human factor deficiency due to lack of feedback while the valve being in mid-stroke position for an extended period of time. The ability to modify the logic of all valves to provide dual light indication during valve transit is severely limited by resources and thus MOD 88-0120 was voided. Throttling valves are labeled to identify them as throttling valves and will be provided with dual light indication while in mid-stroke position. Eleven valves have been provided with dual light indication by MOD 88-0214 during the 6th Refueling Outage.

MOD 88-0214 did not include 5 throttling valves within the scope of the MOD. AS-196 A&B, AS-198 A&B, and GS-2386 are employed mainly when the plant is in a shutdown status. MOD 89-0096 was written to provide these valves with dual light indications during transit. It was the decision of the Action Planning Committee held on August 1, 1989, to defer the implementation of the MOD until the 7th Cycle. The circumstances which dictated the decision by the Action Planning Committee are as follows:

- a. Late receipt of the Request for Modification (RFM)
- b. 6RFO resources are fully committed to the MODs currently scheduled for the 6RFO.
- c. Design Engineering was directed to give MOD 89-0096 a high priority, but will have a lower priority than those modifications currently scheduled for the 6RFO.
- d. Implementation of MOD 89-0096, upon completion of the design phase, would be scheduled to coincide with the respective valve PM's cycle.

- e. MOD 89-0096 may be implemented prior to the 7RFO, but not later than the 7th Refueling Outage.

Rational for non-inclusion in 6RFO:

MOD 89-0096 was written in order to maintain the convention that motor operated valves are provided with dual light indication when in mid-stroke position. This convention will provide the operators with a positive feedback indication for those valves that may be in mid-stroke positions for extended periods of time. The current design is to have both the red and green lights not lit during the valve's mid-stroke transit. MOD 88-0214 is scheduled to be implemented during the 6RFO and will provide the indication for throttle valves.

In the course of the review of the MOD 88-0214, design package, June 21, 1989, it was discovered that 5 throttle valves were inadvertently omitted from the MOD. A review of the drawing of all motor operated valves without a seal-in was conducted to ensure that no other throttling valves were omitted. Upon completion of the drawing review, it was confirmed that the 5 throttling valves identified were the only ones not included in MOD 88-0214. A new modification, MOD 89-0096, was written on July 24, 1989, to provide dual light indication for these 5 valves. Due to the design schedule for modification design preparation and the impact on the outage workload, it was determined by Toledo Edison's management that MOD 89-0096 would not be scheduled for the 6RFO implementation. The basis for this decision is that these 5 valves are not critical to plant operation and they can be scheduled for cycle 7, i.e., during operations following startup from the 6RFO. If the 5 throttling valves identified in MOD 89-0096 are not provided with dual light indication in the 6RFO, they will be labeled to identify them as operating differently.

HED NO: 41020

DATE OF ORIGIN: 07/19/83

REVISION DATE: 06/09/88

TITLE: LACK OF IMMEDIATE FEEDBACK ON PUSHBUTTONS

=====

DATA SOURCE: OPERATOR SURVEY/QUESTIONNAIRE

TASK PLAN: TP-4.1B6(35)

0700 PARA: 6.4.3.1B

SPECIAL STUDY: CONTROLS

RELATED HED(S): 92029 98020

## =====

## PROBLEM DESCRIPTION:

SOME PUSHBUTTONS THAT CONTROL VALVES MAKE IT DIFFICULT TO DETERMINE VALVE POSITION AND/OR STATUS, BECAUSE LIGHTS MAY GO OUT WHILE VALVE IS MOVING OR LIGHTS DO NOT CHANGE STATE FOR 30 TO 60 SECONDS AFTER ACTUATION OF CONTROL.

## SPECIFIC ERROR:

MISINTERPRETATION OF EQUIPMENT STATUS.

=====

INITIAL ASSESSMENT CATEGORY: IC REASSESSMENT CATEGORY: NONE

## DISPOSITION/JUSTIFICATION:

NUMEROUS COMPONENTS WERE ADDED TO THIS HED AS A RESULT OF THE SURVEY OF NEW COMPONENTS CONDUCTED IN JULY OF 1986. OF THOSE, THE FOLLOWING ARE NOT DISCREPANT:

HS 5891	HIS 805C1	HIS 805C2	HIS 806C1
HIS 806C2	HS 9828	HS 9829	

HIS 599B AND HIS 608B WILL BE REMOVED BY FCR 87-0064.

FOR THE REMAINING COMPONENTS, THE CONTROLS SPECIAL STUDY CONCLUDED THAT ENGINEERING WORK TO CHANGE THE VALVE LIGHT LOGIC SO THAT BOTH LIGHTS ARE ON WHEN THE VALVE IS STROKING SHOULD BE INITIATED. IF NOT ALL VALVES CAN BE CHANGED AT ONE TIME, THOSE VALVES WHICH OPERATE DIFFERENTLY WILL BE LABELED AND INCLUDED IN OPERATOR TRAINING. THIS WILL BE IMPLEMENTED BY MOD 88-0120.

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

RELATED MODs: 87-0064 88-0120

=====

FINAL DISPOSITION APPR: L. SIMON /S/ DATE: 06/09/88



DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
DISPOSITION/JUSTIFICATION CONTINUATION SHEET

PAGE 2

HED NO: 41020

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-87-10948).

DAVIS-BESSE  
MED DISCREPANT COMPONENT LISTING

PAGE NO: 3

HED NO: 41020

PANEL ID: C5702

COMPONENT IDENTIFICATION

HIS MU11 RC LETDOWN DIVERT VLV

PANEL ID: C5705

COMPONENT IDENTIFICATION

(HIS 4632) RCS COLD LEG SAMPLE VLV

PANEL ID: C5709

COMPONENT IDENTIFICATION

HIS 5889A NO DESCRIPTOR  
HIS 5889B NO DESCRIPTOR  
HS 5891 SFRCS FULL TRIP ACK

PANEL ID: C5711

COMPONENT IDENTIFICATION

HIS 805C1 NO DESCRIPTOR  
HIS 805C2 NO DESCRIPTOR  
HIS 806C1 NO DESCRIPTOR  
HIS 806C2 NO DESCRIPTOR

PANEL ID: C5715

COMPONENT IDENTIFICATION

HS 9828 BYPASS U.V. TRIP  
HS 9829 BYPASS U.V. TRIP

PANEL ID: C5717

COMPONENT IDENTIFICATION

HIS 599A SG#2 AFW ISO VLV  
HIS 599B SG#2 AFW ISO VLV  
HIS 608A SG#1 AFW ISO VLV  
HIS 608B SG#1 AFW ISO VLV

PANEL ID: C5798

COMPONENT IDENTIFICATION

HIS 200 PRZR HI POINT VENT

SPECIAL  
STUDY

DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 4

HED NO: 41020

PANEL ID: C5798 (Cont'd)

SPECIAL  
STUDY

COMPONENT IDENTIFICATION

HIS 4610A LOOP 2 HI POINT VENT  
HIS 4610B LOOP 2 HI POINT VENT

PANEL ID: C5799

COMPONENT IDENTIFICATION

HIS 4608A LOOP 1 HI POINT VENT  
HIS 4608B LOOP 1 HI POINT VENT

PANEL ID: N/A

COMPONENT IDENTIFICATION

OPERATORS ON WEDGE SEATING VALVES  
PB SWITCHES

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*



HED NO: 41020

TITLE: LACK OF IMMEDIATE FEEDBACK ON PUSHBUTTONS

REMARKS:

REMARKS INTENTIONALLY BLANK

DAVIS-BESSE NUCLEAR POWER STATION  
REQUEST FOR MODIFICATION (EN-DP-01200)  
ED 8070

RFM NUMBER

89-0096

2 SLS NUMBER

099-16

3 TITLE

Throttling Valve Indicating Light Logic

4 TERMS ID NO

A09593

5 INITIATING DOCUMENT

HED 4.1.020

6 STATEMENT OF PROBLEM

MOD 88-0214 intended to provide dual light indication while valves were in mid-stroke for all throttling valves displayed on the Control Room panels. Eleven valves were identified, but 5 throttling valves, AS 196 A&B, AS 198 A&B, and GS 2386, were inadvertently not included in MOD 88-0214-00. The modification of the eleven throttling valves will establish a convention that throttling valves will display dual light indication while in transient. From the Human Factors aspect, the operators should be presented with a consistent convention relating to Control Room throttling valves. Positive indication while a valve is stroking, informs (con'

7 DESCRIPTION AND SCOPE OF PROPOSED MODIFICATION

Change valve indicating light logic to provide dual light indication for valves AS 196 A&B, AS 198 A&B, and GS 2386.

8 INITIATING ENGINEER NAME

L. P. Simon

9 SIGNATURE

*L. P. Simon*

10 DATE

7-24-89

11 EXT.

7524

RFM REVIEW AND APPROVAL

12 RESPONSIBLE ENGINEERING SUPERVISOR

13 DATE

14 ENGINEERING DIRECTOR

15 DATE

16 PLANT MANAGER

17 DATE

*L. P. Simon*

7-25-89

*Paul C. Gain*

7/27/89

18 ☐ REQUEST ENGINEERING EFFORT BEGIN IMMEDIATELY

☐ N/A

☐ APPROVED

ENGINEERING DIRECTOR

DATE

☐ APPROVED

PLANT MANAGER

DATE

☐ REJECTED

☐ REJECTED

19 APPROVAL TO PROCEED WITH

☐ SCOPING STUDY

☐ CONCEPTUAL DESIGN

☐ DETAILED DESIGN

DBAPC

DATE

DBAPC

DATE

DBAPC

DATE

DBWSC

DATE

DBWSC

DATE

20

☐ RFM DISAPPROVED

DBAPC/DBWSC

DATE

REASON

1. ☐ THIS IS A PCAQ INITIATED RFM/MOD FOR PCAQ

QUALITY ASSURANCE

DATE

## REQUEST FOR MODIFICATION

### STATEMENT OF PROBLEM (con't)

the operator that the valve still has power and makes detection of a failed lamp bulb easier. the problem with no position indication while in mid-stroke is more of a problem on throttle valves that have no seal in circuit.



# DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT ADDENDUM

HED NO: 4.1.028

TITLE:

Open position is not located to the right of all switches.

Disposition:

The individual light lens will be changed so that in addition to the color, the operator will have an engraved legend: "Open" or "CLSD" to minimize the potential for any confusion as to the meaning of the light. MOD 88-0125 will implement this change.

CHANGE TO DISPOSITION/JUSTIFICATION:

SCC 88-1197 has been implemented to engrave the lenses.

HED NO: 41028

DATE OF ORIGIN: 09/01/83

REVISION DATE: 06/09/88

TITLE: THE "OPEN" POSITION IS NOT LOCATED TO THE RIGHT ON ALL SWITCHES

=====

DATA SOURCE: OBSERVATION CHECKLIST

TASK PLAN: TP-4.1B3(42A)

0700 PARA: 6.4.2.1

SPECIAL STUDY: CONTROLS

RELATED HED(S): 41029 41030 51021

## =====

PROBLEM DESCRIPTION:

THE OPEN POSITION (INDICATED BY RED) IS NOT CONSISTENTLY LOCATED ON THE RIGHT. OPEN/RED IS LOCATED ON THE LEFT ON THE PUSHBUTTON CONTROLS AND IS LOCATED ON THE RIGHT ON ALL OTHER SWITCHES/INDICATOR LIGHTS.

SPECIFIC ERROR:

MISINTERPRETATION OF EQUIPMENT STATUS.

=====

INITIAL ASSESSMENT CATEGORY: IIC REASSESSMENT CATEGORY: NONEDISPOSITION/JUSTIFICATION:

THIS DISPOSITION ALSO ADDRESSES HEDS 41030 AND 51021.

THE CONTROLS SPECIAL STUDY CONCLUDED THAT CHANGING THE LIGHT POSITIONS WOULD POTENTIALLY CONFUSE THE OPERATORS BECAUSE THEY ARE USED TO THE CURRENT ARRANGEMENT. THE CHANGE ITSELF WOULD BE VERY DISRUPTIVE IN THE CONTROL ROOM BECAUSE OF THE LARGE NUMBER OF CONTROLS (OVER 300) WHICH WOULD HAVE TO BE CHANGED. THE INDIVIDUAL LIGHT LENS WILL BE CHANGED SO THAT IN ADDITION TO THE COLOR THE OPERATOR WILL HAVE AN ENGRAVED LEGEND: "OPEN" OR "CLSD", TO MINIMIZE THE POTENTIAL FOR ANY CONFUSION AS TO THE MEANING OF THE LIGHT. MOD 88-0125 WILL IMPLEMENT THIS CHANGE.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-87-10948).

=====

RELATED MODs: 80-0147 88-0125

=====

FINAL DISPOSITION APPR: L. SIMON /S/ DATE: 06/09/88

DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

HED NO: 41028

PANEL ID: C5705

SPECIAL  
STUDY

COMPONENT IDENTIFICATION

(HIS 4632) RCS COLD LEG SAMPLE VLV  
NONE REMOVED FROM PANEL (HIS 4634)

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*



DAVIS-BESSE  
HED REMARKS

PAGE 3

HED NO: 41028

TITLE: THE "OPEN" POSITION IS NOT LOCATED TO THE RIGHT ON ALL SWITCHES

=====

REMARKS:

FOR HISTORIC INFORMATION, HIS 4634 WAS REMOVED FROM PANEL C5705 IN  
1984 BY FCR B0-0147.

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED NO: 5.1.001

TITLE:

Indicator lights that are too dim.

DISPOSITION:

The Diamond Rod Control Panel will be modified to increase the brightness of the indicator lights (MOD 88-0088).

CHANGE TO DISPOSITION/JUSTIFICATION:

The modification change will be implemented under Simple Configuration Change (SCC) 88-1189.

SCC 88-1189 was not implemented during the 6RFO. Plans are to implement the change during the 7RFO. Annunciators and computer alarms also provide control rod drive system status; therefore, the change is considered to be an operational enhancement and not critical to plant operations.

HED NO: 51001

DATE OF ORIGIN: 07/26/93

REVISION DATE: 06/30/88

TITLE: INDICATOR LIGHTS THAT ARE TOO DIM

=====

DATA SOURCE: OPERATOR SURVEY/QUESTIONNAIRE  
OBSERVATION CHECKLIST

TASK PLAN: TP-5.1B6(1) TP-5.1B3(4)

0700 PARA: 6.5.3.1B

SPECIAL STUDY: DISPLAYS  
PAM PANELS

RELATED HED(S): 51034 92025 98020

=====

PROBLEM DESCRIPTION:

LIGHTS ON PANELS ARE VERY DIM AND IT IS HARD TO DETERMINE THE STATUS  
OF LIGHTS WITHOUT SHIELDING THEM.

SPECIFIC ERROR:

MISINTERPRETATION OF EQUIPMENT STATUS.

=====

INITIAL ASSESSMENT CATEGORY: IIC REASSESSMENT CATEGORY: NONE

DISPOSITION/JUSTIFICATION:

1. PAM SPECIAL STUDY - PANELS C5798, C5799

PAM PANEL INDICATING LIGHTS WERE NOT IDENTIFIED ON THE ORIGINAL  
VERSION OF THIS HED.

THE FOLLOWING INDICATING LIGHTS WILL BE DELETED AS THEY UN-  
NECESSARILY DUPLICATE POSITION INDICATION (HIS OR IL) ELSEWHERE  
ON THEIR RESPECTIVE PANEL:

C5798

ZL 4610B LOOP 2 HI POINT VENT POS

ZL 4610A LOOP 2 HI POINT VENT POS

ZL 200A PZR HI POINT VENT POS

ZL 239AB PZR HI POINT VENT POS

C5799

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

RELATED MODs: 87-1130 88-0088 88-0097

=====

FINAL DISPOSITION APPR: L. SIMON /S/ DATE: 06/25/88



DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
DISPOSITION/JUSTIFICATION CONTINUATION SHEET

PAGE 2

HED NO: 51001

ZL 460BB LOOP 1 HI POINT VENT POS  
ZL 460BA LOOP 1 HI POINT VENT POS  
ZL 4612B RX HI POINT VENT POS  
ZL 4612A RX HI POINT VENT POS

THE FOLLOWING INDICATING LIGHTS WILL BE REPLACED WITH CUTLER  
HAMMER OPEN/SHUT INDICATORS AND THEIR RESPECTIVE POSITION  
INDICATORS REPLACED WITH 0-100% LED BARGRAPH INDICATORS:

	IND. LTS.	INDICATORS
C5798	ZL 4264A	ZI 4264A
	ZL 4268A	ZI 4268A
	ZL 4266A	ZI 4266A
C5799	ZL 4263A	ZI 4263A
	ZL 4267A	ZI 4267A
	ZL 4265A	ZI 4265A

DISPOSITION APPR. (PAM PANELS): L. SIMON /S/  
DATE: 10-25-87

(MOD 87-1130 IMPLEMENTS THE PAM PANEL CHANGES)

## 2. DISPLAYS SPECIAL STUDY

THIS HED WAS REVIEWED BY THE DISPLAYS SPECIAL STUDY GROUP AND  
THE FOLLOWING DISPOSITIONS OF THE SPECIFIC ITEMS LISTED BY THE  
HED WERE ESTABLISHED:

- THE COLORED FILTERS IN THE EHC LIGHTS ARE NOT NEEDED AND ARE  
THE SOURCE OF THE DIM LIGHTS. THEY WILL BE REMOVED BY MOD 88-  
0097.
- THE DIAMOND ROD CONTROL PANEL WILL BE MODIFIED TO INCREASE THE  
BRIGHTNESS OF THE INDICATOR LIGHTS (MOD 88-C088).
- THE "AFW PANEL LIGHTS," THE "STEAM GENERATOR INDICATOR LIGHTS,"  
AND "FW PUMP INDICATOR LIGHTS" WERE NOT DIM; NO CORRECTIVE  
ACTION IS REQUIRED.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-87-09778).

HED NO: 51001

PANEL ID: C5706COMPONENT IDENTIFICATIONSPECIAL  
STUDY

REACTOR CONTROL AND AFW PANEL INDICATOR LIGHTS

DISP

PANEL ID: C5714COMPONENT IDENTIFICATION

STEAM GENERATOR, FW PUMPS, &amp; EHC INDICATOR LIGHTS

DISP

PANEL ID: C5798COMPONENT IDENTIFICATION

ZL 200A	PZR HI POINT VENT POS
ZL 239AB	PZR HI POINT VENT POS
ZL 4610A	LOOP 2 HI POINT VENT POS
ZL 4610B	LOOP 2 HI POINT VENT POS

PAM
PAM
PAM
PAM

PANEL ID: C5799COMPONENT IDENTIFICATION

ZL 4608A	LOOP 1 HI POINT VENT POS
ZL 4608B	LOOP 1 HI POINT VENT POS
ZL 4612A	RX HI POINT VENT POS
ZL 4612B	RX HI POINT VENT POS

PAM
PAM
PAM
PAM

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

DAVIS-BESSE  
MED REMARKS

PAGE 4

MED NO: 51001

TITLE: INDICATOR LIGHTS THAT ARE TOO DIM

=====

REMARKS:

REMARKS INTENTIONALLY BLANK



DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED NO: 5.1.004

TITLE:

Meters scales do not span the expected range of operational parameters.

DISPOSITION:

The Displays Special Study Group determined that the range of the condenser pressure recorder (PR 5330/531) is too narrow (0 to 10 inches of HG.) and should be expanded to greater than 17 inches of HG. to cover alarms and turbine trip limits. MOD 88-0119 will implement this change.

It was also determined that local level indication is needed and should be provided for the Emergency Diesel Generator Fuel Oil Tanks. MOD 87-1208 will implement this change.

CHANGE TO DISPOSITION/JUSTIFICATION:

PR 530/541 will be replaced under Simple Configuration Change (SCC) 88-1192.

It has been determined by Operations Management that the change to the Condenser Pressure Recorder is not desired as loss of resolution could occur during normal operations. The RFA/SCC 88-1192 will be voided. Ref. L. P. Simon, DCRDR Project Leader Memorandum NEO-89-00720 of June 28, 1989. PCR 89-4500 has been incorporated in Abnormal Procedure DB-OP-02518 which removes the requirement for specific operator action at 12.5" Hga.

MOD 87-1208 was not fully implemented during the 6RFO. Since local level indication is considered to be an operational enhancement and not critical to plant operations, that portion of the MOD which did not require an outage to complete, has been deferred to the 7th Cycle. Completion of MOD will be tracked by the DCRDR Database.

HED NO: 51004

DATE OF ORIGIN: 07/26/83

REVISION DATE: 06/30/88

THE METER SCALES DO NOT SPAN THE EXPECTED RANGE OF OPERATIONAL  
PARAMETERS

=====

DATA SOURCE: OPERATOR SURVEY/QUESTIONNAIRE

TASK PLAN: TP-5.1B6(12)0700 PARA: 6.5.1.2D(1)SPECIAL STUDY: DISPLAYSRELATED HED(S): 51005 98010

=====

PROBLEM DESCRIPTION:

METER SCALES DO NOT SPAN THE EXPECTED RANGE OF OPERATIONAL PARAMETERS.

SPECIFIC ERROR:

MISREAD THE DISPLAY. MISINTERPRETATION OF DISPLAYED VALUES.

=====

INITIAL ASSESSMENT CATEGORY: IIC      REASSESSMENT CATEGORY: NONE

DISPOSITION/JUSTIFICATION:

THE DISPLAYS SPECIAL STUDY GROUP DETERMINED THAT THE RANGE OF THE CONDENSER PRESSURE RECORDER (PR 530/541) IS TOO NARROW (0 TO 10 INCHES OF HG.) AND SHOULD BE EXPANDED TO GREATER THAN 17 INCHES OF HG. TO COVER ALARMS AND TURBINE TRIP LIMITS. MOD 88-0119 WILL IMPLEMENT THIS CHANGE.

IT WAS ALSO DETERMINED THAT LOCAL LEVEL INDICATION IS NEEDED AND SHOULD BE PROVIDED FOR THE EMERGENCY DIESEL GENERATOR FUEL OIL TANKS. MOD 87-1208 WILL IMPLEMENT THIS CHANGE.

ALL OF THE OTHER LISTED INDICATORS WERE FOUND TO SPAN THE EXPECTED RANGE OF OPERATIONAL PARAMETERS AND DO NOT REQUIRE MODIFICATION OF RANGE.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-88-01450).

RELATED MODs: 87-1208 88-0119

=====

FINAL DISPOSITION APPR: L. SIMON /S/      DATE: 06/25/88

DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

Q NO: 51004

PANEL ID: C5703

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

F1 MU7 RC LETDOWN FLOW  
HC MU6 RC LETDOWN FLOW  
PDI MU13 MU FILTER (DELTA)P  
PDI MU62 PC LETDOWN FILTER (DELTA)P

PANEL ID: C5710

COMPONENT IDENTIFICATION

TDI RCB RC (DELTA)Tc

PANEL ID: C5712

COMPONENT IDENTIFICATION

PR 530 CONDENSER PRESSURE  
PR 541 CONDENSER PRESSURE

PANEL ID: C5714

COMPONENT IDENTIFICATION

F1 57B CNDS PMP COMBINED FLOW

PANEL ID: C5715

COMPONENT IDENTIFICATION

E1 6257 BUS KILOVOLTS

PANEL ID: C5716

COMPONENT IDENTIFICATION

L1 CF3A1 CORE FLOOD TANK 2 LEVEL  
L1 CF3A2 CORE FLOOD TANK 2 LEVEL  
L1 CF3B1 CORE FLOOD TANK 1 LEVEL  
L1 CF3B2 CORE FLOOD TANK 1 LEVEL  
P1 CF4A1 CORE FLOOD TANK 2 PRESS  
P1 CF4A2 CORE FLOOD TANK 2 PRESS  
P1 CF4B1 CORE FLOOD TANK 1 PRESS  
P1 CF4B2 CORE FLOOD TANK 1 PRESS

PANEL ID: C5718

COMPONENT IDENTIFICATION

F1 MU30A RCP 2-1 SEAL INLET FLOW



DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 3

2 ND: 51004

PANEL ID: C5718 (Cont'd)

SPECIAL  
STUDY

COMPONENT IDENTIFICATION

F1 MU30B	RCP 2-2 SEAL INLET FLOW
F1 MU30C	RCD 1-1 SEAL INLET FLOW
F1 MU30D	RCP 1-2 SEAL INLET FLOW

PANEL ID: C5720

COMPONENT IDENTIFICATION

11 876	A-C AMPERES
11 881	A-C AMPERES
11 928	A-C AMPERES
11 929	A-C AMPERES

PANEL ID: C5721

COMPONENT IDENTIFICATION

PI 569 CNDS PMP DISCH HDR PRESS 1

PANEL ID: N/A

COMPONENT IDENTIFICATION

EDG FO STRG TK LI'S

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

DAVIS-BESSE  
HED REMARKS

PAGE 4

HED NO: 51004

TE: METER SCALES DO NOT SPAN THE EXPECTED RANGE OF OPERATIONAL  
PARAMETERS

=====

REMARKS:

REMARKS INTENTIONALLY BLANK

## INTRA-COMPANY MEMORANDUM

ED 6214-2

DATE

June 28, 1989

TO

File

FROM

L. P. Simon, DCRDR Project Leader

*L Simon*

SUBJECT

Condenser Pressure Recorder PR530/PR541

NEO-89-00720

HED 5.1.004 was dispositioned by the Displays Special Study group that additional range of condenser pressure indication is needed. MOD 88-0119 was written to accomplish this. Later RFA 88-1192 was written to perform the change under a Simple Configuration Change (SCC) and void MOD 88-0119.

It has now been determined by Operations Management that no change to the condenser pressure recorder is cost benefit justified.

The following factors were considered in making this determination:

1. If the recorder scale is changed from 0-10" to 0-20" HgA some loss of resolution at the low end (<5" HgA) would occur. This is not desired as this is the normal operating band with the unit on line.
2. Automatic actions that occur above full scale [MFPT trips at 12.5" and TBVs interlock to AVVs at 17"] will occur from separate pressure switches. The MFPTs tripping at 12.5" will cause a SFRCs actuation, closing MSIVs and render the TBV interlock at 17" unneeded. (A rare case with the MDFP on could still cause the TBV 17" interlock to be of some value). The MFPTs condenser pressure trip is actuated by two separate pressure switches for each MFPT. This redundancy makes operation action at 12.5" HgA highly unnecessary. Rupture disk on the MFPT exhaust and low pressure turbine hoods provide additional engineering backup.
3. The HED identified a concern that without a scale range covering automatic actions the operators may take action that would cause unnecessary plant transients. (i.e., if the CTRM indication pegs out at 10" HgA, the operation may or should trip the MFPTs) As the MFPTs have redundant low vacuum trips and there is little chance of having a transient stabilize vacuum between 10" and 12.5" HgA this concern is considered not valid. A PCR has been written to change Abnormal Procedure DB-OP-02518, to remove the requirement for specific operator action at 12.5" HgA (or require local indication of pressure to be relayed to the CTRM).

LPS/mjb

cc: C. Jaffee  
Chron File  
PE File



ENG. ISSUED JUL 7 1989

TOLEDO EDISON COMPANY  
REQUEST FOR ASSISTANCE  
ED 7633-1

RFA NO.

88-1192

ORIGINATOR A. Buhrer <i>ABuhrer</i>	DATE 8/3/88	REQUESTING ORGANIZATION Performance Engineering	MAIL STOP 3085	EXTENSION 4496
SUPERVISOR'S SIGNATURE <i>L Simon</i>	DATE 8-8-88	SUBSYSTEM 043-03	DATE REQUIRED Impl. by end of 6RFO	
ASSOCIATED DOCUMENTS HED 51004 RFM 88-0119		EQUIPMENT ID PR 530 PR 541 (C5712)		
PROBLEM DESCRIPTION				

This RFA is written to convert RFM 88-0119 into an RFA to permit the work to proceed as a Simple Configuration Change (SCC).

The SCC Part 1 subject matter has been discussed with System Engineer J. Zajac. The SCC Part 2 subject matter has been discussed with M. Borysiak.

This RFA is to go to the System Engineer for processing as described in EN-DI-01200.7.

This SCC resolves a Human Factors concern in Human Engineering Discrepancy (HED) 5.1.004. A copy of RFM 88-0119 is attached.

RESOLVING ORGANIZATION <i>8/12/88</i> Systems Engineering / DESIGN ENGRG.	RESOLUTION <i>8/12/88</i> REVIN S. LYALL	MAIL STOP	EXTENSION
REQUIRED CYCLE Impl. by end of 6RFO	RESPONSIBLE INDIVIDUAL <i>[Signature]</i>	INITIATED/ASSOCIATED DOCUMENTS	
SCHEDULED RESOLUTION DATE <i>5-1-89</i> <i>7/7/89</i>			
RESOLUTION/DISPOSITION			

Attachment d1 for ~~SCC~~ SCC has been evaluated and attached.  
Please forward to DEP-ITC. If SCC is issued, then  
a void memo for RFM 88-0119 should be issued.

*L Simon 6-27-81*

1. RFM 88-0119 should be Voided
2. NO SCC is needed - It was determined by Operations Mgt that no change to the condenser pressure recorder is cost benefit justified. See L Simon memo to file (attached)

RESOLVING ORGANIZATION CLOSE-OUT SIGNATURE <i>L Simon</i>	ENG. ISSUED JUL 7 1989 DATE 6-27-89
--	---

WHITE - ORIGINAL

YELLOW - COPY 1

PINK - COPY 2

GOLDENROD - COPY 3

REQUEST FOR MODIFICATION  
ED 7811

Page 1 of 4

RFM  
NUMBER 818-101119

PART A  
SUS NO. 043-03 TITLE: Range Change: PR 530/PR540

STATEMENT OF PROBLEM The condenser pressure recorder range is not adequate for certain operating situations. LCTS I.D. NO.: N/A  
This also applies to computer points P 447 and P 520 IMP DOC N/A  
as well as PR 530 and PR 541.

DESCRIPTION AND SCOPE OF PROPOSED MODIFICATIONS The DCRDR Review Team recommended that the range of PR 530/PR 541 be expanded. This recommendation resulted from the review and disposition of HED 51004.  
Additional Detail is provided in MPR letter to TED, EXT-88-01450 (copy attached)

Implement by end of 6RF0.

RESP. ENGINEER: *H. B. Bunker* 4/25/88 RESP. ENGINEERING MANAGER: *H. A. G. G. G.* ENGINEERING GENERAL DIRECTOR: *F. L. K. S. 5/14/88*

PART B

PROJECT ASSUMPTIONS:

CONSTRAINTS:

OPTION (S) CONSIDERED:	RISK OF IMPLEMENTING OPTION:
1. _____	_____
2. _____	_____

RISK ASSOCIATED WITH NOT PERFORMING PROJECT:

ACCOUNTING O&M ( ) AREA: FUNCTION:  
CLASSIFICATION: CAPITAL ( )

ESTIMATE AND COST BENEFIT ANALYSIS SUMMARY:

COST TO DATE	\$ _____	ANNUAL SAVINGS	\$ _____	YRS.
ESTIMATE OF COSTS TO COMPLETE	\$ _____	ECONOMIC LIFE	_____	YRS.
TOTAL PROJECT ESTIMATE	\$ _____	PAYBACK	_____	
		NET PRESENT VALUE \$	_____	

PROPOSED DISPOSITION OF DAVIS-BESSE  
DETAILED CONTROL ROOM DESIGN REVIEW (DCRDR)  
HUMAN ENGINEERING DISCREPANCY (HED)

Page 2 of 4

HED NO: 51004  
PART ATT  
DATE February 8, 1988  
STUDY Displays

EXCERPT FROM EXT-BB-01450  
SUBJECT: SCALE SPAN UNEXPECTED

DISCUSSION OF PROBLEM:

The HED identifies twenty-four (24) components on eight (8) panels as having meter scales that do not span the expected range of operational parameters. The HED also identifies "ED Fuel Oil" as having this problem but no panel is identified. Further, the HED does not identify the expected range of operational parameters for each meter listed, i.e., why the scale span is "unexpected" is not indicated. This HED (51004) and HED 51005 address the specific problems identified in general by another HED (98010).

In general, the HED is based on the NUREG 0700 Guideline requirement for scale ranges (6.5.1.2.d) which states:

"Scales should be selected to:

- (1) Span the expected range of operational parameters, or
- (2) Employ appropriate scale ranging techniques, or
- (3) Be supported by auxiliary wide range instruments."

Specifically, the HED was generated for part (1) of this guideline paragraph. Note that the NUREG 0700 Guideline requires either (1), (2) or (3) above. The HED does not specify whether the components listed also fail the requirements of both (2) and (3) above. The Task Analysis dated May 21, 1987, did not identify any problems for the components listed in this HED concerning the meter scales spanning the expected range of an operational parameter. Consequently, the discrepancies identified by this HED have not been confirmed by the Task Analysis.

This HED is based on the responses to operator interviews. Four of thirteen operators responded to the question "Do operational parameters of displayed values on meter scales span the range you would expect?" with a "NO." These operators listed some components; however, in only a few instances were there any indication of the actual problem. The following were listed with no indication of the specific problem. They were discussed by the Displays Special Study Group in a meeting on February 3, 1988. No significant problem with the spans of these displays were identified.

FI MU7, RC LETDOWN TEMPERATURE	(C5703)
HC MU6, RC LETDOWN FLOW CONTROLLER	(C5703)
PDI MU13, RC MAKEUP FILTER DP	(C5703)



PROPOSED DISPOSITION OF DAVIS-BESSE  
DETAILED CONTROL ROOM DESIGN REVIEW (DCRDR)  
HUMAN ENGINEERING DISCREPANCY (HED)

HED NO: 51004 (Page 2)  
PART ATT  
DATE February 8, 1988  
STUDY Displays

PDI MU62, RC LETDOWN PRE FILTER DP	(C5703)
TDI RC8, COLD LOOP 1 VS 2 TEMP DIFF	(C5710)
EI 6257, VOLTMETER BUS B	(C5715)
II 876, AMMETER-CIRC WATER PUMP	(C5720)
II 881, AMMETER-CIRC WATER PUMP	(C5720)
II 928, AMMETER-CIRC WATER PUMP	(C5720)
II 929, AMMETER-CIRC WATER PUMP	(C5720)

The HED lists four RC pump seal injection flow meters. The operator interview response was "SEAL INJ FILTER." The handwritten version of the HED identifies the problem is with "SEAL INJ FLOW." It was confirmed by the Displays Special Study Group that neither the components listed by the HED nor the seal injection filter have problems with scale span.

Based on the handwritten version of the HED and the operator interview responses, the Condensate Combined Flow meter (FI 578) is identified as having "range too small" with a note indicating that the scale readings need to be kept "below 8." However, the current scale range for FI 578 is 0 to 10 mpph. (A problem concerning the progression of scale graduations on FI 578 is addressed by HED 51028.)

The handwritten version of the HED and the operator interview responses indicates a problem with the "Core Flood Tank" meters (LI CF3A1, A2, B1 and B2) in that these meters display level in feet while the Tech. Spec. is in gallons. This is a separate issue and is covered by another HED (98028). The HED cites the core flood tank pressure as well as level. The meters are dual meters with pressure and level on each of four meters. The pressure scale is not involved in this problem and should not have been listed.

The HED lists "PI 569 CNDS PUMP DISCH HEADER PRESS." The operator interview responses and the handwritten version of the HED identify "CNDSR PRESS." It was determined by the Displays Special Study Group that the proper component was not listed by the HED. There are problems with the range of the condenser pressure, specifically. The operators read condenser pressure from a dual trace recorder (PR 530/541) on the right console. It has a span from 0 to 10 inches of Hg (absolute). This range covers the alarms and trip of the main turbine. However, the main feed pumps will operate to a pressure of 12.5 inches and the TBVs to 17 inches of Hg. In abnormal procedure AB 1203.25 the operator is given that guidance; however, there is no display in the control room which can provide him those pressure values. (The computer point P447 has the same range as the recorder.) It was concluded by the Displays Special Study Group that additional range of condenser pressure indication is needed

SCC

PROPOSED DISPOSITION OF DAVIS-BESSE  
DETAILED CONTROL ROOM DESIGN REVIEW (DCRDR)  
HUMAN ENGINEERING DISCREPANCY (HED)

HED NO: 51004 (Page 3)  
PART All  
DATE February 8, 1988  
STUDY Displays

in the control room. It was noted that this is not a safety problem of itself; however, it may cause the operator to take action to cause unnecessary plant transients.

The operator responses also cited two other items:

- ° "All on Post Accident Monitoring panel" and
- ° "Electrical Panel"

There are other HEDs on these components and in the case of the PAM panel extensive modifications are planned. The HED has properly ignored these responses.

The original handwritten version of this HED and one operator's response indicates the problem with the "ED FUEL OIL" is, in fact, the lack of a display of the emergency fuel oil level in the control room. One of the thirteen operators cited this item and stated that operators have to sound the tank locally. This is a completely different problem from the guideline referenced. It was discussed by the Displays Special Study Group in a meeting on February 3, 1988. The emergency oil tanks (week tanks) are alarmed at a level which is above the Tech. Spec. limits. However, since there is no level indication (even locally), the operators must sound the tank repeatedly after an alarm is received to be sure that the Tech. Spec. limit is not reached before the tank is filled. In addition to requiring the operator's time, the tank must be opened each time the level is determined which increases the potential for contamination of the oil. The Displays Special Study Group concluded level indication should be provided.

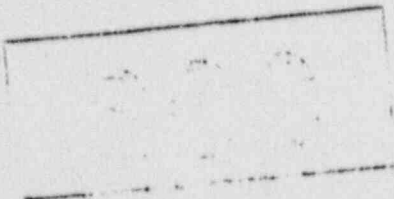
PROPOSED DISPOSITION AND JUSTIFICATION:

The Task Analysis dated May 21, 1987 did not identify any of the components listed as having meter scales that do not span the expected range of operational parameters. The Displays Special Study concluded that the components identified by the HED do not constitute an operational problem for the operators except the range of the condenser pressure instrument is too small and a display of emergency oil tank level is needed.

On February 4, 1988, the DCRDR Review Team concurred with this disposition.

CORRECTIONS AND MODIFICATIONS TO HED:

Add HEDs 51005 and 98010 as related HEDs.



SUBJECT Simple Configuration Change Process	EFFECTIVE DATE JUL 15 1988	PAGE 8 OF 9	NO. EN-DI-01200.7 RO
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ATTACHMENT 8.1 (Page 1 of 1)

SIMPLE CONFIGURATION CHANGE  
CHECKLIST

SIMPLE CONFIGURATION CHANGE CHECKLIST

PART I

The SCC does not apply to any of the following categories:

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> 0                                    | <input checked="" type="checkbox"/> Radvas'le                      |
| <input checked="" type="checkbox"/> Class 1E <u>NON EQ</u> <u>8/1/88</u> | <input checked="" type="checkbox"/> Seismic Category I             |
| <input checked="" type="checkbox"/> Fire Protection                      | <input checked="" type="checkbox"/> ASME Section III, IV, VIII, XI |
|  | <input checked="" type="checkbox"/> Safeguards                     |
| <input checked="" type="checkbox"/> Operational training required.       |  |
| <input checked="" type="checkbox"/> Procedure Change required.           |  |

RSE

Joseph S. Zajack 8/12

RSE Manager

J. L. B. 8/12/88

PART II

The following reviews are evaluated as not required:

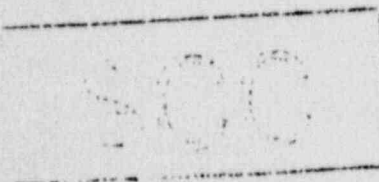
- |  |   |
|--|---|
| <input checked="" type="checkbox"/> ISI  | <input checked="" type="checkbox"/> FHAR              |
| <input checked="" type="checkbox"/> Loss of Instrument Power   | <input checked="" type="checkbox"/> Human Engineering |
| <input checked="" type="checkbox"/> ALARA  |   |
| <input checked="" type="checkbox"/> This SCC does not adversely effect any item of Part I or II listed on this form. |   |

RDE

J. P. Dever 3-28-89

RDE Manager

K. L. B. 3/28/89



88-1192  
RFA Number



June 28, 1989

File

FROM

L. P. Simon, DCRDR Project Leader

*L Simon*

SUBJECT

Condenser Pressure Recorder PR530/PR541

NEO-89-00720

HED 5.1.004 was dispositioned by the Displays Special Study group that additional range of condenser pressure indication is needed. MOD 88-0119 was written to accomplish this. Later RFA 88-1192 was written to perform the change under a Simple Configuration Change (SCC) and void MOD 88-0119.

It has now been determined by Operations Management that no change to the condenser pressure recorder is cost benefit justified.

The following factors were considered in making this determination:

1. If the recorder scale is changed from 0-10" to 0-20" HgA some loss of resolution at the low end (<5" HgA) would occur. This is not desired as this is the normal operating band with the unit on line.
2. Automatic actions that occur above full scale [MFPT trips at 12.5" and TBVs interlock to AVVs at 17"] will occur from separate pressure switches. The MFPTs tripping at 12.5" will cause a SFRCS actuation, closing MSIVs and render the TBV interlock at 17" unneeded. (A rare case with the MDPF on could still cause the TBV 17" interlock to be of some value). The MFPTs condenser pressure trip is actuated by two separate pressure switches for each MFPT. This redundancy makes operation action at 12.5" HgA highly unnecessary. Rupture disk on the MFPT exhaust and low pressure turbine hoods provide additional engineering backup.
3. The HED identified a concern that without a scale range covering automatic actions the operators may take action that would cause unnecessary plant transients. (i.e., if the CTRM indication pegs out at 10" HgA, the operation may or should trip the MFPTs) As the MFPTs have redundant low vacuum trips and there is little chance of having a transient stabilize vacuum between 10" and 12.5" HgA this concern is considered not valid. A PCR has been written to change Abnormal Procedure DB-OP-02518, to remove the requirement for specific operator action at 12.5" HgA (or require local indication of pressure to be relayed to the CTRM).

LPS/mjb

cc: C. Jaffee  
Chron File  
PE File

# PROCEDURE CHANGE REQUEST

ED 7596-3

TO

J. Kasper, Superintendent - Operations

PROCEDURE ACTIVITY TRACKING NUMBER

89-4500

FROM

L. Simon, Senior Performance Engineering Technologist

PROCEDURE NUMBER

(AB 1203.75)  
DB-OP-02518

TITLE

High Condenser Pressure

REVISION

05

DESCRIPTION OF REQUEST (Attach additional sheets if necessary)

Step 3.9 Procedure calls for verification of MFPTs trip at 12.5" HgA or manual trip of MFPTs.

Change Step 3.9 or add 3.9 Details to direct an operator to relay condenser pressure info from the Turbine deck OR direct the operator to manually trip the MFPT(s) if condenser pressure reaches 10" HgA.

JUSTIFICATION

Condenser pressures greater than 10" HgA cannot be verified from the CTRM. The DCRDR identified this as an HED concern as the operator was directed by Abnormal procedures to perform a specific task and no CTRM indication is provided to allow performance of the task.

REQUESTOR (Signature)

*L. Simon*

DATE

6-28-89

MAIL STOP

3085

SUPERVISOR (Signature)

*[Signature]*

DATE

6-29-89

MAIL STOP

3085

DISPOSITION OF REQUEST ☐ EXPLANATION OR MODIFICATION OF REQUEST ATTACHED:

- ☐ APPROVED FOR IMMEDIATE INCORPORATION
- ☐ APPROVED FOR INCORPORATION AT NEXT REVISION OR PERIODIC REVIEW
- ☐ REJECTED

SIGNATURE (Affected Department Head)

DATE

AFFECTED DEPARTMENT MAKES THE FOLLOWING DISTRIBUTION:

COPIES TO: REQUESTOR  
REQUESTOR'S SUPERVISOR  
DEPARTMENT FILE

FORWARD ORIGINAL TO SYSTEMS AND PROCEDURES

Davis-Besse Nuclear Power Station

ABNORMAL PROCEDURE

DB-OP-02518

(Supersedes AB 1203.25)

HIGH CONDENSER PRESSURE

REVISION 00/TOTAL REWRITE

Prepared by:

*Steven K. Martin*

*11/27/89*  
Date

Sponsor:

*Mike B. Bitt*  
Superintendent, Operations

*11/27/89*  
Date

Approved by:

*[Signature]*  
Manager, Plant Operations

*11/27/89*  
Date

Effective Date: \_\_\_\_\_

Procedure Classification:

- ☒ Safety Related  
☐ Quality Related  
☐ Non-Quality Related



4.0 SUPPLEMENTARY ACTIONS4.1 Supplementary Actions - High Condenser Pressure

ACTIONS	DETAILS
4.1.1 <u>IF</u> at any time during this procedure the following Condenser pressure setpoints are reached, <u>THEN</u> take the specified actions.	
a. 4.5 inches HgA:	PR 530, CONDENSER PRESSURE
1. Verify the Mechanical Hogger starts.	HIS 1005, MECHANICAL HOGGER
b. 5.0 inches HgA:	PR 530 or PR 541, CONDENSER PRESSURE
1. Reduce Reactor power to maintain Condenser pressure less than or equal to 5.0 inches HgA.	Refer to DB-OP-02504, Rapid Shutdown.
2. <u>IF</u> 5.0 inches HgA cannot be maintained, <u>AND</u> load is less than 280 MWe, <u>THEN</u> perform the following:	
a. Trip the Turbine.	Press the EMERGENCY TRIP pushbutton (EHC Panel 1).
b. <u>IF</u> the Reactor tripped, <u>THEN GO TO</u> DB-PF-02000, RPS, SFAS, SFRCS Trip, or SG Tube Rupture,	
c. <u>REFER TO</u> DB-OP-02500, Turbine Trip.	

(Continued)

INFORMATION ONLY

ACTIONS	DETAILS
4.1.1 (Continued)	
c. 7.5 inches HgA:	PR 530 and PR 541, CONDENSER PRESSURE
1. Verify the Turbine is tripped.	Zero percent valve position indicated on EHC Panel 2 for the following valves:
	MSV-1 CV-1
	MSV-2 CV-2
	MSV-3 CV-3
	MSV-4 CV-4
	Center console HP TURBINE STOP VALVES lights also indicate the
	Stop Valves are closed.
2. <u>IF</u> the Reactor tripped, <u>THEN GO TO</u> DB-PF-02000, RPS, SFAS, SFRCS Trip, or SG Tube Rupture,	
3. <u>REFER TO</u> DB-OP-02500, Turbine Trip.	
d. 10 inches HgA:	PR 530 OR PR 541, CONDENSER PRESSURE
	Main Feed Pump Turbines (MFPTs) trip at 12.5 inches HgA. Control Room Condenser pressure recorders PR 530 and PR 541 indicate from 0 to 10 inches HgA.
1. Trip the Reactor.	Use either REACTOR TRIP pushbutton.
2. Initiate AFW flow <u>AND</u> isolation of <u>BOTH</u> SGs by depressing SFRCS MANUAL ACTUATION switches HIS 6403 (AFP 1 TO SG 1 & ISO SG 1) <u>AND</u> HIS 6404 (AFP 2 TO SG 2 & ISO SG 2).	
3. <u>GO TO</u> DB-PF-02000, RPS, SFAS, SFRCS Trip, or SG Tube Rupture.	

# DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT ADDENDUM

HED NO: 5.1.010

TITLE:

Poor contrast between pointers and scale background.

DISPOSITION:

Additionally, the components on panel C5702 listed in this HED are Bailey "PY" indicators which are obsolete. Since spare parts can no longer be obtained, they will be replaced by MOD 87-1100.

The four Bailey Recorders listed for Panel C5719 also obsolete. They will be replaced FCR 33-0164.

CHANGE TO DISPOSITION/JUSTIFICATION:

MOD 87-1100, the replacement of the PY Indicators is scheduled to be accomplished when the Bailey indicators are no longer functional which may not coincide with the closure of the DCRDR program at the conclusion of the sixth refueling outage. The Bailey PY indicators are considered acceptable by Displays Special Studies and replacement is not required by the HED.

MOD 83-0164-01 was to replace the four Bailey Recorders on C5719 which have been inoperative for several years. Operation states that they have no use for the recorders and that the information provided is currently being provided by other instruments.

MOD 87-1227-00 has removed NR NI 01-04 recorders.



## DAVID-DEBBE HUMAN ENGINEERING DISCREPANCY REPORT

PAGE 1

HED NO: 51010      DATE OF ORIGIN: 07/26/83      REVISION DATE: 06/30/88  
TITLE: POOR CONTRAST BETWEEN POINTERS AND SCALE BACKGROUND

=====

DATA SOURCE: OPERATOR SURVEY/QUESTIONNAIRE

TASK PLAN: TP-5.1B6(19)  
0700 PARA: 6.5.2.2C  
SPECIAL STUDY: DISPLAYS

RELATED HED(S): 51009      51026

=====

PROBLEM DESCRIPTION:

SCALES ARE DIFFICULT TO READ BECAUSE OF POOR CONTRAST BETWEEN POINTER AND BACKGROUND.

SPECIFIC ERROR:

MISREADING OF THE DISPLAY.

=====

INITIAL ASSESSMENT CATEGORY: IIC      REASSESSMENT CATEGORY: NONE

DISPOSITION/JUSTIFICATION:

FOR THE CITED DISPLAYS ON PANELS C5702 AND C5706, THE RED POINTERS HAVE ADEQUATE CONTRAST WITH THE WHITE SCALE BACKGROUND. THEREFORE, NO CORRECTIVE ACTION IS NEEDED FOR THESE INDICATORS.

THE FOUR RECORDERS ON PANEL C5708 ARE DIFFICULT TO READ BECAUSE OF GREASE PENCIL WRITING ON THE SCALE COVERS. CONTROL ROOM RELABELING (FCR 87-0071) WILL CORRECT THIS BY PROVIDING SPECIAL LABELS WITH SPACE TO WRITE NEEDED INFORMATION. THE GREASE PENCIL WRITING ON THE LENSES WILL NO LONGER BE NECESSARY AND WILL BE REMOVED (SEE HED 51026). THE RED, BLUE, AND GREEN POINTERS CONTRAST ADEQUATELY WITH THE WHITE SCALE BACKGROUND.

THE FOUR RECORDERS ON PANEL C5719 ARE DESIGNED WITHOUT POINTERS (PENS ONLY) AND, AS SUCH, ARE NOT DISCREPANT.

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

RELATED MODs: 83-0164      87-0071      87-1100      87-1130

=====

FINAL DISPOSITION APPR: L. SIMON /S/      DATE: 06/25/88

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
DISPOSITION/JUSTIFICATION CONTINUATION SHEET

PAGE 2

HED NO: 5.010

ALL SCALES ON PANELS C5798 AND C5799 ARE BEING CHANGED TO DIXSON DIGITAL/ANALOG LED-TYPE METERS (MOD 87-1130) WHICH HAVE AN LED BARGRAPH TO REPLACE THE POINTERS.

ADDITIONALLY, THE COMPONENTS ON PANEL C5702 LISTED IN THIS HED ARE BAILEY "PY" INDICATORS WHICH ARE OBSOLETE. SINCE SPARE PARTS CAN NO LONGER BE OBTAINED, THEY WILL BE REPLACED BY MOD 87-1100.

THE FOUR BAILEY RECORDERS LISTED FOR PANEL C5719 ALSO OBSOLETE. THEY WILL BE REPLACED FOR 83-0164.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-88-01450).

DAVID-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 3

2 NO: 51010

PANEL ID: C5702

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

LI MU49-1 BORIC ACID ADD TANK LEVEL  
LI MU65-1 BORIC ACID ADD TANK NO. 1-2 LEVEL  
TI MU48 BORIC ACID ADD TANK TEMP  
TI MU64 BORIC ACID ADD TANK TEMP

PANEL ID: C5706

COMPONENT IDENTIFICATION

NI NI1 LOG COUNT RATE NI 1  
NI NI2 LOG COUNT RATE NI 2

PANEL ID: C5708

COMPONENT IDENTIFICATION

XR 7005 NO DESCRIPTOR  
XR 7006 NO DESCRIPTOR  
XR 7007 NO DESCRIPTOR  
R 7008 NO DESCRIPTOR

PANEL ID: C5719

COMPONENT IDENTIFICATION

NR NI1 SOURCE INTER. FLUX  
NR NI2 SOURCE INTER. FLUX  
NR NI3 SOURCE INTER. FLUX  
NR NI4 SOURCE INTER. FLUX

PANEL ID: C5798

COMPONENT IDENTIFICATION

ALL SCALES

PANEL ID: C5799

COMPONENT IDENTIFICATION

ALL SCALES

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*



DAVIS-BESSE  
HED REMARKS

PAGE 4

HED NO: 51010

REMARKS: POOR CONTRAST BETWEEN POINTERS AND SCALE BACKGROUND

=====

REMARKS:

REMARKS INTENTIONALLY BLANK

June 12, 1989

V. M. Watson, Manager - Design Engineering

FROM

L. P. Simon, Senior Performance Technologist, Performance Engineering

*L. Simon*

SUBJECT

NI Recorders

NEO-89-00658

NRNI 1&3 and NRNI 2&4 Source and Intermediate Range Recorders are scheduled to be replaced by FCR 2-83-0164-02 in the 7RFO.

These recorders have been out of service for a few years. They meet the criteria for replacement by L&N recorders per FCR 2-83-0164-02 but the Action Planning Committee decided not to replace them in the 6RFO. The DCRDR wanted them replaced but Operations stated they don't use them. The original plant design had limited computer historical data retrieval and recorded flux information was needed. Power range and intermediate range recorders are on the center console but not source range.

I suggest these recorders be deleted from the scope of 2-83-0164-02 and added to Mod 88-0210 or 87-1227 and be scheduled for removal from the CTRM in the 6RFO.

I have concurrence from J. Kasper on this suggestion.

LPS/plb

cc: P. W. Gaffney  
R. A. Harrison  
C. Jaffee  
J. R. Kasper  
G. N. LeBlanc  
Chron File  
PE File

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED NO: 5.1.027

TITLE:

There are more than nine graduations between numerals on scales.

DISPOSITION:

MOD 88-0047 will replace the scale of SI 996.

MOD 87-1100 will replace PDI MU13 and PDI MU62.

In addition, PI 495 has been removed, and NR 3300A and NR 3300B will be removed by MOD 87-0122.

CHANGE TO DISPOSITION/JUSTIFICATION:

1. The scale change of SI 996 was accomplished under Simple Configuration Change (SCC) 88-1188.
2. The scales replacement for TI 998, ZI 997 was accomplished under SCC 88-1194.
3. The scale replacement for FI RC1A, FI RC1B was accomplished under SCC 88-1195.
4. MOD 87-1100 will eventually replace PDI MU13 and PDI MU62 when they are obsolete and parts are no longer available. However, the scales are readable and it is not necessary to implement MOD 87-1100 to close this HED.
5. NR 3300A and NR 3300B were removed by MOD 88-1227.



HED NO: 51027

DATE OF ORIGIN: 09/01/83

REVISION DATE: 06/30/88

TITLE: THERE ARE MORE THAN NINE GRADUATIONS BETWEEN NUMERALS ON SCALES

=====

DATA SOURCE: OBSERVATION CHECKLIST

TASK PLAN: TP-5.1B3(22)

Q700 PARA: 6.5.1.5A(1)

SPECIAL STUDY: DISPLAYS

RELATED HED(S): 51028 92003

## =====

PROBLEM DESCRIPTION:

THERE ARE MORE THAN NINE GRADUATIONS BETWEEN NUMERALS ON SCALES.

SPECIFIC ERROR:

DELAY IN READING DISPLAY. MISREADING OF THE DISPLAY.

=====

INITIAL ASSESSMENT CATEGORY: IICREASSESSMENT CATEGORY: NONEDISPOSITION/JUSTIFICATION:

THE DISPLAYS SPECIAL STUDY DETERMINED THAT THE FOLLOWING DISPLAY SCALES ARE DIFFICULT TO READ AND SHOULD BE REPLACED WITH APPROPRIATELY DESIGNED SCALES:

FI RC1A TI 998 FI RC1B SI 996 ZI 997

MOD 88-0047 WILL REPLACE THE SCALE OF SI 996.

MOD 87-1100 WILL REPLACE PDI MU13 AND PDI MU62.

THE SCALES ON EI 6016 AND EI 6018 ARE BEING REPLACED BY REMEDIAL WORK ASSOCIATED WITH HED 92003.

IN ADDITION, PI 495 HAS BEEN REMOVED, AND NR 3300A AND NR 3300B WILL BE REMOVED BY MOD 87-122.

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

LATED MODs: 87-1100 87-1227 88-0047 88-0122 88-0123

=====

FINAL DISPOSITION APPR: L. SIMON /S/ DATE: 06/26/88

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
DISPOSITION/JUSTIFICATION CONTINUATION SHEET

PAGE 2

HED NO: 51027

MODIFICATION 88-0123 WILL REPLACE THE SCALES OF FI RC1A AND FI RC1B;  
MOD 88-0122 WILL REPLACE THE SCALES OF TI 998 AND ZI 997.

THE REMAINING DISPLAY SCALES DO HAVE MORE THAN NINE (9) GRADUATIONS  
BETWEEN NUMERALS. HOWEVER, THEY ARE NOT DIFFICULT TO READ AND  
THEREFORE REQUIRE NO MODIFICATION.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-88-01450).

HED NO: 51027

PANEL ID: C5703COMPONENT IDENTIFICATIONSPECIAL  
STUDY

PDI MU13 MU FILTER (DELTA)P  
PDI MU62 RC LETDOWN FILTER (DELTA)P

PANEL ID: C5707COMPONENT IDENTIFICATION

TR RC7 RCS UNIT T AVE

PANEL ID: C5710COMPONENT IDENTIFICATION

F1 RC1A RC FLOW LOOP 2  
F1 RC1B RC FLOW LOOP 1

PANEL ID: C5711COMPONENT IDENTIFICATION

I 473 MFP 1 DISCH PRESS  
PI 484 MFP 2 DISCH PRESS

PANEL ID: C5712COMPONENT IDENTIFICATION

PI 495 DELETED FROM PANEL

PANEL ID: C5715COMPONENT IDENTIFICATION

EI 6271 DC VOLTS (D1P)  
EI 6272 DC VOLTS (D2N)  
EI 6275 DC VOLTS (D1N)  
EI 6276 DC VOLTS (D2P)  
EI 6277 AC VOLTS (Y1)  
EI 6278 AC VOLTS (Y4)  
EI 6279 AC VOLTS (YAR)  
EI 6280 AC VOLTS (YBR)  
EI 6281 AC VOLTS (Y3)  
EI 6282 AC VOLTS (Y2)  
EI 6297 AC VOLTS (YAU)



DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 4

HED NO: 51027

PANEL ID: C5715 (Cont'd)

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

EI 6298 AC VOLTS (YBU)  
XI 6221 HERTZ  
XI 6231 HERTZ

PANEL ID: C5719

COMPONENT IDENTIFICATION

NR 3300A NO DESCRIPTOR  
NR 3300B NO DESCRIPTOR

PANEL ID: C5720

COMPONENT IDENTIFICATION

PI 1644 AUX STM 50# HDR PRESS  
PI 2046 STA. AIR CMPSR REC OUT  
PI 2111 EMR INST AIR CMPSR REC OUT  
PI 810 INSTR AIR PRESS  
PI 811 SERV AIR PRESS  
PI 935 N2 PRESS  
1 996 WIND SPEED 35 FT  
11 998 OUTDOOR DRY BULB TEMP 35 FT  
21 997 WIND DIRECTION 35 FT

PANEL ID: C5721

COMPONENT IDENTIFICATION

PI 283B HP FW HTR SHELL 1/4 PRS  
PI 384B HP FW HTR SHELL 2/4 PRS  
PI 432 HP FW HTR OUT COMMON PRESS  
PI 466B BFP 1 SUCT PRESS  
PI 494B BFP 2 SUCT PRESS  
PI 616 SG MN FW NOZZLE PRESS  
PI 618 SG MN FW NOZZLE PRESS

PANEL ID: C5722

COMPONENT IDENTIFICATION

EI 2376 SHAFT VOLTAGE TEST  
EI 6016 345 KV BUS INCOMING VOLTS  
EI 6018 345 KV BUS RUNNING VOLTS  
JI 6003 GENERATOR WATTMETER

DAVID-BESSE

HED DISCREPANT COMPONENT LISTING

PAGE NO: 5

HED NO: 51027

PANEL ID: C5722 (Cont'd)

SPECIAL  
STUDY

COMPONENT IDENTIFICATION

SI 6009A MAIN GENERATOR

PANEL ID: C5723

COMPONENT IDENTIFICATION

EI 6101 345 KV INCOMING VOLTS

EI 6102 345 KV RUNNING VOLTS

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

HED NO: 51027

TITLE: THERE ARE MORE THAN NINE GRADUATIONS BETWEEN NUMERALS ON SCALES

=====

REMARKS:

REMARKS INTENTIONALLY BLANK



DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED NO: 5.1.028

TITLE:

Scale graduations do not progress by 1,2,5 or 10s.

DISPOSITION:

It was concluded that the progression of scale graduations on flow meters FI RC1A and FI RC1B on panel C5710 and FI 578 on C5714 are a problem for the operators. The scales on these meters will be replaced by scales incremented by 1,2,5,10 or multiples of 10 by MOD 88-0123 and 88-0124.

CHANGE TO DISPOSITION/JUSTIFICATION:

The scale replacement on FI 578 (panel C5714) will be accomplished by Simple Configuration Change (SCC) 88-1196. SCC 88-1196 was not implemented in the 6RFO and is scheduled for the 7th RFO. The change to the condensate flow meter scale is an operational enhancement and not critical to plant operations. The scale is readable but should be improved.

The scale replacement on FI RC1A and FI RC1B (panel C5710) has been implemented by SCC 88-1195.

HED NO: 51026

DATE OF ORIGIN: 09/01/83

REVISION DATE: 06/30/88

TITLE: SCALE GRADUATIONS DO NOT PROGRESS BY 1, 2, 5 OR 10'S

=====

DATA SOURCE: OBSERVATION CHECKLIST

TASK PLAN: TP-5.1B3(25)

0700 PARA: 6.5.1.5C

SPECIAL STUDY: DISPLAYS  
SFRCS

RELATED HED(S): 12005 51027 51036 92003 92019 92035

=====

PROBLEM DESCRIPTION:

SCALE GRADUATIONS DO NOT PROGRESS BY 1, 2, 5 OR 10 OR MULTIPLES  
OF 10.SPECIFIC ERROR:

DELAY IN READING DISPLAY. MISREADING THE DISPLAY.

=====

INITIAL ASSESSMENT CATEGORY: IIC REASSESSMENT CATEGORY: NONE

DISPOSITION/JUSTIFICATION:

## 1. SFRCS SPECIAL STUDY

AUX FEED PUMP DISCHARGE PRESSURE INDICATORS PI 505 AND PI 509  
WILL BE REPLACED WITH ANALOG/DIGITAL LED-TYPE INDICATORS BY FCR  
87-0068. THE ANALOG SCALE WILL HAVE MAJOR GRADUATIONS AT 500  
PSIG, INTERMEDIATE AT 100 PSIG AND MINOR AT 50 PSIG.

## 2. DISPLAYS SPECIAL STUDY

THE DISPLAYS SPECIAL STUDY GROUP REVIEWED ALL OF THE LISTED INDI-  
CATOR SCALES TO DETERMINE IF ANY OF THEM WHICH REQUIRE PRECISE  
READING COULD NOT BE READ AT A GLANCE. IT WAS CONCLUDED THAT  
THE PROGRESSION OF SCALE GRADUATIONS ON FLOW METERS FI RC1A AND  
FI RC1B ON PANEL C5710 AND FI 578 ON C5714 ARE A PROBLEM FOR THE  
OPERATOR. THE SCALES ON THESE METERS WILL BE REPLACED BY SCALES  
INCREMENTED BY 1, 2, 5, 10, OR MULTIPLES OF 10 BY MODS 88-0123

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

\*\*\*\*\*

RELATED MODs: 87-0068 88-0123 88-0124

=====

FINAL DISPOSITION APPR: L. SIMON /S/ DATE: 06/26/88

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
DISPOSITION/JUSTIFICATION CONTINUATION SHEET

PAGE 2

HED NO: 51028

AND 88-0124.

THE SCALES FOR II 6289, II 6290, II 6291 AND II 6292 ON C5715 ARE BEING REPLACED (HED 12005) AND SCALE PROGRESSION WILL ALSO BE CORRECTED.

THE PROGRESSION OF SCALE GRADUATIONS ON THE REMAINING DISPLAYS LISTED ON THIS HED ARE EITHER NOT A PROBLEM OPERATIONALLY OR ARE BEING CORRECTED BY OTHER HEDS. HED 51036 ADDRESSES FI 1535 AND FI 1547. HED 51027 ADDRESSES ZI 997. HED 92003 ADDRESSES EI 6016 AND EI 6018.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-88-03039).



## DAVIS-BESSE

## HED DISCREPANT COMPONENT LISTING

PAGE NO: 3

HED NO: 51028

PANEL ID: C5703

COMPONENT IDENTIFICATIONSPECIAL  
STUDY

FI MU7 RC LETDOWN FLOW

DISP

PANEL ID: C5704

COMPONENT IDENTIFICATIONII MU24A AC AMPERES RC MU PMP 1  
II MU24B AC AMPERES RC MU PMP 2

DISP

DISP

PANEL ID: C5705

COMPONENT IDENTIFICATIONLI RC14-3 PRZR LEVEL LI 14-3  
LI RC14-4 PRZR LEVEL LI 14-4  
LRS RC14 PRZR LEVEL

DISP

DISP

DISP

PANEL ID: C5706

COMPONENT IDENTIFICATIONNI NI1 LOG COUNT RATE NI 1  
NI NI2 LOG COUNT RATE NI 2

DISP

DISP

PANEL ID: C5707

COMPONENT IDENTIFICATIONNI NI3 LOG N NI 3  
NI NI4 LOG N NI 4  
NR NI6 % FULL POWER

DISP

DISP

DISP

PANEL ID: C5709

COMPONENT IDENTIFICATIONPI 505 AFP 1 DISCH PRESS  
PI 509 AFP 2 DISCH PRESS

SFRCS

SFRCS

PANEL ID: C5710

COMPONENT IDENTIFICATION

FI RC1A RC FLOW LOOP 2

DISP

DAVIS-BESSE  
MED DISCREPANT COMPONENT LISTING

PAGE NO: 4

MED NO: 51028

PANEL ID: C5710 (Cont'd)

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

FI RC1B RC FLOW LOOP 1

DISP

PANEL ID: C5711

COMPONENT IDENTIFICATION

PI 473 MFP 1 DISCH PRESS

DISP

PI 484 MFP 2 DISCH PRESS

DISP

PANEL ID: C5712

COMPONENT IDENTIFICATION

II 579 A-C AMPERES

DISP

PI 495 DELETED FROM PANEL

DISP

PANEL ID: C5713

COMPONENT IDENTIFICATION

II 2402 T-G TURN GEAR

DISP

I 2413 AC AMPS T-G HYD FLD PMP 1

DISP

II 2414 AC AMPS T-G HYD FLD PMP 2

DISP

PANEL ID: C5714

COMPONENT IDENTIFICATION

FI 578 CNDS PMP COMBINED FLOW

DISP

HIC 2540-01 EHC PANEL #1: CV-1-2-3-4: MILLIAMPERES & PERCENT

DISP

HIC 2540-02 EHC PANEL #1: MSV-1-2-3-4: MILLIAMPERES & PERCENT

DISP

HIC 2540-03 EHC PANEL #1: ISV-1-2-3-4: MILLIAMPERES & PERCENT

DISP

HIC 2540-04 EHC PANEL #1: IV-1-2-3-4: MILLIAMPERES & PERCENT

DISP

PANEL ID: C5715

COMPONENT IDENTIFICATION

EI 4553 A-C VOLTS (Y1A)

DISP

EI 4554 A-C VOLTS (Y2A)

DISP

EI 6200 AUX XFMR 11 TO BUS A A-C KILOVOLTS

DISP

EI 6201 SU XFMR TO BUS A A-C KILOVOLTS

DISP

EI 6203 SU XFMR 01 TO BUS A A-C KILOVOLTS

DISP

EI 6208 AUX XFMR 11 TO BUS B A-C KILOVOLTS

DISP

EI 6209 SU XFMR 01 TO BUS B A-C KILOVOLTS

DISP

DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 6

HED NO: 51028

PANEL ID: C5716 (Cont'd)

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

FI 1547	CS PMP 1 DISCH FLOW	DISP
II 1372B	SW PMP 3 CH 2	DISP
II 1414	CC PMP 1	DISP
II 1416A	CC PMP 3 CH 1	DISP
II 1416B	CC PMP 3 CH 2	DISP
II 1418	CC PMP 2	DISP
II DH6A	DH PMP 2	DISP
II DH6B	DH PMP 1	DISP
RI 4597AAC	NO DESCRIPTOR	DISP
RI 4597BAC	NO DESCRIPTOR	DISP

PANEL ID: C5719

COMPONENT IDENTIFICATION

NR NI3	SOURCE INTER. FLUX	DISP
NR NI4	SOURCE INTER. FLUX	DISP

PANEL ID: C5720

COMPONENT IDENTIFICATION

II 627	AC AMPS CLNG WTR PMP 1	DISP
II 628	AC AMPERES CLNG WTR PMP 2	DISP
II 629	AC AMPS CLNG WTR PMP 3	DISP
II 922	AC AMPS CLNG TWR MU PMP 1	DISP
II 923	AC AMPS CLNG TWR MU PMP 2	DISP
LI 902	FORE BAY LVL	DISP
PI 1644	AUX STM 50# HDR PRESS	DISP
PI 2046	STA. AIR CMPSR REC OUT	DISP
PI 2111	EMR INST AIR CMPSR REC OUT	DISP
PI 810	INSTR AIR PRESS	DISP
PI 811	SERV AIR PRESS	DISP
PI 935	N2 PRESS	DISP
ZI 997	WIND DIRECTION 35 FT	DISP

PANEL ID: C5721

COMPONENT IDENTIFICATION

II 318	AC AMPS FW HTR DRN PMP 1	DISP
II 342	AC AMPS FW HTR DRN PMP 2	DISP
PI 283B	HP FW HTR SHELL 1/4 PRS	DISP
PI 384B	HP FW HTR SHELL 2/4 PRS	DISP
PI 432	HP FW HTR OUT COMMON PRESS	DISP



DAVIS-BESSE  
MED DISCREPANT COMPONENT LISTING

PAGE NO: 7

MED NO: 51028

PANEL ID: C5721 (Cont'd)

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

PI 466B	BFP 1 SUCT PRESS	DISP
PI 494B	BFP 2 SUCT PRESS	DISP
PI 616	SG MN FW NOZZLE PRESS	DISP
PI 618	SG MN FW NOZZLE PRESS	DISP

PANEL ID: C5722

COMPONENT IDENTIFICATION

EI 6016	345 KV BUS INCOMING VOLTS	DISP
EI 6018	345 KV BUS RUNNING VOLTS	DISP
JI 6003	GENERATOR WATTMETER	DISP
SI 6009A	MAIN GENERATOR	DISP

PANEL ID: C5723

COMPONENT IDENTIFICATION

EI 6101	345 KV INCOMING VOLTS	DISP
EI 6102	345 KV RUNNING VOLTS	DISP
JI 6105	BAYSHORE NO.1 CKT. 1L A-C MEGAWATTS	DISP
I 6106	LEMOYNE NO.1 CKT. 3L A-C MEGAWATTS	DISP
JI 6107	OHIO EDISON NO.1 CKT. 5LT A-C MEGAWATTS	DISP
XI 6104	MAIN TRANSFORMER UNIT #1 MEGAVARS	DISP

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

DAVIS-BESSE  
HED REMARKS

PAGE 8

HED NO: 51028

TITLE: SCALE GRADUATIONS DO NOT PROGRESS BY 1, 2, 5 OR 10'S

REMARKS:

REMARKS INTENTIONALLY BLANK

# DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT ADDENDUM

HED NO: 5.1.030

TITLE:

Zone Marking Not Distinctive on Some Meters and Most Meters Do Not Contain Zone Marking

DISPOSITION:

The Display Special Study Group concluded that for those displays designated by operations, zone marking should be added to meter scales as follows:

- Technical Specification limits will be indicated by a red mark.
- Alarm limits will be indicated by a yellow mark.
- Some selected meters will have a green normal operating band.

The MWO 1-88-1721-00 series has been generated to implement this work.

CHANGE TO DISPOSITION/JUSTIFICATION:

On January 18, 1990, a meeting with L. P. Simon of Performance Engineering, Mark B. Bezella of Operations and Douglas P. Ricci of Operations discussed HED 5.1.030 and the associated attempts at marking the various instruments. It was concluded that the resolution proposed in HED 5.1.030 was not practical in the Davis-Besse Control Room and it was agreed that implementation of the disposition would introduce more problems than it would correct. See attached memorandum from L. P. Simon to file.

HED 5.1.030 will be closed without implementation of the disposition.



## INTRA-COMPANY MEMORANDUM

ED 6214-2

DATE

January 24, 1990

TO

File

FROM

L. P. Simon, Senior Performance Engineering Technologist

*L. P. Simon*

SUBJECT

HEDs 5.1.030, HED 5.1.031, HED 9.2.038 and HED 9.8.028

NEO-90-00073

The subject HEDs are associated with scale markings. HED 5.1.030 problem description stated "Zone markings are not used on most meters and the meters that have them are not conspicuously and distinctively marked."

The disposition recommended that zone markings be added to meter scales as follows:

1. Technical Specification Limits will be indicated by a red mark.
2. Alarm Limits will be indicated by a yellow mark.
3. Some selected meters will have a green normal operating band.

MWO 1-88-1721-00 was initiated to install bands in accordance with the HED disposition.

Operation's, C. Hoffer, provided a listing of instruments with their associated Tech Spec and Alarm Limits listed. The MWO attempted to provide the necessary marking using 1/32, 1/16 and 1/8 inch colored tape. The marking, using the thinner tape, was not sufficiently visible and the wider tape obscured the meter scales. Based on an evaluation by several operators, the marking of the various meters was a useless effort and MWO 1-88-1721-00 was subsequently voided.

On January 18, 1990, a meeting with L. P. Simon of Performance Engineering, Mark B. Bezilla of Operations, and Douglas P. Ricci of Operations discussed HED 5.1.030 and the associated attempts at marking the various instruments. It was concluded that the resolution proposed in HED 5.1.030 was not practical in the Davis-Besse Control Room and it was agreed that implementation of the disposition would introduce more problems than it would correct.

HED 5.1.030 will be closed without implementation of the disposition.

LPS/plb

cc: E. C. Caba  
Chron File  
PE file

HED NO: 51030      DATE OF ORIGIN: 09/01/83      REVISION DATE: 07/13/88  
TITLE: ZONE MARKINGS NOT DISTINCTIVE ON SOME METERS AND MOST METERS DO NOT  
CONTAIN ZONE MARKINGS

=====

DATA SOURCE: OBSERVATION CHECKLIST

TASK PLAN: TP-5.1B3(33)  
0700 PARA: 6.5.2.3A  
SPECIAL STUDY: DISPLAYS

RELATED HED(S): 92038

=====

PROBLEM DESCRIPTION:

ZONE MARKINGS ARE NOT USED ON MOST METERS AND THE METERS THAT HAVE  
THEM ARE NOT CONSPICUOUSLY AND DISTINCTIVELY MARKED.

SPECIFIC ERROR:

DELAY IN READING DISPLAYS. MISINTERPRETATION OF EQUIPMENT STATUS.

=====

INITIAL ASSESSMENT CATEGORY: IIC      REASSESSMENT CATEGORY: NONE

DISPOSITION/JUSTIFICATION:

THE DISPLAYS SPECIAL STUDY GROUP CONCLUDED THAT FOR THOSE DISPLAYS  
DESIGNATED BY OPERATIONS, ZONE MARKING SHOULD BE ADDED TO METER  
SCALES AS FOLLOWS:

- TECHNICAL SPECIFICATION LIMITS WILL BE INDICATED BY A RED MARK.
- ALARM LIMITS WILL BE INDICATED BY A YELLOW MARK.
- SOME SELECTED METERS WILL HAVE A GREEN NORMAL OPERATING BAND.
- THE MWO 1-88-1721-XX SERIES HAS BEEN GENERATED TO IMPLEMENT THIS  
WORK.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-88-00847).

RELATED MODE:

=====

FINAL DISPOSITION APPR: L. SIMON /S/      DATE: 07/12/88

DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

HED NO: 51030

PANEL ID: N/A

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

MOST METERS

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*



HED NO: 51030

TITLE: ZONE MARKINGS NOT DISTINCTIVE ON SOME METERS AND MOST METERS DO NOT  
CONTAIN ZONE MARKINGS

REMARKS:

REMARKS INTENTIONALLY BLANK

# DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT ADDENDUM

HED NO: 5.1.033

TITLE:

Pointers Too Narrow

DISPOSITION:

2. Displays Special Study

The Displays Special Study Group has examined each GE-Type small edgewise meter and concluded that pointer widths are not so narrow that the meters present a burden for the operators. Additionally, HED 51011 listed "Bailey Recorders" and "Meters" as having pointers which are too small. The Bailey Recorders in the Control Room are being replaced in both the 5RFO and 6RFO by FCR 83-0164. No problems have been identified with the pointers. The "Meters" entry in HED 51011 alludes to all Control Room Meters. Not only those listed in HEDs 51011 and 51033. No other discrepant meters were identified.

CHANGE TO DISPOSITION/JUSTIFICATION:

1. Bailey Recorders continue to remain operational. These recorders will be replaced when spare parts are no longer available to effect repairs.

HED NO: 51033

DATE OF ORIGIN: 09/01/83

REVISION DATE: 06/30/88

TLE: POINTERS TOO NARROW

=====

DATA SOURCE: OBSERVATION CHECKLISTTASK PLAN: TP-5.1B3(29)0700 PARA: 6.5.2.2CSPECIAL STUDY: DISPLAYS  
SFRCSRELATED HED(S): 51011

=====

PROBLEM DESCRIPTION:

POINTERS ON THE METERS LISTED ARE TOO NARROW, WHICH MAKES READING THE  
DISPLAYS DIFFICULT.

SPECIFIC ERROR:

MISREAD THE DISPLAY. DELAY IN READING THE DISPLAY.

=====

INITIAL ASSESSMENT CATEGORY: IIIREASSESSMENT CATEGORY: NONEDISPOSITION/JUSTIFICATION:

## 1. SFRCS SPECIAL STUDY

THE POINTERS ON 2I SP6A AND 7I SP6B WERE JUDGED SATISFACTORY.  
EXACT READINGS ARE NOT REQUIRED FROM THESE METERS AS THEY ARE  
USED TO VERIFY THAT VALVE POSITION IS CONSISTENT WITH DEMAND.  
HOWEVER, OPEN/SHUT POSITION INDICATION LIGHTS WILL BE ADDED TO  
THE NEW CENTER CONSOLE BY FCR 87-0067 TO PROVIDE POSITIVE CLOSED  
INDICATION ON SFRCS ACTUATION, FOR THE MFW VALVES.

## 2. DISPLAYS SPECIAL STUDY

THE DISPLAYS SPECIAL STUDY GROUP HAS EXAMINED EACH GE-TYPE  
SMALL EDGEWISE METER AND CONCLUDED THAT POINTER WIDTHS ARE NOT  
SO NARROW THAT THE METERS PRESENT A BURDEN FOR THE OPERATORS.

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

RELATED MODs: 83-0164 87-0067

=====

FINAL DISPOSITION APPR: L. SIMON /S/DATE: 06/26/88



DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
DISPOSITION/JUSTIFICATION CONTINUATION SHEET

PAGE 2

HED NO: 51033

ADDITIONALLY, HED 51011 LISTED "BAILEY RECORDERS" AND "METERS" AS HAVING POINTERS WHICH ARE TOO SMALL. THE BAILEY RECORDERS IN THE CONTROL ROOM ARE BEING REPLACED IN BOTH THE SRFO AND 6RFO BY FCR 83-0164. NO PROBLEMS HAVE BEEN IDENTIFIED WITH THE POINTERS. THE "METERS" ENTRY IN HED 51011 ALLUDES TO ALL CONTROL ROOM METERS, NOT ONLY THOSE LISTED IN HEDS 51011 AND 51033. NO OTHER DISCREPANT METERS WERE IDENTIFIED.

PANEL ID: C5712

**SPECIAL  
STUDY**

SFRCs  
SFRCs

PANEL ID: C5713

DISP  
DISP  
DISP

PANEL ID: C5714

HIC 2540-01	EHC PANEL #1: CV-1-2-3-4: MILLIAMPERES & PERCENT	DISP
HIC 2540-02	EHC PANEL #1: MSV-1-2-3-4: MILLIAMPERES & PERCENT	DISP
HIC 2540-03	EHC PANEL #1: ISV-1-2-3-4: MILLIAMPERES & PERCENT	DISP
HIC 2540-04	EHC PANEL #1: IV-1-2-3-4: MILLIAMPERES & PERCENT	DISP
I 558	AC AMPERES CNDS PMP 1	DISP
I 564	AC AMPERES CNDS PMP 2	DISP
I 591	AC AMPERES CNDS PMP 3	DISP

PANEL ID: C5715

EI 6208	AUX XFMR 11 TO BUS B A-C KILOVOLTS	DISP
EI 6209	SU XFMR 01 TO BUS B A-C KILOVOLTS	DISP
EI 6210	SU XFMR 02 TO BUS B A-C KILOVOLTS	DISP
EI 6220	XMFR BD-C1 VOLTS	DISP
EI 6221C	DG #2 SYNCH KV	DISP
EI 6230	XMFR AC-D1 VOLTS	DISP
EI 6231C	DG #2 SYNCH KV	DISP
EI 6257	BUS KILOVOLTS	DISP
EI 6260	ACKV	DISP
EI 6262	ACKV	DISP
EI 6262	ACKV	DISP
EI 6263	ACKV	DISP
EI 6270	F1 BUS VOLTS A-C VOLTS	DISP
EI 6894	E6 BUS VOLTS A-C VOLTS	DISP
II 6204	BUS A TO XFMR AE4 A-C AMPERES	DISP
II 6207	BUS A TO XFMR AC1 A-C AMPERES	DISP
II 6208	AUX XFMR 11 TO BUS B A-C AMPERES	DISP

**DAVIS-BESSE**  
**HED DISCREPANT COMPONENT LISTING**

PAGE NO: 4

NO: 51033

PANEL ID: C5715 (Cont'd)

COMPONENT IDENTIFICATION

SPECIAL STUDY

11 6209	SU XFMR 01 TO BUS B A-C AMPERES	DISP
11 6210	SU XFMR 02 TO BUS B A-C AMPERES	DISP
11 6214	BUS B TO XFMR BD1 A-C AMPERES	DISP
11 6219A	ST-1 BUS C2 TO SWYD A-C AMPERES	DISP
11 6219B	E-5 BUS C2 TO STA LTG A-C AMPERES	DISP
11 6221	DG-1 AC AMPERES	DISP
11 6226	BUS C1 TO XFMR 1CE	DISP
11 6227	BUS C1 TO XFMR 2CE	DISP
11 6231	DG-2 A-C AMPERES	DISP
11 6236	BUS D1 TO XFMR 2DF	DISP
11 6237	BUS D1 TO XFMR 1DF A-C AMPERES	DISP
11 6260	BUS C2 LOAD A-C AMPERES	DISP
11 6262	BUS C1 LOAD A-C AMPERES	DISP
11 6263	BUS D1 LOAD A-C AMPERES	DISP
11 6283	CHGR DBC 1P D-C AMPERES	DISP
11 6284	CHGR DBC 2N D-C AMPERES	DISP
11 6285	CHGR DBC 1N D-C AMPERES	DISP
11 6286	CHGR DBC 2P D-C AMPERES	DISP
11 6287	CHGR DBC 1PN D-C AMPERES	DISP
11 6288	CHGR DBC 2PN D-C AMPERES	DISP
11 6289	BATTERY 1P DISCH CHG D-C AMPERES	DISP
11 6290	BATTERY 2N DISCH CHG D-C AMPERES	DISP
11 6291	BATTERY 1N DISCH CHG D-C AMPERES	DISP
11 6292	BATTERY 2P DISCH CHG D-C AMPERES	DISP
SI 6222	RPM DG-1 SPEED	DISP
SI 6223	RPM DG-2 SPEED	DISP

PANEL ID: C5716

COMPONENT IDENTIFICATION

11 1370	SW PMP 1	DISP
11 1371	SW PMP 2	DISP
11 1372A	SW PMP 3 CH 1	DISP
11 1372B	SW PMP 3 CH 2	DISP
11 1414	CC PMP 1	DISP
11 1416A	CC PMP 3 CH 1	DISP
11 1416B	CC PMP 3 CH 2	DISP
11 1418	CC PMP 2	DISP
11 1523	HP INJ PMP 2	DISP
11 1524	HP INJ PMP 1	DISP
11 1532	CS PMP 2	DISP
11 1533	CS PMP 1	DISP
11 DH6A	DH PMP 2	DISP
11 DH6B	DH PMP 1	DISP



DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 5

7 NO: 51033

PANEL ID: C5720

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

11 1052	AMPS ELECT FIRE PMP	DISP
11 3609	DILUTION PUMP AMTR	DISP
11 627	AC AMPS CLNG WTR PMP 1	DISP
11 628	AC AMPERES CLNG WTR PMP 2	DISP
11 629	AC AMPS CLNG WTR PMP 3	DISP
11 876	A-C AMPERES	DISP
11 881	A-C AMPERES	DISP
11 890	AC AMPS SCRN WASH PMP 1	DISP
11 891	AC AMPS SCRN WASH PMP 2	DISP
11 922	AC AMPS CLNG TWR MU PMP 1	DISP
11 923	AC AMPS CLNG TWR MU PMP 2	DISP
11 928	A-C AMPERES	DISP
11 929	A-C AMPERES	DISP

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

DAVID-DEBEE  
HED REMARKS

PAGE 6

HED NO: 51033  
TYPE: POINTERS TOO NARROW

=====

REMARKS:

REMARKS INTENTIONALLY BLANK

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED NO: 9.2.002

TITLE:

Related controls not co-located.

DISPOSITION:

The Controls Special Study concluded that the service water valve controls HIS 2927 and HIS 2928 should be moved so that they can be grouped with the other Control Room Emergency Ventilation controls. MOD 88-0093 will implement this change.

CHANGE TO DISPOSITION/JUSTIFICATION:

Reference NES 88-00674 of August 10, 1988, from J. K. Wood, Systems Engineering Director to P. C. Hildebrandt, General Engineering Director. Systems Engineering determined that the modification would be difficult to implement due to space limitation. Since the benefits gained are minimal, the modification was recommended to be voided. A copy of the referenced memorandum is attached. Labels have been added to panel C5720 to identify the relationship between HIS 2927 and HIS 2928 and the EVS fans to compensate for not relocating these switches.



DATE August 10, 1988  
File: F1.2, I.4.1  
NES: 88-00674

TO P.C. Hildebrandt, General Engineering Director

FROM J.K. Wood, Systems Engineering Director

SUBJECT RFM 88-0093 Relocation of HIS-2927 and HIS-2928

RFM 88-0093 is a Request for Modification to relocate HIS-2927 and HIS-2928 which are for Service Water Valves SW2927 and SW2928 respectively. The proposed relocation modification is a result of a Human Factors Study. The Service Water Valves supply water to the Control Room EVS (CREVS) water-cooled condensers. The modification scope is to move these handswitches from the present location on C5720 to a new location by the Control Room EVS start handswitches HIS-5261 and HIS-5262. Presently the Service Water handswitches are only about three feet away from the Control Room EVS handswitches. Systems Engineering was asked to provide a scope of the modification to the estimating group. Upon a field walkdown, the Systems Engineer ascertained that the modification would be nearly impossible. In the rear of the main control board panel C5720, by the CREVS handswitches there is no available area to mount the handswitches. Below the CREVS handswitches are various terminal blocks. To each side and above are other handswitches. Therefore, in order to relocate the handswitches, other switches and terminal blocks would require modification or rework. Numerous cables would have to be determined and reterminated. The scope of the proposed modification is greater than a relocation of just two handswitches.

During the 5th Refueling Outage, new permanent information labels have been installed by the Service Water and CREVS handswitches identifying the interface between the two systems. The proposed modification has been discussed with various Reactor Operators and Shift Supervisors who all felt the modification was unnecessary. They are well aware of the Service Water interface with the Control Room EVS.

Due to the cost involved relocating these handswitches, and since the benefits gained are minimal, I recommend voiding the proposed modification.

*per WTP*  
JKW/JKG/WTP/bec

cc: P. Gaffney  
L. Storz  
J. Young

RECEIVED

## REQUEST FOR MODIFICATION

ED 7811

RFM  
NUMBER 88-00913

PART A				
SUS NO. 011-04	TITLE: CR Emergency Condenser SW Outlet Valves			
STATEMENT OF PROBLEM				
During the DCRDR review of HED 92002, it was noted that HIS2927 and HIS2928 (on C5720) were not collocated with the CR Emergency Ventilation Controls.				
LCTS I.D. NO.: N/A				
IMP DOC N/A				
DESCRIPTION AND SCOPE OF PROPOSED MODIFICATIONS				
The DCPDR Review Team recommended moving HIS2927 and HIS2928 (on Panel C5720) so that they are grouped with the other CR Emergency Ventilation Controls.				
For additional details, refer to HED 92002 disposition in MPR letter to TED (EXT-87-10948), attached.				
<i>Implemented by GAFOLJ</i>				
78 REF ENGINEER: <i>[Signature]</i>	REF ENGINEER/NO. MANAGER: <i>[Signature]</i>			
ENGINEERING GENERAL DIRECTOR: <i>[Signature] 5/5/88</i>				
PART B				
PROJECT ASSUMPTIONS:				
CONSTRAINTS:				
OPTION (S) CONSIDERED:	RISK OF IMPLEMENTING OPTION:			
1. _____	_____			
2. _____	_____			
RISK ASSOCIATED WITH NOT PERFORMING PROJECT:				
ACCOUNTING O&M ( ) AREA:	FUNCTION:			
CLASSIFICATION: CAPITAL ( )				
ESTIMATE AND COST BENEFIT ANALYSIS SUMMARY:				
COST TO DATE	\$ _____	ANNUAL SAVINGS	\$ _____	YRS.
ESTIMATE OF COSTS TO COMPLETE	\$ _____	ECONOMIC LIFE	_____	YRS.
TOTAL PROJECT ESTIMATE	\$ _____	PAYBACK	_____	YRS.
		NET PRESENT VALUE \$	_____	

PROPOSED DISPOSITION OF DAVIS-BESSE  
DETAILED CONTROL ROOM DESIGN REVIEW (DCRDR)  
HUMAN ENGINEERING DISCREPANCY (HED)

HED NO: 92002  
PART ATT  
DATE December 18, 1987  
STUDY Controls

▷ EXCERPT FROM EXT-87-10948 ◁

SUBJECT: RELATED CONTROLS NOT CO-LOCATED

DISCUSSION OF PROBLEM:

This HED identifies emergency condenser unit service water outlet valve controls (HIS 2927 and HIS 2928) on panel C5720 and a "Control Emergency Condensate Switch" on panel C5730 as functionally related controls that are not co-located. However, based on the original handwritten HED, the "Control Emergency Condensate Switch" on Panel C5730 is incorrect and should be the Control Room Emergency Ventilation System controls on Panel C5720. The HED does not describe the functional relationship of the controls; however, P&IDs and system operating procedures indicate that the service water valves controlled by HIS 2927 and HIS 2928 are only used to provide water cooling to the Control Room Emergency Ventilation condenser units. It should be noted that these service water valve controls are located with other service water valve controls on Panel C5720.

The HED was discussed in a meeting of the Controls Special Study Group on November 12, 1987. In this meeting the following information was presented:

- ° Operation of the Control Room Emergency Ventilation Fan Controls (HIS 5261) and HIS 5262) also changes the position of the respective service water valves.
- ° Although the service water valves are clearly grouped with other service water controls, they are functionally more closely related to the control room emergency ventilation. It would simplify checking the proper operation of the control room emergency ventilation if they were grouped with the other ventilation controls.
- ° It is necessary for the operators to use both the fan control and the service water valves to establish whether the air-cooled condensing unit for the ventilation system is in use.

The Special Study Group concluded that it would be desirable to move the service water valves so that they are adjacent to the related fan controls.



PROPOSED DISPOSITION OF DAVIS-BESSE  
DETAILED CONTROL ROOM DESIGN REVIEW (DCRDR)  
HUMAN ENGINEERING DISCREPANCY (HED)

HED NO: 92002 (page 2)  
PART All  
DATE December 18, 1987  
STUDY Controls

PROPOSED DISPOSITION AND JUSTIFICATION:

The Controls Special Study concluded that the service water valve controls HIS 2927 and HIS 2928 should be moved so that they can be grouped with the other control room emergency ventilation controls.

This HED should be closed.

On December 17, 1987, the DCRDR Review Team concurred with this disposition.

CORRECTIONS AND MODIFICATIONS:

Delete reference to Panel C5730 and add Control Room Emergency Ventilation Controls to the list for Panel C5720.

## DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT

PAGE 1

HED NO: 92002

DATE OF ORIGIN: 05/08/84

REVISION DATE: 07/05/88

TITLE: RELATED CONTROLS NOT COLLOCATED

=====

DATA SOURCE: VERIFICATION OF AVAILABILITY/SUITABILITY/TA  
VALIDATION - WALK THROUGH OF TA

TASK PLAN:

0700 PARA: 6.8.1.1A 6.8.1.2

SPECIAL STUDY: CONTROLSRELATED HED(S):

=====

PROBLEM DESCRIPTION:

ITEMS ARE FUNCTIONALLY RELATED, BUT SEPARATED BY APPROXIMATELY 5 FEET.

SPECIFIC ERROR:

CONTROL/DISPLAY USE OMISSION. TEMPORAL ERRORS.

=====

INITIAL ASSESSMENT CATEGORY: IICREASSESSMENT CATEGORY: NONEDISPOSITION/JUSTIFICATION:

THE CONTROLS SPECIAL STUDY CONCLUDED THAT THE SERVICE WATER VALVE  
CONTROLS HIS 2927 AND HIS 2928 SHOULD BE MOVED SO THAT THEY CAN BE  
GROUPED WITH THE OTHER CONTROL ROOM EMERGENCY VENTILATION CONTROLS.

MOD 88-0093 WILL IMPLEMENT THIS CHANGE.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-88-10948).

=====

RELATED MODs: 88-0093FINAL DISPOSITION APPR: L. SIMON /S/DATE: 06/30/88

DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

EL NO: 92002

PANEL ID: C5720

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

HIS 2927	CNTRL RM EMER COND UNIT 1 OUT VLV
HIS 2928	CNTRL RM EMER COND UNIT 2 OUT VLV
HIS 5261	EMER VENT FAN 1 1-1
HIS 5261A	EMER VENT FAN 1 IN VLV
HIS 5262	EMER VENT FAN 2 1-2
HIS 5262A	EMER VENT FAN 2 IN VLV

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*



DAVIS-BESSE  
HED REMARKS

PAGE 3

HED NO: 92002

TITLE: RELATED CONTROLS NOT COLLOCATED

=====

REMARKS:

REMARKS INTENTIONALLY BLANK

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED NO: 9.2.003

TITLE:

Instrument design and arrangement do not support operators task requirements.

DISPOSITION:

However, it was concluded that the scales have the potential to mask instrument problems. therefore, they will be changed to allow reading of 0-345 KV by MOD 88-0121.

CHANGE TO DISPOSITION/JUSTIFICATION:

Voltmeters EI 6016 and EI 6018 scale modification will be accomplished under Simple Configuration Change (SCC) 88-1193.

Replacement instrument for EI 6016 and EI 6018 were incompatible with the instrument loop. Other instruments will be required or the scale on the existing instruments will be changed. The revised modification package could not be completed in time to support installation during the 6RFO. Since the change is considered to be an operational enhancement and not critical to plant operations, SCC 88-1193 is scheduled to be implemented during the 7th refueling outage.

HED NO: 92003

DATE OF ORIGIN: 05/04/84

REVISION DATE: 07/05/88

TITLE: INSTRUMENT DESIGN AND ARRANGEMENT DO NOT SUPPORT OPERATORS' TASK  
REQUIREMENTS

=====

DATA SOURCE: VERIFICATION OF AVAILABILITY/SUITABILITY/TA  
VALIDATION - WALK THROUGH OF TA

TASK PLAN:

0700 PARA: 6.8.1.1A 6.8.1.2

SPECIAL STUDY: DISPLAYS

RELATED HED(S): 51027 51028

=====

PROBLEM DESCRIPTION:

THE TWO ROTARY METERS FOR AC VOLTS, INCOMING AND RUNNING, MUST BE SYNCHRONIZED EXACTLY. THERE IS AN UNRELATED METER BETWEEN THESE TWO VOLTAGE METERS. THE SCALES FOR THESE METERS IS 0-150 VOLTS, BUT THE ACTUAL MEASURED VOLTAGE VARIES FROM 0-345 KILOVOLTS.

SPECIFIC ERROR:

SCALE INTERPRETATION ERRORS. TEMPORAL ERRORS AND ERRORS IN COMPARING READINGS IN LAYOUT.

=====

INITIAL ASSESSMENT CATEGORY: IIIREASSESSMENT CATEGORY: NONEDISPOSITION/JUSTIFICATION:

THE DISPLAYS SPECIAL STUDY CONCLUDED THAT SIDE-BY-SIDE LOCATION OF THE VOLTMETERS ON C5722 IS NOT ESSENTIAL. HOWEVER, IT WAS ALSO CONCLUDED THAT THE SCALES HAVE THE POTENTIAL TO MASK INSTRUMENT PROBLEMS. THEREFORE, THEY WILL BE CHANGED TO ALLOW READING OF 0-345 KV BY MOD 88-0121. THE SIMILAR VOLTMETER SCALES ON C5723 ARE NOT USED BY THE OPERATORS AND NEED NOT BE REPLACED.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-87-10624).

RELATED MODs: 88-0121

=====

FINAL DISPOSITION APPR: L. SIMON /S/DATE: 06/30/88



DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

HED NO: 92003

PANEL ID: C5722

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

EI 6016	345 KV BUS INCOMING VOLTS
EI 6018	345 KV BUS RUNNING VOLTS

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

HED NO: 92003

TITLE: INSTRUMENT DESIGN AND ARRANGEMENT DO NOT SUPPORT OPERATORS' TASK  
REQUIREMENTS

=====

REMARKS:

REMARKS INTENTIONALLY BLANK

# DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT ADDENDUM

HED NO: 9.2.015

TITLE:

Extraneous controls/displays, unusable control/displays.

DISPOSITION:

1. The Cooling Tower Concentration Control, CIC 8187, is not used and will be removed (MOD 88-0100)
2. MOD 88-0146 was generated to remove unused Clean Waste Booster Pump controls (HC 3530, HIS 3527, HIS 3528, and HIS 3529) from panel C5718.

CHANGE TO DISPOSITION/JUSTIFICATION:

The instrument removal modifications were combined and were accomplished under MOD 88-0210.



HED NO: 92015

DATE OF ORIGIN: 05/04/84

REVISION DATE: 07/06/88

TITLE: EXTRANEIOUS CONTROLS/DISPLAYS, UNUSABLE CONTROLS/DISPLAYS

=====

**DATA SOURCE:** VERIFICATION OF AVAILABILITY/SUITABILITY/TA  
VALIDATION - WALK THROUGH OF TA

**TASK PLAN:**

0700 PARA: 6.4.1.1 6.5.1.1C

**SPECIAL STUDY:** DISPLAYS  
CONTROLS**RELATED HED(S):** 41009 98004 98012

=====

**PROBLEM DESCRIPTION:**

ITEMS LISTED ARE EITHER 1) UNUSED AND DISCONNECTED, 2) BROKEN AND  
UNUSED, OR 3) OPERABLE BUT USE IS NOT ALLOWED PER TECH SPECS (SEE  
V&V TASK SUMMARY SHEET 51).

**SPECIFIC ERROR:**

ERRORS OF OMISSION, CONTROL/DISPLAY SELECTION ERRORS.

=====

**INITIAL ASSESSMENT CATEGORY:** III**REASSESSMENT CATEGORY:** NONE**DISPOSITION/JUSTIFICATION:**

1. THE FOLLOWING SUMMARY LISTS THE DEVICES WHICH HAVE BEEN REMOVED,  
OR WHICH ARE PLANNED FOR REMOVAL, SINCE THE HED WAS GENERATED.
  - A. PANEL C5709. HIC ICS 38A AND HIC ICS 38B WERE REMOVED BY  
FCR 85-0143.
  - B. PANEL C5713. THE THROTTLE PRESSURE LIMITER ON C5713 AND  
THROTTLE PRESSURE INDICATION ON C5714 (EHC PANELS) WAS TO  
BE REMOVED BY MOD 87-1030; SEE ITEM 3A (BELOW).
  - C. PANEL C5714. HS 2802 WILL BE REMOVED BY MOD 87-1227.
  - D. PANEL C5716. HIS 1556 WAS SPARED BY FCR 81-0326 IN 1986.  
THE SWITCH WILL BE REMOVED BY MOD 87-1227.
  - E. PANEL C5717. THE SPARE SWITCHES (SAM LIGHTS) ON THE SFAS LEVEL

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

**RELATED MODs:** 81-0326 85-0109 85-0143 85-0263 86-0114 86-0162

=====

**FINAL DISPOSITION APPR:** L. SIMON /S/ **DATE:** 07/05/88

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
DISPOSITION/JUSTIFICATION CONTINUATION SHEET

PAGE 2

HED NO: 92015

4 PORTION OF C5717 WERE REMOVED IN 1986 BY FCR 86-0162.

FCR 86-0114 REMOVED SFAS LEVEL 2 SWITCHES SA 271B1 AND SA 271B IN 1987.

F. PANEL C5718. THE 4 RCP SEAL LEAKAGE INDICATORS WERE REMOVED BY FCR 85-0263 IN 1986.

G. PANEL C5719. THE 4 LISTED COMPONENTS WILL BE REMOVED BY MOD 87-1227.

H. PANEL C5720. HIS 917 AND HIS 919 WILL BE REMOVED BY MOD 87-1227. SWITCHES HIS 930A-F WERE TO BE REMOVED BY FCR 86-0426; SEE ITEM 3B (BELOW).

I. PANEL C5722. HIS 1299, HIS 186, HIS 187, HIS 190, AND HIS 191 WILL BE REMOVED BY MOD 87-1227.

2. REMAINING COMPONENTS

A. ANNUNCIATOR 9-5-3, "STA SEISMIC INSTR ON" IS OPERATIONAL AND NEEDED.

B. THE BORONDMETER (AR 1999) IS OPERATIONAL AND USED BY THE OPERATOR.

C. THE MODIFICATIONS TO THE CENTER CONSOLE (FCR 85-0109) WILL REMOVE HIC 6030.

D. THE TURNING GEAR CONTROLS AND DISPLAYS (HIS 2402 AND IL 2402A ON PANEL C5713) ARE USED, FUNCTIONAL, AND ARE NOT DISCREPANT.

E. THE CONTAINMENT NORMAL SUMP FLOW COUNTER, FQI 2801, WOULD BE USEFUL AND IS TO BE MADE OPERATIONAL. CURRENTLY, THE INFORMATION ON SUMP FLOW IS OBTAINED FROM LOCAL READINGS OF PUMP OPERATING TIMERS. RFA 88-0684 HAS BEEN WRITTEN TO REMEDY THIS SITUATION.

F. THE DEGASIFIER INLET VALVE CONTROL, HIS-3561, IS FUNCTIONAL, HOWEVER, WORK IS IN PROGRESS TO CORRECT PROBLEMS WITH THE DEGASIFIER ITSELF. THE VALVE CONTROL IS NEEDED AND IS NOT DISCREPANT.

G. THE COOLING TOWER CONCENTRATION CONTROL, CIC 8187, IS NOT USED AND WILL BE REMOVED (MOD 88-0100).

H. THE INDICATOR LIGHTS FOR THE AUXILIARY BOILER MAKE-UP PUMPS

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

HED NO: 92015

PROVIDE USEFUL INFORMATION IN SOME CIRCUMSTANCES. SINCE THERE IS NO POTENTIAL FOR THE LIGHTS TO BE CONFUSING OR DISTRACTING, THEY ARE TO REMAIN ON THE PANEL.

- I. THE NNI POWER LIGHTS AND THE PHASE ANGLE CONTROLS AND DISPLAYS (HS 2221 AND XI 2221 ON PANEL C5722) ARE FUNCTIONAL AND ARE USED BY OPERATORS. THEY WILL NOT BE REMOVED.

3. SUBSEQUENT ACTIONS

A. SUBSEQUENT TO THE DCRDR REVIEW TEAM MEETINGS, MOD 87-1030 WAS VOIDED. THE THROTTLE PRESSURE LIMITER ON C5713 AND THROTTLE PRESSURE INDICATION ON C5714 (EHC PANELS) WERE TO BE MADE FUNCTIONAL. MWO 1-87-3898-00 WAS GENERATED TO REPLACE THE TRANSMITTER AND RETURN THIS EQUIPMENT TO SERVICE.

B. SUBSEQUENT TO THE DCRDR REVIEW TEAM MEETINGS, IT WAS DECIDED THAT THE COOLING TOWER DE-ICING VALVE CONTROL SWITCHES (HIS 930 A-F ON PANEL C5720) SHOULD NOT BE REMOVED. FCR 86-0426 WAS VOIDED. THE SWITCHES ARE TO BE RETAINED FOR FUTURE USE IN AN AS YET UN-DEFINED AND REVISED DE-ICING SYSTEM UPGRADE.

C. SUBSEQUENT TO THE DCRDR REVIEW TEAM MEETINGS, MOD 88-0146 WAS GENERATED TO REMOVE UNUSED CLEAN WASTE BOOSTER PUMP CONTROLS (HC 3530, HIS 3527, HIS 3528, AND HIS 3529) FROM PANEL C5718.

4. 86-0426, 87-1030, 87-1227, 88-0100, AND 88-0146 ARE ADDITIONAL RELATED MODS.



DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 4

HED NO: 92015

PANEL ID: AP-09

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

9-5-03 STA SEISMIC INSTR ON

DISP

PANEL ID: C5703

COMPONENT IDENTIFICATION

NONE RC LD BORN 10 CONCENTRATION (AR 1999)

DISP

PANEL ID: C5707

COMPONENT IDENTIFICATION

HIC 6030 NO DESCRIPTOR

CTRL

PANEL ID: C5709

COMPONENT IDENTIFICATION

HIC ICS 38A REMOVED FROM PANEL  
HIC ICS 38B REMOVED FROM PANEL

CTRL  
CTRL

PANEL ID: C5713

COMPONENT IDENTIFICATION

HIS 2402 TURNING GEAR MTR  
HIS 2541 EHC PANEL #2: THROTTLE PRESSURE LIMIT  
IL 2402A NO DESCRIPTOR

CTRL  
CTRL  
DISP

PANEL ID: C5714

COMPONENT IDENTIFICATION

HS 2802 GEN BRKR TRIP

CTRL

PANEL ID: C5716

COMPONENT IDENTIFICATION

SPARE HP INJ PMP RECIRC VLV (WAS HIS 1556)

CTRL

PANEL ID: C5717

COMPONENT IDENTIFICATION

SFAS UNUSED LIGHTS

DISP

DAVIS-BESSE  
MED DISCREPANT COMPONENT LISTING

PAGE NO: 5

WED NO: 92015

PANEL ID: C5718

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

FI 4137A	REMOVED BY FCP 85-0263	DISP
FI 4237A	REMOVED BY FCR 85-0263	DISP
FI 4337A	REMOVED BY FCR 85-0263	DISP
FI 4437A	REMOVED BY FCR 85-0263	DISP
FQI 2801	NO DESCRIPTOR	DISP
HIS 3561	DEGASIFIER IN	CTRL

PANEL ID: C5719

COMPONENT IDENTIFICATION

NR 3300A	NO DESCRIPTOR	DISP
NR 3300B	NO DESCRIPTOR	DISP
NY 3300A	NO DESCRIPTOR	DISP
NY 3300B	NO DESCRIPTOR	DISP

PANEL ID: C5720

COMPONENT IDENTIFICATION

IC 8187	CLNG TWR CONCENTRATION PPM	CTRL
HIS 917	CLNG TWR ACID FEED PMP 2	CTRL
HIS 919	CLNG TWR ACID FEED PMP 1	CTRL
HIS 930A	CLNG TWR DEICING VLV 1	CTRL
HIS 930B	CLNG TWR DEICING VLV 2	CTRL
HIS 930C	CLNG TWR DEICING VLV 3	CTRL
HIS 930D	CLNG TWR DEICING VLV 4	CTRL
HIS 930E	CLNG TWR DEICING VLV 5	CTRL
HIS 930F	CLNG TWR DEICING VLV 6	CTRL
IL 1663	AUX BLR MU PMP 1	DISP
IL 1665	AUX BLR MU PMP 2	DISP

PANEL ID: C5722

COMPONENT IDENTIFICATION

HIS 1299	MS LINE W/U VALVES (MS-1299A/MS-1299B)	CTRL
HIS 186	SPARE	CTRL
HIS 187	SPARE	CTRL
HIS 190	SPARE	CTRL
HIS 191	SPARE	CTRL
HS 2221	FILTER AND SWITCH UNIT FOR VIBRATION PHASE METER	CTRL
X - AC	NNI - POWER	DISP
X - DC	NNI - POWER	DISP

## DAVIS-BESSE

## HED DISCREPANT COMPONENT LISTING

PAGE NO: 6

HED NO: 92015

PANEL ID: C5722 (Cont'd)

COMPONENT IDENTIFICATIONSPECIAL  
STUDY

XI 2221	VIBRATION PHASE ANGLE
Y - AC	NNI - POWER
Y - DC	NNI - POWER

DISP
DISP
DISP

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*



DAVIS-BESSE  
MED REMARKS

PAGE 7

MED NO: 97015

TITLE: EXTRANEEOUS CONTROLS/DISPLAYS, UNUSABLE CONTROLS/DISPLAYS

---

REMARKS:

REMARKS INTENTIONALLY BLANK

# DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT ADDENDUM

HED NO: 9.2.018

TITLE:

Availability/Consistency of Information (SFRCS)

DISPOSITION:

FCR 87-0061 and FCR 87-0062 were to modify the SOE inputs for SFRCS and ARTS, respectively. These FCRs are being voided and will be replaced with modification numbers. The new modification numbers were not available as of the date of this report.

CHANGE TO DISPOSITION/JUSTIFICATION:

MOD 88-0211 has been implemented to modify SOE for the ARTS Channels.  
MOD 88-0212 has been implemented to modify SOE and the computer for SFRCS Channels.

HED NO: 92018

DATE OF ORIGIN: 05/07/84

REVISION DATE: 07/06/88

TITLE: AVAILABILITY/CONSISTENCY OF INFORMATION (SFRCS)

=====

**DATA SOURCE:** VERIFICATION OF AVAILABILITY/SUITABILITY/TA  
VALIDATION - WALK THROUGH OF TA  
HISTORICAL DOCUMENT REVIEW

**TASK PLAN:**

0700 PARA: 6.1.1.1A 6.5.1.1B

**SPECIAL STUDY:** SFRCS**RELATED HED(S):**

=====

**PROBLEM DESCRIPTION:**

THE TRANSMITTERS USED AS INPUT TO THE SFRCS LOGIC ARE NOT THE SAME AS THOSE USED FOR CR DISPLAYS, THUS MAKING SFRCS TRIPS VERY HARD TO IDENTIFY. SFRCS ALARMS DO NOT CLEARLY IDENTIFY THE CAUSE AND DO NOT DISCRIMINATE BETWEEN FULL & HALF TRIPS. USING THE COMPUTER CRT CAN ONLY NARROW DOWN TRIPS TO 2 OF 4 CHANNELS (SEE V&V TASK SUMMARY SHEET 4).

**SPECIFIC ERROR:**

DECISION ERRORS DUE TO LACK OF INFORMATION. DISPLAY INTERPRETATION ERRORS.

=====

**INITIAL ASSESSMENT CATEGORY:** IIA**REASSESSMENT CATEGORY:** IIA-M**DISPOSITION/JUSTIFICATION:**

## 1. ACTIONS PRIOR TO RESTART

A. THIS HED WAS EVALUATED PRIOR TO RESTART. IT IS DISCUSSED IN THE FOLLOWING:

- NRC SUBMITTAL, SERIAL 1271, DATED APRIL 18, 1986 - DCRDR SAFETY SIGNIFICANT HUMAN ENGINEERING DISCREPANCY REPORTS (HED 92018).
- NUREG-1177, SAFETY EVALUATION REPORT RELATED TO THE RESTART OF DAVIS-BESSE, APPENDIX D.

B. THE FOLLOWING ACTIVITIES WERE UNDERTAKEN PRIOR TO RESTART:

- FCR 85-0232 MODIFIED THE ANNUNCIATORS ASSOCIATED WITH LOW STEAM GENERATOR PRESSURE TO PROVIDE SEPARATE ANNUNCIATORS

\*\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*\*

**RELATED MODs:** 85-0096 85-0167 85-0232 87-0061 87-0062 87-1107

=====

**FINAL DISPOSITION APPR:** L. SIMON /S/**DATE:** 07/05/88



DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
DISPOSITION/JUSTIFICATION CONTINUATION SHEET

PAGE 2

HED NO: 92018

FOR A LOW PRESSURE CONDITION ON SG 1 AND/OR 2.

- FCR 85-0167 PROVIDED A SEAL-IN FOR THE SFRCS FULL TRIP ANNUNCIATOR AND REQUIRES THE OPERATOR TO PRESS A SEPARATE DEDICATED RESET BUTTON TO CLEAR THIS ANNUNCIATOR.

2. EVALUATION BY SFRCS SPECIAL STUDY

THE FOLLOWING COMPONENTS WERE EVALUATED AND DETERMINED TO BE IN-APPROPRIATELY LISTED ON THIS HED: LRS SP9A, LRS SP9B, XI 7003-4 (CRT'S) AND THE "NONCR" LISTING.

THE SFRCS ANNUNCIATOR SCHEME PROVIDED BY FCRS 85-0232 AND 85-0167 WAS EVALUATED AND FOUND TO BE ADEQUATE. HOWEVER, OTHER CONTROL ROOM ENHANCEMENTS WILL FURTHER IMPROVE THE OPERATOR'S ABILITY TO IDENTIFY SFRCS TRIPS.

FCR 85-0096 WILL ADD SG PRESSURE INDICATORS (PI SP12A AND PI SP12B) TO THE CENTER CONSOLE AND PROVIDE REDUNDANT INDICATION (PI SP12B2 AND PI SP12A1A FOR SG'S 1 AND 2, RESPECTIVELY) ON C5712. THE NEW INDICATORS ARE FED FROM THE SAME TRANSMITTERS WHICH FEED SFRCS.

MOD 87-1107 REPLACES THE SFRCS WITH IMPROVED DIGITAL LOGIC CIRCUITRY AND INTERFACES TO SUPPORT THE NEW SFRCS CONSOLE. HALF-TRIP SIGNALS WILL BE ELIMINATED AND ENHANCEMENTS ADDED FOR OPERABILITY AND RECOGNITION.

FCRS 87-0061 AND 87-0062 WERE TO MODIFY THE SOE INPUTS FOR SFRCS AND ARTS, RESPECTIVELY. THESE FCRS ARE BEING VOIDED AND WILL BE REPLACED WITH MODIFICATION NUMBERS. THE NEW MODIFICATION NUMBERS WERE NOT AVAILABLE AS OF THE DATE OF THIS REPORT.

DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 3

HED NO: 92018

PANEL ID: AP-08

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

8-6-01 SFRCS FULL TRIP

PANEL ID: AP-12

COMPONENT IDENTIFICATION

12-1-03 SFRCS CH1 HI LVL/DP HALF/FULL TRIP  
12-1-04 SFRCS CH2 HI LVL/DP HALF/FULL TRIP  
12-2-03 SFRCS CH1 LO LVL/RCP HALF/FULL TRIP  
12-2-04 SFRCS CH2 LO LVL/RCP HALF/FULL TRIP  
12-5-03 SFRCS SG1 LO PRESS HALF/FULL TRIP  
12-5-04 SFRCS SG2 LO PRESS HALF/FULL TRIP

PANEL ID: C5708

COMPONENT IDENTIFICATION

NONE CRT #3 (XI 7003)  
NONE CRT #4 (XI 7004)

PANEL ID: C5712

COMPONENT IDENTIFICATION

LRS SP9A OPERATE LEVEL SG-2  
LRS SP9B OPERATE LEVEL SG-1  
PI SP12A SG 1-2 PRESS  
PI SP12B SG 1-1 PRESS

PANEL ID: C5719

COMPONENT IDENTIFICATION

NONE CRT #1 (XI 7001)  
NONE NO DESCRIPTOR (XI 7002)

PANEL ID: NONCR

COMPONENT IDENTIFICATION

SFRCS DELTA P INFORMATION  
TRIP ASSOCIATED DISPLAYS  
TRIP LOGIC INPUTS

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

DAVIS-BESSE  
MED REMARKS

PAGE 4

MED NO: 92018

TITLE: AVAILABILITY/CONSISTENCY OF INFORMATION (SFRCS)

=====

REMARKS:

REMARKS INTENTIONALLY BLANK



# DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT ADDENDUM

HED NO: 9.2.019

TITLE:

Poor Display Scale Readability (Essential Bus Volts and Amps)

DISPOSITION:

The verification summary for the Task Analysis dated May 21, 1987, does not identify these meters as discrepant.

Evaluation in the Display Special Study confirmed that the cited displays have adequate precision: therefore, there is no need to replace the meters. The non-standard scale increments are being considered as part of HED 51028.

CHANGE TO DISPOSITION/JUSTIFICATION:

The following clarification statement is added to the Disposition/Justification of HED 9.2.019. "The attribute required by the Emergency Procedure (for verification of Fast Dead Bus Transfer and verification that AC Buses are energized) is for the operator to determine if power is available. The meter precision is not critical in this situation."

HED NO: 92019DATE OF ORIGIN: 05/07/84REVISION DATE: 07/05/88TITLE: POOR DISPLAY SCALE READABILITY (ESSENTIAL BUS VOLTS AND AMPS)

=====

DATA SOURCE: VERIFICATION OF AVAILABILITY/SUITABILITY/TA  
VALIDATION - WALK THROUGH OF TA

TASK PLAN:

0700 PARA: 6.5.1.2A

SPECIAL STUDY: DISPLAYSRELATED HED(S): 51028

=====

PROBLEM DESCRIPTION:

DISPLAYS CANNOT BE READ TO THE DEGREE OF PRECISION REQUIRED (SIZE, LOCATION) AND ARE INCREMENTED POORLY. (SEE V&V TASK SUMMARY SHEETS 7 & 12.)

SPECIFIC ERROR:

DISPLAY READING ERRORS.

=====

INITIAL ASSESSMENT CATEGORY: IIC      REASSESSMENT CATEGORY: NONE

DISPOSITION/JUSTIFICATION:

THE VERIFICATION SUMMARY FOR THE TASK ANALYSIS DATED MAY 21, 1987, DOES NOT IDENTIFY THESE METERS AS DISCREPANT.

EVALUATION IN THE DISPLAYS SPECIAL STUDY CONFIRMED THAT THE CITED DISPLAYS HAVE ADEQUATE PRECISION; THEREFORE, THERE IS NO NEED TO REPLACE THE METERS. THE NON-STANDARD SCALE INCREMENTS ARE BEING CONSIDERED AS PART OF HED 51028.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-87-09778).

=====

RELATED MODs:

=====

FINAL DISPOSITION APPR: L. SIMON /S/      DATE: 07/01/88

DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

HED NO: 92019

PANEL ID: C5715

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

EI 6200	AUX XFMR 11 TO BUS A A-C KILOVOLTS
EI 6201	SU XFMR TO BUS A A-C KILOVOLTS
EI 6203	SU XFMR 01 TO BUS A A-C KILOVOLTS
EI 6208	AUX XFMR 11 TO BUS B A-C KILOVOLTS
EI 6209	SU XFMR 01 TO BUS B A-C KILOVOLTS
EI 6210	SU XFMR 02 TO BUS B A-C KILOVOLTS
EI 6256	A BUS KILOVOLTS
EI 6257	BUS KILOVOLTS
II 6200	AUX XFMR 11 TO BUS A A-C AMPERES
II 6201	SU XFMR TO BUS A A-C AMPERES
II 6203	SU XFMR 01 TO BUS A A-C AMPERES
II 6208	AUX XFMR 11 TO BUS B A-C AMPERES
II 6209	SU XFMR 01 TO BUS B A-C AMPERES
II 6210	SU XFMR 02 TO BUS B A-C AMPERES

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*



HED NO: 92019

TITLE: POOR DISPLAY SCALE READABILITY (ESSENTIAL BUS VOLTS AND AMPS)

=====

REMARKS:

REMARKS INTENTIONALLY BLANK

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED No. 9.2.027

TITLE:

Brightness Discrimination Hard to Make

DISPOSITION:

This HED also cites the SFAS Cabinet Data Lights. These are not in the main part of the control room, but do constitute a significant operator burden. These data lights will be corrected by MOD 87-1330.

CHANGE TO DISPOSITION/JUSTIFICATION:

The SFAS Cabinet Data Lights problem is related to the SFAS Cabinet indication and does not refer to the Control Room indications. These lights are not normally used or viewed by the operators during emergency operations. The problem with the ambiguous SFAS data lights is primarily a concern during surveillance testing and shift checks of the cabinets. The main concern is that misinterpretation of the lights could result in an unwanted actuation of SFAS equipment during surveillance testing, or an equipment problem could go undetected, when a 1/2 trip is present, during normal operations.

The design for MOD 87-1330 was not completed in time for 6RFO implementation and was under review to determine the need and cost benefit. Since the modification is considered to be an operational enhancement and not critical to plant operations, this MOD is now scheduled for implementation in 7RFO.

HED NO: 92027

DATE OF ORIGIN: 05/07/84

REVISION DATE: 07/05/88

TITLE: BRIGHTNESS DISCRIMINATION HARD TO MAKE

=====

DATA SOURCE: VERIFICATION OF AVAILABILITY/SUITABILITY/TA  
VALIDATION - WALK THROUGH OF TA

TASK PLAN:

0700 PARA: 6.9.3.2B

SPECIAL STUDY: DISPLAYSRELATED HED(S): 92021 92026

=====

PROBLEM DESCRIPTION:

- 1) BRIGHTNESS DISCRIMINATION IS DIFFICULT DUE TO THE MAGNITUDE OF BRIGHTNESS DIFFERENCES AND OCCASIONAL BURNED OUT BULBS.
- 2) TOO MANY BRIGHTNESS DISCRIMINATIONS ARE REQUIRED AND THE MAGNITUDE OF THE DIFFERENCES IS TOO LOW (SEE V&V TASK SUMMARY SHEETS 3 & 9).

SPECIFIC ERROR:

DISPLAY READING AND INTERPRETATION ERRORS.

=====

INITIAL ASSESSMENT CATEGORY: NONE      REASSESSMENT CATEGORY: NONE

DISPOSITION/JUSTIFICATION:

WITH RESPECT TO THE SAM LIGHTS, THE CRITICAL DETERMINATION IS BETWEEN OFF AND ON. THE DIM AND BRIGHT DETERMINATION INVOLVES CONFIRMATION OF A DELIBERATE ACTION, I.E., BLOCKING THE COMPONENT. IN ALL CASES THE OPERATOR HAS THE ACTUAL COMPONENT STATUS INDICATION SO THAT HE CAN QUICKLY RESOLVE ANY CONFUSION. THE EFFECT OF A BURNED-OUT SAM LIGHT IS ADEQUATELY DISCUSSED IN THE RESTART SER (NUREG-1177) IN CONNECTION WITH HED 17010. OPERATIONS FURTHER CONFIRMED THAT SAM LIGHT BRIGHTNESS IS NOT A PROBLEM FOR THE OPERATORS.

THIS HED ALSO CITES THE SFAS CABINET DATA LIGHTS. THESE ARE NOT IN THE MAIN PART OF THE CONTROL ROOM, BUT DO CONSTITUTE A SIGNIFICANT OPERATOR BURDEN. THESE DATA LIGHTS WILL BE CORRECTED BY MOD 87-1330.

=====

RELATED MODs: 87-1330

FINAL DISPOSITION APPR: L. SIMON /S/DATE: 07/01/88



DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

HED NO: 92027

PANEL ID: C5716

COMPONENT IDENTIFICATION

ALL INCIDENT LEVEL ACTIVATION LIGHTS

PANEL ID: C5717

COMPONENT IDENTIFICATION

ALL INCIDENT LEVEL ACTUATION LIGHTS

PANEL ID: C5755

COMPONENT IDENTIFICATION

SFAS CABINET DATA LIGHTS

PANEL ID: C5756

COMPONENT IDENTIFICATION

SFAS CABINET DATA LIGHTS

PANEL ID: C5762

COMPONENT IDENTIFICATION

SFAS CABINET DATA LIGHTS

PANEL ID: C5763

COMPONENT IDENTIFICATION

SFAS CABINET DATA LIGHTS

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

SPECIAL  
STUDY

DAVIS-BESSE  
HED REMARKS

PAGE 3

HED NO: 92027

TITLE: BRIGHTNESS DISCRIMINATION HARD TO MAKE

REMARKS:

REMARKS INTENTIONALLY BLANK

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED NO: 9.2.029

TITLE:

Valves open/close lights can be misleading if on or both bulbs are burned out (Also see HED 4.1.020 Addendum).

DISPOSITION:

The Controls and Displays Special Studies concluded that all valves position indicator light logic should be changed so that the lights are on when the valve is in a mid-position (MOD 88-0120).

CHANGE TO DISPOSITION/JUSTIFICATION:

The throttling valves will be provided with dual light indication while in mid-position under MOD 88-0214 and MOD 88-0120 was voided. The throttling valves present the greatest human factor deficiency due to lack of feedback while the valve being in mid-stroke position for an extended period of time. The ability to modify the logic of all valves to provide dual light indication during valve transit is severely limited by resources and thus MOD 88-0120 was voided. Throttling valves are labeled to identify them as throttling valves and will be provided with dual light indication while in mid-stroke position. Eleven valves have been provided with dual light indication by MOD 88-0214 during the 6th Refueling Outage.

MOD 88-0214 did not include 5 throttling valves within the scope of the MOD. AS-196 A&B, AS-198 A&B, and GS-2386 are employed mainly when the plant is in a shutdown status. MOD 89-0096 was written to provide these valves with dual light indications during transit. It was the decision of the Action Planning Committee held on August 1, 1989, to defer the implementation of the MOD until the 7th Cycle. The circumstances which dictated the decision by the Action Planning Committee are as follows:

- a. Late receipt of the Request for Modification (RFM)
- b. 6RFO resources are fully committed to the MODs currently scheduled for the 6RFO.
- c. Design Engineering was directed to give MOD 89-0096 a high priority, but will have a lower priority than those modifications currently scheduled for the 6RFO.
- d. Implementation of MOD 89-0096, upon completion of the design phase, would be scheduled to coincide with the respective valve PM's cycle.
- e. MOD 89-0096 may be implemented prior to the 7RFO, but not later than the 7th Refueling Outage.



- e. MOD 89-0096 may be implemented prior to the 7RFO, but not later than the 7th Refueling Outage.

Rational for non-inclusion in 6RFO:

MOD 89-0096 was written in order to maintain the convention that motor operated valves are provided with dual light indication when in mid-stroke position. This convention will provide the operators with a positive feedback indication for those valves that may be in mid-stroke positions for extended periods of time. The current design is to have both the red and green lights not lit during the valve's mid-stroke transit. MOD 88-0214 is scheduled to be implemented during the 6RFO and will provide the indication for throttle valves.

In the course of the review of the MOD 88-0214, design package, June 21, 1989, it was discovered that 5 throttle valves were inadvertently omitted from the MOD. A review of the drawing of all motor operated valves without a seal-in was conducted to ensure that no other throttling valves were omitted. Upon completion of the drawing review, it was confirmed that the 5 throttling valves identified were the only ones not included in MOD 88-0214. A new modification, MOD 89-0096, was written on July 24, 1989, to provide dual light indication for these 5 valves. Due to the design schedule for modification design preparation and the impact on the outage workload, it was determined by Toledo Edison's management that MOD 89-0096 would not be scheduled for the 6RFO implementation. The basis for this decision is that these 5 valves are not critical to plant operation and they can be scheduled for cycle 7, i.e., during operations following startup from the 6RFO. If the 5 throttling valves identified in MOD 89-0096 are not provided with dual light indication in the 6RFO, they will be labeled to identify them as operating differently.

HED NO: 92029      DATE OF ORIGIN: 05/08/84      REVISION DATE: 07/05/88  
TITLE: VALVE OPEN/CLOSE LIGHTS CAN BE MISLEADING IF ONE OR BOTH BULBS ARE  
BURNED OUT

=====

DATA SOURCE: VERIFICATION OF AVAILABILITY/SUITABILITY/TA  
VALIDATION - WALK THROUGH OF TA

TASK PLAN:

0700 PARA: 6.5.1.1B    6.5.1.1F

SPECIAL STUDY: CONTROLS  
DISPLAYS

RELATED HED(S): 41020

=====

PROBLEM DESCRIPTION:

OPERATORS HAVE DIFFICULTY DETERMINING VALVE POSITION FOR THROTTLEABLE VALVES WITH LIMIT SWITCHES WHILE THE VALVES ARE TRAVELLING. THE LIGHT INDICATORS ARE ONLY ILLUMINATED WHEN THE VALVE IS FULLY OPENED OR FULLY CLOSED. IT IS HARD TO IDENTIFY BURNED OUT BULBS, AS WELL (SEE V&V TASK SUMMARY SHEET 35).

SPECIFIC ERROR:

DISPLAY INTERPRETATION ERROR.

=====

INITIAL ASSESSMENT CATEGORY: NONE    REASSESSMENT CATEGORY: NONE

DISPOSITION/JUSTIFICATION:

THE CONTROLS AND DISPLAYS SPECIAL STUDIES CONCLUDED THAT ALL VALVE POSITION INDICATOR LIGHT LOGIC SHOULD BE CHANGED SO THAT THE LIGHTS ARE ON WHEN THE VALVE IS IN A MID-POSITION (MOD 88-0120). ALL THROTTLING VALVES WILL BE IDENTIFIED ON THE PANELS BY RELABELING.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-88-01450).

=====

RELATED MODs: 87-1305    88-0120

=====

FINAL DISPOSITION APPR: L. SIMON /S/    DATE: 07/01/88

DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

HED NO: 92029

PANEL ID: C5716

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

HIS DH1A	DH PMP 2 LF INJ ISO VLV
HIS DH1B	DH PMP 1 LP INJ ISO VLV
HIS HP2A	THRT
HIS HP2B	THRT
HIS HP2C	THRT
HIS HP2D	THRT

CTRL  
CTRL  
CTRL  
CTRL  
CTRL  
CTRL

PANEL ID: C5721

COMPONENT IDENTIFICATION

HIS 2014	HP FW HTR 1-6 HPT EXT VLV
HIS 2015	HP FW HTR 2-6 HPT EXT VLV
HIS 264	HP FW HTR 1-5 HPT EXH VLV
HIS 278	HP FW HTR 1-4 LPT EXT VLV
HIS 370	HP FW HTR 2-5 HPT EXT VLV
HIS 377	HP FW HTR 2-4 LPT EXT VLV

CTRL  
CTRL  
CTRL  
CTRL  
CTRL  
CTRL

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*



DAVIS-DEBEE  
HED REMARKS

PAGE 3

HED NO: 92029

TITLE: VALVE OPEN/CLOSE LIGHTS CAN BE MISLEADING IF ONE OR BOTH BULBS ARE  
BURNED OUT

=====

REMARKS:

MOD 87-1305 REMOVES VALVE OPERATORS AND THEIR CONTROLS FROM VALVES  
264, 278, 370, AND 377 (PANEL C5721).

# DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT ADDENDUM

HED NO: 9.2.078

TITLE:

Inadequate information - 24 hour clock.

DISPOSITION:

Clock QI 842 will be removed from panel C5720 by MOD 88-0151.

CHANGE TO DISPOSITION/JUSTIFICATION:

MOD 88-0210 has removed the clock.

HED NO: 92078

DATE OF ORIGIN: 05/02/84

REVISION DATE: 07/05/88

TITLE: INADEQUATE INFORMATION - 24 HOUR CLOCK

=====

DATA SOURCE: VERIFICATION OF AVAILABILITY/SUITABILITY/TA  
VALIDATION - WALK THROUGH OF TA

TASK PLAN:

0700 PARA: 6.1.1.1 6.5.1.1B

SPECIAL STUDY: DISPLAYSRELATED HED(S):

=====

PROBLEM DESCRIPTION:

ADDITIONAL INFORMATION COULD BE USEFUL TO OPERATORS UNDER SELECTED  
EVENT SEQUENCES.

SPECIFIC ERROR:

DELAY IN DETERMINING PLANT/EQUIPMENT STATUS. INABILITY TO DETERMINE  
STATUS.

=====

INITIAL ASSESSMENT CATEGORY: IIIREASSESSMENT CATEGORY: NONEDISPOSITION/JUSTIFICATION:

A CLOCK IS AVAILABLE AND USED. CLOCK QI 842 WILL BE REMOVED FROM  
PANEL C5720 BY MOD 88-0151.

=====

RELATED MODs: 88-0151

=====

FINAL DISPOSITION APPR: L. SIMON /S/ DATE: 06/30/88



DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

HED NO: 92078

PANEL ID: C5720

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

Q1 842 CLOCK (NO DESCRIPTOR)

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

DAVIS-DEBEE  
HED REMARKS

PAGE 3

HED NO: 92078

TITLE: INADEQUATE INFORMATION - 24 HOUR CLOCK

=====

REMARKS:

REMARKS INTENTIONALLY BLANK

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED NO: 9.2.091

TITLE:

Inadequate information - SFAS & SFRCS annunciation.

DISPOSITION:

Modifications to the SFAS and SFRCS annunciators are recommended as part of the detailed alarm system review. These modifications include the addition of a SFAS Actuated Alarm. A SFRCS Trouble Alarm will be added by MOD 87-1107. Separate annunciators for each channel are not considered necessary.

The "SFAS Actuated" alarm will be installed by MOD 88-0075.

CHANGE TO DISPOSITION/JUSTIFICATION:

RFM 88-0075 was evaluated by the Action Planning Committee and Work Scope Committee. The Human Factor benefits derived from the modification was marginal. The modification was rejected by the Work Scope Committee and voided. The Operations Superintendent concurred with voiding the modification. Due to the design of the SFAS, Safety Features Actuation Monitor (SAM) lights are provided on all SFAS components of the main control boards and provide additional indication of a SFAS actuation.



HED NO: 92091

DATE OF ORIGIN: 05/02/84

REVISION DATE: 07/05/88

TITLE: INADEQUATE INFORMATION - SFAS &amp; SFRCS ANNUNCIATION

=====

DATA SOURCE: VERIFICATION OF AVAILABILITY/SUITABILITY/TA  
VALIDATION - WALK THROUGH OF TA

TASK PLAN:

0700 PARA: 6.1.1.1 6.5.1.1B

SPECIAL STUDY: ANNUNCIATORRELATED HED(S):

=====

PROBLEM DESCRIPTION:

ADDITIONAL INFORMATION COULD BE USEFUL TO OPERATORS UNDER SELECTED  
EVENT SEQUENCES. NEED ANNUNCIATOR FOR SFAS TRIP CONFIRM (1 FOR EACH  
CHANNEL) AND SFRCS TRIP CONFIRM (1 FOR EACH CHANNEL). (SEE V&V TASK  
SUMMARY SHEET 3).

SPECIFIC ERROR:

DELAY IN DETERMINING PLANT/EQUIPMENT STATUS. INABILITY TO DETERMINE  
STATUS.

=====

INITIAL ASSESSMENT CATEGORY: 110REASSESSMENT CATEGORY: NONEDISPOSITION/JUSTIFICATION:

MODIFICATIONS TO THE SFAS AND SFRCS ANNUNCIATORS ARE RECOMMENDED AS  
PART OF THE DETAILED ALARM SYSTEM REVIEW. THESE MODIFICATIONS IN-  
CLUDE THE ADDITION OF AN SFAS ACTUATED ALARM. AN SFRCS TROUBLE ALARM  
WILL BE ADDED BY MOD 87-1107. SEPARATE ANNUNCIATORS FOR EACH CHANNEL  
ARE NOT CONSIDERED NECESSARY.

THE "SFAS ACTUATED" ALARM WILL BE INSTALLED BY MOD 88-0075.

=====

RELATED MODs: 87-1107 88-0075

=====

FINAL DISPOSITION APPR: L. SIMON /S/DATE: 06/30/88

DAVIS-BESSE  
MED DISCREPANT COMPONENT LISTING

PAGE NO: 2

MED NO: 92091

PANEL ID: N/A

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

SFAS  
SFROG

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

DAVID-BE000  
MED REMARKS

PAGE 3

MED NO: 92091

TITLE: INADEQUATE INFORMATION - SFAS & SFCS ANNUNCIATION

---

REMARKS:

REMARKS INTENTIONALLY BLANK



# DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT ADDENDUM

HED NO: 9.2.107

## TITLE:

Inadequate Information - Emergency Diesel Generator Information

## DISPOSITION:

This HED states that indication of diesel generator power or VARS is needed in the control room. However, power indicators JI 6221 and JI 6231 are located on panel C5715 in the control room. Furthermore, VARS are required only when manually loading the diesel. This operation is done locally, not from the control room. Lack of either indication was not cited as a problem during emergency operations in the verification summary of the DCRDR Task Analysis dated May 21, 1987.

Therefore, the Displays Special Study Group concluded that the information available in the control room is adequate for monitoring operation of the diesel generator and performing the needed control room actions. An indication of VARS is not needed in the control room.

## Component Identification:

EDG Indication

## CHANGE TO DISPOSITION/JUSTIFICATION:

Engineering Assurance Program review of the DCRDR Project recommended that additional information be incorporated in HED-9.2.107 to justify why EDG instrumentation is adequate. Other DCRDR documentation lists information and control requirements that are not mentioned in HED-9.2.107.

The following are added to the Component Identification:

LI-2787B	EDG 1 DAY TK LVL
LI-2788B	EDG 2 DAY TK LVL
SL-6222A/SL6222B	EDG 1 SYNC LIGHTS
SL-6232A/SL-6232B	EDG 2 SYNC LIGHTS
HIS-1147	EDG 1 START & SA BLOCK
HIS-1148	EDG 2 START & SA BLOCK
HS-1147A	EDG 1 STOP
HS-1148A	EDG 2 STOP
SI-6222	EDG 1 SPEED
SI-6232	EDG 2 SPEED
HS-6222	EDG 1 SPEED CONTROL
HS-6232	EDG 2 SPEED CONTROL
HC--6222	EDG 1 VOLTAGE CONTROL
HC-6232	EDG 2 VOLTAGE CONTROL
HIS-6222	AC 101 EDG 1 BREAKER
HIS-6232	AD 101 EDG 2 BREAKER
HIS-1471	EDG 1 CCW

# DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT ADDENDUM

HIS-1474	EDG 2 CCW
EI-6221C	EDG 1 VOLTS
EI-6231C	EDG 2 VOLTS
II-6221	EDG 1 AMPS
II-6231	EDG 2 AMPS
SY-6222	EDG 1 SYNC SCOPE
SY-6232	EDG 2 SYNC SCOPE
XI-6221 (1)	HZ EDG 1
XI-6231 (2)	HZ EDG 2
JI6221	POWER KV #1
JI-6231	POWER KV #2
EI-6221A	INCOMING KV #1
EI-6231A	INCOMING KV #2
EI-6221B	RUNNING KV #1
EI-6231B	RUNNING KV #2
STARTING AIR PRESSURE	LOCAL IND
BEARING TEMPERATURES	LOCAL IND
LUBE OIL PRESSURE	LOCAL IND
CONTROL POWER STATUS	LOCAL IND
CRANKCASE PRESSURE	LOCAL IND
JACKET WATER TEMP	LOCAL IND
EXCITATION VOLTAGE	LOCAL IND
DG AUTO/MANUAL SWITCH	LOCAL VOLT REG.

As stated in HED 9.2.107, the DCRDR Review Team did review the EDG controls and indications and determined that they are adequate. The Special Study Teams met in the Control Room Mockup Room. The team consisted of experienced licensed operators who were familiar with the control room and EOP's and EDG operation. The updated task analysis done in May 1987 was performed by a Human Factors expert who also had several years B&W plant operating experience and was assisted by licensed Davis-Besse Operators.

In addition to the statement in HED-9.2.107, synchronization is performed locally. Control Room operations requires less instrumentation. Control Room Annunciators exist to warn of abnormal conditions. The local indication listed in the component identification is not needed in the control room for several different reasons. Starting air pressure - covered by control room annunciators, lube oil press - crankcase pressure - jacket water temperature are all related to EDG trips that are auto bypassed under emergency operations and covered by control room annunciators in normal operation. Normal operations requires an operator at the EDG. Voltage regulator droop and engine governor droop mode switches are used locally for manual operation of the EDGs. Auto starts and loading automatically place voltage and engine control in the proper mode.

HED NO: 92107

DATE OF ORIGIN: 05/29/84

REVISION DATE: 07/05/88

TITLE: INADEQUATE INFORMATION - EMERGENCY DIESEL GENERATOR INFORMATION

=====

DATA SOURCE: VERIFICATION OF AVAILABILITY/SUITABILITY/TA  
VALIDATION - WALK THROUGH OF TA

TASK PLAN:

0700 PARA: 6.1.1.1 6.5.1.1B

SPECIAL STUDY: DISPLAYSRELATED HED(S): 92071

=====

PROBLEM DESCRIPTION:

NO INDICATION OF EMERGENCY DIESEL GENERATOR (EDG) POWER OR VARS IS  
LOCATED IN THE CONTROL ROOM (SEE V&V TASK SUMMARY SHEET 13).

SPECIFIC ERROR:

POSSIBLE TO PUT EDG ON A DE-ENERGIZED BUS WITHOUT IMMEDIATELY BEING  
AWARE OF IT.

=====

INITIAL ASSESSMENT CATEGORY: IIC REASSESSMENT CATEGORY: NONEDISPOSITION/JUSTIFICATION:

THIS HED STATES THAT INDICATION OF DIESEL GENERATOR POWER OR VARS  
IS NEEDED IN THE CONTROL ROOM. HOWEVER, POWER INDICATORS J1 6221  
AND J1 6231 ARE LOCATED ON PANEL C5715 IN THE CONTROL ROOM. FURTHER-  
MORE, VARS ARE REQUIRED ONLY WHEN MANUALLY LOADING THE DIESEL. THIS  
OPERATION IS DONE LOCALLY, NOT FROM THE CONTROL ROOM. LACK OF EITHER  
INDICATION WAS NOT CITED AS A PROBLEM DURING EMERGENCY OPERATIONS IN  
THE VERIFICATION SUMMARY OF THE DCRDR TASK ANALYSIS DATED MAY 21,  
1987.

THEREFORE, THE DISPLAYS SPECIAL STUDY GROUP CONCLUDED THAT THE  
INFORMATION AVAILABLE IN THE CONTROL ROOM IS ADEQUATE FOR MONITOR-  
ING OPERATION OF THE DIESEL GENERATORS AND PERFORMING THE NEEDED  
CONTROL ROOM ACTIONS. AN INDICATION OF VARS IS NOT NEEDED IN THE  
CONTROL ROOM.

RELATED MODs:  
=====FINAL DISPOSITION APPR: L. SIMON /S/DATE: 06/30/88



DAVIS-BESSE

HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

HED NO: 92107

PANEL ID: C5715

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

EDG INDICATION

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

HED NO: 92107

TITLE: INADEQUATE INFORMATION - EMERGENCY DIESEL GENERATOR INFORMATION

=====

REMARKS:

REMARKS INTENTIONALLY BLANK

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

DED NO: 9.2.111

TITLE:

Inadequate information - Component Cooling Water (CCW) System  
Indication

DISPOSITION:

The addition of CCW Flow and Discharge Pressure indicators would neither relieve the need for the operator to confirm proper system line-up nor the need to monitor individual components.

Operation does concur, however, with the installation of a temperature indicator on the outlet of #3 CCW HX (FCR 81-0225).

CHANGE 1. DISPOSITION/JUSTIFICATION:

The installation of a temperature indicator on the outlet of #3 CCW HX was evaluated by the Work Scope Committee and determined to not be justified. FCR 81-0225 will be voided. The addition of #3 CCW HX Temperature was a desired operator convenience for normal operations and is not needed to verify proper emergency operation of the CCW system. The cost of adding an indicator for normal operation was determined to be excessive for the benefit gained. Operators assign #3 CCW HX Temperature to a trend pen recorder when #3 CCW HX is in use and the recording is adequate for normal operations.



HED NO: 92111 DATE OF ORIGIN: 03/29/84 REVISION DATE: 05/13/88  
TITLE: INADEQUATE INFORMATION - COMPONENT COOLING WATER SYSTEM INDICATION

DATA SOURCE: VERIFICATION OF AVAILABILITY/SUITABILITY/IA  
VALIDATION - WALK THROUGH OF TA

## TASK PLAN:

0700 PARA: 6.1.1-1 6.2.1-1B

SPECIAL STUDY: DISPLAY

RELATED HED(S): 92070 99026 99027

## PROBLEM DESCRIPTION:

CURRENTLY, THE ONLY CCW SYSTEM INDICATIONS IN THE CONTROL ROOM ARE  
CCW PUMP MOTOR STATUS AND CCW LOW FLOW ALARM. NO INDICATION OF SYSTEM  
FLOW OR PRESSURE EXISTS. (SEE XKV TASK SUMMARY SHEETS 33, 42, 43, 45.)

## SPECIFIC ERROR:

INABILITY TO ACCURATELY DETERMINE STATUS OF CCW SYSTEM.

INITIAL ASSESSMENT CATEGORY: JIC REASSESSMENT CATEGORY: NONE

## DISPOSITION/JUSTIFICATION:

THIS HED AD. VISES THE CCW SYSTEM FLOW PORTION OF HED 92070. IT  
ALSO ADDRESSES HED'S 99026 AND 99027 (CCW SYSTEM FLOW AND PRESSURE,  
RESPECTIVELY).

THE DISPLAYS SPECIAL STUDY GROUP EVALUATION CONCLUDED THAT SUFFICIENT  
OTHER INFORMATION IS PROVIDED TO THE OPERATORS SO THAT THEY CAN CON-  
FIRM PROPER OPERATION OF THE COMPONENT COOLING WATER SYSTEM IN AN  
EMERGENCY.

THERE ARE PUMP LOW FLOW ALARMS IN THE CONTROL ROOM (WINDOWS 11-4-A,  
11-4-B, AND 11-4-C). THERE ARE ALSO LOCAL FLOW INDICATORS, TEMPER-  
ATURE AND FLOW INDICATORS ON THE OUTLETS OF SELECTED COMPONENTS BE-  
ING COOLED, AND PRESSURE INDICATORS ON INLETS AND OUTLETS OF THE  
COMPONENT COOLING WATER PUMPS AND THE OUTLET OF EACH HEAT EXCHANGER.

THE ADDITION OF COMPONENT COOLING WATER FLOW AND DISCHARGE PRESSURE

\*\*\*\* DISPOSITION/JUSTIFICATION CONTINUED ON NEXT PAGE \*\*\*\*

LATED MODS: 91-0225

FINAL DISPOSITION APPR: L. J. JONES / J. J. JONES

DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
DISPOSITION/JUSTIFICATION CONTINUATION SHEET

PAGE 2

HED NO: 92111

INDICATORS WOULD NEITHER RELIEVE THE NEED FOR THE OPERATOR TO CONFIRM PROPER SYSTEM LINE-UP NOR THE NEED TO MONITOR INDIVIDUAL COMPONENTS.

OPERATIONS DOES CONCUR, HOWEVER, WITH THE INSTALLATION OF A TEMPERATURE INDICATOR ON THE OUTLET OF #3 CCW HX (FOR 21-0225).

FOR FURTHER DISCUSSION SEE MPX LETTER TO L. SIMON (EXT-87-10624).

DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 3

HED NO: 93111

PANEL ID: N/A

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

ECW SYSTEM INDICATION

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*



DAVIS-BESSE  
HED REMARKS

PAGE 4

HED\_NO: 92111

TITLE: INADEQUATE INFORMATION - COMPONENT COOLING WATER SYSTEM INDICATED

REMARKS:

REMARKS INTENTIONALLY BLANK

BEESSE NUCLEAR POWER STATION UNIT 1  
FACILITY CHANGE REQUEST INITIATION  
D-6806

AD 1043.00.14

1. SYSTEM MOMENT COOLING WATER	4. SUS NO. 110	1. FCR NO. 81-225
2. PROPOSED CHANGE, TEST, EXPERIMENT OR LICENSE AMENDMENT		2. <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> REV.
		5. COMPONENT/EQUIPMENT NO. CCW HEX # 3

ADD CONTROL ROOM TEMPERATURE INDICATOR SIMILAR  
TO TI 1489 AND TI 1490 FOR CCW OUT TEMPERATURE  
FROM HEX # 3.

6a. ☐ CHECK BOX IF ADDITIONAL SHEETS ARE ATTACHED

7. REASON FOR REQUEST

CCW HEX #3 IS AN INSTALLED SPARE. HOWEVER,  
DUE TO SYSTEM PROBLEMS AND MAINTENANCE, #3 IS  
USED OCCASIONALLY. A CONTROL ROOM TI WOULD BE  
HELPFUL TO OPERATORS UNDER THESE CIRCUMSTANCES.

7a. ☐ CHECK BOX IF ADDITIONAL SHEETS ARE ATTACHED

8. LIST COMMITMENTS (NRC, LER, DVR, OTHER)		9. COMPLETION DUE DATE	10. <input checked="" type="checkbox"/> OUTAGE REQUIRED <input type="checkbox"/> NON OUTAGE <input type="checkbox"/> REDUCED LOAD <input type="checkbox"/> UNKNOWN	
11. REQUESTED IMPLEMENTATION DATE NEXT OUTAGE		12. REASON FOR DATE REQUESTED BY OPERATORS FOR CONVENIENCE		
13. GROUP CODE 8	14. PRIORITY 9	15. REQUESTOR Mark E. Rouland	SECTION TECH	DATE 7/24/91
16. GROUP CODE	DESCRIPTION		B). PRIORITY	
1	Prevents or Limits Plant Power Level		"1" Special High Priority (Assigned only by Division Director or higher authority)	
2	NRC Commitment		"3" Required High Priority	
3	ALARA, Potential Radiation Release/Concern		"5" Required but not immediately	
4	Industrial Security		"7" Highly desirable	
5	LER/DVR Commitment		"9" Desirable but can be done late	
6	Improves Plant Availability			
7	Safety Concern For Equipment/Personnel			
8	Convenience			
9	Other			
0	Paperwork Change Only - No Physical Fieldwork Required			
17. APPROVED FOR FURTHER ACTION				
17a. SUPERVISOR J. B. Smith	DATE 8/5/91	17b. STATION SUPT. J. B. Smith	DATE 8/6/91	17c. NUCLEAR ENG. MGR. J. B. Smith
18. ENGINEERING ACTION				
LICENSE AMENDMENT REQUIRED <input type="checkbox"/> Yes <input type="checkbox"/> No		18b. ACCOUNTING CLASSIFICATION <input type="checkbox"/> Construction <input type="checkbox"/> Maintenance <input type="checkbox"/> Operation		
		18c. AREA FUNCTION/JOB ORDER		
18d. ENGINEERING ACTION COMPLETED BY			DATE	

ENCLOSURE 1

# DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT ADDENDUM

HED NO: 9.8.039

TITLE:

Hand-drawn scales for reactor power.

DISPOSITION:

The hand-drawn scales on the displays listed will be replaced by MOD 88-0117.

CHANGE TO DISPOSITION/JUSTIFICATION:

The hand-drawn scales were replaced by Simple Configuration Change (SCC) 88-1191.



HED NO: 98039DATE OF ORIGIN: 05/07/87REVISION DATE: 06/30/88TITLE: HAND-DRAWN SCALES FOR REACTOR POWER

=====

DATA SOURCE: VERIFICATION OF AVAILABILITY/SUITABILITY/TATASK PLAN: \*0700 PARA: 6.5.1.5dSPECIAL STUDY: DISPLAYSRELATED HED(S): 98036

## =====

PROBLEM DESCRIPTION:

\*(THIS HED WAS GENERATED DURING THE DCRDR TASK ANALYSIS OF MAY 29, 1987).

THE SCALES FOR THE INSTRUMENTS LISTED ARE HAND-DRAWN WITH UNEVEN INCREMENTS.

SPECIFIC ERROR:

READABILITY IS SLOWED

=====

INITIAL ASSESSMENT CATEGORY: NONE REASSESSMENT CATEGORY: NONEDISPOSITION/JUSTIFICATION:

THE HAND-DRAWN SCALES ON THE DISPLAYS LISTED WILL BE REPLACED BY MOD 88-0117.

=====

RELATED MODs: 88-0117

=====

FINAL DISPOSITION APPR: L. SIMON /S/ DATE: 06/25/88

## DAVIS-BESSE

## HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

HED NO: 98039

PANEL ID: C5706

COMPONENT IDENTIFICATIONSPECIAL  
STUDY

NI NI1 LOG COUNT RATE NI 1  
NI NI2 LOG COUNT RATE NI 2

PANEL ID: C5707

COMPONENT IDENTIFICATION

NI NI3 LOG N NI 3  
NI NI4 LOG N NI 4

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*

DAVIS-BESSE  
HED REMARKS

PAGE 3

HED NO: 98039

TITLE: HAND-DRAWN SCALES FOR REACTOR POWER

=====

REMARKS:

REMARKS INTENTIONALLY BLANK



DAVIS-BESSE HUMAN ENGINEERING DISCREPANCY REPORT  
ADDENDUM

HED NO: 9.8.044

TITLE:

Motor Operated Valve limit switch contacts do not set fully closed or fully open valve position.

DISPOSITION:

Modification to most Motor Operated Valves will be made (FCR 86-0031 and MOD 87-1325) to provide lights which represent actual travel limits. Three Motor Operated Valves (control HIS 1530, HIS 1531, and HIS RC2-1 on Panels C5716 and C5705, respectively) will be provided with information labels to specify the actual meaning of the limit lights.

CHANGE TO DISPOSITION/JUSTIFICATION:

33 valves were modified during the 6th Cycle and 6RFO. 21 valves do not require an outage to be modified. These 21 valves will be modified during their respective PM during the 7th Cycle. The completion of FCR 87-1325 will continue to be tracked by the DCRDR Database.

The 21 valves are balance-of-plant valves and are appropriately labeled to indicate the meaning of the limit lights.

HED NO: 98044      DATE OF ORIGIN: 05/12/87      REVISION DATE: 06/30/88  
TITLE: MOTOR OPERATED VALVE LIMIT SWITCH CONTACTS NOT SET AT FULLY CLOSED  
OR FULLY OPEN VALVE POSITIONS

=====

DATA SOURCE: VERIFICATION OF AVAILABILITY/SUITABILITY/TA

TASK PLAN: \*  
0700 PARA: 6.5.1.6d(1)    6.5.3.2a(2)  
SPECIAL STUDY: CONTROLS

RELATED HED(S):

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PROBLEM DESCRIPTION:

\*(THIS HED WAS GENERATED DURING THE DCRDR TASK ANALYSIS OF MAY 29, 1987).

VALVE LIMIT SWITCH CONTACTS ARE PICKED UP INDICATING COMPLETELY CLOSED OR OPEN, WHEN THE VALVE IS ACTUALLY NOT COMPLETELY CLOSED OR OPEN. MOVATS INDICATED THAT TORQUE SWITCH CUTOFF TIME WAS NOT LONG ENOUGH SO THE TORQUE SWITCH WAS BYPASSED UNTIL VALVES ARE 20% OPEN.

SPECIFIC ERROR:

DISPLAY GIVES THE OPERATOR A FALSE INDICATION AS TO ACTUAL VALVE POSITION. THIS MAY RESULT IN INCORRECT OR DELAYED RESPONSES.

=====

INITIAL ASSESSMENT CATEGORY: NONE    REASSESSMENT CATEGORY: NONE

DISPOSITION/JUSTIFICATION:

MODIFICATION TO MOST MOTOR OPERATED VALVES WILL BE MADE (FCR 86-0031 AND MOD 87-1325) TO PROVIDE LIGHTS WHICH REPRESENT ACTUAL TRAVEL LIMITS. THREE MOTOR OPERATED VALVES (CONTROLS HIS 1530, HIS 1531, AND HIS RC2-1 ON PANELS C5716 AND C5705, RESPECTIVELY) WILL BE PROVIDED WITH INFORMATION LABELS TO SPECIFY THE ACTUAL MEANING OF THE LIMIT LIGHTS.

FOR FURTHER DISCUSSION SEE MPR LETTER TO L. SIMON (EXT-87-10948).

RELATED MODs: 86-0031    87-1325

=====

FINAL DISPOSITION APPR: L. SIMON /S/      DATE: 06/25/88

DAVIS-BESSE  
HED DISCREPANT COMPONENT LISTING

PAGE NO: 2

HED NO: 98044

PANEL ID: C5702

COMPONENT IDENTIFICATION

SPECIAL  
STUDY

HIS MU11 RC LCTDOWN DIVERT VLV

PANEL ID: C5717

COMPONENT IDENTIFICATION

HIS 599A	SG#2 AFW ISO VLV
HIS 599B	SG#2 AFW ISO VLV
HIS 608A	SG#1 AFW ISO VLV
HIS 608B	SG#1 AFW ISO VLV

PANEL ID: N/A

COMPONENT IDENTIFICATION

OPERATORS ON WEDGE SEATING VALVES

\*\*\*\*\* END OF COMPONENT LISTING \*\*\*\*\*



DAVIS-BESSE  
HED REMARKS

PAGE 3

HED NO: 98044

TITLE: MOTOR OPERATED VALVE LIMIT SWITCH CONTACTS NOT SET AT FULLY CLOSED  
OR FULLY OPEN VALVE POSITIONS  
=====

REMARKS:

REMARKS INTENTIONALLY BLANK