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NUCLEAR GROUP HEADQUARTERS

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NUCLEAR ENGINEERING & SERVICES DEPARTMENT

February 28, 1992

Docket Nos. 50-277  
50-278

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

SUBJECT: Annual Progress Report for Implementation of Control Room  
Enhancements Pursuant to NUREG-0737 Peach Bottom Atomic  
Power Station, Units 2 and 3

- REFERENCE: 1) Letter, S. L. Daltroff, PECO, to D. R. Muller, NRC,  
dated 2/26/86
- 2) Letter, E. P. Fogarty, PECO to NRC dated 6/30/89
- 3) Letter, G. A. Hunger, Jr., PECO, to NRC dated  
2/15/90
- 4) Letter, G. A. Hunger, Jr., PECO, to NRC dated  
7/12/90
- 5) Letter, G. J. Beck, PECO, to NRC dated 2/28/91

Dear Sir:

In accordance with the requirements of NUREG-0737, Supplement 1, Section 5, reference 1 letter submitted a copy of the Peach Bottom Control Room Design Review (CRDR) Final Report. The report identified numerous human factors enhancements planned for Peach Bottom Atomic Power Station (PBAPS) Units 2 and 3. Areas requiring enhancement were identified on Human Engineering Discrepancy (HED) Assessments which were included in the report. As committed in reference 1 letter, PECO has kept the NRC informed of the implementation status of control room enhancements through the submittal of annual progress reports, the last report having been submitted February 28, 1991 (reference 5).

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As indicated in our last report, the PBAPS Units 2 and 3 HED database provides specific information relating to each HED. This database provides a complete listing of all HEDs identified including their description, revision date (if applicable), priority, implementation status for both Units 2 and 3, and any forecasted schedules for implementation of proposed resolutions. A copy of this database is provided as Attachment 1 to this letter. The database is sorted by priority number. The COMMENTS column provides any additional specific information relating to the status, schedule and/or proposed resolution of a given HED. Dates provided in the REV column indicate the HED Assessment has been revised subsequent to the original prepared during the CRDR.

In the CRDR Report, 262 HEDs were identified. Each HED was assigned a priority with respect to safety significance using a scale of 1 to 6, with 1 being the most significant. Three HEDs were assigned dual priorities. Although the HED Assessments provided in the final report were written for Unit 2, it was determined during the CRDR that the discrepancies were applicable to Unit 3 as well.

Table 1 below summarizes the total number of HEDs identified, the number resolved as of the last report submittal, and the number resolved as of this submittal for PBAPS Units 2 and 3.

TABLE 1  
PBAPS UNIT 2 (3) HED STATUS SUMMARY

Priority	Number of HEDs Identified	Number of HEDs	
		Resolved As Of Last Submittal	Resolved As Of This Submittal
1	10 (10)	10 (10)	10 (10)
2	44 (44)	39 (40)	41 (41)
3	26 (26)	17 (16)	19 (18)
4	94 (94)	76 (78)*	81 (82)
5	52 (52)	52 (52)	52 (52)
6	39 (39)	39 (39)	39 (39)

Priority 1	High Safety Significance
Priority 2	Low Safety Significance
Priority 3	Operational Reliability
Priority 4	No Significant Improvement
Priority 5	Previously Corrected
Priority 6	Not a Discrepancy

\*A more recent review indicates that a Priority 4 HED, HED No. SI2-05, was erroneously reported as closed in previous reports. The status of this HED is being changed to "open" in this report and the number of priority 4 HEDs resolved as of last submittal in Table 1 above has been revised from 79 to 78.

Since our last annual progress report (reference 5), two Priority 2 HEDs, two Priority 3 HEDs, and three Priority 4 HEDs have been resolved for PBAPS Unit 2. For Unit 3, one Priority 2 HED, two Priority 3 HEDs, and four Priority 4 HEDs have been resolved.

Due to plant changes which have occurred subsequent to the initial report, including modifications, equipment replacements, procedural changes, etc, several HED revisions have been initiated. Copies of HED revisions initiated since the last progress report are included in Attachment 2.

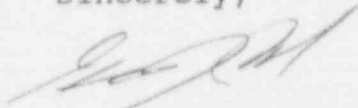
The resolutions for several HEDs are either in the modification process, or are the subject of modification packages which are complete from an engineering standpoint and are awaiting installation. Specific modification numbers are provided in the COMMENTS column of Attachment 1 for these HEDs.

Modifications are continuing to be initiated to address the remaining open HEDs which can be resolved via equipment modifications including the addition of enhancements, equipment relocation, labelling changes, etc. The comment "modification required" is provided in the COMMENTS column of Attachment 1 for each HED of this type. Modifications are processed in accordance with an Integrated Management Process (IMP). The IMP is a continuing process of selection, integrating, and prioritizing plant modifications on the basis of public and personnel safety, personnel productivity, economic performance, and external impact in order to optimize the allocation of resources. Since these modifications are either in the initial stages of development, or implementation schedules are not finalized at this time, schedules are not provided. Open HEDs which require resolution via means other than equipment modifications are being addressed as indicated in Attachment 1.

In addition to the IMP, modifications associated with the enhancements and any procedure changes are subjected to additional review processes. Either the IMP or the review process may determine it necessary to revise the proposed resolution for a previously identified HED. We will continue to keep the NRC informed of any HED revisions and of our progress via the submittal of an annual progress report. The next progress report for PBAPS Units 2 and 3 will be submitted to the NRC by the end of February 1993.

Should you have any questions regarding this progress report,  
please contact us.

Sincerely,



G. J. Beck, Manager  
Licensing Section  
Nuclear Engineering & Services

Attachments

cc: J.J.Lyash, USNRC Senior Resident Inspector  
T.Martin, Administrator, Region I, USNRC

ATTACHMENT 1

Database

Human Engineering Discrepancies (HED)  
Peach Bottom Atomic Power Station Units 2 and 3

HUMAN ENGINEERING DISCREPANCIES (HEDs)  
PEACH BOTTOM ATOMIC POWER STATION UNITS 2 & 3

PAGE: 1  
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HED NUMBER	REV	TITLE	PRI	SCHEDULE	STATUS		COMMENTS
					UNIT 2	UNIT 3	
A1-09	0	ANNUNCIATOR SILENCE CONTROL	1		closed	closed	
D2-05	0	MIMIC FLOW DIRECTION	1		closed	closed	
D3-03	0	COMPONENT STRING AND MATRIX ARRANGEMENT	1		closed	closed	
E1-02	0	P.A. SYSTEM ACCESS	1		closed	closed	
I3-01	0	RECORDER VALUES	1		closed	closed	
I3-05	0	MULTIPOINT RECORDER SPEED	1		closed	closed	
Su2-03	0	CONTAINMENT ISOLATION MIMIC ARRANGEMENT	1		closed	closed	
SD3-23	0	CONTROL/DISPLAY RELATIONSHIPS	1		closed	closed	
TA1-04	0	ISOLATION SUMMARY DISPLAY	1		closed	closed	
TA1-07	6/89	REACTOR LEVEL-172 INCHES	1		closed	closed	
A1-12	6/89	"ALARM CLEAR" INDICATION	2		closed	closed	
D5-01	0	OPERATION LIMITS AND WARINGS	2		closed	closed	
D5-02	0	HIERARCHAL LABELING	2		closed	closed	
D5-06	0	REDUNDANT LABEL INFORMATION	2		closed	closed	
D5-09	2/92	INCOMPLETE LABELS	2		open	open	Modification required. Changes to the controller labels required.
I2-01	0	INDICATOR ZONE MARKINGS	2		closed	closed	
I3-03	0	RECORDER ALARM POINTS	2		closed	closed	
I3-07	2/91	RECORDER PEN COLORS	2		closed	closed	
I3-11	0	RECORDER ZONE MARKINGS	2		closed	closed	
I5-05	0	INADVERTENT CONTROL ACTIVATION	2		closed	closed	
LER-06	0	DIESEL GENERATOR RESTART PROCEDURAL REQUIREMENTS	2		closed	closed	
LER-08	0	VALVE ALIGNMENT PROCEDURAL REQUIREMENTS	2		closed	closed	
LER-14	0	REACTOR VESSEL HEAT-UP RATE	2		closed	closed	
LER-18	0	IMPROPER SWITCH POSITION	2		closed	closed	
LER-19	0	IMPROPER VALVE OPERATION	2		closed	closed	
NRC2-11	0	TORUS LEVEL ZONE MARKING	2		closed	closed	
NRC2-12	0	REACTOR LEVEL ACCURACY	2		closed	closed	
P4-01	0	FEEDBACK TO OPERATOR	2		closed	closed	
SD3-14	0	HPCI INDICATIONS	2		closed	closed	
SD3-18	0	CONTROL GROUPING	2		closed	closed	
SD3-19	0	CONTROL GROUPING	2		closed	closed	
SD3-21	0	RHR INDICATOR ARRANGEMENTS	2		closed	closed	
SD3-28	0	REACTOR MODE SWITCH LOCATION	2		closed	closed	
SP1-02	0	PROCEDURE TERMINOLOGY UPDATE	2		closed	closed	
TA1-01	0	REACTOR COOLDOWN RATE	2		closed	closed	Closed for Units 2 & 3 since last submittal.
TA1-02	0	REACTOR LEVEL-48 INCHES	2		closed	closed	
TA1-05	6/89	HPCI INITIATION SIGNAL	2		closed	closed	
TA1-06	0	LPCI FLOW RESOLUTION	2		closed	closed	Closed for Unit 2 since last submittal.
TA1-07	6/89	REACTOR LEVEL-172 INCHES	2		closed	closed	
TA1-08	0	HPCI AND RCIC MANUAL INITIATION	2		closed	closed	
TA1-09	0	CS MANUAL INITIATION	2		closed	closed	
TA1-10	0	LPCI MANUAL INITIATION	2		closed	closed	
TA1-11	0	ADS TIMER RESET	2		closed	closed	

HUMAN ENGINEERING DISCREPANCIES (HEDs)  
PEACH BOTTOM ATOMIC POWER STATION UNITS 2 & 3

PAGE: 2  
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HED NUMBER	REV	TITLE	PRI	SCHEDULE	STATUS		COMMENTS
					UNIT 2	UNIT 3	
TA1-16	6/89	SRV INSTRUMENT N2 ALARM	2	see comment	open	open	Mod 5177 initiated; Eng'g complete; Unit 2 has been rebinned from 2R09 to 2R10 Refuel Outage; Unit 3 is scheduled for 3R09 Refuel Outage.
TA1-17	0	TORUS LEVEL RANGE	2		closed	closed	
TA1-20	0	TORUS LEVEL 18.5 FEET	2		closed	closed	
TA1-21	6/89	TORUS AIR SPACE TEMPERATURE	2		closed	closed	
TA1-22	0	TORUS PRESSURE RANGE	2		closed	closed	
VW-01	0	ADS NUMBERS	2		closed	closed	
VW-04	0	ORIFICE BYPASS VALVE TAG	2		closed	closed	
VW-06	0	TORUS PRESSURE INSTRUMENT NUMBER	2		closed	closed	
VW-11	0	ECCS INSTRUMENT COLOR PADS	2		open	open	Modification required. Color pads for Torus Press. indication complete. Color pad required on Drywell Temp PR/TR 4(5)805.
VW-12	0	T-200 SERIES NOMENCLATURE	2		closed	closed	
VW-15	0	T-221 VALVES NOT FOUND	2		closed	closed	
A1-10	0	ANNUNCIATOR CONTROL ARRANGEMENT	3		closed	closed	
D2-02	0	DEMARCATON AND MIMIC LINES	3		closed	closed	
D2-04	0	MIMIC FLOWPATHS	3		closed	closed	
D3-04	0	COLOR CODING CONSISTENCY	3		closed	closed	
E2-01	0	ILLUMINATION LEVELS	3		closed	closed	Closed for Units 2 & 3 since last submittal.
12-02	0	DISPLAY GLARE	3		open	open	Glare on pnl C196 has been resolved; modification required to resolve other discrepancies.
12-06A	0	DISPLAY GROUPING	3		closed	closed	
12-07	0	SCALE SUBDIVISIONS	3		closed	closed	
13-05	0	MULTIPOINT RECORDER SPEED	3	9th Refuel	open	open	This HED was also assigned a Priority 1 code. The Priority 1 discrepancy has been resolved. Modification No. 5276 is in progress and will resolve the Priority 3 discrepancy.
13-10	0	RECORDER GLARE	3		open	open	Modification required. Glare problems on recorders to be resolved.
15-02	0	POSITION INDICATION	3		closed	closed	
15-03	0	POSITION MARKINGS	3		closed	closed	
NRC2-04	0	DIFFERENT ENGINEERING UNITS ON RECORDER	3		open	open	Modification required. Engineering units to be added to scales.
NRC2-05	0	SCALE INCREMENTS TOO LARGE	3		closed	closed	
SD2-02	0	CONTAINMENT PURGE MIMIC ARRANGEMENT	3		closed	closed	
SD3-01	0	CONTROL/DISPLAY GROUPING	3		closed	closed	
SD3-02	0	FEEDWATER CONTROLS	3		open	open	Modification required. Valve controls to be reversed.
SD3-05	0	AIR EJECTOR CONTROLS/INDICATIONS	3		closed	closed	
SD3-16	0	DISPLAY ARRANGEMENT	3		closed	closed	
SD3-17	0	DISPLAY ARRANGEMENT	3		closed	open	Modification required. Meter to be relocated.
SD3-25	0	INDICATOR ARRANGEMENT	3		closed	closed	
SD5-01	2/92	FEEDWATER PUMP BYPASS CONTROLLER	3		closed	closed	Closed for Units 2 & 3 since last submittal.



HUMAN ENGINEERING DISCREPANCIES (HEDs)  
PEACH BOTTOM ATOMIC POWER STATION UNITS 2 & 3

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HED NUMBER	REV	TITLE	PRI	SCHEDULE	STATUS		COMMENTS
					UNIT 2	UNIT 3	
SD5-02	2/91	CONTROL POSITION ESCUTCHEONS	3		closed	closed	
SI2-02	0	FEEDWATER STARTUP BYPASS CONTROLLER	3		open	open	Modification required. Push button arrangement and meter changes on the controller may be required.
ST1-01	0	TRAINING UPDATE ON ENHANCEMENTS	3		closed	closed	
TA1-23	0	CHILL WATER FLOW RANGE	3		open	open	Modification required. Scale range requires to be changed.
A1-01	0	ANNUNCIATOR COLOR/LOCATION CODING	4		closed	closed	
A1-02	0	ANNUNCIATOR LEGEND CONSISTENCY	4		closed	closed	Closed for Units 2 & 3 since last submittal.
A1-03	0	ANNUNCIATOR TYPE STYLE	4		closed	closed	
A1-04	0	INCORRECT ANNUNCIATOR LEGEND	4		closed	closed	Closed for Units 2 & 3 since last submittal.
A1-06	0	MULTI-CHOICE ALARMS	4		closed	closed	
A1-07	0	ANNUNCIATOR PRIORITY CODING	4		closed	closed	
A1-08	3	ANNUNCIATOR IDENTIFICATION	4		closed	closed	
D1-02	0	CONSOLE CONTROL REACH DISTANCES	4		closed	closed	
D1-04	0	MIRROR-IMAGING OF PANEL	4		closed	closed	
D1-05	0	UNCOVERED PANEL HOLES	4		closed	closed	
D2-01	0	CONTROL DISTINCTION	4		closed	closed	
D2-03	0	DEMARICATION LINE CONTRAST	4		closed	closed	
D2-06	0	MIMIC CONSISTENCY	4		closed	closed	
D3-01	0	CONTROL/DISPLAY GROUPING	4		closed	closed	
D3-02	2/91	COMPONENT ARRANGEMENT	4		closed	closed	
D3-05	0	CONTROL/DISPLAY HEIGHT	4		closed	closed	
D4-01	0	COLOR STANDARDS	4		closed	closed	
D5-03	0	PANEL IDENTIFICATION	4		closed	closed	
D5-04	0	INCONSISTENT NOMENCLATURE AND ABBREVIATIONS	4		open	open	Modification required. Revise engineering units on scale.
D5-05	0	LABEL TYPE AND STYLE	4		closed	closed	
D5-07	0	LOW LABEL HEIGHT	4		closed	closed	
D5-10	0	VERTICAL LABEL ORIENTATION	4		open	open	Modification required. Vertical labels have been removed. Escutcheon Plates on pnl COSA removed.
D7-01	0	CONTROL PANEL ACCESS	4		closed	closed	
D7-03	0	MOVEABLE OBSTRUCTIONS	4		closed	closed	
D7-04	0	LOW CONTROL/DISPLAY VISIBILITY	4		closed	closed	
D7-06	0	ANNUNCIATOR LOCATION	4		closed	closed	
E3-02	0	PROTECTIVE CLOTHING	4		closed	closed	
E3-03	0	BREATHING APPARATUS LOCATION	4		open	open	Control room operators need to be informed and trained on the location of the emergency breathing apparatus.
E3-05	0	CONTROL OPERATION	4		open	open	The need for additional training in the use of breathing apparatus must be reevaluated.
E4-02	0	TELEPHONE CORDS	4		closed	closed	
I1-01	0	CONTROLLER HEIGHT LOW	4		closed	closed	
I2-03	0	SCALE UNITS	4		closed	closed	
I2-04	0	POINTERS OBSCURE MARKINGS	4		closed	closed	
I2-06	2/91	SCALE COMPATABILITY	4		closed	closed	
I2-08	0	EXCESSIVE SCALE GRADUATIONS	4		closed	closed	



HUMAN ENGINEERING DISCREPANCIES (HEDs)  
PEACH BOTTOM ATOMIC POWER STATION UNITS 2 & 3

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HED NUMBER	REV	TITLE	PRI	SCHEDULE	STATUS		COMMENTS
					UNIT 2	UNIT 3	
12-09	0	SCALE SUBDIVISION MULTIPLES	4		open	open	Modification required. RWCU Dump Flow and RWCU Filter Flow on pni C04A require scale changes.
13-02	0	INCORRECT CHART PAPER SCALES	4		open	open	Chart paper to be changed.
13-08	0	RECORDER MARKING PROCEDURE	4		closed	closed	
13-01	0	CONTROL SEQUENCE	4		closed	closed	
15-06	0	CONTROL HEIGHT	4		closed	closed	
15-06	0	LABEL AND INDICATOR VISIBILITY	4		closed	closed	
15-17	0	CONTROL SHAPE CODING	4		closed	closed	
15-08	0	LABEL AND POINTER VISIBILITY	4		closed	closed	
15-09	0	EMERGENCY CONTROL IDENTIFICATION	4		closed	closed	
LER-02	2/91	INAPPROPRIATE OPERATION OF FEEDWATER INLET VALVE	4		closed	closed	
LER-16	2/91	IMPROPER VALVE ALIGNMENT	4		closed	closed	
PRC2-01	0	DUEL GRID CHART RECORDER	4		closed	closed	
NRC2-02	0	EXTRA SCALE ON CHART	4		closed	closed	
NRC2-03	0	LABEL TERMINOLOGY	4		closed	closed	
P1-04	0	ANNUNCIATOR RESPONSE CARD IDENTIFICATION	4		closed	closed	
P3-05	0	PROCEDURAL RESULTS DESCRIPTIONS	4		closed	closed	
P3-07	0	OPERATING LIMIT SPECIFICATIONS	4		closed	closed	Closed for Units 2 & 3 since last submittal.
SD1-01	0	OPPOSING SURFACES CLOS	4		closed	closed	
SD3-03	0	AIR EJECTOR INDICATIONS	4		closed	closed	
SD3-04	0	AIR EJECTOR CONTROLS	4		closed	closed	
SD3-06	0	CONDENSATE PANEL CONTROL GROUPING	4		closed	closed	
SD3-07	2/91	CONDENSATE RECIRC INDICATION	4		closed	closed	
SD3-08	0	TURBINE DRAIN CONTROLS	4		closed	closed	
SD3-09	0	DRAIN TANK DUMP INDICATIONS	4		closed	closed	
SD3-10	0	DRAIN TANK DRAINS	4		closed	closed	
SD3-11	0	RECIRC INDICATIONS NOT GROUPED	4		closed	closed	
SD3-12	0	CRD INDICATIONS	4		closed	closed	
SD3-13	0	HPCI CONTROLS	4		closed	closed	
SD3-15	0	CONTROL ARRANGEMENT	4		closed	closed	
SD3-20	0	CONTAINMENT VENTILATION CONTROL ARRANGEMENT	4		closed	closed	
SD3-22	0	DAYWELL PRESSURE INDICATOR ARRANGEMENT	4		closed	closed	
SD3-26	0	CONTROL GROUPING	4		closed	closed	
SD3-27	0	CONTROL COLOR CODING	4		closed	closed	
SD4-01	0	LABEL LOCATION	4		closed	closed	
S11-01	0	HIGH MODULE LOCATION/READABILITY	4		closed	closed	
S11-02	0	MULTI-SCALE INDICATORS	4		open	open	Modification required. Scales to be changed.
S12-01	0	RECORDER LOCATION LOW	4		closed	closed	
S12-03	0	REACTOR PRESSURE INDICATION	4		open	closed	Modification required. Unit 2 scale change required. Closed for Unit 3 since last submittal.
S12-04	0	RECORDER SCALE MARKINGS	4		open	open	Modification required. Scale changes required and engineering units on the scales to be revised.

HUMAN ENGINEERING DISCREPANCIES (HEDs)  
PEACH BOTTOM ATOMIC POWER STATION UNITS 2 & 3

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HED NUMBER	REV	TITLE	P-3	SCHEDULE	STATUS		COMMENTS
					UNIT 2	UNIT 3	
S12-05	0	SELECTOR LIGHT COLOR	4		open	open	Incorrectly reported closed on previous submittal. Selector light color change required.
S13-01	0	RECORDER PEN COLORS	4		closed	closed	
SP1-01	0	REMOTE SHUTDOWN PANEL PROCEDURES	4		closed	closed	
TA1-15	0	REACTOR PRESSURE 1090 PSIG	4		open	open	Scale zone marking required
TA1-24	0	HPSW TO RHK DRAIN	4		closed	closed	
TA1-25	0	REACTOR PRESSURE 330 PSIG	4		closed	closed	
TA1-27	0	REACTOR PRESSURE 1500 PSIG	4		closed	closed	
TA1-28	0	REACTOR/TORUS P	4		closed	closed	
TA1-29	0	REACTOR PRESSURE 210, 270, 630	4		open	open	Scale marking required.
TA1-30	0	PROCEDURAL REFERENCE	4		closed	closed	
TA1-31	0	PROCEDURAL REFERENCE	4		closed	closed	
TA1-32	0	GENERATOR LOAD 5%	4		closed	closed	
TA1-33	0	CORE MAP GREEN LIGHT	4		closed	closed	
VW-03	0	TURBINE SPEED LABEL	4		closed	closed	
VW-07	0	TORUS INSTRUMENT COLOR PADS	4		closed	closed	
VW-08	0	HPSW TO LPCI MIMIC	4		closed	closed	
VW-09	0	HPCI TURBINE PB COLOR	4		closed	closed	
VW-10	0	LOCATION OF RX INSTRUMENTS	4		closed	closed	
VW-13		T-200 SERIES INFORMATION	4		open	open	Procedures require revision to include panel names.
VW-14	0	T-220 STEP NOT CLEAR	4		closed	closed	
A1-05	0	ANNUNCIATOR MARKINGS	5		closed	closed	
A1-11	0	ANNUNCIATOR FIRST-OUT FEATURE	5		closed	closed	
D6-01	0	TEMPORARY LABELS	5		closed	closed	
D6-02	0	TEMPORARY LABEL APPLICATION	5		closed	closed	
D6-03	0	TEMPORARY LABEL STANDARDS	5		closed	closed	
D6-04	0	TEMPORARY LABEL LOCATION	5		closed	closed	
D6-05	0	TEMPORARY LABEL ADMINISTRATIVE PROCEDURE	5		closed	closed	
D7-02	0	ECCS PANEL ACCESS	5		closed	closed	
E1-01	0	PANEL ACCESS AND COMMUNICATION	5		closed	closed	
E1-05	0	P. A. SYSTEM AUDIBILITY	5		closed	closed	
E3-01	0	CONTROL ROOM TRAFFIC	5		closed	closed	
E3-04	0	PORTABLE RADIATION MONITORING EQUIPMENT	5		closed	closed	
E3-07	0	EMERGENCY LIGHTING	5		closed	closed	
E4-01	0	AMBIENT NOISE LEVELS	5		closed	closed	
11-02A	0	INAPPROPRIATE CONTROL POSITIONS	5		closed	closed	
12-05	0	RECORDER SCALE COMPATIBILITY	5		closed	closed	
13-04	0	RECORDER INK	5		closed	closed	
13-09	0	CHART RETENTION PROCEDURE	5		closed	closed	
LER-01	0	MAIN STEAM RAD. MONITOR DRIFT	5		closed	closed	
LER-05	0	INSTRUMENT OPERABILITY REQUIREMENTS	5		closed	closed	
LER-07	0	TECHNICAL SPECIFICATION MODIFICATIONS AVAILABILITY	5		closed	closed	
LER-13	0	SELECTOR SWITCH LABELING	5		closed	closed	
LER-15	0	INSUFFICIENT IRM INPUT	5		closed	closed	
LER-20	0	RECIRCULATION PUMP STARTUP	5		closed	closed	
M1-01	0	PRINT MODIFICATIONS	5		closed	closed	

HUMAN ENGINEERING DISCREPANCIES (HEDs)  
PEACH BOTTOM ATOMIC POWER STATION UNITS 2 & 3

PAGE: 6  
DATE: 02/27/92

HED NUMBER	REV	TITLE	PRI	SCHEDULE	STATUS		COMMENTS
					UNIT 2	UNIT 3	
M1-02	0	PROCEDURE MODIFICATIONS	5		closed	closed	
M1-03	0	MAINTENANCE TAGOUTS	5		closed	closed	
NRC2-06	0	DRYWELL PRESSURE CHART PAPER	5		closed	closed	
NRC2-07	0	MISSING ENGINEERING UNIT	5		closed	closed	
P1-01	0	PROCEDURE AVAILABILITY	5		closed	closed	
P1-02	0	PROCEDURE USE	5		closed	closed	
P1-05	0	PROCEDURES INDEX	5		closed	closed	
P1-06	0	CODING OF EMERGENCY PROCEDURES	5		closed	closed	
P1-07	0	PROCEDURE INDEXING	5		closed	closed	
P2-01	0	ADMINISTRATIVE PROCEDURE SPECIFICITY	5		closed	closed	
P3-01	0	PROCEDURAL WORDING	5		closed	closed	
P3-02	0	PROCEDURE NOTES CONSISTENCY	5		closed	closed	
P3-03	0	PROCEDURE DISCRIMINABILITY	5		closed	closed	
P3-04	0	PROCEDURE CLARITY	5		closed	closed	
P3-06	0	ANNUNCIATOR ALARM SETPOINTS	5		closed	closed	
P3-08	0	PROCEDURAL CONTINGENCY ACTIONS	5		closed	closed	
P3-09	0	PROCEDURE REFERENCES	5		closed	closed	
P3-10	0	MANUAL OVER-RIDE	5		closed	closed	
P4-02	0	OPERATOR CHANGES	5		closed	closed	
P5-01	0	RECORDING LOG ENTRY TIME	5		closed	closed	
P5-02	0	CHART MARKING	5		closed	closed	
P5-03	0	LOG RETENTION TIME	5		closed	closed	
EE2-01	0	ILLUMINATION LEVELS	5		closed	closed	
SE2-02	0	ILLUMINATION AND SHADOWING	5		closed	closed	
SE2-03	0	DISPLAY GLARE	5		closed	closed	
T1-01	0	COMPUTER TRAINING	5		closed	closed	
T1-02	0	ADMINISTRATIVE GUIDELINES	5		closed	closed	
C1-01	0	PRINTER USE	6		closed	closed	
C1-02	0	AUTO-RESTART CAPABILITY	6		closed	closed	
C1-03	0	PROCESSOR REDUNDANCY	6		closed	closed	
D1-01	0	ANNUNCIATOR HEIGHTS	6		closed	closed	
D1-03	0	CONSOLE HEIGHT	6		closed	closed	
D2-01	0	CONTROL DISTINCTION	6		closed	closed	
D5-08	0	INCORRECT LABEL	6		closed	closed	
D7-05	0	PANEL VISIBILITY	6		closed	closed	
E1-03	0	AUDITORY ALARM PRIORITIZATION	6		closed	closed	
E1-04	0	PHONE/RADIO AUDIBILITY	6		closed	closed	
E3-06	0	FOUNTAIN LOCATIONS	6		closed	closed	
I1-02	0	CONTROLLER MARKINGS	6		closed	closed	
I3-06	0	RECORDER CHART PAPER	6		closed	closed	
I4-01	0	LAMP TESTING	6		closed	closed	
I5-10	0	KEY-LOCK SWITCHES	6		closed	closed	
LER-03	0	COORDINATION OF OPERATIONS AND MAINTENANCE ACTIVITIES	6		closed	closed	
LER-04	0	TECHNICAL SPECIFICATION VIOLATIONS	6		closed	closed	
LER-09	0	VALVE STATUS PROCEDURAL REQUIREMENTS	6		closed	closed	
LER-10	0	COORDINATION BETWEEN OPERATIONS AND TEST ACTIVITIES	6		closed	closed	
LER-11	0	VALVE BLOCKING PROCEDURAL REQUIREMENTS	6		closed	closed	

HUMAN ENGINEERING DISCREPANCIES (HEDs) PEACH BOTTOM ATOMIC POWER STATION UNITS 2 & 3
---

PAGE: 7  
DATE: 02/27/97

HED NUMBER	REV	TITLE	PRI	SCHEDULE	STATUS		COMMENTS
					UNIT 2	UNIT 3	
LER-12	0	TEST EQUIPMENT ISOLATION PROCEDURAL REQUIREMENTS	6		closed	closed	
LER-17	0	IMPROPER SYSTEM OPERATION	6		closed	closed	
NRC1-01	0	TORUS RECORDERS SCALES	6		closed	closed	
NRC2-08	0	TERMINOLOGY	6		closed	closed	
NRC2-09	0	CONTAINMENT ISOLATION PANEL LABELS	6		closed	closed	
NRC2-10	0	COLORS ARE REVERSED	6		closed	closed	
Q1-03	0	ANNUNCIATOR RESPONSE PROCEDURE LOCATION	6		closed	closed	
SD2-01	0	SUPERVISOR'S STATION	6		closed	closed	
SD3-24	0	CONTROL CONSISTENCY	6		closed	closed	
SIC-01	0	KEY SWITCHES	6		closed	closed	
TA1-03	0	REACTOR POWER 3%	6		closed	closed	
TA1-12	0	REACTOR PRESSURE RESOLUTION	6		closed	closed	
TA1-13	0	REACTOR PRESSURE 950 PSIG	6		closed	closed	
TA1-14	0	RHR DISCHARGE PRESSURE	6		closed	closed	
TA1-18	0	TORUS LEVEL 12.5 FEET	6		closed	closed	
TA1-19	0	TORUS LEVEL RANGE	6		closed	closed	
TA1-26	0	ADS SOLENOID ENERGIZED	6		closed	closed	
VW-02	0	13 KV MANUAL TRANSFER	6		closed	closed	
VW-05	0	ADD WATER TO VESSEL	6		closed	closed	

ATTACHMENT 2

Revised Human Engineering Discrepancy (HED)  
Assessment Forms

HED No. D5--09  
HED No. SD5-01

PEACH BOTTOM  
HED ASSESSMENT  
REVISED 2/92

HED No. D5-09  
EP = 6/PRI 2  
Code A

TITLE:

Incomplete Labels

COMMENT:

Controller Labels Incomplete

Item: 4.1.5.9

Ref: A5.10

Source: CRS

IDENTIFICATION:

Panel: All  
Component: Controllers  
ID or Number: See Attached

DESCRIPTION:

Controller labels do not clearly specify what a change in output will do to the process being altered. Controller labels are not consistent. See attached.

RESOLUTION:

(Sched: later)

Controllers will be labeled consistently to clearly specify what a change in output will do to the process being altered.

TRAINING REQUIREMENTS:

None.

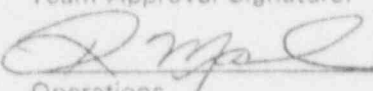
PROCEDURE REQUIREMENTS:

None.

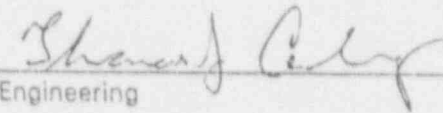
REASON FOR REVISION:

Since the original HED, controllers have been changed out to different types and new types have been installed. Labeling has been enhanced although inconsistencies remain and indication/control labels are not complete. This revised HED indicates the controller types currently in use and summarizes existing problems.

Team Approval Signature:

  
Operations

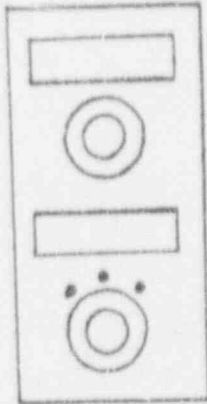
  
Human Factors

  
Engineering

(7) Add'l page(s) attached

There are 88 controllers on Units 2 and 3. They have 12 different variations. Some variations look similar to others but are different. The 12 variations are described below and have been given arbitrary numbers 1 through 12.

#1



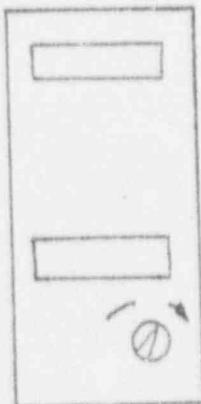
Top scale 0-100, no units, no function identified.

Knob marked Bias.

Lower scale 0-100 labeled "CLOSE" on left "OPEN" on right.

Large knob with 3 positions marked "AUTO, BAL, MAN" appears to be dual function knob. Second function not identified.

#2



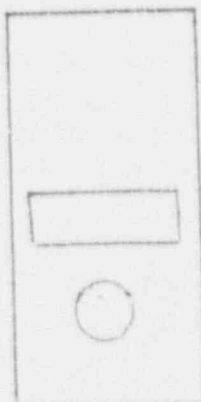
Top scale 0-100, no units with 2-line description label: 1st line marked "VALVE POSITION"; 2nd line marked "CLOSE" on the left and "OPEN" on the right (others have "OPEN" on the left and "CLOSE" on the right).

Lower scale 0-100, no units, labeled "CONTROLLER OUTPUT"

Knob marked "RAISE", some controllers indicate the parameter being raised (temp, level, flow); others do not.

[ Some controllers have a 0-12 x 10 top scale, scfm units, labeled "N<sub>2</sub> FLOW". The lower scale have a 2-line description label: 1st line marked "CONTROLLER OUTPUT"; 2nd line marked "OPEN" on the left and "CLOSE" on the right. ]

#3

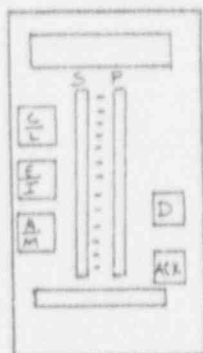


Scale 0-100, no units, labeled "CONTROLLER OUTPUT" for Unit 3 dump flow controller; and, labeled "CLOSE" on left and "OPEN" on right for Unit 2 dump flow controller.

Knob unmarked.

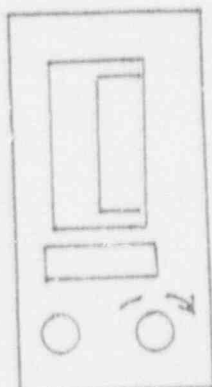


#4



This is a digital programmable controller. Other than the hierarchical device label and the manufacturers' standard control/indication identification labels do not exist.

#5



Vertical scale 0-100, no units, some controllers labeled "O, VLV POSITION, C", some not.

Horizontal scale 0-100, no units, some controllers labeled "C" on left and "O" on right, some not.

Right knob marked "RAISE".

Some controllers have the left knob marked "M • A", some are unmarked.

#6



Top horizontal (black line center) scale, no numbers, no units, no function identified.

7 reference lines connecting top horizontal and circular scales.

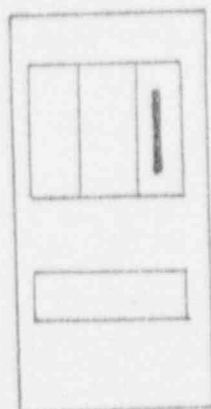
Circular scale with knob to control pointer. Scale numbered, sometimes engineering units are provided, other times they are not, no function identified.

Lower horizontal scale 0-100, no units, no function identified.

Left knob labeled "A • M".

Right knob labeled "RAISE" or "INC". Some controller indicate the parameter being raised or increased; others do not.

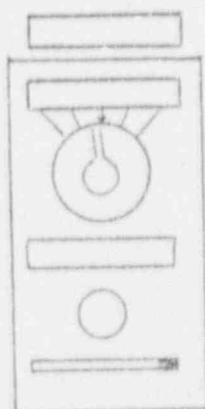
#7



Left vertical scale marked "BLEED FLOW" on Unit 3 controllers but unmarked on Unit 2 controllers.

Bottom horizontal scale 0-100, only Unit 3 controllers have 2-line description label: 1st line marked "CLOSED" on left and "OPEN" on right; 2nd line marked "CONTROLLER OUTPUT".

#8



Scale above controller 0-1.0, no units, function not identified.

Controller top horizontal scale with center marked 0, no units, function not identified.

Controller small circular scale with knob to control pointer. Scale numbered, specifies units, and is labeled "SET POINT".

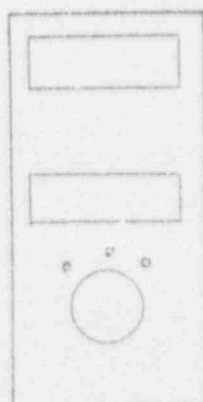
Controller lower horizontal scale 0-100, no units, function labeled "OUTPUT" with "CLOSE" on right, "OPEN" on left.

Small knob, no function indicated.

Slide switch marked "AUTO, BAL, MAN".

Unit 2 Feed Pump Bypass controller utilizes this type of controller while Unit 3 uses a Type 4.

#9

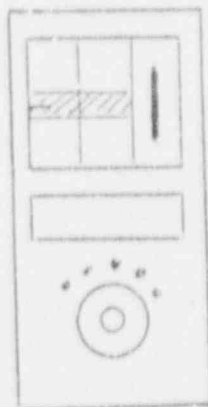


Top scale with 10,5,0,5,10 or 0-100, scale labeled "DEVIATION" on Unit 3 controllers; Unit 2 controllers are unmarked.

Bottom scale 0-100, some controllers are labeled a) "CONTROLLER OUTPUT"; or b) "CLOSE" on left and "OPEN" on right; or c) combination of a and b.

Large knob with three positions labeled "AUTO, BAL, MAN". Appears to be a dual function knob; second function not identified.

#10



Left section of scale for pointer movement.

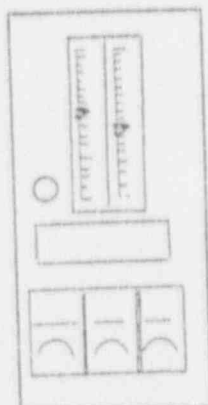
Center scale is rotating drum with number, no units, no function identified.

Right vertical thumbwheel controls drum scale, no indication of direction of movement. Drum rotates opposite direction from thumbwheel.

Horizontal scale 0-100, no units, labelled "CLOSE" on left and "OPEN" on right.

Knob has five positions: 0-100, AUTO, BAL, MAN, 0-100. Appears to be dual function knob; second function not identified.

#11



Scale above controller 0-100, labeled "OPEN" and "CLOSE". Scale not marked on all controllers.

Left section of vertical scale for pointer movement.

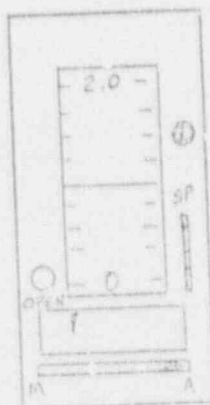
Right section of vertical scale 0-60 with units indicated, no function indicated.

Knob to left of vertical scales labeled "SP".

Horizontal scale 0-100, no units, no function identified.

Three pushbuttons labeled from left to right either +, Manual/Auto Transfer Symbol, -; or OPEN, Manual/Auto Transfer Symbol, CLOSE; or REJ, Manual/Auto Transfer Symbol, MU.

#12



Vertical scale 0-2.0, no units, function identified.

Thumb wheel labeled SP.

Knob unlabeled.

Horizontal scale 0-100 no units, function identified "OPEN" on left.

Slide switch labeled "M, PRESS TO BALANCE, A", left to right.

## Attachment

HED D5-09

## CONTROLLER TABULATION

Page 5

<u>Item No.</u>	<u>Component ID</u>	<u>Description</u>	<u>Panel No.</u>	<u>Controller Type</u>
1	LC-2804A	A Bay Level-Emer Clg Twr	00C123	6
2	LC-2804B	B Bay Level-Emer Clg Twr	00C123	6
3	LC-3804A	A Bay Level-Emer Clg Twr	00C123	6
4	LC-3804B	B Bay Level-Emer Clg Twr	00C123	6
5	FIC-6111	Recombiner Bldg Exh Flow	00C196	12
6	PC-5018	Steam Pressure	00C196	6
7	FC-2-13-091X	RCIC Pump Flow	2AC043	10
8	CV-2677D	D RHR Pump Disch	20C003-02	5
9	FC-2515	N <sub>2</sub> Purge	20C003-03	6
10	CV-2677A	A RHR Pump Disch	20C003-04	5
11	CV-2-10-043	Head Spray Flow	20C004A	10
12	CV-2-12-055	Dump Flow	20C004A	3
13	HCS-2-02-184-016A	A Recirc PP Speed	20C004A	9
14	HCS-2-02-184-016B	B Recirc PP Speed	20C004A	9
15	FIC-2-23-108	HPCI Pump Flow	20C004B	10
16	FC-2-13-091	RCIC Pump Flow	20C004C	10
17	CV-2558	Feed Pump Bypass	20C005A	8
18	HCS-2-06-084A	A Reac. FD PP Control	20C005A	1
19	HCS-2-06-084B	B Reac. FD PP Control	20C005A	1
20	HCS-2-06-084C	C Reac. FD PP Control	20C005A	1
21	SPC-2-06-083	Master Level	20C005A	10
22	SPC-2-02-184-014	Master Recirc Flow	20C005A	9
23	FC-2-03-301	CRD Flow Control	20C005A	10
24	LIC-8091	C FD PP Disch Bypass	20C005A	11
25	FIC-8629	Hydrogen Flow Control	20C006A	4
26	FIC-8636	Oxygen Flow Control	20C006A	4
27	HCS-2532A	RFPT Lo Clg Wtr A	20C006B	2
28	HCS-2532B	RFPT Lo Clg Wtr B	20C006B	2
29	HCS-2532C	RFPT Lo Clg Wtr C	20C006B	2
30	PIC-2239A	Air Ejector A Stm Press	20C007A	11
31	PIC-2239B	Air Ejector B Stm Press	20C007A	11
32	CV-2468A	Cond Deaerating Stm A Pos	20C007A	2
33	CV-2468B	Cond Deaerating Stm B Pos	20C007A	2
34	CV-2468C	Cond Deaerating Stm C Pos	20C007A	2
35	LIC-2087	Hotwell Level Coarse	20C007A	11
36	LIC-2086	Hotwell Level Fine	20C007A	11

## Attachment

HED D5-09

## CONTROLLER TABULATION

Page 6

Item No.	Component ID	Description	Panel No.	Controller Type
37	FC-2110	Recirc Flow	20C007A	6
38	HCS-2483	Turb Lub Oil Clg Wtr	20C008B	2
39	HCS-2435	Gen H <sub>2</sub> Cooling	20C009	2
40	HCS-2487	Gen Stator Cooling	20C009	2
41	FIC-0760A	Control Room Flow	20C010	12
42	FIC-0760B	Control Room Flow	20C010	12
43	FIC-2979A	Vent Stack Flow	20C010	12
44	FIC-2979B	Vent Stack Flow	20C010	12
45	HCS-4947A	A N <sub>2</sub> Supply Flow	20C184A	2
46	HCS/FI-4954	Torus Bleed Flow	20C484A	7
47	HCS-4947B	B N <sub>2</sub> Supply Flow	20C484B	2
48	HCS/FI-4957	Drywell Bleed Flow	20C484B	7
49	FC-3-13-091X	RCIC Pump Flow	3AC043	10
50	CV-3677D	D RHR Pump Disch	30C003-02	5
51	FC-3515	N <sub>2</sub> Purge	30C003-03	6
52	CV-3677A	A RHR Pump Disch	30C003-04	5
53	HCS-3-02-184-016A	A Recirc PP Speed	30C004A	9
54	HCS-3-02-184-016B	B Recirc PP Speed	30C004A	9
55	CV-3-12-055	Dump Flow	30C004A	3
56	FIC-3-23-108	HPCI Pump Flow	30C004B	10
57	FC-3-13-091	RCIC Pump Flow	30C004C	10
58	CV-3558	Feed Pump Bypass	30C005A	4
59	HCS-3-06-084A	A Reactor FD PP Control	30C005A	4
60	HCS-3-06-034B	B Reactor FD PP Control	30C005A	4
61	HCS-3-06-084C	C Reactor FD PP Control	30C005A	4
62	SPC-3-06-083	Master Level	30C005A	4
63	SPC-3-02-184-014	Master Recirc Flow	30C005A	9
64	FC-3-03-301	CRD Flow Control	30C005A	10
65	LIC-9091	C FD PP Disch Bypass	30C005A	4
66	FIC-9629	Hydrogen Flow Control	30C006A	4
67	FIC-9636	Oxygen Flow Control	30C006A	4
68	HCS-3532A	RFPT Lo Clg Wtr A	30C006B	2

## Attachment

HED D5-09

## CONTROLLER TABULATION

Page 7

<u>Item No.</u>	<u>Component ID</u>	<u>Description</u>	<u>Panel No.</u>	<u>Controller Type</u>
69	HCS-3532B	RFPT Lo Clg Wtr B	30C006B	2
70	HCS-3532C	RFPT Lo Clg Wtr C	30C006B	2
71	PIC-3239A	Air Ejector A Stm Press	30C007A	11
72	PIC-3239E	Air Ejector B Stm Press	30C007A	11
73	CV-3468A	Cond Deaerating Stm A Pos	30C007A	2
74	CV-3468B	Cond Deaerating Stm B Pos	30C007A	2
75	CV-3468C	Cond Deaerating Stm C Pos	30C007A	2
76	LIC-3087	Hotwell Level - Coarse	30C007A	11
77	LIC-3086	Hotwell Level - Fine	30C007A	11
78	FC-3110	Recirc Flow	30C007A	6
79	HCS-3483	Turb Lube Oil Clg Wtr	30C008B	2
80	HCS-3485	Gen H <sub>2</sub> Cooling	30C009	2
81	HCS-3487	Gen Stator Cooling	30C009	2
82	FIC-3979A	Vent Stack Flow	30C010	12
83	FIC-3979B	Vent Stack Exhaust	30C010	12
84	FIC-0761	Radwaste Bldg Exh Flow	30C010	12
85	HCS-5947A	A N <sub>2</sub> Supply Flow	30C484A	2
86	HCS/FI-5954	Torus Bleed Flow	30C484A	7
87	HCS-5947B	B N <sub>2</sub> Supply Flow	30C484B	2
88	HCS/FI-5957	Drywell Bleed Flow	30C484B	7

PEACH BOTTOM  
HED ASSESSMENT  
REVISED 2/92

HED No. SD5-01  
EP = N/A/PRI 3  
Code A

TITLE:

Feedwater Pump Bypass Controller

COMMENT:

Controller not clearly labeled.

Item: N/A

Ref: TDA A5.1

Source: SCRS

IDENTIFICATION:

Panel: 20C 05A

Component: Feed Pump Bypass

ID or Number: CV-2558, CV-3558

DESCRIPTION:

These controllers have three indicators and two controls. The function of each is not clearly indicated.

MITIGATING CONSIDERATIONS:

RESOLUTION:

(Sched: Closed)

Labeling of controllers is a generic problem which is being addressed via HED No. D5-09. The Feed Pump Bypass Controllers are specifically identified in HED No. D5-09 and therefore this HED No. SD5-01 is being treated as "closed" for status tracking purposes.

REASON FOR REVISION:

Resolution revised to indicate discrepancy will be addressed by HED No. D5-09, and revised ID number to include Unit 2 and 3 controller IDs.

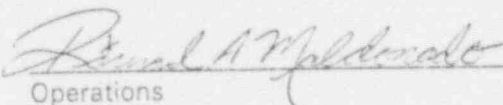
TRAINING REQUIREMENTS:

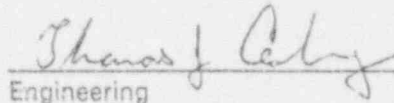
None.

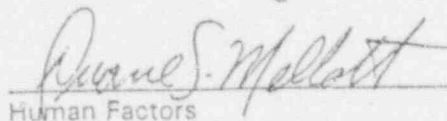
PROCEDURE REQUIREMENTS:

None.

Team Approval Signature:

  
Operations

  
Engineering

  
Human Factors

( ) Additional page(s) attached