PSNH

SEABROOK STATION
Engineering Office

Public Service of New Hampshire

New Hampshire Yankee Division

July 17, 1985

SBN-839
T.F. B7.1.2, I6.1.99

U.S. Nuclear Regulatory Commission
Washington D.C. 20555

Attention: Mr. G. W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing

References: (a) Construction Permits CPPR-135 and CPPR-136, Docket Nos. 50-443 and 50-444
(b) USNRC Letter, dated January 12, 1984, "Results of In-Progress Audit of Seabrook Station Detailed Control Room Design Review", G. W. Knighton to R. J. Harrison
(c) PSNH Letter, SBN-701, dated July 30, 1984, "Response to DCRDR In-Progress Audit; SER Outstanding Issue #19; NUREG-0737 Item I.D.1"

Subject: Supplemental Information as a Result of Continued Detailed Control Room Design Review (DCRDR) at Seabrook Station

Dear Sir:

Reference (c) responded to the results of the NRC's In-Progress Audit of the DCRDR effort at Seabrook Station, including clarification of information previously submitted to NRC. It also contained a list of new HEDs developed during our on-going review.

A meeting was held in your offices to discuss the information contained in Reference (c). With certain exceptions, the information submitted was accepted by the NRC. Attachment I to this letter contains our responses to the remaining open issues. Attachment II is a listing of previously reviewed HEDs whose resolution has been changed. Attachment III is a list of new HEDs discovered during further review. The list includes the proposed resolution and the schedule for implementing that resolution. Attachment IV is a tabulation of the use of colors on the Seabrook control board.

A003
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With this submittal we believe that sufficient information has now been provided to change the status of SER Outstanding Issue #19, NUREG-0737, Item I.D.1 to confirmatory.

We request that the NRC provide the results of the review of this additional information by August 9, 1985.

Very truly yours,

John DeVincentis, Director
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Attachments

cc: Atomic Safety and Licensing Board Service List

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ATTACHMENT I

Response to Open Issues

A. APPENDIX, PART A

A1.0 Control Room Workspace

A. Control Room furnishings were not installed. The adequacy of furnishings, obstacles to operator movement and the presence of unnecessary furnishings and equipment could not be evaluated.

Licensee Response: Permanent Control Room furnishings have not yet been installed. These features will be reviewed at least 120 days PTLF, and HEDs submitted for NRC review.

B. The Control Room environment during operations could not be evaluated.

Licensee Response: (1) Auditory Signals - Some auditory signals have been evaluated, HEDs developed and included as a part of this submittal. The balance of the noise evaluation cannot be performed until the plant is at power, to ensure all plant noise is evaluated. (2) Heating, Ventilation, and Air Conditioning - The evaluation of the HVAC cannot be completed until one full season of heating and cooling is complete.

Any HEDs discovered in (1) and (2) above will be submitted for NRC review after the evaluation is complete.

C. Operator protective equipment and emergency equipment storage facilities could not be evaluated.

Licensee Response: This equipment has not yet been installed. These features will be reviewed at least 120 days PTLF, and any resultant HEDs submitted for NRC review.

D. Document organization and storage provisions in the Control Room and at the Remote Shutdown Panel were not in final form and could not be evaluated.

Licensee Response: The provisions have not yet been developed. These features will be reviewed at least 120 days PTLF, and any resultant HEDs submitted for NRC review.

E. Compatibility of emergency gear with operators' needs to perform operations while wearing protective equipment could not be evaluated.

Licensee Response: This equipment has not yet been provided. These features will be reviewed at least 120 days PTLF, and any resultant HEDs submitted for NRC review.

ATTACHMENT I

Response to Open Issues

A2.0 Communications

Communications equipment was not installed in final form and could not be evaluated.

Licensee Response: Existing communications have been reviewed, HEDs developed and included as a part of the submittal in Section VI.P.

B. APPENDIX, PART B

See Attachment II to this submittal for revisions to previously accepted resolutions.

C. APPENDIX, PART C

C.3.0 Annunciator Warning Systems

3.3 There is insufficient alarm or feedback regarding containment radiation for operator at Panel A or B. There is danger or the alarm being cancelled and missing a high radiation signal (VI.A.19).

Resolution: The Radiation Monitoring System, including alarms, will be addressed in a future supplement to this report. Priority 2B.

Licensee Response: With the exception of the CRT, the RDMS has been reviewed. HEDs are included as a part of this submittal, in Section VI.S.

3.4 The first out priority does not address Safety Injection. There is no indication of the cause of an SI actuation. A first out indication should be developed. (V.D.5)

Resolution: First out indication for SI actuation will be developed. Priority 1B.

Licensee Response: First out indication has been developed and will be installed. Priority 1A.

4.8 The Switches for emergency trip are not protected from inadvertent operation. (VI.J.4)

Resolution: The new MSIV panel will be checked to see if this is still a problem. Priority 2D.

ATTACHMENT I

Response to Open Issues

NRC Position: It was stated that this panel will be removed, which appears to contradict Finding 8.9. This apparent contradiction should be resolved and reported 120 days PTLF.

Licensee Response: The panel has been removed and replaced with a differently designed MSIV panel. The new panel has been reviewed to ascertain if the HED remains and for new HEDs. There were no new HEDs, and the new layout eliminates the problem of inadvertent tripping of the MSIVs. No further action is necessary.

5.24 The RCP ammeters have too insensitive a scale to distinguish limits on current. They need narrow range. (VI.B.8)

Licensee Response: The priority on this was shown incorrectly as 3E in the previous response. It is 3C.

5.29 Status lights - lettering is small and the lights are high. (V.A.3)

Resolution: This is a deviation from human factors criteria. An effort has been made to limit the number of words to those necessary and effective. The titles have been grouped to establish a pattern which will serve the operator as a recognition tool. An identification has been added to the tile layout. If a particular light is out, the operator will approach the board to read it. If he cannot read it directly, he will use the identification matrix to locate it on a hand-held hard copy located at the board. A method will be devised to keep these hard copies available at the board. Priority 3B.

NRC Position: This is a cumbersome solution to a human factors design discrepancy. It is acceptable only if the task analysis can justify that the method of operation (e.g., pattern recognition, use of identification matrix) allow the tasks to be performed with sufficient speed and accuracy.

Licensee Response: This item has been addressed further by the Human Factors Review Team. The number of words on each tile has been limited to those necessary and effective. The tiles have been grouped to establish a pattern as a recognition tool. Further analysis of the tasks to be performed, using these status lights, indicate that the rewording and pattern recognition allow

the tasks to be performed with adequate speed and accuracy to insure proper plant operation. It has been determined that it is not necessary for an operator to refer to a hard copy of the status light panel wording. No further changes will be made.

6.50 Color contrast is not good in some areas. Examples are use of black arrows on brown mimic, and use of the same color for different flow paths in a mimic. (V.H.2)

Resolution: We will investigate the problem and develop better contrasts by using both color and width variations. Priority 2B.

NRC Position: The staff has requested a description of all colors used in all contexts in the Control Room.

Licensee Response: A description of all colors in use in the Control Room, together with their context, is included in this submittal as Attachment IV. With the exception of the RDMS CRT, these colors have been reviewed and no HEDs found. The RDMS colors remain to be reviewed.

8.24 The new fire panel needs review. (VI.K.4)

Resolution: The panel will be reviewed when it is available. Priority 2D.

NRC Position: This panel is now available. Review should be made, a resolution selected and corrections committed to be completed PTLF.

Licensee Response: The fire panel has been reviewed. Those HEDs developed are included in this submittal, in Section VI.R.

D. APPENDIX, PART D

5.63 The four steam generator water level recorders on Panel FF are single speed. A multispeed recorder is needed so that the operator can see startup mode level oscillations.

Licensee Response: Four multispeed recorders will be provided. Priority 2A.

ATTACHMENT I

Response to Open Issues

8.48 The Steam Generator Blowdown System controls left-to-right sequence is interrupted by a different system control as follows 1 - x - 2 - 3. (Also see Finding 9.2, Part B)

Licensee Response: This has been resolved by mimicking and demarcation. Photos have been submitted to show this. Priority 2A.

9.7 Operators feel that the Steam Dump meter on FF-1 should be repeated on DF-2 to make a more stable interface between the primary and secondary system. The operators must walk 15 feet from the controls to see the meter.

Licensee Response: These have been demarcated and labeled to resolve the problem. This will be reviewed during plant operation. If the problem still exists, further changes will be made. Priority 3C.

Further Licensee Response: Based upon six months of training and experience on the simulator, the operators and the Human Factors Review Team have determined that the Steam Dump meter does not need to be repeated on DF-2 of the MCB. Further investigation shows that this meter indicates a demand signal only. The information that the steam dump is opening is provided by a VAS alarm as well as a hard-wired alarm. These alarms were not available for review during the initial evaluation. Nothing further will be done.

9.8 On Panel D, operators stated that Start Switch (CS-P-128), Speed Control (RCSK-459-A) and Charging Flow Indicator (F-1-121-A) are too far apart for convenient operation.

Licensee Response: These have been demarcated and labeled to resolve the problem. Additional information (drawing and/or photos) has been sent to clarify this HED resolution.

ATTACHMENT II

Revised Resolutions to Previous HEDs

Revised resolutions have been developed for a few HEDs whose original resolution had been accepted by the NRC. These revised resolutions are listed here:

VI.B.6

The narrow-range scales on seal return recorders should read 0-1 gpm linear to allow proper startup condition at 0.2 gpm. It would be better if both narrow and wide were on the same recorders. Scale range 0-6 is OK on wide range so long as it is linear.

Original Resolution

Change the recorders as indicated above. Priority 3A

Revised Resolution

The problem on the seal-return recorders has been further evaluated. the required function is that the operators determine that there is a minimum of 0.2 gpm flow prior to starting the RCPs. This is a planned evolution that is performed in starting up the plant. The resolution to the problem is to change the recorder scale to 0-1 gpm to ensure that the operator can determine that a minimum of 0.2 gpm exists. The scale will remain square root to highlight the measurement inaccuracies at the lower end of this range. On the MCB, the wide range scale is on another pen on the same recorder and will remain as is. The simulator will be changed to conform in the MCB. Priority 3A.

VI.E.10

Condenser ABC vacuum and mechanical vacuum pump are in inches of Hg ABS. Procedures are written in inches Hg vacuum. These should be consistent.

Original Resolution

The procedures will be changed to inches Hg ABS. Priority 3A.

Revised Resolution

A digital wide-range condenser vacuum indicator has already been provided. (See VI.E.2) This indicator reads 0-30 inches Hg vacuum. No change is necessary. Priority 3E.

VI.F.10

Alarm annunciator for Panel G functions are located on F1 annunciator.

ATTACHMENT II

Revised Resolutions to Previous HEDs

Original Resolution

Demarcation will be added as necessary. Priority 3A.

Revised Resolution

A hard-wired annunciator review was conducted by the Human Factors Review Team. It has been determined that demarcation is not necessary. Since there are a very limited number of annunciator tiles, the functions are clear as they stand. Priority 3E.

VI.L.1

Grouping of Tiles Within Boxes

On Panel B, the tiles for the two trains do not correspond. There are two Train B tiles on the A train box which should be moved to the B train box.

The SCCW alarms on the Panel H box ought to be on the Panel F box.

On Panel H, the left-handed box is 4 x 6, the right one is 6 x 6. At least the left-most 4 x 6 portion of the right-hand box should correspond to the left-hand 4 x 6 box.

On all annunciator boxes, some alarms come up on panels that are separated from the controls and displays associated with the alarm. Additionally, the wording on some tiles does not indicate the correct parameter alarmed.

Original Resolution

A general review will be undertaken to determine correct grouping and correct wording on the tiles. Priority 2A.

Necessary changes will be made. Priority 2C.

Revised Resolution

A general review has been completed, determining correct grouping and wording on the tiles. Changes are in progress. Priority 2A.

ATTACHMENT II

Revised Resolutions to Previous HEDs

VI.L.2

Readability of Tiles

Tiles can be read easily when standing directly in front of the corresponding box. However, when standing at the silence-acknowledge stations at Panels B and H, there is some difficulty in reading some of the tiles acknowledged from those stations - partly because of angle of view, partly because of distance.

Original Resolution

The hard-wired annunciators are a backup to the CRTs. The letters have been increased in size to 1/4 inch. The letter size on the tiles will be re-evaluated. If it can be increased to 5/16 inch and still present a clear message, then the letter size will be changed. If the increase in size causes crowding, the change will not be made. Priority 3C.

Revised Resolution

The letter size has been increased to 5/16 inch and this HBD has been resolved.

VI.O.3

The atmospheric dump controllers are 12 inches higher than the maximum recommended height.

Original Resolution

A 12-inch high moveable bench will be provided to allow the operators to easily reach the controllers. Priority 2A.

Revised Resolution

The remote safe shutdown panel is not a normal operating station. It will only be used in those few situations where it becomes necessary to evacuate the Control Room.

The atmospheric dump controllers are only 12 inches above the maximum recommended height for such devices. A control switch, which provides a coarse action similar to the controller action, is located within the anthropometric bounds, readily available to the operator if needed.

ATTACHMENT II

Revised Resolutions to Previous HEDs

Because of the infrequent use of the panels, the small distance outside of human factor limits, and the availability of redundant controls, no corrective action is necessary. Priority 3E.

VI.P.2

The Unit Shift Supervisor's office does not have adequate voice contact with the primary operating area of the Control Room.

Original Resolution

An intercom will be added to provide voice contact from the primary operating area to the Unit Shift Supervisor's office, the rest rooms and the kitchens. These units should be located on the primary and secondary operator's desks. Priority 1A.

Revised Resolution

A Gaitronics handset and speaker will be added to provide voice contact between the primary operating area and the Unit Shift Supervisor's office. Priority 1A.

VI.P.3

In the rest rooms and in the kitchen, an operator is out of voice contact with the operator in the primary control area.

Original Resolution

An intercom will be added to provide this voice contact. Priority 1A.

Revised Resolution

A Gaitronics speaker will be added to the kitchen area. This will provide voice contact from the primary control area to the kitchen and to the rest rooms. Priority 1A.

ATTACHMENT III

The following lists of HEDs come from four sources. They are:

1. Reviews of panels, instruments and controls not installed during previous reviews, such as the Fire Panel and the RDMS.

2. Walk-downs, using procedure task analyses (sample approved by NRC Human Factors Branch).

3. Operator training on the simulator.

4. Start-up testing of equipment.

The lists are numbered to fit the original submittal of HEDs.

VI.N. Common Alarm System

9. The operators in the Control Room cannot hear the annunciator reset audible ringback. The design is not acceptable.

Resolution

The ringback speakers will be relocated to the front of the main control board, directly over the access doors. Priority 1A.

VI.R. Fire Panel - NRC Item, Appendix, Part C, Item 8.24; Seabrook Item VI.K.4

1. Fire panel alarms from various plant areas are randomly grouped on the Control Room fire alarm panel.

   Resolution:

   To aid the operator in quickly discerning which building has an alarm, the alarms will be grouped by building and by elevation within the building. The alarm labels will clearly indicate fire panel number and the building where the panel is located. Priority 3C.

2. No labels presently exist on the panel.

   Resolution:

   We will provide alarm labels for the panel. These alarm labels will clearly indicate fire panel number and the building where the panel is located. Priority 2A.

ATTACHMENT III

3. The fire alarm response procedure, OS 1200.00, does not reflect the information presented by the fire alarm panel alarm indications.

Resolution:

The procedure will be changed to indicate that the fire alarm panel provides information on local fire panel alarms or trouble, not on fire area or fire zone alarms or troubles. Priority 2A.

VI.S. RDMS - NRC Item, Appendix, Part C, Item 3.3; Seabrook Item VI.A.19

1. (VI.A.19) There is insufficient alarm or feedback regarding containment radiation at Panel A or B. There is danger of the alarm being cancelled and missing a high radiation signal.

Resolution:

There is an audible high radiation alarm from the RDMS itself. This alarm cannot be acknowledged and cancelled by the operator at the Main Control Board. He must go to the RDMS panel to do it. Therefore, he will not miss a signal of containment radiation or of any other monitor in the system. This is not a HED, and no further action will be taken.

2. There is no readily apparent indication of RDMS computer failure (failure of both CPUs).

Resolution:

An alarm will be provided on the VAS for RDMS computer failure (simultaneous failure of both CPUs). Priority 2A.

3. If the RDMS computer fails, there is no alarm for high radiation from the hard-wired indicators on CP-180.

Resolution:

Computer failure is alarmed. During the time that the computer is down, there will be increased surveillance of CP-180. Priority 3E.

4. On the RDMS printer, the format does not presently reflect the UE&C tag numbers for the radiation monitors that are shown on plant documentation.

ATTACHMENT III

Resolution:

The RDMS printer will be reviewed along with the CRT. Priority 2A

5. The plant vent spectral correction monitor (No. 6530) is mislabeled.

Resolution:

The label will be changed to Plant Vent Backup Gas Monitor. Priority 2A.

6. The plant vent spectral correction monitor (No. 6530) serves as a backup to the plant vent wide-range gas monitor (No. 6528), but the two are spatially separated.

Resolution:

The plant vent spectral correction monitor (No. 6530) will be moved to the open space beside the plant vent wide-range gas monitor (No. 6528). Priority 3E.

7. On CP-180A and B, incorrect sequencing of the backup control panel push buttons during certain operations could cause the display to lock out. If this occurs, it is necessary to de-energize the RM-23 to release the display.

Resolution:

A CAUTION will be placed in the RDMS operating procedure for CP-180 indicating that the lock-out could occur. Instructions will be included on how to release it. Priority 3A.

8. Recorders are 7 inches below the anthropometric guideline for stand-up panels. These recorders provide a historical recording of information and are not used frequently.

Resolution:

Because of their infrequent use and historical data gathering purpose, this discrepancy is acceptable. Priority 3E.

9. The recorders read in counts per minute. The digital readout is in microcuries per cc. They should have the same units.

Resolution:

The recorder scales will be changed to microcuries per cc with the same range as the associated digital readouts. Priority 3C.

ATTACHMENT III

VI.T. HEDs Resulting from Procedure Walk-Through

1. In many cases in the procedures, the operator cannot read the indicator to the accuracy presently implied by the procedure, and no tolerance is allowed in the value to be read.

   Resolution:

   The "setpoints" for operator action in the procedures are the same as the applicable instrument setpoints. The instrument setpoints are specified to a high accuracy to meet the accident analysis. Since operator action does not require the fast response required to meet an accident analysis, the "setpoint" for operator action does not require the same accuracy as the instrument setpoint.

   We will indicate the approximate location of the procedure "setpoint" as part of the indicator banding. Priority 2C.

   The operators will be instructed that the procedure "setpoints" do not have to be read as exact values. Priority 2A

2. During the check for abnormal containment conditions, the operator must check containment high-range radiation. The only presently available monitor is on CP-180A and B, the RDMS 1E panels. The operator must move from the left side of the board to the RDMS panels that are near the right side of the board to read this indicator. The importance of this indication suggests that it should be in the front of the MCB, on Panel BF.

   Resolution:

   Containment high-range radiation indicators will be added on Panel BF. In the interim, the containment high-range radiation indication can be obtained by the operator manning the right side of the board, by the primary operator through the station computer workstation on the MCB or the RDMS CRT within the primary operating area. Priority 2C.

3. While changing chart paper on the seal return flow recorders, the operator inadvertently closed a seal return valve, whose switches are right under the recorders. If the RCPs had been running at the time, the closure could have damaged the seal on a pump. The operator was aware of the potential for inadvertent closure and was trying to avoid it at the time it occurred.

ATTACHMENT III

Resolution:

A guard will be provided for these switches similar to the guards provided on other Master Specialty switches. Priority 2A.

4. The SG recirc. and drain pump switch is inconsistent with respect to throw. STOP is to the right, not to the left as on other similar switches.

Resolution:

The pump can only be started locally, so this switch is used only to stop it. There is no chance for error, since the pump switch can only be turned to the STOP position, no change will be made. Priority 3E.

5. On Status Light Panel UL-5, Tile E-13 and UL-3, Tile E-13 indicate the condition for CAH-FN-2A and 2C, and CAH-FN-2B and 2D as 2A/2C and 2B/2D. This use of the / is confusing.

Resolution:

The wording will be changed to say 2A and 2C; and 2B and 2D. Priority 2A.

6. The MCB is inconsistent with respect to the type of SBM pistol grip switches. Some of the switches have both a pointer and a flag indication. Examples of this are the secondary component cooling pumps.

Resolution:

The pointer will be removed from these switches on the MCB. Priority 3A.

7. The emergency response procedures seem to interchange the words "steam line" and "steam generator." The board uses "steam generator" on nameplates.

Resolution:

The emergency response procedures will be revised to eliminate any confusion. Training will address the problem so that the operators are aware of the actual location of the sensors providing pressure indication. Priority 3A.

ATTACHMENT III

8. Procedure E-0, Step 20.a; Attachment C, Integrity Steps 3 and 5. Procedure Figure E-0-1 is not easily readable. Additionally, the PTS and LTOP graphs are not consistent.

   Resolution:

   The E-0-1 graph will be better labeled and divided to make it more readable. The LTOP and PTS graphs will be made consistent. Priority 2A.

9. Procedure E-0, Step RNO 31 - This step calls for either temperature or acoustic monitoring of the RHR, letdown, and seal return relief valves. It is not provided. These valves are not accessible under accident conditions since they are inside containment. If determination of relief valve position is important, then temperature or acoustic monitoring should be provided. If not, the procedure should be revised.

   Resolution:

   The procedure will be reviewed to determine the need for relief valve position. If required, temperature or acoustic monitoring will be added and inputted to the plant computer. If not required, the procedure will be changed. (The WOG background documents do not require monitoring of these relief valves.) Priority 2A.

10. Procedure E-0, Attachment A, Step B3, and Step OAS-1, RCS Subcooling - There is no alarm available for tripping the RCPs when RCS subcooling is less than 30°F. An input is available to the station computer. The setpoint is 30°F.

    Resolution:

    A VAS alarm will be provided for subcooling less than 30°F and greater than 60 seconds after reactor trip. Priority 2A.

11. Procedure E-0, Step OAS-1, RCP Seal Delta P - No alarm is provided.

    Resolution:

    A VAS alarm will be provided for RCP seal delta P low. Priority 2A.

12. Procedure E-0, Step OAS-2, PRZR Level - this step calls for 50 percent for adverse containment. Other procedures call for 30% for adverse containment.

ATTACHMENT III

Resolution:

The procedures will be revised to appropriate values. Priority 2A.

13. Procedure E-0, Step OAS-5, Off-Site Power Loss and Procedure E-1, Step 8.g, Loss of Off-Site Power - No alarm is provided for loss of off-site power to alert the operator that manual restarting of safeguards equipment may be required.

Resolution:

Alarms do exist on the VAS. The VAS alarm wording will be revised to indicate Bus 5 loss of power and Bus 6 loss of power. Priority 2A.

14. Procedure E-0, Attachment C, Containment Step 3 - This step requires that the operator read a value of 5 feet 8 inches.

Resolution:

The value in the procedure will be changed to a decimal value. Priority 2A.

15. Procedure E-0, Attachment C, Inventory - The status tree needs to be revised to show whether or not the RCPs are running. It should also refer to the RVLIS dynamic head when RCPs are running.

Resolution:

The status tree will be revised as discussed above. Priority 2A.

16. Procedure ES-0.1, Step RNO 3.c, Boration Flow - This step requires verification that boration flow is greater than 30 gpm. It is difficult to read, as 30 gpm is below 5 percent of scale.

Resolution:

The minimum required flow is 50 gpm, not 30. The procedure value will be changed to 50 gpm. This can be easily read on the scale. Priority 2A.

17. Procedure ES-0.1, Step RNO 4.d, HCV-189, 190 - Process feedback is not available. If isolation is required for this procedure step, there is insufficient information about valve closure.

ATTACHMENT III

Resolution:

Process feedback is available when letdown is in service using the letdown flow indication. Failure of the process to respond to control manipulations (indicative of failure of the letdown valve controls) can be determined from the flow indication and the position demand signal.

In the case where letdown is being placed into service, no feedback exists since isolation valves upstream of the letdown valves are closed (resulting in no letdown flow). Should the letdown valve operator fail in this situation, the valve may remain open in spite of a demand signal for valve closure. In this case, the failure of the valve to close would not be detectable. The subsequent opening of the isolation valves to establish letdown flow could cause a thermal-hydraulic transient in the letdown flow path.

This scenerio will be analyzed to determine its impact on the heat exchanger and the associated piping. If it is determined that the consequences of this transient have an adverse safety impact, then appropriate corrective measures will be taken. Priority 2A.

18. Procedure ES-0.2, Step 6.d, RCS Temperature - The operator must average hot and cold leg temperature readings.

Resolution:

A T_{AVE} display will be developed using the plant computer. In the procedure, Curve ES-0.2-1 will be simplified for this step. Priority 2A.

19. Procedure ES-0.2, Step 8, Caution - The value of 1960 psig in the CAUTION is not consistent with NOTE in Procedure E-3, prior to Step 14.

Resolution:

The inconsistency in the procedure will be resolved. Priority 2A.

20. Procedure ES-0.2, Step 18.c, PCCW Temp. to RHR Hx - The procedure needs clarification as to which indicator is to be read.

Resolution:

The procedure will be clarified to reference which indicator is to be read. Priority 2A.

ATTACHMENT III

21. Procedure ES-0.3, Steps 1.a, 5, 11.e - The step says to check RVLIS upper range or RVLIS. Upper range is not available, but RVLIS full range level is.

Resolution:

The procedure will be revised to reference RVLIS full range level. Priority 2A.

22. Procedure E-2, Step 4.e - The operator cannot determine if all drain valves are closed because of the logic arrangement to the status lights. The step cannot be performed in the Control Room.

Resolution:

The procedure should have required that the operator check the drain valves upstream of the MSIVs if the MSIVs are closed. Status lights for each upstream drain valve are available to support this step. The procedure will be revised. Priority 2A.

During review of the status lights for the drain valves, it was determined that the tile engraving for the Group A drain valves does not reflect the logic provided. The engraving will be changed to state, "Any Group A valve closed," "Any Group A valve open." The operator training program will point out that the extinguishing of the open status light for the Group A valves indicates that all drain valves have left the full open position. Verification that all the Group A drain valves have closed will be performed locally. Priority 3A.

23. Procedure E-1, Step RNO 8.e - The procedure, status lights, and labeling are not consistent. The status says, "Seq. Manual Override," the switch nameplate says "DG 1A(B) Emerg. Pwr. Seq. Reset," while the procedure says "Reset EPS-RMO."

Resolution:

The procedure, status lights, and labeling will be made consistent. Priority 2A.

24. Procedure E-1, Step 12.f, Airborne Radiation - Procedure step needs clarification.

ATTACHMENT III

Resolution:

The procedure step will be clarified to state that action is required only if there is airborne radiation in the air intakes to the Control Room. Priority 2A.

25. Procedure ES-1.3, Step 2, Caution - The procedure references shut-off head pressure, but it is not listed.

Resolution:

Shut-off head pressure will be listed in the procedure. Priority 2A.

26. Procedure E-3, Step RNO 11.c.2 - This step is made difficult by the scale and the labeling of incoming and running volt meters.

Resolution:

The 120 volt scale is a standard method for indicating voltage on phasing volt meters. Voltage match and frequency match is what is being looked for. The present labeling is not appropriate for the indicator use. The nameplates will be revised and verified as appropriate. Training will address the phasing of the diesels to buses and UAT/RAT to the buses. Priority 2A.

27. Procedure E-3, Step RNO 11.c.6 - Valve numbers are missing.

Resolution:

Specific valve numbers will be added to the procedure, i.e., SW-V16, SW-V18. Priority 2A.

28. Procedure E-3, Step RNO 19.1 - The word "tail pipe" in the procedure does not agree with the nameplate.

Resolution:

Consistent wording will be used. The procedure will be changed to use "discharge." Priority 2A.

29. Procedure E-3, Step 26.b.3 - procedure needs clarification.

Resolution:

Valve numbers will be added to the procedure for clarity. Priority 2A.

ATTACHMENT III

30. Procedure E-3, Step RNO 27.e - For Valve CS-V170, the switch escutcheon and procedure are not consistent.

Resolution:

The switch escutcheon will be changed to "Seal Return Header/RCDT". This is consistent with the procedure. Priority 2A.

31. Procedure E-3, Step 28.b, Caution - The CAUTION is not clear.

Resolution:

The ruptured ASDV setpoint value will be added to the CAUTION in the procedure. Priority 2A.

32. Procedure E-3, Step 37.b - The OFF indicting light for the BTRS mode switch is not green.

Resolution:

It will be changed to green. Priority 2A.

33. The increments on the condenser steam dump pressure controller (MS-PK-507) input and setpoint scales make it difficult for the scales to be read.

Resolution:

The scales will be revised, providing increments that are in accordance with good human factors practice (NUREG-0700). Priority 2A.

ATTACHMENT IV

USE OF COLOR ON SEABROOK CONTROL BOARD

COLOR CODING CATEGORY / COLORS:	RED	ORANGE (AMBER)	YELLOW	GREEN	LIGHT BLUE	BLUE	MAGNETA	BROWN	WHITE	BLACK	GRAY
Indicator Scale Bands	danger		abnormal	normal							
Indicating Lights	active	caution		inactive		power avail. (SWYD BKRS)			power avail. (valves), misc.		
Lighted	active	caution		inactive							
Unlighted Pushbuttons	trip			reset						silence acknowledge reset	
Pump, Valve, Switch Handles	train A								train B	non train related	
Switch Position Flags	normal after start			normal after stop							
Recorder Pens	left pen					right pen					
Mimic Lines		every flow path	suction path	gas	alternate flowpath (discharge)	main flow path (discharge)		by-pass or re-circ	white-black for association	electrical bus	
Labels	train A/ channel 1	PAM	channel 4			channel 3			train B/ channel 2	non train related	

ATTACHMENT IV

USE OF COLOR ON SEABROOK CONTROL BOARD

COLOR CODING CATEGORY	COLORS: RED	ORANGE (AMBER)	YELLOW	GREEN	LIGHT BLUE	BLUE	MAGNETA	BROWN	WHITE	BLACK	GRAY
Computer VAS	separating band	3rd priority	1st priority			2nd priority			reset		
Computer Procedures	separating band		category	detailed text		heading				reverse video	
Computer Graphics	active		warning	inactive/ text		flow lines	abnormal		time/ cursor/ probe		
Computer Keyboards	erase, etc. abnormality levels:	paging	erase, etc.			management	acknowledge		channel	(general Key)	alphanumeric
SPDS	1	2	3	4, text		text	text		text		
Radiation Mon. Sys.	hi Alarm	alert		normal operation	equip. failure	operating failure	loss of communicat.		removed from service		control functions
Hardwired Alarms	first out								misc.		
Indicator Type	temperature		pressure	level		flow			misc.		

ATTACHMENT IV

USE OF COLOR ON SEABROOK CONTROL BOARD

COLOR CODING CATEGORY	COLORS: RED	ORANGE (AMBER)	YELLOW	GREEN	LIGHT BLUE	BLUE	MAGNETA	BROWN	WHITE	BLACK	GRAY
Demarcation, Generic Labels								demarcation		steam generator	
Tags										instruments	
Telephones	NRC	Nuclear Alert Sys.				local operators		MCB		Manchester ext. and dispatcher	unlisted number (E-Plan)