

July 27, 1984

Docket No. 50-325/324

Mr. E. E. Utley
Executive Vice President
Carolina Power & Light Company
Post Office Box 1551
Raleigh, North Carolina 27062

Dear Mr. Utley:

SUBJECT: PROCEDURES GENERATION PACKAGE (PGP)

Re: Brunswick Steam Electric Plant, Units 1 and 2

DISTRIBUTION
Docket File
NRC PDR
Local PDR
ORB#2 Reading
DEisenhut
OELD
SNorris
MGrotenhuis
ELJordan
JNGrace
ACRS (10)
Gray File

On March 17, 1984 we advised you that, on the basis of a limited review, the Brunswick PGP was acceptable as a basis for you to continue the procedure generation and training program. We indicated that our review had identified some items that would be addressed later. The enclosed request for additional information is based on the earlier limited review and our detailed review.

The review of your PGP is being conducted in accordance with Generic Letter 82-33, Supplement 1 to NUREG-0737. Criteria for this review are not currently in the Standard Review Plan (SRP). Therefore, this review was based on NUREG-0899, "Guidelines for the Preparation of Emergency Operating Procedures," the reference document for the EOP upgrade portion of Supplement 1 to NUREG-0737. Review criteria based on the guidance will be developed for the next SRP revision. NRC approval of the PGP is not necessary prior to implementing upgraded EOPs.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511. Please respond to the request for additional information within 90 days of the receipt of this letter.

Sincerely,

Original signed by/

Domenic B. Vassallo, Chief
Operating Reactors Branch #2
Division of Licensing

Enclosure:
As stated

cc w/enclosure:
See next page

DL:ORB#2
SNorris:ajs
07/27/84

DL:ORB#2
MGrotenhuis
07/27/84

DL:ORB#2
DVassallo
07/27/84

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PDR ADDOCK 05000324
F PDR

Mr. E. E. Utley
Carolina Power & Light Company
Brunswick Steam Electric Plant, Units 1 and 2

cc:

Richard E. Jones, Esquire
Carolina Power & Light Company
336 Fayetteville Street
Raleigh, North Carolina 27602

George F. Trowbridge, Esquire
Shaw, Pittman, Potts and Trowbridge
1800 M Street, N. W.
Washington, D. C. 20036

Mr. Charles R. Dietz
Plant Manager
Post Office Box 458
Southport, North Carolina 28461

Mr. Franky Thomas, Chairman
Board of Commissioners
Post Office Box 249
Bolivia, North Carolina 28422

Mrs. Chrys Baggett
State Clearinghouse
Budget and Management
116 West Jones Street
Raleigh, North Carolina 27603

U. S. Environmental Protection
Agency
Region IV Office
Regional Radiation Representative
345 Courtland Street, N. W.
Atlanta, Georgia 30308

Resident Inspector
U. S. Nuclear Regulatory Commission
Star Route 1
Post Office Box 208
Southport, North Carolina 28461

James P. O'Reilly
Regional Administrator
Region II Office
U. S. Nuclear Regulatory Commission
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Dayne H. Brown, Chief
Radiation Protection Branch
Division of Facility Services
Department of Human Resources
Post Office Box 12200
Raleigh, North Carolina 27605

REQUEST FOR ADDITIONAL INFORMATION

PROCEDURES GENERATION PACKAGE

BRUNSWICK STEAM ELECTRIC PLANT UNIT NOS. 1 AND 2

The staff has reviewed the Procedures Generation Package (PGP) submitted by a letter from S. R. Zimmerman to Harold R. Denton, dated October 27, 1983. We have determined that the PGP needs to be modified to address the following. The revised PGP should be submitted to the NRC for review. The general comments are provided for your information and consideration when the PGP is revised, but a formal response to the general comments is not required.

GENERAL COMMENTS

1. A single list of acceptable abbreviations provided at some specific location would be useful. Currently Appendix I and Appendix II have their own list of abbreviations while Appendix III does not.
2. The titles of Appendices I and II are different from those listed in the general Table of Contents for the PGP.
3. The attachments to Appendix III are very important. These attachments should be identified in the PGP Table of Contents. It is also suggested that attachments be more clearly identified, e.g., the cover page of Attachment C to Appendix III should also carry the caption "Deviations from the Generic Guidelines."
4. The numbering systems for the appendices and the attachments should be improved to make the document easier for the procedure writer to use. At present there are 8 sections in this document and each one has its own number sequence, page X of Y. One method would be to include the appendix number with the page number such as: III page 9 of 13 for the ninth page of Appendix III.
5. Appendix I, Plant-Specific Technical Guidelines (P-STG) for Emergency Operating Procedures (EOPs) would be easier to use if it had a Table of Contents.

PLANT-SPECIFIC TECHNICAL GUIDELINES

1. The P-STG indicates that processes were used to convert the general guidelines into the P-STG (pages 2, 3 and 7 of 15). Modify the PGP to describe the processes used to translate the generic guidelines into the P-STG and to the procedures.

2. Several deviations from the generic technical guidelines appear to be conservative, but the steps are more complex and require more operator actions to accomplish. Additional analyses or technical justification should be provided to show that the operators could, in fact, be expected to complete these actions in the required time frame. The deviations of this type include the following:
 - a. Step DW/T-3, page 26 of 52 of Appendix I (deviation item B-2, page 2 of 5, Appendix III, Attachment C).
 - b. Step SP/L-3.3, page 33 of 52 of Appendix I (deviation item B-11, page 3 of 5, Appendix III, Attachment C).
3. Technical justification should be provided for the pressure limits chosen for the P-STG step PC/P-6, first item page 29 of 52 of Appendix I (deviation item B-7, page 3 of 5, Appendix III, Attachment C). The deviation appears to use an approach which allows no operating margin while the approach for the generic technical guidelines does.
4. Step C 1-6, "RPV Water Level Decreasing, RPV Pressure High or Intermediate," on page 37 of 52 would postpone RPV depressurization until the RPV water level reached the top of the active fuel. Conversely, the generic technical guideline (Step C 1-7, "RPV Water Level Decreasing, RPV Pressure High or Intermediate") requires emergency RPV depressurization for the case where the CRD is not operating but at least 2 injection systems are lined up for injection with both pumps running (regardless of level). The proposed Brunswick deviation may not be sufficiently conservative even though it would allow additional time to restore RPV level before depressurizing the RPV. Provide analysis or justification to support the deviation.
5. The numbering system for the Brunswick deviations from the generic technical guidelines should be consistent with the numbering system in the generic technical guidelines or the deviations should be cross-referenced to the generic guidelines. For example, step C2-1.1 in the generic technical guidelines calls for initiating the Isolation Condenser (IC). Brunswick does not have an IC. Therefore, there should be a deviation to this step. However, deviation C2-1.1 does not refer to the IC.
6. In the second paragraph of Section C of the PGP on page 7 of 15, it is stated that no validation of the P-STG is needed because the generic guidelines are used as the bases for the P-STG. However, in the fourth paragraph of Section C, it is stated that guideline steps have been rearranged to reduce confusion and to establish priority of certain safety functions. Describe the provisions implemented or to be implemented to ensure that this rearrangement of steps has not interrupted an important sequence of events that was established in the generic technical guidelines to mitigate the emergency.

7. As a part of the P-STG or the Validation/Verification (V/V) program, it is necessary to evaluate available instrumentation and controls against the information and control needs of the operators. A description of the method to be used to determine the adequacy of control room instrumentation and controls in meeting the information and control needs of the operators [i.e., it has, or will be determined that the parameters are correct and that the instrument and control characteristics (e.g., range, accuracy, scaling, etc.) meet the needs identified] should therefore be provided in the P-STGs or V/V program description, as appropriate. Since the BWR Owners Group Guidelines identify information and control needs at a high level, it is also necessary to describe the process used to identify plant-specific parameters and other plant-specific information and control capability needs and how the characteristics of needed instruments and controls will be, or have been, determined. These latter processes may be described in either the PGP or the Detailed Control Room Design Review Program Plan, with appropriate cross-referencing.

WRITER'S GUIDE

1. The Writer's Guide does not provide directions to the EOP writer on how to go from the P-STG to either the Flowcharts or to the End Path Manual(s) and what information is to be included in each. Modify the PGP to include additional information for the procedure writer.
2. It is not clear what information is intended to be conveyed by Figure 3 on page 14 of 35. Additional explanation should be included in the Writer's Guide.
3. Figure 1 (page 2 of 35) is not drawn according to the instructions in the Writer's Guide. Examples are that the path-to-path arrow symbol to direct operators to other paths (Flowcharts) is not used for paths 1, 2, and 5, and the "GO TO PATH 3" information is presented in an action box rather than using path-to-path arrows. Changes should be made to make this area consistent. There is also a decision point on Figure 1 (Auxiliary Power Available from SAT?), where, regardless of the outcome, the operator is to "continue on this path." Clarify what "this path" is and clarify why this a decision point. In addition, on the Flowchart in Figure 1, the "ANY AUTOMATIC SCRAM" box is below the "GO TO PATH 3" instruction which apparently means you never reach this point. Explain what is intended by placing this step beyond the exit point to Path 3.
4. Attachments, including tables, figures, and other decision aids, can be very useful in reducing the need for calculations and complicated logic statements. Modify the Writer's Guide to include information about when a table, figure or other attachment should be used. (NUREG-0899, Subsection 5.5.8)

5. Conditional statements or logic statements will need to be used in conjunction with the End Path Procedures. It is important that these statements have a common, unambiguous, easily-read form. Modify the Writer's Guide to provide instructions for formatting logic statements in End Path Procedures. It may also be helpful to provide examples of logic statements that should be avoided. (NUREG-0899, Subsection 5.6.10)
6. The Writer's Guide states (Section 4.8.7, page 25 of 35) that referencing other procedures should be held to a minimum. However, since there is a need to reference other procedures, modify the Writer's Guide to specify the form and content of the references. Also, it is not clear if one can enter an End Path Procedure at any step (section/subsection) or if one always enters an End Path Procedure at the beginning of the procedure. If one can branch to a step, section, or subsection, then the content of the reference needs to be specified in Section 4.8.7.b on page 25 of 35. Modify the Writer's Guide accordingly. (NUREG-0899, Section 5.2.2)
7. Action steps need to be written for a variety of situations. Modify the Writer's Guide to address the formatting for the following types of action steps:
 - a. Steps for which a number of alternative actions are equally acceptable. (NUREG-0899, Section 5.7.4)
 - b. Steps of a continuous or periodic concern/applicability, which are often needed to perform repeatedly a given action, such as monitoring or controlling some plant parameter. (NUREG-0899, Section 5.7.5)
8. It appears that Flowcharts should be required (like other procedures) to include a scope statement or have a title that indicates the scope. Modify the Writer's Guide to address this concern or justify the lack of scope statements or titles for Flowcharts.
9. The Writer's Guide says that "important" automatic actions shall be included for verification purposes on the Flowcharts. Modify the Writer's Guide to include criteria or guidance for the writer to use in determining which actions are considered important.
10. The discussion of printed operator aids should include instructions for placement of the aids. (NUREG-0899, Subsection 5.5.4)
11. The Writer's Guide states that the unit number shall not be designated on the Flowchart (Section 3.3, page 3 of 35). The reason for this is not provided. Also, unit numbering is not discussed for the End Path Manual Procedures, but there is a "Unit 0" designation on Figure 4 (page 16 of 35). Modify the Writer's Guide to clarify the intent regarding unit designation the End Patch Manual Procedures. (NUREG-0899, Subsection 5.5.1)

12. A number of conditions and requirements for Cautions and Notes are addressed in the Writer's Guide. However, an additional requirement should be included in the Writer's Guide to reduce the possibility for an operator missing an important portion of the Caution or Note, i.e., Notes and Cautions should be written so that they are completed on one page and can be read without interruption by intervening steps. (NUREG-0899, Subsection 5.5.3)
13. The Writer's Guide uses both End Path Procedures and End Path Manual Procedures on page 18 of 35. Modify the Writer's Guide to define each of these or modify the Writer's Guide to limit the use to the preferred one.
14. Using a standard copier, Section 7 on page 35 of 35, to make copies of the procedures does not necessarily mean that the functional criteria that the procedures be clearly legible will be met. Modify the guidance to include a statement on procedure legibility.
15. Because of the unique method of implementing the EOPs, i.e., by the use of Flowcharts, provide additional detail in the PGP as to how the Flowcharts are implemented, where the Flowcharts are located, how they are used by the operators, how the Flowcharts interface with narrative style procedures.
16. Clarify whether the End Path Manual Procedures can be entered without going to the Flowcharts. If there are any entry conditions that direct the operator straight to the End Path Procedures without going to and/or through the Flowcharts, discuss these entry conditions and indicate whether they are identified on the Flowcharts or elsewhere.

VALIDATION/VERIFICATION PROGRAM

1. There does not appear to be a systematic program for validating/verifying the procedures. Certain methods for validating/verifying are described, but no integrated plan is presented. Since the purpose of the Validation/Verification of the PGP is to describe the program for validating/verifying, modify the PGP to provide this information.
2. It is important that a team approach (e.g., operating crews, technical writers, and subject matter experts) be used in the development and in the validation/verification of the procedures. Modify the validation/verification program description to discuss the makeup of the team personnel that will be used and their roles and responsibilities.

3. Although the scenarios used for the simulator exercises and the control room walk-throughs are listed, it is not clear whether the full complement of the procedures (Flowcharts and all of the procedures in the End Path Manual) will be exercised by the scenarios. It is stated that all of the Flowcharts were exercised by the scenarios, but no statement to this effect was made about the End Path Procedures. Modify the program description to indicate which portions of the End Path Procedures will be exercised during the Verification/Validation program on the simulator and in the control room.
4. For those parts of the procedures that cannot be exercised on the simulator, specify the alternative validation/verification methods to be used.
5. Revisions to EOPs should be validated/verified as appropriate. Modify the program description (discussed on pages 11 and 15 of 15 in the PGP) to include the criteria for determining when it is appropriate to validate/verify revisions to EOPs. Also provide a commitment that instructions will exist to validate/verify such revisions.
6. The information provided for the Validation/Verification Program does not differentiate between the EOPs for Brunswick Units 1 and 2 or the differences between the two units. Modify the description to specify how unit differences will be addressed in the Validation/Verification process.
7. See Question #7 of P-STG.
8. It is very important that there is a one-to-one correspondence between control room controls/instrumentation and the reference to controls/instrumentation in the procedures. In the main body of the PGP, page 8 of 15, and in the Validation/Verification program write-up, page 9 of 13, it is stated that the objective of the Validation/Verification Program is to ensure just such a correspondence. However, it is not clear how this objective will be accomplished. Modify the PGP to describe the method to be used to ensure correspondence between control room instrumentation and controls and nomenclature used in the PGP.

TRAINING PROGRAM

1. For training purposes, it is important that all operators are trained on all aspects of the procedures (i.e., the Flowcharts, the End Path Procedures, the Containment Control Procedures, the System Recovery Procedures, the Contingency Procedures, and the Local Emergency Procedures). Modify the PGP to include a statement to this effect.

2. It is very likely that not all aspects of the procedures can be exercised on the simulator(s) used by the Brunswick staff. Modify the description of the training program to describe how training will be accomplished for those portions of the procedures.
3. When an emergency event occurs, it is important that each member of the operating crew know their roles and responsibilities. It is not clear from the description of the Flowcharts and End Path Manual who in the control room is to do what. (Are the Flowcharts used only by the ROs? Who uses the End Path Manual -- the SRO, the Shift Supervisor, or somebody else? Are parts of the End Path Manual to be removed for individual ROs to carry around and use?) Modify the PGP to describe the roles and responsibilities regarding use of the procedures.
4. It is important that the operators receive training on a wide variety of scenarios, including multiple and sequential failures. Modify the program description to address the scenarios used for training and reasons for using those scenarios.