



Portland General Electric Company

Bart D. Withers Vice President

January 31, 1986

Trojan Nuclear Plant
Docket 50-344
License NPF-1

Director of Nuclear Reactor Regulation
Attn: Mr. Steven A. Varga
Director, PWR-A
Project Directorate No. 3
U.S. Nuclear Regulatory Commission
Washington DC 20555

Dear Sir:

TROJAN NUCLEAR PLANT
Response to NRC Draft Safety Evaluation on Trojan
Procedures Generation Package for Emergency Operating Procedures

Reference: NRC (E. J. Butcher) to PGE (B. D. Withers) Letter, Procedures
Generation Package Draft Safety Evaluation, Dated June 20, 1985.

The enclosed attachments are submitted to provide the additional information
requested in the above reference.

Attachment A is an item-by-item response to comments in the Procedures
Generation Package (PGP) draft safety evaluation.

Attachment B is the revised Trojan PGP for Emergency Operating Procedures
(EOPs). It describes the process by which Trojan's EOPs, based upon the
Westinghouse Owners Group Revision 1 Emergency Response Guidelines, were
developed and implemented.

Sincerely,

Bart D. Withers
Vice President
Nuclear

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Attachments

c: Mr. Lynn Frank, Director
State of Oregon
Department of Energy

Mr. John B. Martin
Regional Administrator, Region V
U.S. Nuclear Regulatory Commission

EB (LIAW)
PSB (L. HULMAN)
ETCSB (SRINIVASAN)
RSB (ACTING)
FOB (VASSALLO)
AD - G. LAINAS (ltr only)

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Add:

Response to NRC Draft SER Comments

A. TROJAN PLANT EMERGENCY OPERATING PROCEDURE PROGRAM

NRC Comment

1. Deviations from and additions to the generic technical guidelines that are of safety significance must be identified in the Procedures Generation Package (PGP). In addition, analysis or other technical justification supporting these deviations and additions must be provided. (NUREG-0899, Subsection 2.5.2.b)

PGE Response

1. Deviations from additions to the WOG Emergency Response Guidelines (ERGs) are identified and justified in the updated Step Verification document per AO-4-7, Section III.B. As noted in Section III.B, NRC approval is required prior to implementation of significant deviations which change the intent of the WOG guidelines. There are no deviations which fit into this category in the current Trojan EOPs. The full Step Verification documentation is very comprehensive, totaling over 1000 pages. Therefore it would be more appropriate to Review this documentation during an on-site audit.

NRC Comment

2. The numbered steps in the ERGs are intended to be followed in order, and only the bulleted steps or substeps have no required sequence. (WOG Emergency Response Seminar, Training Package, Vol. 1 tab 5 rules c, d, and e, on Page 2, Sept. 1981.) Therefore, departing from the step sequence of the ERGs should be considered a deviation from the generic guidelines, which requires analysis or technical justification to ensure the actions proposed for the Trojan EOPs produce results equivalent to those of the ERGs. A list of these deviations and the analysis or technical justification should be provided for staff review.

PGE Response

2. Any departure from the step sequence of the WOG ERGs is fully documented and justified in the Step Sequencing Comparison described in AO-4-7, Section III.B. This comparison ensures that the actions in the Trojan EOPs produce results equivalent to those of the WOG ERGs. Since the Step Sequencing Comparison is quite detailed and exhaustive, it would also be more appropriate to review this documentation during an on-site audit.

NRC Comment

3. The licensee has stated that not all of the procedures identified in the owners group ERGs will be classified as emergency procedures (i.e., natural circulation cooldown with no accident in progress). These changes in classification for procedures should be considered deviations from the ERGs and will require technical justification similar to the deviations discussed above.

PGE Response

3. PGE agrees with this comment and complies with it. The proposed approach to exclude some procedures from EOP classification was not actually implemented. All procedures identified in the WOG ERGs are classified as EOPs.

NRC Comment

4. Any additions to or deviations from the generic guidelines should be verified/validated. This verification/validation step can be accomplished separately or as a part of the EOP verification/validation program. The PGP should discuss how the additions and deviations are to be verified/validated.

PGE Response

4. PGE agrees with this comment and complies with it. The verification/validation of additions and deviations from the WOG guidelines is described in detail in AO-4-7, Section V.

NRC Comment

- 5a. Each licensee and applicant, on a plant-specific basis, must describe the process for using the generic guidelines and background documentation to identify the characteristics of needed instrumentation and controls. For the information of this type that is not available from the ERG and background documentation, licensees and applicants must describe the process to be used to generate this information (e.g., from transient and accident analyses) to derive instrumentation and control characteristics. This process can be described in either the PGP or Detailed Control Room Design Review Program Plan with appropriate cross-referencing.

PGE Response

- 5a. PGE agrees with this comment and complies with it. PGE-1043, "Accident Monitoring Instrumentation Review for the Trojan Nuclear Plant" and PGE-1041, "Detailed Control Room Design Review Summary Report" describe the process for deriving instrument and control characteristics. These documents are discussed in AO-4-7 Sections III.A and V.B, respectively.

NRC Comment

- 5b. For potentially safety-significant plant-specific deviations from the ERG instrumentation and controls, each licensee and applicant must provide in the PGP a list of the deviations and their justification. These should be submitted in the plant-specific technical guideline portion of the PGP, along with other technical deviations.

PGE Response

- 5b. All deviations from the ERG instrumentation and controls are documented and justified in the Step Verification document described in Section III.B of AO-4-7. This documentation is too extensive to be submitted as part of the PGP but is available for review during an on-site audit.

NRC Comment

- 5c. For each instrument and control used to implement the EOP's there should be an auditable record of how the needed characteristics of the instruments and controls were determined. These needed characteristics should be derived from the information and control needs identified in the background documentation of Revision 1 of ERG or from plant-specific information.

PGE Response

- 5c. PGE agrees with this comment and complies with it. The auditable record of instrument and control characteristic determination is located in PGE-1043, "Accident Monitoring Instrumentation Review for the Trojan Nuclear Plant" and PGE-1041, "Detailed Control Room Design Review Summary Report".

B. FORMAT AND WRITING PRINCIPLES

NRC Comment

1. A number of instructions and guidelines for action steps are addressed in Subsection II.C.1 on pages 5-7 of 48. However, information should be presented in procedures so that interruptions in its flow are minimal. To achieve this, each procedure should be written so that an action step should be completed on the page where it began. This guidance should be included in the writer's guide.

PGE Response

1. PGE agrees with this comment and complies with it. The guidance to complete an action step on the same page where it began is found in Subsection IV.C.1.d of AO-4-7.

NRC Comment

2. Action steps need to be written for a variety of situations. The writer's guide should address the formatting for the following types of action steps: (1) verification steps which are used to determine whether the objective of a task or sequence of actions has been achieved, (2) steps which are repeatedly performed, (3) steps for which a number of alternative actions are equally acceptable, and (4) steps that are performed concurrently with other steps. See NUREG-0899, Section 5.7 for additional guidance.

PGE Response

2. PGE agrees with this comment and complies with it. AO-4-7 Section IV.C addresses the formatting for each of the listed types of action steps.

NRC Comment

3. To minimize confusion, delay, and errors in execution of EOP steps, the following concerns should be addressed in the writer's guide: (1) EOPs should be structured so that they can be executed by the minimum shift staffing and minimum control room staffing required by the facility's Technical Specifications, (2) instructions for structuring the EOPs should be consistent with roles and responsibilities of the operators, (3) action steps should be structured to minimize the amount of movement needed for carrying out the steps, and (4) action steps should be structured to avoid unintentional duplication of tasks.

PGE Response

3. PGE agrees with this comment and complies with it. These four points are specifically addressed in Section IV.C.1 of AO-4-7.

NRC Comment

4. All copies of the EOPs should be legible, therefore the quality of the reproduced copies of the EOPs should be addressed in the writer's guide. See NUREG-0899, Subsection 6.2.2, for additional guidance.

PGE Response

4. PGE agrees that all copies of the EOPs should be legible. PGE has high quality standards for reproduced copies of all plant documents, not just EOPs. This is addressed in existing plant document control administrative procedures and personnel training. Therefore this issue is not specifically addressed in AO-4-7.

NRC Comment

5. In order to prevent unnecessary delays in responding to an emergency, it is important that an operator be able to quickly access the relevant EOPs or portions of the EOPs. The writer's guide should address the accessibility of the EOPs and their various parts and sections. See NUREG-0899, Subsections 5.5.7 and 6.1.4, for additional guidance.

PGE Response

5. PGE agrees with the importance of providing easy access to relevant EOPs. Two controlled copies of EOPs are maintained in the Control Room and divider tabs are provided for quick identification of procedures. This is required by existing plant administrative procedures and therefore is not addressed in AO-4-7.

NRC Comment

6. EOP references to out-of-the-way or infrequently used equipment, controls, or displays should include information pertaining to their location. Decision criteria should be provided to aid EOP writers in deciding when to include location information. The format and contents of the location information should also be specified.

PGE Response

6. Noun names and number designations of controls and equipment are considered sufficient to key the operators to its location. Equipment locations are reviewed during operator training programs with special emphasis on equipment used in the EOPs. As noted in AO-4-7 Section IV.C.7, it is important to avoid unnecessary detail such as equipment locations in EOP action steps to ensure timely response. Therefore decision criteria and format for location information is not necessary in AO-4-7.

NRC Comment

7. Subsection II.C.2 on pages 7 and 8 of 48 contains a list of logic terms, their definitions, and instructions for their use. However, to reduce the potential for operator confusion from the use of the logic term "OR", this subsection should be expanded to include: (1) a specification for the logic term "OR" as being inclusive or exclusive and the format for using "OR" in the other manner, and (2) an example of the format to be used for presenting logic statements.

PGE Response

7. PGE agrees with this comment and complies with it. Subsection IV.C.2 of AO-4-7 includes the suggestions on the use of the logic term "OR".

NRC Comment

8. Referencing of other procedures or steps within a procedure is discussed in Subsection II.C.5 on page 9 of 48. To provide consistency among EOPs, this subsection should be expanded to include instruction on the content and format to be used by the EOP writers for referencing other procedures or steps within a procedure.

PGE Response

8. PGE agrees with this comment and complies with it. Subsection IV.C.5 of AO-4-7 includes additional instruction on the content and format for referencing.

NRC Comment

9. Subsection II.C.8 on page 10 of 48 lists the following three locations where operator aids may be placed: (1) on the back side of the preceding page when they are applicable to a page of text, (2) on the same page as text but clearly separated from the text, and (3) as attachments to the EOP. Since there is a potential for confusion as to the location of the aids, the writer's guide should be expanded to include specific instructions, to the writers, for the location of operator aids.

PGE Response

9. PGE agrees with this comment and complies with it. Subsection IV.C.8 of AO-4-7 includes more specific instruction on the location of operator aids.

NRC Comment

10. Subsection II.B.2 on page 4 of 48 (the third paragraph) refers to Appendix B for specifics of page size, margins, and spacing. The pages in Appendix B appear to be a reduced size, and therefore a typist may have difficulty determining the correct dimensions. The writer's guide should list the dimensions for page size, margins and line spacing either in the text or in Appendix B.

PGE Response

10. PGE agrees that page layout specifics should be controlled. Dimensions for page size, margins, and line spacing for EOPs is controlled by the Office Supervisor under existing administrative procedures and training as noted in Subsection IV.B.2 of AO-4-7. The specifics therefore do not need to be addressed in AO-4-7.

NRC Comment

11. A Standard List of Abbreviations is presented in Appendix A. However, on page 37 of 48 (Appendix B) the abbreviation "RERP" is used, which is not listed in Appendix A. RERP should either be added to Appendix A or the abbreviation should not be used.

PGE Response

11. PGE agrees with this comment and complies with it. Appendix A of AO-4-7 has been expanded to include many more abbreviations, including RERP.

C. VERIFICATION/VALIDATION PROGRAM

NRC Comment

1. The verification/validation program should be expanded to include the objective that the program should provide assurance that the EOPs will work (i.e., the EOPs guide the operator in mitigating transients and accidents).

PGE Response

1. PGE agrees with this comment and complies with it. AO-4-7 Section V.B contains the suggested objective as well as three others.

NRC Comment

2. The program does not identify who will be involved in the verification/validation process, other than the reactor operators. The evaluation should be done by a team of experts. The verification/validation program should be expanded to include the criteria for selection of the team and to clearly identify their roles and responsibilities. As a minimum, the team should include plant operators, subject matter experts and procedure writers.

PGE Response

2. PGE agrees with this comment and complies with it. Procedure writers, senior reactor operators, reactor operators, an STA, a human factors expert, and training personnel are involved in the verification/validation process as described in Section V of AO-4-7. The Operations Supervisor ensures the verification/validation program objectives are met by prudent team selection. Roles and responsibilities are defined in Section V also.

NRC Comment

3. The EOPs will require a certain number of operators to carry out the various activities and steps as specified. The PGP should indicate that the EOPs will be exercised, during simulator sessions or control room walkthroughs, with the minimum control room staff size required by the facility's Technical Specifications.

PGE Response

3. PGE agrees with this comment and complies with it. EOPs are exercised with no more than the minimum operating staff required by technical specifications as discussed in AO-4-7 Section V.B and Appendix J validation criteria.

NRC Comment

4. To assure verification/validation of all EOPs, the program description should include an indication that the full complement of EOPs will be exercised, including the use of multiple (simultaneous and sequential) failures.

PGE Response

4. PGE agrees with this comment and complies with it. AO-4-7 Section V.B describes how the full complement of EOPs are exercised, including the use of multiple failures. A majority of EOPs are exercised during the actual accident scenarios. EOPs not exercised during accident scenarios undergo a simulator walk-through or talk-through to ensure all EOPs are exercised. Accident scenario results are verified to be representative of the generic WOG simulator validation results so that credit can be taken for the extensive conclusions of generic EOP validation exercises.

NRC Comment

5. The validation program should be expanded to include a description of the criteria that will be used to select the scenarios to be run during the validation process. The criteria should be developed on the basis of what is needed to validate the procedures and should ensure that single, sequential, and concurrent failures are included. Then, a review of the capabilities and the limitations of the simulator will identify what can be validated on the simulator. For the parts of the EOPs that cannot be validated on the simulator, the criteria for selecting any additional validation that may be needed and the methods to be used, such as a control room or a mock-up walkthrough, should be described.

PGE Response

5. PGE agrees with this comment and complies with it. The description of scenario selection criteria, scenario content, simulator limitations, and additional validation methods is found in Section IV.B of AO-4-7.

D. TRAINING PROGRAM

NRC Comment

1. The PGP should state training objectives and describe how these objectives will be accomplished by the training program.

PGE Response

1. PGE agrees with this comment and complies with it. Training objectives are outlined in AO-4-7, Section VI, including a description of how the objectives will be accomplished.

NRC Comment

2. Although the PGP states that a generic simulator will be used for operator training, the training program description should be expanded to address the following items:
 - a. Discuss the method to be used to integrate the simulator training of the operators with the control room walkthroughs to cover the areas where the simulator is not like the control room or does not react like the plant, and in parts of the EOPs that cannot be run on the simulator.

PGE Response

- 2a. PGE agrees with this comment and complies with it. Potential differences in actual plant response due to the limitations of the generic simulator are discussed following simulator exercises. In addition, control room walkthroughs are reformed to supplement simulator validation if necessary to meet all training program goals as discussed in Section VI.A of AO-4-7.

NRC Comment

- 2b. Indicate that operators will be trained to use the EOPs as a team and that each operator is trained in the role that he would be expected to take in case of an actual emergency.

PGE Response

- 2b. PGE agrees with this comment and complies with it. Teamwork and role definitions are described in AO-4-7 Section VI.A.

NRC Comment

- 2c. Indicate the use of a wide variety of scenarios to fully exercise the EOPs on the simulator and thus expose the operators to a wide variety of EOP uses.

PGE Response

- 2c. PGE agrees with this comment and complies with it. A wide variety of scenarios are used as required by the Training Administration Manual and AO-4-7, Section VI.A.

NRC Comment

- 2d. Indicate that all EOPs will be exercised by all operators.

PGE Response

- 2d. All licensed operators exercise a majority, but not necessarily all EOPs, at a generic simulator. Many EOPs are nearly identical or redundant and do not need to be individually exercised. All operators review all revised EOPs on a self study basis. Classroom training and/or control room walkthroughs and crew talkthroughs are used at the discretion of the Training Supervisor and Operations Supervisor to supplement simulator training and meet the training program objectives as described in AO-4-7, Section VI.A.

NRC Comment

3. The PGP should state that the operators' knowledge and performance of EOPs will be evaluated after training and that appropriate follow-up training will be conducted in deficient areas.

PGE Response

3. PGE agrees with this comment and complies with it. This statement is included in Section VI of AO-4-7.