

PROCEDURES GENERATION PACKAGE

H. B. ROBINSON STEAM ELECTRIC PLANT

UNIT NO. 2

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I. INTRODUCTION

A. Purpose

The purpose of this Procedures Generation Package (PGP) is to describe the Emergency Operating Procedures (EOPs) development at the H. B. Robinson Steam Electric Plant Unit No. 2 (HBR2). H. B. Robinson is a three loop Westinghouse PWR.

B. Scope

This document was developed in response to Generic Letter 82-33, "Supplement 1 to NUREG-0737 - Requirements For Emergency Response Capability," Item 7.2b on page 15.

C. Organization

The HBR2 PGP is composed of the following four elements:

1. Plant-Specific Technical Guidelines
2. Writer's Guide for EOPs
3. EOP Verification and Validation Program Description
4. EOP Training Program Description

Each element describes the approach to be taken as part of the overall EOP implementation plan for HBR2.

II. PLANT-SPECIFIC TECHNICAL GUIDELINES

A. General

Because of the similarity between HBR2 and the Low Pressure (LP) reference plant used in the Westinghouse Owners' Group (WOG) Emergency Response Guideline (ERG) development, HBR2 will use the WOG ERGs (LP Revision 1) to develop plant specific EOPs. The Low Pressure, Revision 1 ERGs were chosen for HBR2 EOP development for the following reasons:

1. The content and organization of the Revision 1 ERGs are an improvement over the Revision 0 ERGs.
2. The content and organization of the Revision 1 ERG Background Document is an improvement over the Revision 0 ERG Background Document.
3. The Revision 1 ERGs have incorporated comments made by the NRC in the SER on the Revision 0 ERGs.

This section describes the method used to convert the WOG guidelines to plant specific EOPs.

B. Source Documents

In the conversion process to plant-specific EOPs, the following source documents were made available to EOP writers:

- Writer's Guide for EOPs
- WOG generic guidelines and background documents (LP Revision 1)
- HBR2 Updated FSAR
- Plant System Descriptions
- HBR2 Technical Specifications
- HBR2 Piping and Instrument Drawings
- HBR2 current Emergency Instructions and Abnormal Procedures
- HBR2 Operating Procedures, General Procedures, and Administrative Procedures
- Miscellaneous Technical Manuals, Plant Curves, etc. as necessary

C. Conversion Method

The goals of the HBR2 conversion process are as follows:

- The EOPs are to be technically correct.

- The EOPs are to be easily understood.
- The technical content of the existing Emergency Instructions (EIs) which are not superceded by the Emergency Response Guidelines (ERGs) will be retained in the new HBR2 EOPs or converted to Abnormal Operating Procedures (AOPs).

To accomplish these goals, the following guidance was given to the EOP writers when the EOP project was started:

1. All values entered into the HBR2 EOPs will be documented as to source of the number (if a setpoint) or the method of calculation.
2. The two column format of the WOG guidelines will be retained for the HBR2 EOPs. In addition, the use of Path Procedures (explained in section 2D) will be used as a part of the EOP Network.
3. When a WOG guideline requests plant-specific information or actions to be added to the procedure, add the information to the procedure. However, if the operator actions are routine and well within the knowledge of the operator, the specific details need not be included in the procedure.
4. If the WOG guideline fails to identify or address actions that are unique to HBR2, then steps will be included to encompass the necessary actions.
5. If a WOG step specifies an action that cannot be performed or is not applicable to HBR2, the step will be deleted or modified.
6. Minor modifications to WOG steps are acceptable without extensive justification provided that the change does not alter the intent of the guideline.

D. H. B. Robinson EOP Network

The HBR2 EOP network is based on the WOG Emergency Response Guidelines. The HBR2 EOP network contains Critical Safety Function Status Trees, Function Restoration Procedures, End Path Procedures, and PATH Procedures. A cross reference title listing is shown in Attachment 1.

The Path Procedures incorporate the actions of E-0, "Reactor Trip or Safety Injection," E-1, "Loss of Reactor or Secondary Coolant," and E-3, "Steam Generator Tube Rupture" guidelines into two logic tree Path Procedures.

The Path Procedure (flowpaths) concept was chosen for the following reasons:

1. Path Procedures (flowpaths) make the actions of applicable procedures visible to the operator without having to turn pages.

2. Path Procedures (flowpaths) provide the operator with visible guidance which will assist the operator in stabilizing the plant and bringing the plant to a safe shutdown condition quickly and consistently.
3. Path Procedures (flowpaths) relieve the operator of the burden of memorization of immediate actions because they are incorporated into the Path Procedures. The Path Procedures will be maintained in a readily accessible area to the control room operator.
4. The flowpath concept has been adopted by Carolina Power & Light Company (CP&L) for use at its three (3) nuclear plants.

Attachment 2 is an example of how the HBR2 Path Procedures are structured to illustrate the concept of the HBR2 Path Procedures. Additional information on the Path Procedure format and content is contained in the HBR2 Writer's Guide (Attachment 4).

E. Conversion Method Documentation

To document and track the conversion process, an ERG/EOP Transition Document was created. The ERG/EOP Transition Document will consist of the following three (3) parts:

1. List of differences between the ERG Low Pressure reference plant and HBR2
2. Step deviation forms
3. Derivations for the instrument values used in the HBR2 EOPs

The step deviation forms (See Attachment 3) in part two of the ERG/EOP Transition Document are used to explain any variance between an HBR2 step and a WOG step.

III. WRITER'S GUIDE FOR EOPs

A. General

A writer's guide for EOPs is a plant specific document that provides instructions on writing EOPs, using sound writing principles. In addition to establishing sound writing principles, the guide helps to promote consistency among the EOPs and their revisions, independent of the number of EOP writers.

The writer's guide may be revised, if necessary, based on feedback from operator training and plant experience.

B. Document Descriptions

Information on the following major items are included in the HBR2 Writer's Guide for EOPs:

1. Designation and Numbering
2. Format
3. Path Procedures
4. Critical Safety Function Status Trees
5. Writing Instructions Steps
6. Mechanics of Style
7. Graphs, Charts, Tables, and Figures

The HBR2 Writer's Guide is provided as Attachment 4.

IV. EOP VERIFICATION AND VALIDATION PROGRAM

A. General

This section outlines the verification and validation program for the HBR2 EOPs.

B. Objectives

The purpose of the HBR2 verification and validation program is to show the HBR2 EOPs meet the following objectives:

1. That the EOPs are technically correct, i.e., they accurately reflect the WOG ERGs.
2. That the EOPs are written correctly, i.e., they accurately reflect the HBR2 Writers' Guide.
3. That the EOPs are usable, i.e., they can be understood and followed without confusion, delays, and errors.
4. That there is a correspondence between the procedures and the control room/plant hardware, i.e., control equipment/indications that are referenced are available (inside and outside of the control room), use the same designation, use the same units of measurement, and operate as specified in the procedures.
5. That the language and level of information presented in the EOPs are compatible with the minimum number, qualifications, training, and experience of the operating staff.
6. That there is a high level of assurance that the procedures will work, i.e., the procedures correctly guide the operator in mitigating transients and accidents.

C. Method of Verification and Validation (V&V)

In developing the HBR2 V&V program, the WOG generic V&V program was reviewed for information that would be beneficial to the HBR V&V program. The WOG generic guidelines were validated on a simulator to determine the effectiveness of the procedure network including technical content, procedure interrelationships and usability. The HBR2 V&V program will supplement the WOG generic V&V program as appropriate.

The V&V program at HBR2 will consist of the following three (3) methods:

1. Simulator
2. Table-Top
3. Control Room Walk-Through

D. Initial V&V of New HBR2 EOPs

1. Simulator

The initial efforts of the V&V program for the HBR2 EOPs has been concentrated on simulator testing. Two sessions (approximately 70 total hours) of simulator exercises have been performed to date using the HBR2 proposed EOPs. Each simulator session was performed using operating crews (3 licensed operators and 1 STA) familiar with HBR2 and the CP&L simulator. The response of the operating crews was video taped and each of the debriefing sessions was recorded on cassette tape.

2. Verification and Validation Planned

To round out the V&V program for the HBR2 EOPs, the following will be performed:

- a. Table-Tops
- b. Control Room Walk-Through

3. Resolution of Comments

The comments from the simulator, table-top, and control room walk-through will be identified and catalogued. A resolution will be developed to satisfy each of the comments. The solution to the comments may involve correcting the procedure, increasing the level of training, or other acceptance resolutions.

4. V&V Report

A report will be on file describing the program and documenting the comment resolutions.

E. Verification and Validation for Future Changes

A V&V program for future changes to the HBR2 EOPs will be conducted in accordance with the HBR2 Writer's Guide.

V. EOP TRAINING PROGRAM

A. General

As part of the pre-implementation process, the licensed operators and Shift Technical Advisors (STAs) at HBR2 will receive training on the plant-specific EOPs generated from the WOG ERGs. Training is scheduled to be completed prior to start-up from the current steam generator replacement outage.

B. Objectives

The objectives of the HBR2 EOP training program are as follows:

1. To enable the operator to understand the structure of the EOPs
2. To familiarize the operator with the technical bases of the EOPs
3. To enable the operator to use the EOPs under operational conditions

C. Training Program

To accomplish the above objectives, a three phase training program is being conducted. See Attachment 5 for additional information on the training program.

1. Phase 1

Phase 1 will cover the new EOP development process. It will consist of four (4) modules of approximately 20 hours of classroom training.

2. Phase 2

Phase 2 will cover the HBR2 specific EOPs. It will consist of two (2) modules of approximately 28 hours of classroom training.

3. Phase 3

Phase 3 will be the simulator training on the HBR2 specific EOPs. It will consist of one module of approximately 30 hours of simulator training.

D. Long-Term Training

The annual requalification program will be revised to incorporate use of the new EOPs during annual simulator training. Additionally, significant revisions to the new EOPs will be factored into the routine requalification training program as are other procedure changes and modifications.

The training that future licensed operators will receive on the EOPs will consist of the material covered in Phases 2 and 3 of the initial EOP training program, updated as appropriate.

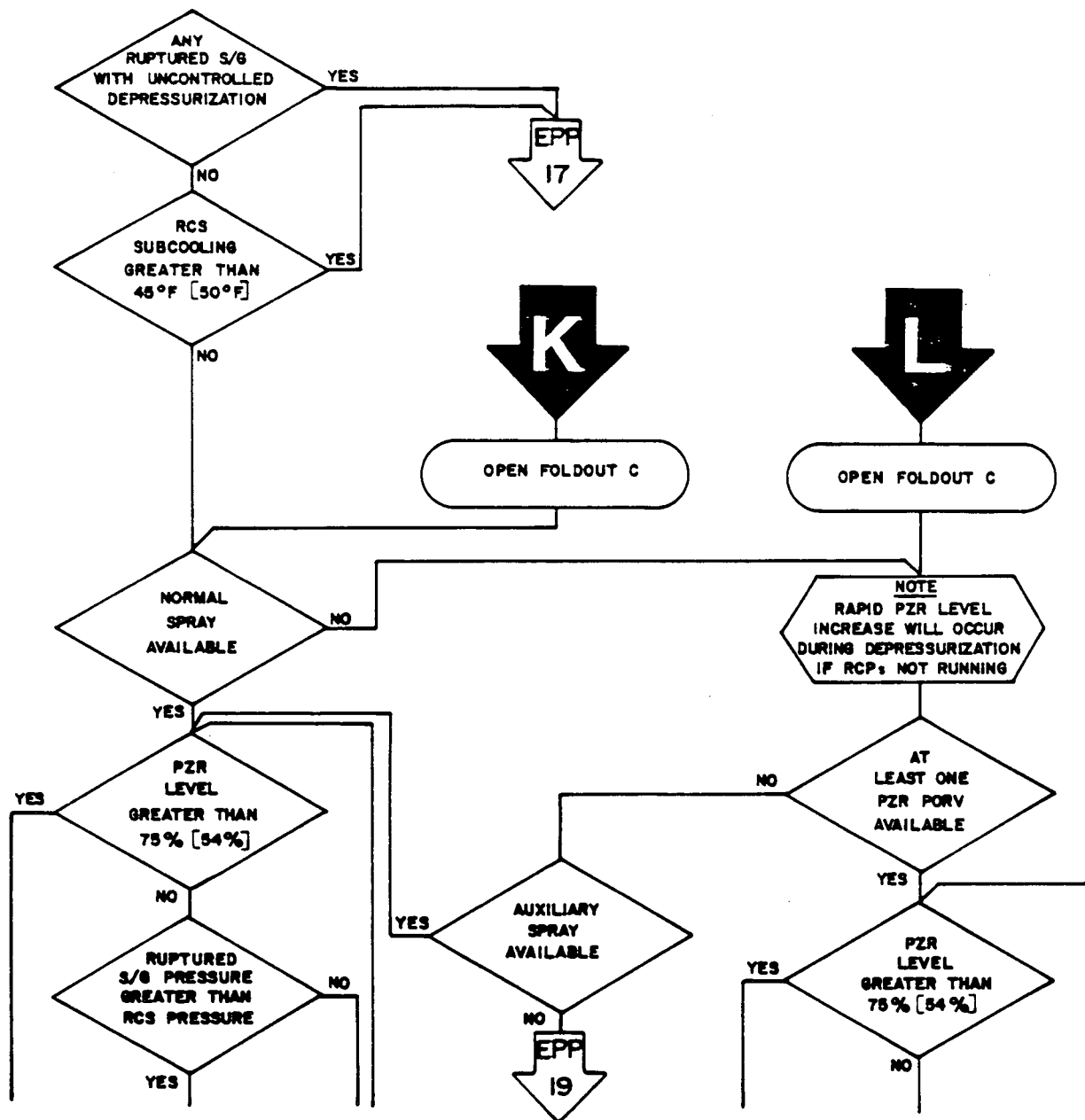
Attachment 1: EOP Title Cross Reference

<u>CP&L</u>	<u>WOG GUIDELINES</u>	<u>TITLE</u>
EPP-1	ECA-0.0	Loss of AC Power To E-1 and E-2 Busses
EPP-2	ECA-0.1	Loss of All AC Power Recovery without SI Required
EPP-3	ECA-0.2	Loss of All AC Power Recovery with SI Required
EPP-4	ES-0.1	Reactor Trip Response
EPP-5	ES-0.2	Natural Circulation Cooldown
EPP-6	ES-0.4	Natural Circulation Cooldown with Steam Void In Vessel (Without RVLIS)
EPP-7	ES-1.1	SI Termination
EPP-8	ES-1.2	Post-LOCA Cooldown and Depressurization
EPP-9	ES-1.3	Transfer to Cold Leg Recirculation
EPP-10	ES-1.4	Transfer to Hot Leg Recirculation
EPP-11	E-2	Faulted Steam Generator Isolation
EPP-12	ES-3.1	Post-SGTR Cooldown Using Backfill
EPP-13	ES-3.2	Post-SGTR Cooldown Using Blowdown
EPP-14	ES-3.3	Post-SGTR Cooldown Using Steam Dump
EPP-15	ECA-1.1	Loss of Emergency Coolant Recirculation
EPP-16	ECA-2.1	Uncontrolled Depressurization of All Steam Generators
EPP-17	ECA-3.1	SGTR With Loss of Reactor Coolant: Recovery
EPP-18	ECA-3.2	SGTR With Loss of Reactor Coolant: Saturated Recovery
EPP-19	ECA-3.3	SGTR Without Pressurizer Pressure Control
EPP-20	ECA-1.2	LOCA Outside Containment
EPP-21	N/A	Reenergizing Pressurizer Heaters From Emergency Busses
EPP-22	N/A	Post Accident Containment Venting
EPP-23	ES-0.3	Natural Circulation Cooldown with Steam Void In Vessel (With RVLIS)
EPP-24	N/A	SGTR Isolation
Foldout		Foldout Procedure
FRP-S.1	FR-S.1	Response to Nuclear Power Generation/ATWS
FRP-S.2	FR-S.2	Response to Loss of Core Shutdown
FRP-C.1	FR-C.1	Response to Inadequate Core Cooling
FRP-C.2	FR-C.2	Response to Degraded Core Cooling
FRP-C.3	FR-C.3	Response to Saturated Core Cooling
FRP-H.1	FR-H.1	Response to Loss of Secondary Heat Sink
FRP-H.2	FR-H.2	Response to Steam Generator Overpressure
FRP-H.3	FR-H.3	Response to Steam Generator High Level
FRP-H.4	FR-H.4	Response to Loss of Normal Steam Release Capability
FRP-H.5	FR-H.5	Response to Steam Generator Low Level
FRP-P.1	FR-P.1	Response to Imminent Pressurized Thermal Shock Conditions
FRP-P.2	FR-P.2	Response to Anticipated Pressurized Thermal Shock Conditions
FRP-J.1	FR-Z.1	Response to High Containment Pressure
FRP-J.2	FR-Z.2	Response to Containment Flooding
FRP-J.3	FR-Z.3	Response to High Containment Radiation Level
FRP-I.1	FR-I.1	Response to High Pressurizer Level
FRP-I.2	FR-I.2	Response to Low Pressurizer Level
FRP-I.3	FR-I.3	Response to Voids In Reactor Vessel
Path-1	E-0 & E-1	Reactor Trip or Safety Injection/Loss of Reactor or Secondary Coolant
Path-2	E-3	Steam Generator Tube Rupture

NOTE: This cross reference list may change depending on future WOG ERG revisions and plant specific needs.

PATH-1

H.B. ROBINSON STEAM ELECTRIC PLANT UNIT # 2			
REVISION		RECOMMENDED BY	
NO.	DATE		
		OPERATING SUPERVISOR UNIT #2	DATE
		APPROVED BY	
		MANAGER-OPERATIONS AND MAINTENANCE	DATE



Attachment 3: Step Deviation Form

HBR Procedure #/Step FRP-S.1 / 1 Rev. 0

WOG Procedure #/Step FR-S.1 / 1 Rev. LP-REV. 1 FINAL

1. HBR step 1

2. WOG step _____

3. Justification of Differences/Explanation of Footnote Values

NOTE: The final step deviation form used may differ slightly from this example.