

FOR INFORMATION ONLY

HOUSTON LIGHTING AND POWER COMPANY
SOUTH TEXAS PROJECT
ELECTRIC GENERATING STATION
PLANT PROCEDURES MANUAL

SAFETY-RELATED

Emergency Operating Procedures
Preparation, Approval and Implementation

PGP3-ZA-27
Rev. 0
Page 1 of 16

APPROVED:

William H. King
PLANT MANAGER

2-8-85
DATE APPROVED

2-15-85
DATE EFFECTIVE

This procedure is not described in the FSAR.

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1.0 Purpose and Scope

1.1 This procedure provides the following:

- 1.1.1 Integration of the Emergency Operating Procedure (EOP) preparation, accomplished using the "Emergency Procedures Writer Guide and Verification", OPOP1-ZA-6, with the requirements for submittal to PORC for Approval.
- 1.1.2 Provides the verification and validation process for the EOPs.
- 1.1.3 Provides the specific area of responsibilities, documentation process and methods to accomplish items 1.1.1 and 1.1.2.
- 1.1.4 Identifies the specific references to be used and the application of those references.

1.2 Identification of the South Texas Project Electric Generating Station (STPEGS) EOPs will be accomplished using the Westinghouse Owners Group (WOG) Emergency Response Guidelines (ERGs).

2.0 Definitions

- 2.1 EOP Verification - The evaluation performed to confirm the technical correctness of the EOPs and to ensure that all aspects of the ERGs are addressed in the STPEGS EOPs.
- 2.2 EOP Validation - The evaluation performed to determine that the actions specified in the EOPs can be followed by trained operators to manage the emergency conditions in the plant.
- 2.3 Validation Operations Group - Those operations personnel selected to perform the task specified in the EOPs for the purpose of insuring the manageability of the emergency covered by a specific EOP.
- 2.4 Validation Observation Group - Those personnel selected to observe and evaluate the use of the EOPs while being used by the Validation Operations Group.
- 2.5 Validation Scenario - A structured plan that identifies the initiating cause/s for entry into the EOPs, the expected results and end points resulting in the use of the EOPs.

3.0 Responsibilities

- 3.1 The Plant Manager is responsible for the preparation, approval and implementation of the EOPs.

- 3.2 The Technical Support Superintendent is responsible for providing engineering support and the technical confirmation of the usability of the EOPs.
- 3.3 The Reactor Operations Superintendent shall have the overall responsibility for the verification and validation program management including the following:
 - 3.3.1 Selection of the validation method.
 - 3.3.2 Selection of the validation process Groups
 - 3.3.3 Schedule coordination of personnel for the validation process.
 - 3.3.4 Approval of discrepancies/resolutions and forwarding of procedures to the Plant Manager.
- 3.4 The Nuclear Training Department is responsible for the:
 - 3.4.1 Training of the validation groups in the use of the EOPs and the validation process.
 - 3.4.2 Preparation of the Training facility to support the validation process.
- 3.5 The EOP writer is responsible for assembling the drafted version of the EOP and all documentation produced as a result of the review process outlined in OPOP1-ZA-6, "Emergency Procedures Writers Guide and Verification".
- 4.0 The STPEGS EOPs are developed using those references specified in the "Emergency Procedures Writers Guide and Verification", OPOP1-ZA-06.
- 5.0 EOP Preparation and Review Process
 - 5.1 The specified EOPs will be prepared in accordance with OPOP1-ZA-6, "Emergency Procedures Writers Guide and Verification".
 - 5.1.1 Contained within the writers guide are instructions for documenting the variations between the WOG ERGs and the EOPs.
 - 5.2 EOPs which have completed the writers guide review process, including resolutions of all discrepancies, will then be approved by the Reactor Operations Superintendent for review by the designated plant staff.

- 5.2.1 When submitted for plant review, the EOP package shall consist of the following:
 - 5.2.1.1 EOP Review Request Form (PGP3-ZA-27-1)
 - 5.2.1.2 Copy of the WOG ERG used in the preparation of the EOP.
 - 5.2.1.3 Copies of the "EOP Step Justification/Verification Forms" generated by the EOP writer.
 - 5.2.1.4 Copies of the "EOP Discrepancy Comment Forms" generated as a result of the Reactor Operations Division review.
 - 5.2.1.5 Calculation sheets or calculation numbers obtained from engineering.
 - 5.2.1.6 The "EOP Discrepancy Comment Form" (OPOP1-ZA-06-3) for reviewers use.
 - 5.2.1.7 A completed "License Compliance Review Form".
- 5.3 EOP Review by designated Plant Staff shall consist of the following as a minimum:
 - 5.3.1 Quality Assurance Operations - review in accordance with the Operations Quality Assurance Plan.
 - 5.3.2 Technical Support shall review the EOPs and:
 - 5.3.2.1 Make a comparison between the EOP and the FSAR for technical accuracy.
 - 5.3.2.2 Review the EOP for technical accuracy considering plant design.
 - 5.3.2.3 Review the instrument usage assignments for usability during all modes of plant conditions as determined by OPOP1-ZA-06.
 - 5.3.2.4 Confirm the plant specific numerical values, both calculated and non-calculated.
 - 5.3.3 The Nuclear Training Department shall review the EOPs as an independent operational review.
 - 5.3.4 Other affected divisions.

- 5.4 Each reviewer shall return the EOP package, with comments if any, to the EOP Writer.

NOTE: The reviewer may retain the WOG ERG for reference if needed.

- 5.4.1 All comments on reviewed EOPs are to be written on the OPOPI-ZA-6-3 "Review and Comment" forms. Because of the required retention and actions to be taken on received comments, DO NOT write comments on the EOP copy being reviewed. One comment per form.

- 5.5 Comments received concerning EOP technical content shall be resolved between the EOP writer and reviewer. Comments that cannot be resolved will be decided upon at the next higher management level until resolution is accomplished.
- 5.6 Comments received concerning non-technical content will be incorporated if in agreement with the writers guide.
- 5.7 EOPs completing the plant review process constitute the verification cycle and may be approved for information only.

6.0 EOP Validation Process

6.1 Selection and Qualifications of the EOP Validating Personnel

6.1.1 Validation Operations Group

- 6.1.1.1 Each assembled group shall, as a minimum have 2 Reactor Operators with at least Reactor Operator Certification Qualification.
- 6.1.1.2 Each assembled group shall have 1 Shift Supervisor and 1 Unit Supervisor having either a prior Senior Reactor Operator License or Certification.
- 6.1.1.3 There should be at least 2 Operations Groups for the validation effort to gain the maximum effect of knowledge and background of the operators.
- 6.1.1.4 The Operations Groups must have satisfactorily completed the licensing training as of the dates of the validation test.

6.1.2 Validation Observation Group

- 6.1.2.1 Personnel selected for the observation group may be from the Reactor Operations Division and if so, shall not have been the writer of the EOP being tested.

- 6.1.2.2 Personnel selected from other departments/divisions, i.e., Technical Support, Training, etc., must have sufficient knowledge of the plant systems and controls to assess the actions taken by the operators during the EOP Validation Test.
- 6.1.2.3 Observation groups should consist of at least one observer per operations group member and one additional member to serve as the group leader.

6.2 Validation Process Preparation

6.2.1 Nuclear Training Department

- 6.2.1.1 Shall train the Operations Groups in the use of and the background of the EOPs.
- 6.2.1.2 Shall train the Observation Groups in the use of the EOPs and the conduct of the Validation Test.
- 6.2.1.3 Shall prepare the Plant Simulator for the Validation if selected for the test method.

6.2.2 Validation Scenario selection

- 6.2.2.1 Test scenario will be selected by a committee composed of members of the EOP Writers Group, other Reactor Operations personnel, Nuclear Training Department, and Technical Support. The committee will be chaired by the Reactor Operation Superintendent or his designee.
- 6.2.2.2 When selecting test scenarios, every effort should be made to test as many of the procedure transitions as possible and the FSAR Accident analysis.
- 6.2.2.3 Each selected scenario will be charted showing the expected entries, transition points and termination points of the specific EOPs being tested. (Example in Addendum 1).
- 6.2.2.4 The Scenario Committee Chairman or his designee shall document the selected scenario by completing the "EOP Validation Scenario Form".
- 6.2.2.5 Each selected scenario will be reviewed, after preparation with the Observation Groups to familiarize them with the scenario.

6.3 EOP Validation Test Methods

NOTE: Either of the two validation test methods may be used as determined by the Reactor Operations Superintendent.

6.3.1 EOP usage on the plant simulator

- 6.3.1.1 The usage test method on the plant simulator consist of initialization of the simulator to the initial conditions specified, causing the malfunction/s or symptom/s to occur and the manipulation of the control board controls by the operators.
- 6.3.1.2 During this test method, the observation group should position themselves in a position that best affords them a clear view of the operators actions.
- 6.3.1.3 During the test, the observation group will note the procedure steps that the operators appear to have difficulty with such as step wording, equipment, nomenclature, locations, understanding and information content. Use the "EOP Validation Test Checklist", PGP3-ZA-27-2 as a guide for test assessment.
- 6.3.1.4 A designated member of the observation group should follow the test sequence on the prepared transition flow chart, noting deviations from the expected path.
- 6.3.1.5 Termination of EOP Validation Test will be when the expected end point is achieved or at the discretion of the Observation Group Leader.
- 6.3.1.6 At the earliest possible time, the two validation test groups should conduct a debriefing session led by the Observation Group Leader. During the debriefing, each group shall identify the areas of concern or difficulty with the tested procedure. Use of PGP3-ZA-27-2 is required.
- 6.3.1.7 Record procedural deficiencies on "EOP Validation Test Deficiency Forms", PGP3-ZA-27-3, for submittal to the Reactor Operations Superintendent. Also identify the deficiency sheet sequential number associated with each reviewed procedure on the checklist where provided.

6.3.2 EOP Walk-through validation test

6.3.2.1 The walk-through test method, on either the plant simulator, control board mockup or main control panels, is the enactment by the operators of their actions/responses without the actual manipulation of controls.

6.3.2.2 During the progress of this test method, the Observation Group Leader shall signify the initial conditions, initiating events and critical readings or symptoms that cause procedure transitions.

6.3.2.3 Due to the static nature of the type of validation test, operator responses must be well announced and the conduct of the test performed slowly to avoid missed information. Therefore the observers should be in a physical position to clearly hear as well as see the operators.

6.3.2.4 Because of the nature of this type of test, a debriefing for the purpose of identifying deficiencies may not be required.

6.3.2.5 During the conduct of this test, the observation group should use the "EOP Validation Test Checklist", PGP3-ZA-27-2 as a guide for assessment of the effectiveness of the operators to use the reviewed procedure.

6.3.2.6 Use of the prepared transitional flow chart and identification of procedure deficiencies are conducted the same as when using the actual procedure on the simulator outlined in 6.3.1.

6.4 EOP Post Test

6.4.1 The Observation Group Leader shall assemble the following for return to the Reactor Operations Superintendent.

6.4.1.1 Scenario Expected Results Chart and the Validation Scenario Form (PGP3-ZA-27-4).

6.4.1.2 All EOP Validation Test Deficiency Forms

6.4.1.3 Event record print-outs and other available hardcopy records produced by the simulator (if used).

6.4.2 The Reactor Operations Superintendent or his designee shall review the identified deficiencies and resolve each.

6.4.3 Each deficiency sheet shall be signed by the Reactor Operations Superintendent signifying his approval for the resolutions and procedural changes.

6.5 Resubmittal of EOPs for re-test.

6.5.1 The Reactor Operations Superintendent may, based upon his judgement, cause any EOP to be retested. The basis for retest may be: consideration of the procedure changes due to identified deficiencies; variations in the transitions actually used when compared to the predicted transition flow; actual operator performance yielding vague or unsatisfactory overall procedure/operator interface.

6.5.2 When a EOP is determined to be re-testable, the validation effort will be repeated after a sufficient amount of training to the operators has been accomplished to clarify the EOP to be retested.

7.0 EOP Implementation

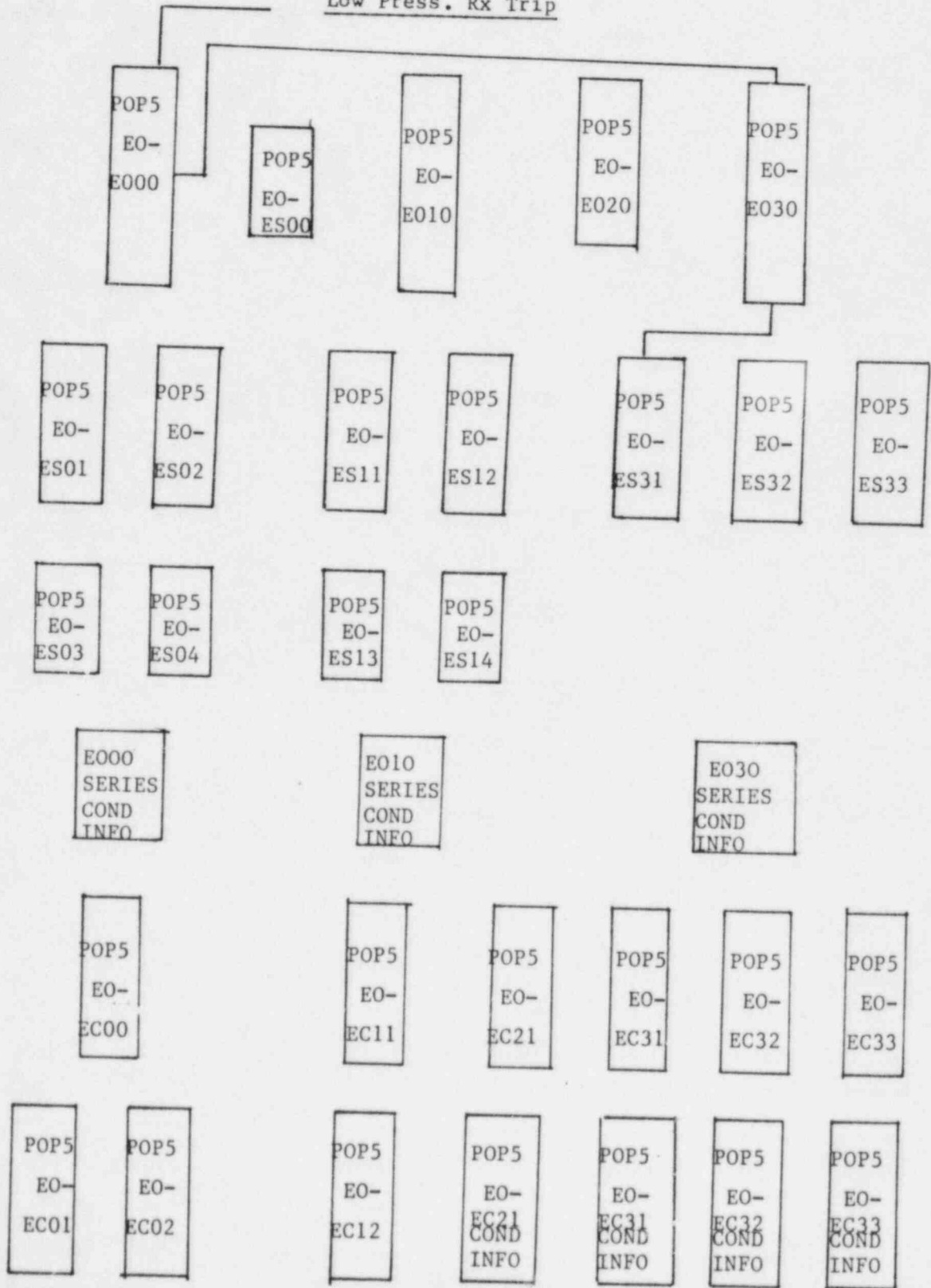
- 7.1 Approved procedure changes previously identified by noted deficiencies shall be incorporated using the "EOP Writers Guide and Verification", OPOP1-ZA-06.
- 7.2 Procedures which have been revised will be presented to PORC and the Plant Manager by the Reactor Operations Superintendent with recommendation for approval. Along with the revised procedure, the documentation produced from the OPOP1-ZA-06 review and all documentation produced as a result of this procedure shall be produced at the PORC meeting for review.
- 7.3 EOP implementation will be accomplished when PORC and the Plant Manager approve the procedures for use and Operator Training.

8.0 References

- 8.1 PGP3-ZA-2 (Plant Procedures)
- 8.2 INPO guideline 83-006 (Emergency Operating Procedures Validation Guidelines).
- 8.3 INPO Guideline 83-004 (Emergency Operating Procedures Verification Guideline).
- 8.4 OPOP1-ZA-06 (Emergency Operating Procedures Writers Guide and Verification)
- 8.5 PGP3-ZA-3 (License Compliance Review)

ADDENDUM 1
Example Procedural Transition Flow Chart
Entry Caused by

Low Press. Rx Trip



Emergency Operating Procedures
Review Request
PGP3-ZA-27-1

PGP3-ZA-27
Rev. 0
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TO: _____

FROM: Reactor Operations Superintendent

Review of 1-POP5-EO- is requested by your department in
accordance with PGP3-ZA-27 by _____ (Date).

EOP Title _____ Rev. _____

EOP Source Documents used

_____	_____
_____	_____
_____	_____
_____	_____

EOP Writer _____

Assigned Reviewer _____

Number of review and comment
sheets attached for return to writer _____

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Review Request
PGP3-ZA-27-2
Page 1 of 3

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Reviewed Procedure Number _____

Review Points

Discrepancy (Yes/No)
(If No - Sheet number)

Usability

Yes No

A. Level of Detail

1. Is there sufficient information to perform the specified actions at each step?

2. Are the Alternates adequately described at each decision point?

3. Labeling, abbreviations and location as written sufficient and clear to the operator enabling him to find equipment

4. Is the EOP information adequate to manage the emergency condition?

5. Are symptoms sufficiently abbreviated by actions prescribed?

6. Are titles and numbers clearly defined for referencing and branching?

7. Are points clearly identified for entry into the Emergency Plan?

B. Understandability

1. Is the EOP easy to read?

2. Are the figures and tables easy to read with accuracy?

3. Can the values on figures and charts be easily determined?

4. Are caution and note statements readily understandable

5. Are the EOP Steps readily understandable

Reviewed Procedure Number _____

Review Points

Discrepancy (Yes/No)
(If No - Sheet number)

Yes No

C. Plant Compatibility

- | | | |
|--|-------|-------|
| 1. Can the actions specified in the EOP be performed in the specified sequence? | _____ | _____ |
| 2. If there are choices of success paths, is the most preferred choice listed first and all others listed in descending preferential order. | _____ | _____ |
| 3. Can the information required by the EOP be obtained by the operator or supervisor | _____ | _____ |
| 4. Is the EOP selection, based upon the symptoms, easily determined | _____ | _____ |
| 5. Are the EOP entry conditions appropriate for the symptoms displayed to the operator | _____ | _____ |
| 6. Are all information and equipment needs identified to accomplish the specified task | _____ | _____ |
| 7. Do plant responses agree with the EOP basis | _____ | _____ |
| 8. Are the instrument readings and tolerances stated in the EOP consistent with the instrument values displayed | _____ | _____ |
| 9. Is the EOP physically compatible with the work situation (too bulky to hold, cannot be laid flat, places where it can be laid down in an open condition)? | _____ | _____ |

D. Operator Compatibility

- | | | |
|--|-------|-------|
| 1. If time intervals are specified, can the procedure action steps be performed on the plant within or at the designated time intervals? | _____ | _____ |
|--|-------|-------|

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Reviewed Procedure Number _____

Review Points

Discrepancy (Yes/No)
(If No - Sheet number)

- | | Yes | No |
|--|-------|-------|
| 2. Can the procedure steps be performed by the operating shift. | _____ | _____ |
| 3. If specific actions are assigned to individual shift personnel, does the EOP adequately aid in the coordination of actions among shift personnel where necessary? | _____ | _____ |
| 4. Can the operating shift follow the designated action step sequences | _____ | _____ |
| 5. Can the particular steps or sets of steps be readily located when required | _____ | _____ |
| 6. Can procedure exit point be returned to without omitting steps when required | _____ | _____ |
| 7. Can procedure branches be entered at the correct point | _____ | _____ |
| 8. Are EOP exit points specified adequately | _____ | _____ |

Total number of discrepancy sheets _____

Validation Test Method _____

Validation Observation Group members

Leader _____

This form when completed, shall be retained for the life of the plant.

Emergency Operating Procedures
Review Request
PGP3-ZA-27-3
Page 1 of 1

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Deficiency Sheet _____ of _____

Procedure Number IPOP5-E0- Rev. _____

Deficiency At _____ (Step Number)

Deficiency _____

Observer Name _____ Date _____

Resolution _____

Resolution By _____ Date _____

Approved YES NO (Circle One)

Reactor Operations Superintendent _____

Resolution Incorporated by _____

Date _____

This form when completed, shall be retained for the life of the plant.

Color paper requirements do not apply to this form.

Procedure No. 1-POP5-EO-
Title _____

Validation Test Method
EOP Usage on
Simulator _____

Proc Rev _____
Date of Test _____

EOP Walkthrough
On simulator _____
On Mockup _____

Scenario Prepared By

Purpose of Scenario

Scenario Description

Initial Plant Conditions

If test is actual usage on Simulator, Nuclear Training Dept. shall complete.
If not go to next section.

<u>Event</u>	<u>Time</u>	<u>I/O</u>	<u>Malfunction</u>	<u>Intent</u>
<u>No</u>	<u>Hr. Min. Sec</u>	<u>Override</u>	<u>Description</u>	

If test is walk-through method, the scenario selection committee chairman shall complete the following:

<u>Procedure Step/s</u>	<u>Parameter/Symptom</u>	<u>Expected Transition</u>
<u>Description/Content</u>	<u>To cause transition</u>	<u>to Proc. No & Step</u>

This form when completed, shall be retained for the life of the plant.

FOR INFORMATION ONLY

HOUSTON LIGHTING AND POWER COMPANY
SOUTH TEXAS PROJECT
ELECTRIC GENERATING STATION
PLANT PROCEDURES MANUAL

STATION PROCEDURE
SAFETY RELATED

Emergency Procedures Writers
Guide and Verification

OPOPO1-ZA-0006
Rev. 1
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APPROVED: Walter H. Keenan
PLANT MANAGER

5-29-85
DATE APPROVED

5-31-85
DATE EFFECTIVE

This Procedure is not described in the FSAR.

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1.0 Purpose and Scope

- 1.1 This Procedure is to be used in the preparation of the Emergency Operating Procedures (EOPs) and any supporting Addendum for those EOPs using the Westinghouse Owners Group (WOG), Rev. 1 Guidelines and Background Information.
- 1.2 This Procedure provides the methods and instructions for the preparation of the EOPs as per the Writers Guide and the verification of the technical accuracy when compared to WOG Guidelines.

2.0 WOG Guideline Conversion to Plant Specific Procedure

- 2.1 Due to the similarity between the South Texas Project and the Westinghouse generic plant and the extensive research completed by Westinghouse for the generic guidelines and background information, the WOG Generic Guidelines Rev. 1 of July, 1983 shall be used in the preparation of the STP plant specific EOPs. Recognized differences between the generic plant and STP are associated with the safeguards and protection trains.
- 2.2 Conversion Process
 - 2.2.1 The EOP writer should assemble reference material for the specific EOP to be written and:
 - 2.2.1.1 Compare the WOG Guideline and Background Information with the FSAR Accident scenarios for consistency in expected responses.
 - 2.2.1.2 Determine the differences between the required safeguards equipment of STP and the generic plant.
 - 2.2.2 The EOP writer shall prepare the STP EOP in the following manner:
 - 2.2.2.1 Determine the applicability of each WOG procedural step to the needs of the same task at STP.
 - 2.2.2.2 Each WOG procedural step should be reviewed for preferential order considering: control board layout; controls and/or instrument location and type; and which operator is performing the task.

- 2.2.2.3 When a WOG procedural step requires a plant specific numerical value, as per the footnotes, do the following, as appropriate:
- 2.2.2.3.1 Consult the Westinghouse Precautions, Limitations and Setpoints Document
 - 2.2.2.3.2 Consult the Bechtel Engineering Setpoints Document
 - 2.2.2.3.3 Consult the specific Vendor Equipment Manual
 - 2.2.2.3.4 Request Assistance from the Technical Support Division
 - 2.2.2.3.5 Consult the WOG Guideline Executive Volume.
- 2.2.2.4 Calculated numerical values must be supported by a calculation sheet or calculation number. Refer to Plant Procedure OPGP03-ZE-0002. This information shall be maintained by the EOP writer through the procedural review and retained with the procedure verification and validation package for permanent storage.
- 2.2.2.5 When a WOG procedural step specifies plant specific information (equipment, controls, indication, additional steps) add the information required as per the appropriate section of the writers guide.
- 2.2.2.6 If in the preparation process actions are identified that are not in the WOG Guidelines or guideline steps cannot be performed due to the STP design, provide appropriate steps within the EOP and use the "EOP Step Justification/Verification Form" (-4) for additional information about the use of the step.
- 2.2.2.7 In all cases for procedure steps, NOTES and CAUTIONS, the EOP shall be prepared consistent with the Writers Guide.

2.3 Documentation

2.3.1 When preparing the EOPs, situations may arise where the intent specified by the Guidelines may have to be altered or the sequence may have to be varied due to the STP design. When this happens, the writer shall complete the documentation for changes to the WOG Guidelines on "EOP Step Justification/Verification Form", (-4).

2.3.1.1 Provide justification for each deviation such as plant design, control board layout, improve operator actions, etc.

2.3.1.2 All deviation forms will accompany the procedure through the review process and be retained with the original procedure in the Nuclear Plant Operations Department (NPOD) Document Control Center.

3.0 Formats

3.1 Written Procedure Body Format

3.1.1 The written procedure section prepared for the Supervisor use shall be in the two column style as shown in Addendum 2

3.1.2 The written procedure section prepared for the operator shall be in the dual page, four column style using Addendum 2.

3.1.2.1 Each operator copy of the written procedure shall:

3.1.2.1.1 Present the user information and steps on the left page when opened.

3.1.2.1.2 Present the non-user information and steps on the right page when opened.

3.1.2.1.3 Be identified on the front page as which operator section when closed as per Addendum 3.

3.1.3 Each pair of columns shall be titled "Action/Expected Response" on the left and "Contingency Actions" on the right.

- 3.1.4 Each page of the written procedure (supervisor's section and operators section) shall have displayed across top of the page the following:
 - 3.1.4.1 Procedure Title
 - 3.1.4.2 Procedure Number
 - 3.1.4.3 Revision Number
 - 3.1.4.4 User Identification (at the word "copy")
 - 3.1.4.5 Page Number
- 3.1.5 EOPs shall be printed on 8½" X 11" paper as per the example in Addendum 2.
- 3.1.6 Margins for EOP written pages should be one inch on the left and right.
- 3.1.7 Cautions, Notes and Tables shall be printed across the applicable users columns and placed in the middle of the page.
- 3.1.8 Each procedure key step shall have a specific format sequence in the following order:
 - 3.1.8.1 Action to be taken with the object.
 - 3.1.8.2 Information Source
 - Primary -
 - Alternate -
 - 3.1.8.3 Location in parenthesis.
- 3.2 Cover Sheet Format
 - 3.2.1 Each EOP shall have a cover page with the Procedure Number, Procedure Title, Approval Signatures, and effective date displayed in the middle of the page as shown in Addendum 1.
 - 3.2.2 Those items specified in 3.2.1 shall be in the order specified by 3.2.1 and shall have three (3) line separation between each.
 - 3.2.3 The procedure title shall be printed in BOLD FACE TYPE for emphasis.

3.2.4 The Procedure Title should be brief and self explanatory of the purpose of the procedure. When needed, a brief explanation may be added below the title.

3.3 Flow Chart Format

3.3.1 The construction of the flow charts shall present the procedural flow from top to bottom or left to right.

3.3.2 To avoid congestion on the flow charts, do not put more than two major flow paths per page. A major flow path is one in which a series of actions or decisions are linked together to form the process in which analysis is made or procedure steps to carry out the process.

3.3.3 All flow charts are to prepared on $8\frac{1}{2}$ " X 11" pages with white Background and color coded borders corresponding to the unit assignment for inclusion with the procedure. When using the flow charts they may be enlarged and the pages connected together.

3.3.4 Flow chart page margins should be one inch (1") on the left and one-half inch ($\frac{1}{2}$ ") on the right.

3.4 Conditional Information Page Format

3.4.1 Conditional Information pages may be used for various types of information and as such may be in several formats. Examples of conditional information page formats are:

3.4.1.1 Tables - provide the title of the table above the table and label the columns clearly.

EXAMPLE:

Symptoms of Inadequate Core Cooling

Go To "LOSS OF REACTOR OR SECONDARY COOLANT"
IPOP05-EO-00E1 IF any set of conditions in a
column exists.

Parameter	Column A	Column B	Column C
1. Incore TC's	> 1200 F		> 700 F
2. Containment Conditions		Abnormal	Abnormal
3. RCP Status		Any on	All off
4. RVLIS		< 100%	< (Later)

3.4.1.2 Conditional Statements - provide instructions based upon conditions which may arise at any time during the performance of a procedure.

EXAMPLE:

Reactor Coolant Pump Trip Criteria

- o TRIP Any RCP IF cooling water is lost to the RCP motor for longer than 2 minutes OR a "Bearing Hi Temp" alarm exists.
- o TRIP all RCP's IF both conditions exist.
 - a. Hi Head SI pumps are delivering flow to the Reactor Coolant System
 - b. RCS Pressure is < 1600 psig.

3.5 Checklist Format

- 3.5.1 Checklist, when prepared for use with the EOP, shall be prepared using a column on the left, for the devices, and a column in the middle for position required.
- 3.5.2 When needed for place keeping, provisions shall be made on the right for check (✓) marks.

- 3.5.3 Each checklist sheet shall have the Procedure Title, and Number, Page Number and Checklist title displayed at the top of the page as shown in Addendum 4.

4.0 Procedure Organization

- 4.1 The first page of each procedure shall be a cover page as shown in Addendum 1.
- 4.2 Conditional Information pages shall be printed on the back of each page of the main body of the Supervisors Procedure Section. Conditional Information pages shall be to the left of the procedure text when it is being used.
- 4.3 Addendums and Checklists used with the procedure shall be placed in order of expected use.
- 4.4 The Operators sections of the procedure shall be the last of the procedure attachments.

5.0 Procedure Numbering

- 5.1 The procedure number shall consist of a system that uniquely identifies it as a specific Emergency Operating Procedure. The first digit shall be the unit designator followed by "POP05-E0-" and a four place alpha-numeric combination made up of the WOG guideline identification.
- 5.2 The first page of the procedure text shall have a section entitled "Symptoms or Entry Conditions". The section title shall be printed in capital letters and underlined.
- 5.2.1 The "Symptoms or Entry Conditions" section is a summary of those conditions which require entry into the procedure.
- 5.2.2 Entry conditions may be of two types, but are not limited to only two.

EXAMPLE:

- 5.2.2.1 The following are symptoms of Reactor Trip:
- o Any Reactor Trip Annunciator Lit
 - o Rapid decreasing Neutron level on Nuclear Instruments

5.2.2.2 This procedure may be entered from (Proc. No.) (Step No.). When using entry from another procedure, use the procedure number and step to show exact transition.

- 5.3 The sequence of step numbering identifies the order by which the procedure shall be performed. When steps may be performed in some other order, the alternate sequence shall be provided prior to the applicable steps. Identify the operator Immediate Actions with a NOTE prior to Step 1.
- 5.4 When numbering the steps of the dual column procedure body, only the "Action/Expected Response" column shall be numbered. Maintain a direct horizontal relationship between related steps in the left and right columns.
- 5.5 The step numbering of the operator's sections of the procedure shall be the same as the Supervisor's section. Designate in the Supervisor's section, with a "P" or "S" enclosed in Brackets [] and to the left of the step number, which operator is to perform the step. ("P" shall designate the "Primary" Operator and "S" shall designate the "Secondary" Operator.) When an action is to be performed by the Unit Supervisor, use "US" in the brackets.

6.0 Flow Chart Preparation

- 6.1 Flow charts shall be prepared using logic symbols to denote the type of statement enclosed within the symbol. Only "Reactor Trip/Safety Injection" shall be required to be flow charted. Symbols used are:
- 6.1.1 Diamonds shall be used to denote questions or logic decisions.
- 6.1.2 Squares shall be used to denote instructional steps based upon the result of a logic decision where those results do not result in exiting the flow chart.
- 6.1.3 Hexagons shall be used when the result of a logic decision will cause exiting to another procedure, either as a final step or branching.
- 6.1.4 Triangles shall be used to identify the need to declare an Emergency Action Level based upon the diagnostics performed. (Refer to Section 18).
- 6.2 All written information/questions shall be contained within the symbol and therefore must be brief. Complete sentences are not required.

- 6.3 Extreme care must be used when preparing flow charts to maintain a meaning yet be brief. Use of the abbreviations listed in Addendum 5 is recommended.
- 6.4 Each shape symbol of the flow chart shall be identified by its corresponding step number. The step number shall be placed at the upper left of the symbol.
- 6.5 "Cautions" and "Notes" shall be included in the flow chart in the same format as in the written procedure. Placement shall be directly above or below the flow chart symbol as appropriate.
- 6.6 "Cautions" shall be printed in RED ink and "Notes" shall be printed in medium BLUE ink.

7.0 Procedure Writing Techniques

- 7.1 Procedure steps should be short and concise and should contain one, but not more than two actions.
- 7.2 Action verbs shall be capitalized for emphasis. Refer to Addendum 6 for correct use of Action Verbs.

EXAMPLE:

7.2.1 OPEN SG 1A Feed Water Isolation Valve
FWIV
1*FW-7141

7.2.2 CHECK Containment Isolation valves closed

- 7.3 Provide a level of detail in each procedure step to enable the operator to perform the intended function, but not so much that he may become confused.

EXAMPLE:

7.3.1 Inadequate Level of Detail:

CHECK pressure Indicator to ensure adequate suction pressure:

7.3.2 Adequate Level of detail:

CHECK pressure Indicator (1*SI-PI-368) to ensure 75-80 psig suction pressure.

7.3.3 Too much detail:

CHECK HHSI pump suction pressure indication for 75-80 psig suction to HHSI Pump A.

7.4 Avoid complex evolutions in one procedural step. Use, instead a series of steps with each as simple as possible.

7.5 Objects of operator actions should be clearly defined. Also when possible, include the location of those objects. Refer to Sect. 8.0.

7.6 If a step contains more than two objects of an action, such as opening several valves, refer the operator to a list immediately below the step.

7.6.1 EXAMPLE:

VERIFY open the HHSI Pump Discharge Valves
(1-CP003)

HHSI Pump #11 - 1*SI-MOV-004A

HHSI Pump #12 - 1*SI-MOV-004B

HHSI Pump #13 - 1*SI-MOV-004C

7.7 When a setpoint is required to be maintained, prescribe a band about the setpoint.

EXAMPLE: 100 - 200 psig; 70 - 80 gpm; 90 - 100 F.

7.8 Always use units of measure and values that are compatible with the instruments being used i.e., gpm, psig, etc. For temperature measures only the letters F and C are necessary. The degree sign (°) may be omitted.

7.9 Do not use vague or general expressions that may lead to confusion. Specific measurable parameters are necessary to eliminate confusion:

EXAMPLES:

Vague

Periodically

Crack open

Rapidly

Clear

every 30 minutes

open the valve 1 turn

raise temperature 10F/min.

- 7.10 Procedures are developed to prescribe a specific series of tasks to be accomplished. These tasks will be identified as the key steps and be performed by the sub-steps listed below.

EXAMPLE:

7.10.1 RESET both Trains of Safety Injection

RESET Train "R" SI

RESET Train "S" SI

- 7.11 During the performance of an EOP, the necessity of communication between the Control Room Operators and other personnel arises, specify the need and to whom it shall go.
- 7.12 When considered beneficial to the user for proper understanding and performance, describe the system response time associated with performance of the instruction.
- 7.13 When system response dictates a time frame within which the instructions must be accomplished, prescribe the time frame. If possible, however, avoid using time to indicate operator actions. Operator actions should be related to plant parameters.
- 7.14 When referring to instrumentation inside of the containment which, when exposed to adverse conditions, such as temperature and radiation, provide the expected instrument range correction caused by those adverse conditions. Identification of those alternate ranges shall be made by the words, "For Adverse Containment Conditions", then the new expected reading, all within parenthesis.

8.0 Equipment Identification, Numbering and Location Aids

- 8.1 All valves within the plant will be identified using the unit number, system designator, and valve number. When applicable, motor operated valves shall also be identified by using "MOV" between the system designation and valve number.

EXAMPLE:

1-CC-MOV-0269

0-IA-0260

- 8.2 Electrical Breakers and Local control switches shall be identified by specifying the switchgear, cubicle, control panel and switch number, as applicable.

EXAMPLE:

4160 BUS ID-6
480V MCC-1K-C-7
ZLP-601-AW1

- 8.3 The use of an asterisk in the place of a dash after the unit number indicates that the component is safety related.

EXAMPLE:

1* CC-0110
2* CC-MOV-368

- 8.4 When referring to controls or indications, the location should be given the first time it appears in the procedure. This location should indicate the board or panel on which the device is mounted. In the case of large boards, the specific section should be identified.

EXAMPLES:

START a Reactor Coolant Pump
(1-CPO05)

1. START the RCP Oil Lift Pump
2. START Reactor Coolant Pump...

- 8.5 Equipment, controls, and displays shall be identified in operator language (common usage) terms. These terms shall have the first letter of each word capitalized, followed by the equipment number where applicable. Since these terms may not always match engraved names of placards, the engraved term shall be placed in the procedure immediately after the common term. The engraved term shall be emphasized by using all capitals and shall be underlined.

9.0 Specifying Use of Plant Instrumentation Controls and Equipment in EOPs

- 9.1 Control Room Instrumentation and Controls shall be identified by Name and Number of the component.
- 9.2 Assignments of Operator Usage Instrumentation and Controls shall be selected from Addendum 7, "Preferred Instrumentation and Controls".

- 9.2.1 When selecting a required variable, use the variable with the highest letter-number combination designation.
- 9.2.2 Identify at least one alternate to the selected variable with the same levels or the next highest designation available.
- 9.2.3 When available, control board (MCB IND) instruments and controls other than CRT and plasma images are the Primary information sources with the "Qualified Display Processing System"(QDPS) as alternate. Care must be taken when selecting MCB IND so as not to require the operator to leave the field of vision of the balance of the control boards.
- 9.2.4 When information such as trending is required, the QDPS may be listed as the main instrument required.
- 9.3 When specifying the Instrumentation for the Supervisors usage, Identify the "Emergency Response Facility Data Acquisition Display System"(ERFDADS) as the main source of instrumentation with the Operators selection process as an alternate.
- 9.4 EXAMPLES:
- o VERIFY Neutron Flux decreasing on Extended Range Neutron Flux 1-NI-0045 or 1-NI-0046
Primary - ERFDADS
Alternate - QDPS - MCB IND
 - o VERIFY Steam Generator Secondary Activity decreasing on Steam Line Monitor RIT-XXXX
or
Steam Generator Blowdowns Monitor RIT-XXXX

10.0 Use of Logic Terms

- 10.1 The logic terms IF, AND, OR, NOT, IF NOT, WHEN and THEN are to be used to describe precisely a set of conditions or a sequence of actions. Logic terms are to be emphasized by capitalization and underlining.
- 10.2 The multi-column format equates to the following logic:
IF NOT the expected response in the left users column, THEN perform the contingency action in the right-hand column.

- 10.3 When action steps are contingent upon certain conditions, the step shall begin with the words IF or WHEN followed by a description of those conditions, a coma, the word THEN, and the action to be taken.
- 10.4 Logic Term Applications
- 10.4.1 IF is used for an unexpected but possible condition.
- 10.4.2 WHEN is used for an expected condition.
- 10.4.3 AND calls attention to combinations of conditions and shall be placed between each condition. If more than two conditions are to be combined, a list format is preferred.
- 10.4.4 OR implies alternative combinations or conditions, OR means either one or the other, or both.
- 10.4.5 IF... NOT or IF... can NOT should be used when an operator must respond to the second of two possible conditions. IF should always be used to specify the first conditions.
(The right-hand column of the users procedure format contains an implicit IF NOT.)

11.0 Cautions

- 11.1 Use cautions only to alert an operator to conditions that could result in health hazards or plant equipment damage. Cautions should describe the hazardous conditions and consequences of actions. If, however, cautions are overused, their effectiveness as attention-getters will be diminished. The cautionary statement must be presented before the statement directing the action. If the caution pertains to the entire procedure, place it at the beginning of the procedure. The cautionary statement shall be identified with the capitalized heading, "CAUTION." This shall be centered and double-spaced above the cautionary note. The text of the cautionary note shall be written in both upper and lower case letters for ease of reading. The cautionary note and heading shall be boxed in asterisks. The body of the procedure shall be double-spaced above and below the asterisk lines. Use short, concise sentences to describe the hazardous condition. Cautions should not contain action statements.

11.1.1 Example

```
* * * * *
*
*           CAUTION
*
* Rapid addition of feedwater following a
* reactor trip will cause excessive cooldown,
* which could result in a safety injection
* actuation.
*
* * * * *
```

11.2 If a caution applies to a single step, the caution shall appear on the same page as the applicable step.

12.0 Notes

12.1 Use notes to provide descriptive or explanatory information that is intended to aid the operator in performing the instructional step. Notes are a means for providing explanatory information in a procedure without encumbering the instructional steps. Notes should not contain action steps. Present information to the operator in the order in which it is needed. If the information in the note is intended to aid in the performance of a step, place it ahead of the step. If it pertains to the results of a step, place it after the step. If the note pertains to the entire procedure, place it at the beginning of the procedure. The note statement shall be identified with the heading "NOTE." This shall be centered and double-spaced above the note. The text of the note shall be written in both upper and lower case letters for ease of reading. The note and heading shall have a solid line above and below their text. The body of the procedure shall be double-spaced above and below the solid line.

12.1.1 Example

NOTE

Opening the recirculation valve on the discharge of any Steam Generator Feed Pump will cause a decrease in the suction pressure to all Steam Generator Feed Pumps.

12.2 If a note applies to a single step, the note shall appear on the same page as the applicable step.

13.0 Specific Writing Instructions

13.1 User Left-hand column

- 13.1.1 The left-hand column should be used for the operator key steps and expected responses.
- 13.1.2 Each key step should begin with an appropriate action verb or verb with modifier (capitalize action verbs)
- 13.1.3 If a key step requires multiple substeps, then each substep will have its own expected response.

Example:

CHECK SI Accumulator Isolation Valve Status

- o CHECK power on to valve operator
- o CHECK Isolation Valve open

- 13.1.4 If the key step does not require substeps then the step shall contain its expected response.

Example: CHECK RCP status - At least one running.

13.2 User Right-hand column

- 13.2.1 The right-hand column is used to provide contingency actions which are to be taken in the event that a stated condition, event, or task in the left-hand column does not represent or achieve the expected result.
- 13.2.2 Contingency actions should identify directions to override automatic controls and manually initiate any failed automatic action.
- 13.2.3 If contingency actions contain substeps that do not reflect the substeps in the left-hand column, then use small alpha characters to denote those substeps.

Example:

Establish Normal
Letdown
1.
2.
3.

IF Normal Letdown is
NOT available, USE
Excess Letdown
a.
b.

- 13.3 EOPs are to be written to provide the operator guidance for a specified event, therefore:
- 13.3.1 Prepare the left-hand column considering no contingency action required.
 - 13.3.2 Prepare the right-hand column with contingencies to a corresponding step in the left-hand column and assume the operator is to return to the left when the contingency is completed.
 - 13.3.3 DO NOT prepare the procedure in such a manner to hold the operator in a contingency. IF a contingency cannot be completed, he is to continue in the left-hand column.
- 14.0 Referencing and Branching
- 14.1 The term "referencing" is used when interacting or referring to another procedure. It implies that the referenced procedure will be used as a supplement to the procedure presently being used. Beware, excessive forward and backward referencing within the same procedure can be confusing and may lead to skipping of steps, particularly since the referenced steps may not return the operator to the directing step. Also, important information preceding a referenced step can be missed.
 - 14.2 If operators are required to use many procedures at the same time, there is a possibility that the referenced information may not be obtained and used or the exit point for the original procedure might be forgotten. Important steps might be missed and operator delay might result. Therefore, referencing should be minimized.
 - 14.3 In determining whether to reference another part of the procedure for instructions or to repeat the instructions within the procedure, consider the following factors:
 - 14.3.1 If the referenced instructions can be repeated without greatly increasing the length of the procedure, repeat them.
 - 14.3.2 If the procedure splits into two or more optional paths, references to other steps may be unavoidable.
 - 14.3.3 Be sure there is a means of returning the user to the correct step in the procedure after using the reference.

- 14.4 The term "branching" is used in connection with another procedure. It signifies that the procedure being used is to be exited and the new procedure is to be used in its entirety. Branching eliminates most of the problems associated with referencing.
- 14.5 To determine whether to reference another procedure, branch to another procedure, or to provide the instructions within the procedure being written, consider the following:
- 14.5.1 How the procedure and other supporting plant procedures interrelate for compatibility.
 - 14.5.2 If the information in question is material that is part of the expected knowledge of the adequately trained operator, a reference may not be necessary.
 - 14.5.3 If a sequence of actions is covered completely by another existing procedure and if the original procedure is not to be re-entered, consider branching to the procedure.
 - 14.5.4 If a sequence of actions is covered completely by another existing procedure and if the original procedure is to be re-entered, consider referencing the procedure.
 - 14.5.5 Reference complete procedures or sections of a procedure if possible.

15.0 Mechanics of Style

15.1 Spelling

Spelling should be consistent with modern usage. When a choice of spelling is offered by a dictionary, the first spelling should be used.

15.2 Hyphenation

Hyphens are used between elements of a compound word when usage calls for it. The following rules should be followed for hyphenation:

- 15.2.1 In compound numerals from twenty-one to ninety-nine.
- 15.2.2 In fractions; i.e., one-half.

- 15.2.3 In compounds with "self;" i.e., self-contained.
- 15.2.4 When the last letter of the first word is the same vowel as the first letter of the second word. As an alternative, two words may be used; i.e., fire-escape or fire escape.
- 15.2.5 When misleading or awkward consonants would result by joining the words; i.e., bell-like.
- 15.2.6 To avoid confusion with another word, i.e., pre-position to avoid confusion with preposition.
- 15.2.7 When a letter is linked with a noun, i.e., x-ray.
- 15.2.8 To separate chemical elements and their atomic weight; i.e., Uranium-235, U-235.
- 15.2.9 When doubt exists, the compound word should be restructured to avoid hyphenation.

15.3 Punctuation

Punctuation should be used only as necessary to aid reading and prevent misunderstanding. Word order should be selected to require a minimum of punctuation. When extensive punctuation is necessary for clarity, the sentence should be rewritten and possibly made into several sentences. Punctuation should be in accordance with the following rules:

15.3.1 Brackets

Do not use brackets except when using "P" or "S" for operator action identification.

15.3.2 Colon

Use a colon to indicate that a list of items is to follow, for example: Restore cooling flow as follows:

15.3.3 Comma

Use of many commas is a sign the instruction is too complex and needs to be rewritten. Therefore, evaluate the number of commas to ensure the instruction is not too complex. Use a comma after additional phrases for clarity and ease of reading.

15.3.4 Parentheses

Parentheses shall be used to indicate alternative items or equipment numbers in a procedure or instruction.

15.3.5 Period

Use a period at the end of complete sentences and for indicating the decimal place in numbers.

15.4 Vocabulary

Words used in procedures should convey precise understanding to the trained person. The following rules apply:

15.4.1 Use simple words. Simple words are usually short words of few syllables. Simple words are generally common words.

15.4.2 Use common usage, it makes the procedure easier to understand.

15.4.3 Use words that are concrete rather than vague, specific rather than general, familiar rather than formal, precise rather than blanket.

15.4.4 Define key words that may be understood in more than one sense.

16.0 Abbreviations, Letter Symbols and Acronyms

16.1 The use of abbreviations should be minimized because they may be confusing to those who are not thoroughly familiar with them. Abbreviations may be used where necessary to save time and space, and when their meaning is unquestionably clear to the intended reader.

16.2 The full meaning of the abbreviation, other than the abbreviations listed in Addendum 5 should be written in before the first use of the abbreviation and whenever in doubt. Consistency should be maintained throughout the procedure.

16.3 Capitalization of abbreviations should be uniform. If the abbreviation is comprised of lowercase letters, it should appear in lowercase in a title or heading. The period should be omitted in abbreviations except in cases where the omission would result in confusion.

16.4 Letter symbols may be used to represent operations, quantities, elements, relations, and qualities.

- 16.5 An acronym is a type of symbol formed by the initial letter or letters of each of the successive parts or major parts of a compound term. Acronyms may be used if they are defined or commonly used.
- 16.6 Abbreviations, symbols, and acronyms should not be overused. Their use should be for the benefit of the reader. They can be beneficial by saving reading time, ensuring clarity when space is limited, and communicating mathematic ideas.
- 16.7 Approved abbreviations, letter symbols and acronyms are listed in Addendum 5.
- 17.0 Provision for Missing Information
- 17.1 In some instances, information required to write a procedure is not available when it is drafted, or cannot actually be verified until the system is operated for the first time. This missing information will be identified in the procedure as (PUNCHLIST-X)
- 17.2 The writer shall ensure that the missing information is obvious to the reader by expanding the (PUNCHLIST-Item #) if necessary. Examples of (PUNCHLIST) usage.
- 17.2.1 For a missing setpoint: (PUNCHLIST-Item #) psig
- 17.2.2 For a missing operating range where the writer has estimated a parameter: (verify estimated 100-110 PUNCHLIST-Item #)amps.
- 17.2.3 For a document that is not written yet: In accordance with (PUNCHLIST - emergency instruction for turbine trip).
- 17.2.4 For a missing instrument: Observe pressure increase on (PUNCHLIST-X - pump discharge pressure indicator).
- 17.3 Missing information should be resolved at the earliest possible time prior to licensing of the Plant
- 17.4 Missing information shall be listed on a separate Punchlist at the end of the written procedure body. Each Punchlist item should contain a usability statement pertaining to this item.
- 18.0 Integration of EOPs and Requirements of the South Texas Project
Emergency Management Plan (STPEMP)
- 18.1 During the preparation process of each EOP, a review of the STEMP Emergency Action Level (EAL) Tables (STPEMP Attachment 13) shall be conducted to determine applicability for the specific EOP (PUNCHLIST 1).

- 18.2 Based upon the symptoms and conditions exhibited through control room indication and other methods of plant status determination, the EOP writer shall enter the specified EAL into the procedure at the earliest possible point.
- 18.3 EAL declaration points shall be written in the form of cautions with the EAL Level (Unusual Event, Alert, Site Area Emergency or General Emergency) written in all capital letters.
- 19.0 Procedure Verification for Compliance to the Writers Guide
- 19.1 Responsibilities
- 19.1.1 The EOP writer shall assemble the Procedure Package including all addendums (checklist, flow charts, tables and graphs) for review and complete the "Procedure Verification Request" Form (-1).
List Source Documents used.
- 19.1.2 The Reactor Operations Superintendent or his designee shall assign a person the responsibility of completing the review and provide the reviewer's name(s) on the "Procedure Verification Request"
- 19.1.3 The Reactor Operations Superintendent or his designee shall send the procedure package for simultaneous review, to the Technical Support Division for concurrence of all specified setpoints and calculated values.
- 19.1.4 The Assigned Reviewer should complete the review within 10 working days.
- 19.2 Procedure Review
- 19.2.1 The reviewer shall review the assigned Procedure Package using the "EOP Review Checklist" (-2) as a guide for comparison to the "Writers Guide".

- 19.2.2 If discrepancies are noted in the procedure, the reviewer shall describe the discrepancy on the "EOP Discrepancy/Comment Form" (-3). Use only one form for each discrepancy identified in the Step/Caution/Note of the reviewed procedure.

NOTE

Discrepancies are to be made ONLY on the "EOP Discrepancy/Comment Form". DO NOT make notes within the body or addendum being reviewed.

-
- 19.2.3 As discrepancies are identified also note the checklist item number against which the comparison is being made.
- 19.2.4 When the review is completed, the reviewer shall assemble the procedure package with the "EOP Discrepancy/Comment Forms" attached and provide the number of Forms attached on the "Procedure Verification Request" (1).
- 19.2.5 The reviewer shall return the review completed procedure package to the assigning supervisor for return to the EOP procedure writing group.

19.3 Discrepancy/Comment Resolution

- 19.3.1 The EOP writer shall review all Discrepancy/Comment Forms and resolve each with the reviewer on a case by case basis. When resolutions are agreed upon, the reviewer shall initial the discrepancy/comment form.
- 19.3.2 Where resolution is not achievable, the Reactor Operations Superintendent shall have the responsibility of deciding the resolution.
- 19.3.3 When the resolution is agreed upon or incorporated into the procedure, the EOP writer shall note the result of each discrepancy on the "EOP Discrepancy/Comment Form" and sign the sheet showing final resolution.
- 19.3.4 If during the review, instrumentation and/or control needs are identified as being needed in the Control Room, and are recommended by the Reactor Operations Superintendent, these needs shall be reviewed as part of the Control Room Design Review.

20.0 Procedure Package Handling

- 20.1 When the completed procedure package is ready for the validation process, the EOP writer shall make a copy of the package for storage in the Reactor Operations Files.
- 20.2 Transmit the original of the package to NPOD Document Control Center for retention.

21.0 Source Documents For Use in the Preparation of EOPs

- 21.1 WOG Guidelines and Background Information Rev. 1 of July 1983.
- 21.2 STPEGS FSAR and Tech. Specs.
- 21.3 Plant Piping and Instrument Drawings.
- 21.4 Plant Equipment Technical Manuals.
- 21.5 Plant Electrical and Logic Drawings.

22.0 References

- 22.1 OPGP03-ZA-0002 (Plant Procedure)
- 22.2 INPO 82-17 (Emergency Operating Procedures Writing Guidelines)
- 22.3 NUREG 0899 (GUIDELINE FOR THE PREPARATION OF EMERGENCY OPERATING PROCEDURES - Resolution of Public Comments on NUREG-7099)

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ADDENDUM I
COVER PAGE FORMAT
(Page 1 of 1)

PROCEDURE NUMBER

PROCEDURE TITLE

PLANT MANAGER

EFFECTIVE DATE

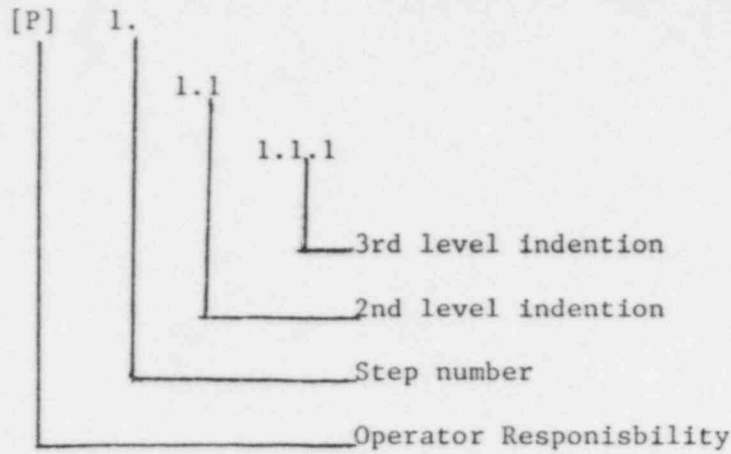


South Texas Project Electric Generating Station EMERGENCY OPERATING PROCEDURES

No.	Rev.
Page	Of

ACTION / EXPECTED RESPONSE

CONTINGENCY ACTION



Indentation levels as same as left-hand column.

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ADDENDUM 3

OPERATOR and OTHER EOP ADDENDUM
COVER PAGE FORMAT
(Page 1 of 1)

ADDENDUM _____

PROCEDURE TITLE

_____ OPERATOR COPY

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ADDENDUM 4
CHECKLIST FORMAT
(Page 1 of 1)

Checklist Title	Rev. Number	Page ___ of ___
-----------------	-------------	-----------------

Procedure Title	Procedure Number	Rev. Number
-----------------	------------------	-------------

<u>DEVICE NAME</u>	<u>POSITION REQUIRED</u>	_____
--------------------	--------------------------	-------

ADDENDUM 5
REACTOR OPERATIONS DIVISION LIST OF ABBREVIATIONS
(Page 1 of 6)

<u>A</u>			
AC	alternating current	CCP	centrifugal charging pump
ACC	accumulator	CCW	component cooling water
ACT	actuator	CENT	centrifugal
ACW	auxiliary cooling water	CFM	cubic feet per minute
ADD	additive	CFS	cubic feet per second
ADJ	adjuster	CHEM	chemical
ADMIN	administration	CHG	charging
AFW	auxiliary feedwater	CHL	chill
AFWP	auxiliary feedwater pump	CHLD	chilled
AFWPT	auxiliary feedwater pump turbine	CHLR	chiller
AFWS	auxiliary feedwater system	CHNL	channel
ALT	alternate	Ci	curie
AMP	amperes	CIA	containment isolation phase A
AOV	air operated valve	CIB	containment isolation phase B
ATM	atmosphere	CIRC	circulating
AUCT	auctioneer	CK	check
AUTO	automatic	CL	closed loop
AUX	auxiliary	CLD	cold
AVG	average	CLDN	cooldown
		CLNG	cooling
		CLR	cooler
		CNDSR	condenser
		CNTMT	containment
		CO ₂	carbon dioxide
		COMP	compensated
		COMPART	compartment
		COMPR	compressor
		CONC	concentration
		COND	condensate
		CONN	connection
		CONT	control
		CONTR	controller
		CP	control panel
		CPLG	coupling
		CPM	counts per minute
		·CPRW	condensate polishing regenerative waste
		CR	control room
		CRDM	control rod drive mechanism
		CS	containment spray
		CSP	containment spray pump
		C/U	cleanup
		CUB	cubicle
		CVCS	chemical volume control system
		CVI	containment ventilation isolation
		CWP	circulation water pump
<u>B</u>			
BA	boric acid		
BAT	boric acid tank		
BKR	breaker		
BLDG	building		
BLKD	blocked		
BLR	boiler		
BLWDN	blowdown		
BOD	biochemical oxygen demand		
BOOST	booster		
BOP	balance of plant		
BPRA	burnable poison rod assembly		
BRG	bearing		
BTRS	boron thermal regeneration system		
BTU	British Thermal Unit		
B/U	backup		
BYP	bypass		
<u>C</u>			
CAV	cavity		
C _b	boron concentration		
CB	control bank		
CC	cubic centimeter		

ADDENDUM 5
REACTOR OPERATIONS DIVISION LIST OF ABBREVIATIONS
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<u>D</u>		EXCS excess	
DAMP	damper	EXCT	excitation
DC	direct current	EXH	exhaust
DEAER	deaerator	EXP	expansion
DEMIN	demineralizer	EXTR	extraction
DET	detector		
DEV	deviation	<u>F</u>	
DF	decontamination factor	FCV	flow control valve
DG	diesel generator	FDR	feeder
DGB	diesel generator building	FHB	fuel handling building
DISCH	discharge	FIS	flow indicating switch
DISP	displace	FLTR	filter
DIST	distribution	FLW	flow
DN	down	FO	fuel oil
DO	dissolved oxygen	FPS	feet per second
DPM	decades per minute or desintegrations per minute	FREQ	frequency
DRN	drain	FW	feedwater
DRPI	digital rod position indication	FWD	forward
DSTL	distillate		
DVRT	divert	<u>G</u>	
DWS	demineralized water system	GEN	generator
D/P	differential pressure	GND	ground
		GOV	governor
<u>E</u>		GP	group
EAB	electrical auxiliary building	GPM	gallons per minute
ECCS	emergency core cooling system	GRBX	gearbox
ECP	essential cooling pond	GWPS	gaseous waste processing system
ECW	essential cooling water		
EHC	electro-hydraulic control	<u>H</u>	
EL	elevation	H ₂	hydrogen
ELEC	electrical	HCV	hand control valve
ELEM	element	HDP	heater drip pump
EMER	emergency	HDR	header
ENCL	enclosure	HEPA	high efficiency particulate air
ERFDADS	Emergency Response Facility Data Aquisition Display System	HHSI	high head safety injection
ESF	engineered safety features	HI	high
ET	emergency transformer	HNDLG	handling
EVAP	evaporator	HOTWL	hotwell
EXCH	exchange	H.P.	health physics
		HP	high pressure

ADDENDUM 5
REACTOR OPERATIONS DIVISION LIST OF ABBREVIATIONS
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Hp horsepower
HR hour
HTG heating
HTR heater
H/U heatup
HVAC heating, ventilation & air
conditioning
HX heat exchanger
HWD hydraulic
Hz Hertz

I

IA instrument air system
ICRR inverse count rate ratio
ILRT integrated leak rate test
IMP impulse
IMPL impeller
IND indication
INJ injection
INL inlet
INOP inoperable
INTLK interlock
INSTR instrument
IR intermediate range
IRC inside reactor containment
ISOL isolation

J

JNT joint
JRNL journal

K

K thousand
Keff effective neutron
multiplication factor
KW kilowatt
KWH kilowatt hour

L

LAB laboratory
LBM pounds mass
LC load center
LCV level control valve
LED light emitting diode

LETDN letdown
LH left hand
LHSI low head safety injection
LKF leakoff
LLRT local leak rate test
LN line
LO low
L.O. lube oil
LP low pressure
LS limit switch
LWPS liquid waste processing system

M

MAB mechanical auxiliary building
MAN manual
MB missile barrier
MCB main control board
MCC motor control center
MEAB mechanical electrical
auxiliary building
MEAS measure
MECH mechanical
MEV million electron volts
M-G motor generator
MIDS movable incore detector system
MINI minimum
MISC miscellaneous
ML milliliter
MN main
MNTR monitor
MOIST moisture
MOV motor operated valve
MSIV main steam isolation valve
MSL mean sea level
MSR moisture separator reheater
MTR motor
M/U makeup
MW megawatt

N

N₂ nitrogen
N.C. normal closed
NEG negative
NEUT neutral
NIS nuclear instrumentation system
NNS non-nuclear system
N.O. normal open

ADDENDUM 5
REACTOR OPERATIONS DIVISION LIST OF ABBREVIATIONS
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NO	number		<u>Q</u>
NORM	normal		
N/R	narrow range	QDPS	Qualified Display Processing System
NSRE	non-safety related		
	<u>O</u>		<u>R</u>
O ₂	oxygen	RAD	radiation
OL	open loop	R	range
OPER	operator	RC	reactor coolant
ORC	outside reactor containment	RCB	reactor containment building
ORIF	orifice	RCCA	Rod control cluster assembly
OUTL	outlet	RCDT	reactor coolant drain tank
	<u>P</u>	RCFC	reactor containment fan cooler
PAMS	post accident monitoring system	RCP	reactor coolant pump
PASS	post accident sampling system	RCPB	reactor coolant pressure boundary
PCi	pico curies	RCS	reactor coolant system
PCM	percent milli rho	RCV	receiver
PCV	pressure control valve	REC	recorder
PE	pressure element	RECIRC	recirculation
PENETR	penetration	RECOMB	recombiner
PERM	permissive	REF	reference
PI	pressure indicator	REFL	refuel
PMP	pump	REFLNG	refueling
PNL	panel	REGEN	regenerative
POL	polish, polishing, polisher	RHTR	reheater
PORV	power operated relief valve	REL	relief
POS	positive	REM	roentgen equivalent man
POSIT	position	RET	return
PPB	parts per billion	REV	reverse/revision
PPM	parts per million	RH	right hand
PR	power range	RHDS	reactor head degassing system
PRI	primary	RHR	residual heat removal
PROT	protection	RHRS	residual heat removal system
PRT	pressurizer relief tank	RHT	recycle holdup tank
PRZR	pressurizer	RM	room
PSIA	pounds per square inch absolute	RMPF	reservoir makeup pumping facility
PT	pressure transmitter	RMS	radiation monitoring system
PULS	pulsation PURIF purification		
PWR	power		
PRESS	pressure		

ADDENDUM 5
REACTOR OPERATIONS DIVISION LIST OF ABBREVIATIONS
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RMW	reactor makeup water	STTR	stator
'I	control rod position indicator	S/U	startup air system
RSVR	reservoir	SUCT	suction
RTD	resistance temperature detector	SUPP	supply
RUNBK	runback	SW	switch
RWST	refueling water storage tank	SWYD	switchyard
RV	reactor vessel	SYNCH	synchronize/synchroscope
RX	reactor	SYS	system
REG	regulator/regulating		
	<u>S</u>		<u>T</u>
SA	station air system	TAVG	temperature average
SB	shutdown bank	T/C	Thermocouple
SCRN	screen	Tc/TC	Cold Leg Reactor Coolant
SD	shutdown	TCV	temperature control valve
SEC	secondary	TDS	total dissolved solids
SEL	selector	TECH	technical
SFPCS	spent fuel pit coolant system	TERM	terminal
S/G	steam generator	TG	turbine generator
SGFP	steam generator feed pump	TGB	turbine generator building
SGFPT	steam generator feed pump turbine	Th/TH	Hot Leg Reactor Coolant
SHWR	shower	THERM	thermometer
SI	safety inspection	THR	thrust
SIS	safety injection system	THROT	throttle
SL	seal		
SMP	sump	<u>U</u>	
SPEC	specification	U	uranium
SOL	solenoid	UIC	uncompensated ion chamber
SP	setpoint	UNINT	uninterruptable
SR	source range	UAT	unit auxiliary transformer
SRE	safety-related	UST	unit standby transformer
SRG	surge		
SSPS	solid state protection system	<u>V</u>	
STAB	stabilizer	V	volt
STBY	standby	VAC	vaccum
STDPIPE	standpipe	VAR	volt amps reactive
STM	steam	VCT	volume control tank
STOR	storage	VENT	ventilation
STPEGS	South Texas Project Electric Generating Station	VIB	vibration
STRNR	strainer	VLV	valve
STRT	start	VPR	vapor

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REACTOR OPERATIONS DIVISION LIST OF ABBREVIATIONS
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W

WHT waste holdup tank
WNDG winding
W/R wide range
WSH wash
WST waste
WTHDRAWL withdrawal
WTR water

X

X cross
XFER transfer
XFMR transformer
XMTR transmitter

ADDENDUM 6
ACTION VERB DEFINITIONS
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1. ALLOW: To permit a stated condition to be achieved prior to proceeding.
2. CHECK: To perform a physical action that determines the state of a variable of status of equipment without directing a change in status.
3. CLOSE: To change the physical position of a mechanical device to the closed position so that it prevents a fluid flow or permits passage of electric current.
4. COMPLETE: To accomplish specific procedural requirements.
5. DECREASE: To reduce, as in size, amount, number or intensity.
6. ESTABLISH: To make arrangements for a stated condition.
7. INCREASE: To enlarge, as in size, amount, number or intensity.
8. INSPECT: To measure, observe, or evaluate a feature or characteristic for comparison with specified limits, method of inspection should be included.
9. MAY: Used to denote permission, neither a requirement or condition.
10. OPEN: To change the physical position of a mechanical device to an unobstructed position that permits access of flow, or prevents passage of electrical current.
11. RECORD: To document a specified condition or characteristic.
12. SET: To physically adjust to a specified value an adjustable feature.
13. SHALL: Used to denote a requirement.
14. SHOULD: Used to denote a recommendation.
15. START: To originate motion of an electrical or mechanical device.
16. STOP: To cease motion of an electrical or mechanical device.
17. THROTTLE: To operate a valve in an intermediate position to obtain a certain flow rate for gases or liquids.

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ACTION VERB DEFINITIONS

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18. TRIP: To activate a mechanical or electrical device which would initiate a protective function.
19. VERIFY: To prove to be true, exact, or accurate by observation of a condition or characteristic for comparison with an original or procedural requirement.

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<u>Variable</u>	<u>Range/Status</u>	<u>Type/ Category</u>	<u>Number of Channels</u>	<u>Control Room Display</u>
RCS Pressure (Wide Range)	0-3000 psig	A1, B1, B2 C1, C2, D2	1 per plant	QDPS 1 recorded
Wide Range T Hot	0-700 F	A1, B1, B2	1 per loop	QDPS 4 recorded
Wide Range T Cold	0-700 F	A1, B1, B2	1 per loop	QDPS 4 recorded
Wide Range Steam Gener- ator Level	0-100% of span	A1, B1, B2, D2	1 per steam generator	QDPS 4 recorded
Narrow Range Steam Gener- ator Level	1-100% of span	A1, B1, B2, D2	4 per steam generator	QDPS 4 recorded
Pressurizer Level	1-100% of span	A1, B2, D2	4 per plant	QDPS 1 recorded
Containment Pressure	-5 to 60 psig	A1, B1, B2 C1, C2, D2	4 per plant	QDPS 2 recorded
Steamline Pressure	0-1400 psig	A1, B1, D2	4 per loop	QDPS 1 per loop recorded
Refueling Water Stor- age Tank Level	1-100% of span	A1, B1, D2	3 per tank	QDPS 2 meters 1 recorded
Containment Level (Wide Range)	0-609,000 gal	A1, B1, B2 C2, D2	3 per plant	QDPS 3 recorded
Containment Water Level (Narrow Range)	Bottom of Sump to Top of Sump	A1, B2, C2, D2	2 per plant	QDPS 2 recorded
Auxiliary Feedwater Storage Tank Level	1-100% of span	A1, B1, D2	3 per plant	QDPS 1 recorded

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<u>Variable</u>	<u>Range/Status</u>	<u>Type/ Category</u>	<u>Number of Channels</u>	<u>Control Room Display</u>
High Range Containment Radiation Level	1R/hr to 10 R/hr Gamma	A1, B1, B2 C2, E2	2 per plant	QDPS 2 meters 2 recorded
Steam Gener- ator Blowdown Radiation Monitor	(Later)	A1, B2, C2 E2	1 per Blowdown Line	QDPS 4 meters 4 recorded
Main Steamline Radiation Monitor	(Later)	A1, B2, C2 E2	1 per steam line	QDPS 4 meters 4 recorded
Core Exit Temperature	100-2200 F	A1, B1, C1	2 train of 25 thermocouples each, equally distributed across core	QDPS High & Average values re- corded for each train
RCS Sub- cooling	200 F sub- cooling to 35 F superheat	A1, B1	2 per plant	QDPS 2 recorded
Neutron Flux (Extended Range)	10^{-10} to 100% Full Power	B1, D2	2 per plant	QDPS 1 recorded
Neutron Flux Startup Rate		B1, D2	2 per plant	QDPS 1 recorded
Reactor Vessel Water Level	Upper Core Support Plate to top of vessel	B1, C2, D2	2 per plant	QDPS
Containment Isolation Valve Status	Open/Closed	C2, D2	1 per valve	1 pair of lights per valve
Containment Hydrogen Concentration	1-10%	B1, C1	2 per plant	QDPS 1 recorded
Control Rod Position Indication	Rods on Bottom	D3	1 per rod	LED

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<u>Variable</u>	<u>Range/Status</u>	<u>Type/ Category</u>	<u>Number of Channels</u>	<u>Control Room Display</u>
Auxiliary Feedwater Flow	1-100% of span	A1, B1, D2	1 per loop	QDPS 4 recorded
RCS Pressure (Extended Range)	0-3500 psig	A1, B1, C1	2 per plant	QDPS 2 recorded
Primary Coolant Activity and Sampling	N/A	C3	1 post accident sampling system per plant	CRT (ERFDADS)
Unit Vent Radioactivity Level		C2, E2	1 per plant	CRT (RMS)
Fuel Handling Bldg. Radia- tion	10^{-10} uCi/cc	10- to C3	2 per plant	2 meters, 2 recorded
Adjacent Building Radiation Level	10^{-10} to 10 mR/hr	C3	5 per plant	CRT (RMS)
Site Envir- onmental Rad- iation Level (Portable Monitoring)	N/A	C3, E3	N/A	Portable Sampling
Pressurizer PORV Status	Open/Closed	B2, D2	1 per valve	1 pair of lights per valve
Pressurizer PORV Block Valve Status	Open/Closed	D2	1 per valve	1 pair of lights per valve
Pressurizer Safety Valve Status	Open/Closed	B2, D2	1 per valve	1 Alarm CRT (ERFDADS)

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<u>Variable</u>	<u>Range/Status</u>	<u>Type/ Category</u>	<u>Number of Channels</u>	<u>Control Room Display</u>
Containment Pressure (Extended Range)	0-180 psig	C1, C2	2 per plant	QDPS 1 recorded
Pressurizer Spray Valve Status	Open/Closed	D2	1 per valve	1 Light per valve
Charging System Flow	0-500 gpm	D2	1 per plant	QDPS
Letdown Flow	0-500 gpm	D2	1 per plant	1 meter
Volume Control Tank Level	0-100% of span	D2	2 per plant	1 meter
CVCS Valve Status	Open/Closed	D2	1 per valve	1 pair of light per valve
Charging Pump Status	On/Off	D2	2 per plant	1 pair of light per pump
Boric Acid Transfer Pump Status	On/Off	D2	2 per plant	1 pair of light per pump
RCP Seal Injection Flow	0-20 gpm	D2	1 per loop	QDPS 4 recorded
S/G Atmospheric PORV Status	0-100% Open	D2	1 per valve	QDPS 1 meter per valve
Main Steam-line Isolation Valve Status	Open/Closed	B2, D2	1 per valve	1 pair of light per valve
Main Steam-line Bypass Valve Status	Open/Closed	B2, D2	1 per valve	1 pair of light per valve

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<u>Variable</u>	<u>Range/Status</u>	<u>Type/ Category</u>	<u>Number of Channels</u>	<u>Control Room Display</u>
Pressurizer Heater Breaker Position	Open/Closed	D2	1 per bank	1 pair of lights per valve
Pressurizer Pressure		D2	4 per plant	QDPS
RCP Status	On/Off	D2	1 per pump	1 pair of light per pump
Main Feed- water Control Bypass Valve Status	Open/Closed	D2	1 per valve	CRT (ERFDADS)
Main Feed- water Isola- tion Valve Status	Open/Closed	D2	1 per valve	CRT (ERFDADS)
Main Feed- water Isola- tion Valve Bypass Valve Status	Open/Closed	D2	1 per valve	1 pair of light per valve
Main Feed- water Flow	0-100% of span	D2	3 per loop	QDPS 1 per loop recorded
S/G Blowdown Isolation Valve Status	Open/Closed	D2	1 per valve	1 pair lights per valve
S/G Blowdown Samples Isol- ation Valve Status	Open/Closed	D2	1 per valve	1 pair lights per valve
Total HHSI Flow	0-2000 gpm	D2	2 per SI pump	6 meters
Total LHSI Flow	0-5000 gpm	D2	2 per SI pump	6 meters

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<u>Variable</u>	<u>Range/Status</u>	<u>Type/ Category</u>	<u>Number Of Channels</u>	<u>Control Room Display</u>
S/G Safety Valve Status	Open/Closed	D2	1 per valve	Alarm CRT (RMS)
Main Feed-water Control Valve Status	Open/Closed	D2	1 per valve	1 pair lights per valve
Auxiliary Feedwater Valve Status	Open/Closed	D2	1 per valve	1 pair lights per valve
Containment Spray Flow	0-100% of span	D2	1 per train	3 meters
Containment Spray System Valve Status	Open/Closed	D2	1 per valve	1 pair lights per valve
Containment Spray Pumps Status	On/Off	D2	1 per pump	1 pair lights per valve
RCB Fan Cooler Differential Pressure/Status	3-4 in. water	D2	1 per fan	1 Alarm per fan
CCW Pump Discharge Pressure	0-150 psig	D2	1 per header	3 meters
Containment Ventilation Damper Status	Open/Closed	D2	1 per damper	1 pair lights per damper
CCW Header Temperature	0-250 F	D2	1 per header	3 meters
CCW Surge Tank Level	0-100% of span	D2	1 per tank component	3 meters

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<u>Variable</u>	<u>Range/Status</u>	<u>Type/ Category</u>	<u>Number of Channels</u>	<u>Control Room Display</u>
ECCS Accumulator Pressure	0-700 psig	D2	2 per tank	6 meters
ECCS Valve Status	Open/Closed	D2	1 per valve	1 pair lights per valve
ECCS Pump Status	On/Off	D2	1 per pump	1 pair lights per valve
Essential Cooling Water System Valve Status	Open/Closed	D2	1 per valve	1 pair of lights per valve
ESF Environment	Temperature above setpoint Fan Stopped/ Running	D2	1 per ESF component/ cubicle	1 alarm or pair of lights per item
Standby Power and Emergency Power Source Status	Bus Specific	D2	1 per bus	1 meter or alarm for each power source
Other Energy Sources Important to Safety	Component Specific	D2	1 per source	1 meter or alarm for each power source
RHR Heat Exchanger Discharge Temperature	50-400 F	D2	1 per heat exchanger	QDPS 3 recorded
RHR Flow	0-100% of span	D2	1 per RHR train	QDPS 3 meters
RHR Valve Status	Open/Closed	D2	1 per valve	1 pair lights per valve

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<u>Variable</u>	<u>Range/Status</u>	<u>Type/ Category</u>	<u>Number of Channels</u>	<u>Control Room Display</u>
CCW Flow to to ESF Components	0-100% of span	D2	1 per ESF components	9 meters
CCW Valve Status	Open/Closed	D2	1 per valve	1 pair lights per valve
Essential Cooling Water	0-100% of span	D2	1 per major ESF component	QDPS
Auxiliary Feedwater Turbine Pump Status	0-5000 rpm Open/Closed	D2	1 turbine speed indicator, 1 per steam inlet valve	1 meter, 1 pair lights per valve
SI Pump Status	On/Off	D2	1 per pump	1 pair lights per pump
SI Valve Status	Open/Closed	D2	1 per valve	1 pair lights per valve
Essential Cooling Water Pump Status	On/Off	D2	1 per pump	1 pair lights per pump
CCW Pump Status	On/Off	D2	1 per pump	1 pair lights per pump
RHR Pump Status	On/Off	D2	1 per pump	1 pair lights per pump
SI Actuation Status	On/Off	D2	1 per plant	1 Alarm
Containment Isolation Actuation Status	On/Off	D2	1 per plant	1 Alarm
Control Room Radiation	10^{-10} to 10^{-10} mR/hr 10^{-10} to 10^{-10} uCi/cc	E3 E2	1 per plant	CRT on demand 2 meters 2 recorded

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<u>Variable</u>	<u>Range/Status</u>	<u>Type/ Category</u>	<u>Number of Channels</u>	<u>Control Room Display</u>
Reactor Trip Breaker Position	Open/Closed	D2	1 per breaker	1 pair lights per breaker
Turbine Governor Valve Position	Open/Closed	D2	1 per valve	1 pair lights per valve
Turbine Stop Valve Position	Open/Closed	D2	1 per valve	1 pair lights per valve
Motor-Driven Auxiliary Feedwater Pump Status	On/Off	D2	1 per pump	1 pair lights per pump
S/G Monitor	10 ⁻¹⁰ to 10 ⁻¹⁰ uCi/cc	E2	1 per plant	CRT on demand
Cond. Polish	10 ⁻¹⁰ to 10 ⁻¹⁰ uCi/cc	E2	1 per plant	CRT on demand
Liquid Radwaste	10 ⁻¹⁰ to 10 ⁻¹⁰ uCi/cc	E2	1 per plant	CRT on demand
TGB Drain	10 ⁻¹⁰ to 10 ⁻¹⁰ uCi/cc	E2	1 per plant	CRT on demand
FHB Vent Radiation	10 ⁻¹⁰ to 10 ⁻¹⁰ uCi/cc	E2	2 per plant	2 meters 2 recorded
Effluent Path Flow Rate/Status				
S/G Blowdown Flow	0-100% of span	E3	1 per plant	CRT on demand
Valve Status	Open/Closed	E2	1 per valve	1 pair lights per valve
Cond. Polish Flow	0-100% of span	E3	1 per plant	CRT on demand
Valve Status	Open/Closed	E2	1 per valve	1 pair lights per valve

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<u>Variable</u>	<u>Range/Status</u>	<u>Type/ Category</u>	<u>Number of Channels</u>	<u>Control Room Display</u>
Access Area Radiation	10 ⁻¹⁰ to 10	R/hr E3	1 per designated area	CRT on demand
Condenser Vacuum Pump Effluent Radiogas Concentration	10 ⁻¹⁰ to 10 uCi/cc	E3	1 per plant	CRT on demand
Concentration from Liquid Pathways				
Condenser Vaccum Pump Flow	0-100% of span	E3	1 per plant	CRT (RMS)
Pump Status	Open/Closed	E2	1 per plant	CRT (RMS)
Meteorological Parameters	N/A	E3	15 per plant	CRT (ERFDADS)
Containment Sump and Atmospheric Sampling	N/A	E3	1 post accident sampling system per plant	CRT (ERFDADS)
Boric Acid Tank Charging Flow	_____	_____	_____	_____
Containment Atmospheric Temperature	_____	_____	_____	_____
Accumulator Tank Level	_____	_____	_____	_____
Containment Sump Water Temperature	_____	_____	_____	_____

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<u>Variable</u>	<u>Range/Status</u>	<u>Type/ Category</u>	<u>Number of Channels</u>	<u>Control Room Display</u>
Liquid Radwaste Flow	0-100% of span	E3	1 per plant	CRT on demand
Valve Status	Open/Closed	E2	1 per valve	1 pair lights per valve
TGB Drain Flow	0-100% of span	E3	1 per plant	CRT (RMS)
Valve Status	Open/Closed	E2	1 per plant	CRT (RMS)
Unit Vent Flow	0-100% of span	E2	1 per plant	CRT (RMS)
Heat Removal by the Containment Fan Heat Removal System	_____	_____	_____	_____
Emergency Ventilation Damper Position	_____	_____	_____	_____

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Procedure Verification Request

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EOP Title _____

EOP Number _____ Rev. No. _____

EOP Source Documents Used.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

Assigned Reviewer(s) _____

Date Due _____ EOP Writer _____

Procedure Accepted (Yes/No) _____

Number of EOP Discrepancy/Comment Forms Attached _____

This form when completed, shall be retained for the life of the plant.

Color paper requirements do not apply to this form.

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Reactor Operations EOP Review Checklist

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Procedure _____ Rev. _____

Writer _____ Reviewer _____

Date Submitted for Review _____

Date Review Completed _____

	Yes	No
1.0 Are all Formats correct Writers Guide Sect. 3.0		
1.1 Cover Page	_____	_____
1.2 Supervisors Copy	_____	_____
1.3 Operators Copy	_____	_____
1.4 Flow charts (if attached)	_____	_____
1.5 Conditional Information	_____	_____
1.6 Addendums	_____	_____
2.0 Procedure Organization Writers Guide Sect. 4.0		
2.1 Placement of Cover Sheet	_____	_____
2.2 Conditional Information page Placement Supervisors copy	_____	_____
2.3 Addendums in order of use	_____	_____

This form, when completed, shall be retained for the life of the plant.

Color paper requirements do not apply to this form.

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|-----|--|-------|-------|
| 3.0 | Procedure Numbering
Writers Guide Sect. 5.0 | | |
| 3.1 | Are all key steps clearly identified by a procedure step number | _____ | _____ |
| 3.2 | Are sub-steps clearly numbered | _____ | _____ |
| 3.3 | Are flow charts clearly and properly cross-referenced to the written procedure Writers Guide Sect. 5.0 | _____ | _____ |
| 4.0 | Flow charts (If attached)
Writers Guide Sect. 6.0 | | |
| 4.1 | Are the correct symbols used to match verbage within the symbol | _____ | _____ |
| 4.2 | No more than 2 flow paths per page | _____ | _____ |
| 4.3 | Are the statements within the symbol understandable | _____ | _____ |
| 4.4 | Do the statements agree with the written procedure | _____ | _____ |
| 5.0 | Procedure Readability and Understanding
Writers Guide Sect. 7.0 | | |
| 5.1 | Are steps clearly stated with proper use of action verbs | _____ | _____ |
| 5.2 | Is the level of detail adequate for the operator to achieve the intended task | _____ | _____ |
| 5.3 | Are the steps limited to a single action and use a listing of the objects of an action when there are more than 2 | _____ | _____ |
| 5.4 | Are the instrument readings compatible with the instrument and do the instructions provide the proper band width for control | _____ | _____ |

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|-----|--|-------|-------|
| 5.5 | If communications between personnel in and out of the Control Room are required, are the personnel identified | _____ | _____ |
| 5.6 | Are the expected system responses clearly stated with any instrument affects clearly identified | _____ | _____ |
| 6.0 | Equipment identification, Numbering and Locations Utilization
Writers Guide Sect. 8.0 | | |
| 6.1 | Are the components specified for use in the procedure properly numbered | _____ | _____ |
| 6.2 | Are the locations of components clearly identified with Control panel numbers, rooms or areas understandable | _____ | _____ |
| 6.3 | Are the names used for components the same as the label or, if necessary, also simplified | _____ | _____ |
| 7.0 | Are specified instruments and Controls Assigned as per "Preferred Instrumentation and Controls" List on Addendum 7 of POPl-ZA-6
Writers Guide Sect. 9.0 | _____ | _____ |
| 8.0 | Logic Term Usage
Writers Guide Section 10.0 | | |
| 8.1 | Are all logic terms properly capitalized and underlined | _____ | _____ |
| 8.2 | Are logic terms, when used, applied correctly and understandable in the context of the step | _____ | _____ |
| 9.0 | Use of Cautions and Notes
Writers Guide Sect. 11.0 and 12.0 | | |
| 9.1 | Are the Cautions and Notes clearly identified with the correct format | _____ | _____ |

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|------|---|-------|-------|
| 9.2 | Do the cautions clearly identify the concern of the steps to which it applies | _____ | _____ |
| 9.3 | Do the notes supply the necessary information to aid the operator in the performance of a step with a clear understanding | _____ | _____ |
| 10.0 | Left-hand & Right-hand column Checks
Writers Guide Sect. 13.0 | | |
| 10.1 | Are the left-hand columns in all cases clearly the steps to be taken if no contingency exists | _____ | _____ |
| 10.2 | Are the right-hand columns restricted to only contingency actions | _____ | _____ |
| 10.3 | Are the actions in the right-hand column correctly aligned with the steps in the left-hand column | _____ | _____ |
| 11.0 | Referencing and Branching
Techniques Usage
Writers Guide Sect. 14.0 | | |
| 11.1 | Are the interactions with other procedures clearly specified with both exit and re-entry points when needed | _____ | _____ |
| 12.0 | Spelling, Hyphenation, Punctuation and
Vocabulary
Writers Guide Sect. 15.0 | | |
| 12.1 | Spelling correct | _____ | _____ |
| 12.2 | Are punctuation and hyphenation marks correctly used and placed | _____ | _____ |
| 12.3 | Are words used common to an operation and simple | _____ | _____ |

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13.0 Are abbreviations, letter symbols
and acronyms used common to an operator
and/or listed on the abbreviation list,
Addendum 5
Writers Guide Sect. 16.0

14.0 Are all setpoints, operating ranges,
other document numbers and equipment
identifications, i.e., "Later's"
filled in

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EOP Discrepancy/Comment Form

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EOP Title _____ Rev. No. _____

Step/Caution/Note _____

Discrepancy/Comment

Reviewer _____ Date _____

Resolution

Resolution Approval

Reactor Operations Superintendent
or
Alternate Date _____

This form, when completed, shall be retained for the life of the plant.

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EOP Step Justification/Verification Form

OPOP01-ZA-0006-4
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Procedure No. (STP) _____ Rev. _____

WOG Procedure No. _____

Title _____

Prepared By _____ Date _____

STP EOP
Step No.

WOG
Step No.

Justification/Verification
Basis

This form, when completed, shall be retained for the life of the plant.

Color paper requirements do not apply to this form.

PUNCHLIST

1. 18.1 South Texas Project Emergency Management Plan is not a approved Document but is drafted. Emergency Action Tables are provided in the draft stage. This procedure is usable without the STPEMP being approved.