10/27/83

11-28-83

PHILADELPHIA ELECTRIC COMPANY
PEACH BOTTOM ATOMIC POWER STATION

A-94 PROCEDURE FOR THE PREPARATION AND CONTROL OF TRANSIENT RESPONSE IMPLEMENTATION PLAN (TRIP) PROCEDURES

1.0 PURPOSE

1.1 The purpose of this procedure is to provide administrative and technical guidance to preparers of Transient Response Implementation Plan (TRIP) procedures.

1.2 This procedure further directs the preparation of appropriate supplementary information which will be supplied as part of TRIP, or included in appendices to this procedure, to provide training and operating assistance necessary for implementation and use of TRIP procedures.

2.0 SCOPE

2.1 In scope, this procedure extends to all aspects of implementation of the BWR Owners Group Symptomatic Emergency Procedure Guidelines.

3.0 REFERENCES

3.1 Technical Specifications

3.2 Final Safety Analysis Report

3.3 BWR Emergency Procedure Guidelines

3.4 Administrative Procedure A-1

3.5 Administrative Procedure A-2

3.6 Administrative Procedure A-4

3.7 INPO 82-017 Guideline, Emergency Operating Procedures Writing Guideline.

3.8 NUREG 0899 Revision 1, Guidelines for the Preparation of Emergency Operating Procedures.

3.9 NUREG/CR-2005, SAND 81-7074, Checklist for Evaluating Emergency Procedures Used in Nuclear Power Plants.

3.10 GP-R-61015 General Physics Corp., A Human Factors Evaluation of Two Peach Bottom Emergency Procedures.

4.0 DEFINITIONS

4.1 A Verb List is provided in Appendix IV to this procedure to provide guidance and examples of action and transitive verbs that should be used.

4.2 Many other terms that have specific meanings in the TRIP procedures are defined in reference 1. An example of these is the word "operable" or "operability".

4.3 Definition of "shall", "should", and "may": "shall" denotes a requirement; "should" denotes a recommendation; "may" denotes permission, but is neither a requirement nor a recommendation.

5.0 RESPONSIBILITIES

5.1 The preparer of a TRIP procedure shall be responsible to:

5.1.1 Prepare the procedure in accordance with the format content guidance in this procedure and Appendices.

5.1.2 Ensure that abbreviations, equipment designations, etc., adhere to Peach Bottom standards as described in the list of abbreviations for Peach Bottom Station and the Peach Bottom Station Equipment Index.

5.1.3 Prepare the bases for the procedure.

5.1.4 Prepare PORC review forms and distribute documents for PORC review.

5.1.5 Resolve comments resulting from PORC reviews.

5.2 The individual(s) assigned to verify the TRIP procedures shall comply with the guidance of Appendix VI.

5.3 The individual(s) assigned to validate the TRIP procedures shall comply with the guidance of Appendix VII.

5.4 The Plant Operations Review Committee (PORC) shall be responsible to review and approve TRIP procedures in accordance with Administrative Procedure A-4.

5.5 The Nuclear Review Board (NRB) shall be responsible to review TRIP procedures in accordance with the NRB charter.

6.0 PREREQUISITES

6.1 A copy of the current revision of the BWR Owners Group Emergency Procedure Guidelines shall be obtained.

6.2 Familiarity with the current revision of the TRIP procedure and an understanding of the bases for these procedures.

6.3 Sufficient knowledge of plant systems and operations to understand and convey the intent of the BWR Owners Group Emergency Procedure Guidelines as they relate to Peach Bottom.

7.0 PROCEDURE

7.1 Technical Guidelines

The Generic Emergency Procedure Guidelines (EPG) developed by the G.E. BWR Owners Group shall be used in development of the TRIP.

7.1.1 Additions and Deletions

The EPG's are applicable to BWR-1 through BWR-6 designs and therefore refer to systems not included in the plant specific design.

a. Deletion of those EPG steps which refer to systems not included in the plant specific design is automatic and no justification is required.

b. Steps may be added to operate plant specific systems to which the EPG make no reference and no justification is required.

7.1.2 Organization

The organization of the TRIP procedures should closely parallel, but is not constrained by the organization of the EPGs.

7.1.3 Calculations

The EPG Appendix C, Calculational Procedures shall be used, as applicable,for guidance in calculating limits, curves, setpoints and operating boundry conditions which are used in the TRIP procedures.

7.1.4 Bases

Bases shall be written for each TRIP procedure in accordance with Appendix I. The EPG, Appendix B, Bases shall be used, as applicable, for guidance.

7.2 Format

The TRIP procedures will be written in the functional flow chart format in accordance with Appendix III. The support procedures, T-200 series, shall be written in the paragraph format in accordance with Appendix II.

7.3 Procedure Identification and Interrelationship

7.3.1 TRIP Procedure Interrelationship

The TRIP procedures shall interrelate with themselves and other procedures as shown on Figure 1, TRIP.

7.3.2 Identification

a. The TRIP flow charts shall be identified in accordance with direction in Appendix III.

b. The TRIP Bases shall be identified in accordance with direction in Appendix I and Administrative Procedure A-1.

c. The T-200 Series procedures shall be identified in accordance with direction in Appendix II and Administrative Procedure A-1.

7.4 Mechanics of Style:

7.4.1 These procedures will be in use during emergency conditions, when the operators are operating under conditions of high stress. Therefore, the information in the procedures must be short, clear, and concise statements, questions, or conditional statements. The writing style shall be in accordance with Appendix IX.

7.5 Production of Procedures

7.5.1 Flow Charts

The Flow Charts may be produced on the computer graphics system or by manual drafting. The available upper case letters are used.

7.5.2 T-200 Series Procedures

The T-200 procedures are produced on a computerised word processor (i.e. ATMS), and therefore, the available type will be used.

7.6 Applicability

The TRIP procedures apply to both units at the site.

7.7 Verification and Validation (V&V)

7.7.1 Verification and validation shall be performed in accordance with Appendices VI and VII respectively by the preparer.

7.7.2 PORC or NRB may request additional V&V.

7.8 Review and Approval

7.8.1 PORC Approval

a. PORC shall approve this procedure and its appendices in accordance with Administrative Procedures A-1 and A-4.

b. PORC shall approve TRIP procedures in accordance with Administrative Procedure A-4.

7.8.2 Nuclear Review Board (NRB)

The NRB shall review the TRIP procedures in accordance with the NRB charter.

7.8.3 QA

QA shall approve this procedure in accordance with Administrative Procedure A-1.

7.9 Procedure Revisions

7.9.1 Procedure revision is accomplished in accordance with Administrative Procedure A-2.

7.10 Issuance

7.10.1 Issuance is accomplished in accordance with Administrative Procedure A-2.

7.11 Periodic Review

7.11.1 Periodic review is accomplished in accordance with Administrative Procedure A-2.

7.12 Use of Procedures

7.12.1 All shift personnel implementing the procedure shall use the proper revision of the procedure. The proper revision can be verified by comparing the revision number against a controlled copy of the procedure or the Index in a controlled copy notebook.

8.0 DOCUMENTATION

8.1 History Copy

Retention of the history copy of TRIP procedures shall be as described in Administrative Procedure A-2.

8.2 Verification & Validation Documentation

The documentation produced by the verification & validation process shall be attached to the PORC Cover Sheet.

9.0 EXHIBITS

9.1 Appendix I
Bases for T-99 and T-100 series TRIP Procedures.

9.2 Appendix II
T-200 series Procedures and Bases.

9.3 Appendix III
TRIP Procedure Flow Chart Format.

9.4 Appendix IV
Verb List for TRIP Procedures.

9.5 Appendix V
TRIP Procedure Title and Numbering Scheme.

9.6 Appendix VI
Verification of TRIP Procedures.

9.7 Appendix VII
Validation of TRIP Procedures.

9.8 Appendix VIII
TRIP Procedure Abbreviations and Acronyms.

9.9 Appendix IX
Writing Style for TRIP Procedure Flow Charts.

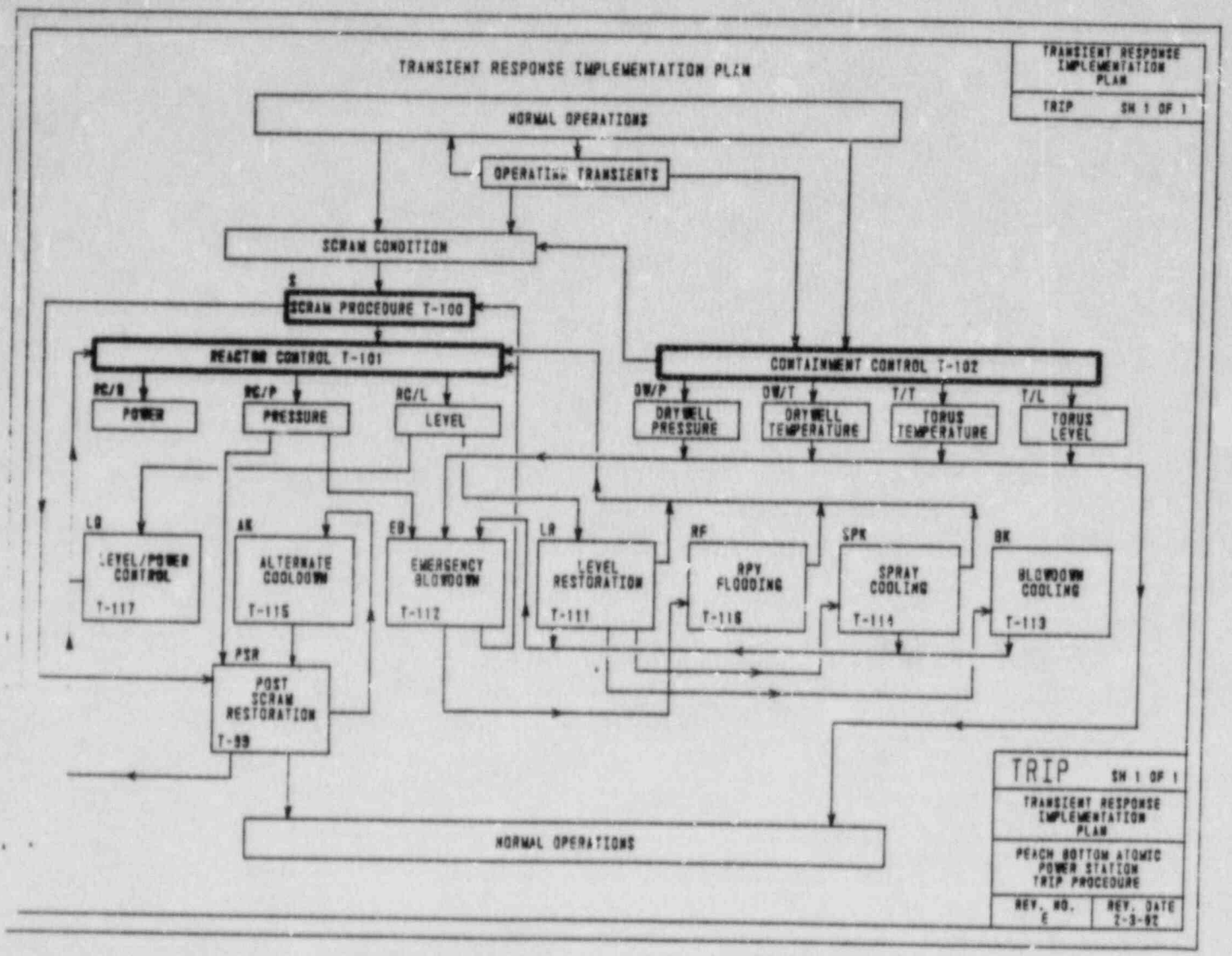

TRANSIENT RESPONSE IMPLEMENTATION PLAN
TRANSIENT RESPONSE IMPLEMENTATION PLAN
TRIP SH 1 OF 1
NORMAL OPERATIONS
OPERATING TRANSIENTS
SCRAM CONDITION
S
SCRAM PROCEDURE T-100
REACTOR CONTROL T-101
CONTAINMENT CONTROL T-102
RC/Q
POWER
RC/P
PRESSURE
RC/L
LEVEL
DW/P
DRYWELL PRESSURE
DW/T
DRYWELL TEMPERATURE
T/T
TORUS TEMPERATURE
T/L
TORUS LEVEL
LG
LEVEL/POWER CONTROL
T-117
AK
ALTERNATE COOLDOWN
T-115
EB
EMERGENCY BLOWDOWN
T-112
LR
LEVEL RESTORATION
T-111
RF
RPV FLOODING
T-116
SPR
SPRAY COOLING
T-114
BR
BLOWDOWN COOLING
T-113
PSR
POST SCRAM RESTORATION
T-99
NORMAL OPERATIONS
TRIP SH 1 OF 1
TRANSIENT RESPONSE IMPLEMENTATION PLAN
PEACH BOTTOM ATOMIC POWER STATION TRIP PROCEDURE
REV. NO. 6
REV. DATE 2-3-92

FIGURE 1

APPENDIX I BASES FOR T-99 AND T-100 SERIES TRIP PROCEDURES

PURPOSE:

This appendix provides guidelines for the production of bases to the T-99 and T-100 series TRIP procedures.

PROCEDURE:

SECTION I - PROCEDURE FORMAT

A. T-99 and T-100 Series

1. General
2. Procedure (e.g., procedure step/bases)

B. Cautions and Notes

1. Caution or Note
2. Objective
3. Discussion

SECTION II - DEFINITIONS

A. T-99 and T-100 Series Format Steps

1. GENERAL: The general section of the procedure bases shall describe the purpose of the procedure. This section may be used to highlight entry conditions, key steps, and intent of the procedure.

2. PROCEDURE: Each procedure step shall be listed with its number-letter designation. The bases for that step shall directly follow.

   Sufficient information will be provided in the bases, enabling the reader to understand the intent, and purpose of each step. Bases may be used for groups of steps, and in the event the step is self explanatory, it may be so stated.

The EPG, Appendix B, bases shall be used, as applicable, for guidance.

B. Format Steps for Cautions and Notes

1. CAUTION OR NOTE: The bases shall start with the caution or note, listed along with its identification number.

2. OBJECTIVE: This section shall include a brief description of the objective of the caution or note.

3. DISCUSSION: This section shall be used to describe in some detail the intent of the caution or note. It should also describe what direction or warnings that they provide. Use examples in this section to illustrate its importance in the procedure.

SECTION III - NUMBERING SCHEME

A. See Appendix V for T-99 and T-100 series numbering scheme.

APPENDIX II T-200 SERIES PROCEDURES AND BASES

PURPOSE:

This appendix provides guidelines for the production of T-200 series procedures and their bases.

PROCEDURE:

SECTION I - PROCEDURE FORMAT

A. T-200 Series Procedure Format

1. Title
2. References
3. Prerequisites
4. Procedure
5. Return to Normal

B. T-200 Series Bases Format

1. General
2. Prerequisites (e.g., Prerequisite/Bases)
3. Procedure (e.g., Procedure Step/Bases)

SECTION II - DEFINITIONS

A. T-200 Series Procedure Format Steps

1. TITLE: The title of the procedure must be short, clear, concise and include the purpose of the procedure; e.g., T-201 Containment Vent by Way of Sumps Procedure.

2. REFERENCES: This section includes significant material which was necessary for the development of the procedure; e.g., electrical schematics, applicable T-100 series procedures, and piping and instrument diagrams.

3. PREREQUISITES: Those conditions which must be met or satisfied prior to entering the procedure section.

4. PROCEDURE: Step by step directions taken to accomplish the purpose of the procedure. These steps will be written in prose form and may include cautions. Figures may also be used for further illustration in applicable steps.

5. RETURN TO NORMAL: This section returns all system components back to their normal status. All system components which are not indicated in the control room and were manipulated during the procedure must be initialed and double verified upon restoration. This includes all temporary circuit alterations.

B. T-200 Series Bases Format Steps

1. GENERAL: The general section of the procedure bases will describe the purpose of the procedure. This section, although similar to the procedure purpose, should contain more detailed information than that included in the procedure purpose.

2. PREREQUISITE AND PROCEDURE SECTIONS: Provide bases for all steps in the procedure. Sufficient information should be provided to enable the reader to understand the purpose behind each step. Bases may be used for groups of steps, and in the event the step is self explanatory, it may be so stated. Bases are optional for the prerequisite section of the procedure.

SECTION III - NUMBERING SCHEME

A. See Appendix V for T-200 series numbering scheme.

APPENDIX III - TRIP PROCEDURE FLOW CHART FORMAT

The Peach Bottom Atomic Power Station T-100 series procedures shall be symptom oriented procedures which are written in a flow chart format.

1. Designation and Numbering

   Designation and numbering of all T-100 series flow charts shall be done in accordance with Appendix V of this procedure.

2. Revision and Authorization

   Each flow chart shall include information which identifies the procedure revision. The signature of the station superintendant or his alternate shall appear within the box labled "Approved by" on all PORC approved flow chart revisions. The flow chart revision number, revision date, and the approval signature shall appear in the lower right hand corner of each flow chart.

3. Unit Identification for Flow Charts

   There shall be no unit identification for the flow charts.

4. Identification

   4.1 The TRIP Flow Charts shall be identified in the Title Blocks.

      4.1.1 The upper Title Block shall contain the title letter code, the procedure title, procedure number, and sheet number.

      4.1.2 The lower Title Block shall contain the above information and in addition the station name, revision number, revision date, and approval signature.

      4.1.3 The procedure title shall be a short concise (preferably 4 words or less) statement of the procedure purpose.

4.1.4 Each flow chart shall be assigned a sheet number. This sheet number and the total number of flow chart sheets which comprise that procedure shall appear in the upper and lower Title Blocks of each flow chart. Whenever possible flow charts will be restricted to a single sheet.

5. Format

The flow charts shall utilize the logic symbols shown and defined in Attachment 1. These symbols shall be arranged in a decision tree type format. Acceptable and unacceptable uses of these symbols are shown in Attachment 2.

5.1 Step Numbering.

5.1.1 Each command step,continue rechecking step, and decision step in the TRIP flow charts shall be numbered. The step number should generally consist of the two or three letter code designation for the procedure title, followed by a sequential number.

5.1.2 When the procedure is broken down into separate flowpaths that could be followed concurrently, these sections should have their own identifying letter codes and sequential numbers. For example, T-101 Reactor Control (RC) is divided into 3 concurrent flowpaths: Reactor Control Power (RC/Q), Reactor Control/Level (RC/L), and Reactor Control/Pressure (RC/P). The first step in each flow path is step number one (e.g. RC/Q-1, RC/L-1, and RC/P-1).

5.1.3 Step numbers shall appear below the lower left corner of all commands and continue rechecking steps.

5.1.4 Step numbers shall appear adjacent to the lower left side of all decision steps.

5.1.5 Step numbers shall be no larger than the standard sized print contained within the step symbols. Step numbers should be smaller than the standard sized print within the step symbols when possible.

5.1.6 When using the Inter Graphics IC-DS version 7.6.2 drawing system to draw the flow charts, step

numbers size shall be 50% of standard text size.

5.2 Use of Graphs.

Graphs may be used on the flow charts to display information and to aid the operator in using the procedures.

5.2.1 Each graph shall be assigned an alpha numeric label (e.g. Curve DW/T-1) which shall include the letter code of the flow path containing the graph and a sequential number. These labels shall appear at the top of each graph in bold type. Identical graphs which appear more than once in a flow path shall retain the same alpha numeric label each time they appear in that flow path. Identical graphs which appear in more than one flow path will be assigned a different label in each different flow path.

5.2.2 Each graph shall be assigned a title describing its function in the procedure (e.g. Heat Capacity Temperature Limit Curve). This title shall appear at the top of each graph below the alpha numeric label.

5.2.3 Graph axes shall be labeled with their associated plant parameter (e.g. Reactor Pressure) and the units the parameter is displayed in (e.g. PSIG). The units should be displayed in parentheses to the right of the plant parameter unless an alternate display method is required to improve clarity.

5.2.4 Divisions on graph axes shall not be smaller than the divisions on the corresponding control room indicators.

5.2.5 Each graph shall be bracketed and connected to its corresponding step(s) by a light weight dashed line.

5.2.6 Each graph region shall be labeled SAFE or UNSAFE based on the expected consequences of plant operation in that region.

5.2.7 All lines and printing on graphs shall be of the same line weight as that of the flow chart symbols with the exception of the graph alpha numeric label and the graph curve which shall be

highlighted to increase readability and facilitate identification of the curve.

5.2.8 An example of a typical flow chart graph is provided in Attachment III.

5.3 Use of Calculations.

Calculations which must be performed during the execution of a procedure may be included on the flow charts, however procedures should be written to avoid the need for calculations when possible.

5.3.1 Calculations shall be labeled with the name of the parameter being calculated and the units which the parameter will be defined in following completion of the calculation (e.g. Containment Level in Feet). This label shall appear at the top of each calculation and shall be underlined.

5.3.2 Calculations shall be displayed in a vertical format with the calculation proceeding from top to bottom.

5.3.3 Operatives such as plus, minus, and equals shall be spelled out in the right column of the calculation with the corresponding operation symbol appearing in parentheses immediately to the right.

5.3.4 The middle column of each calculation shall consist of lines for recording calculated or constant numbers.

5.3.5 The left column of each calculation shall contain the units of the number displayed in the middle column. The units may be followed by the parameter name and the instrument number on which the parameter must be read, if appropriate.

5.3.6 An example of a typical flow chart calculation is provided in Attachment III.

5.4 Use of Tables.

Tables may be used on the flow charts to display information associated with a particular procedure step or to segregate flow paths within a procedure.

5.4.1 Each table shall be assigned an alpha numeric label (e.g. Table RF-1) which shall include the letter code of the flow path containing the table and a sequential number. These labels shall appear at the top of each table in bold type. Identical tables which appear more than once in a flow path shall retain the same alpha numeric label each time they appear in that flow path. Identical tables which appear in more than one flow path will be assigned a different label in each different flow path.

5.4.2 Each table section shall be labeled. Each label shall identify the parameter being displayed or a unique characteristic of the set of procedure steps contained in that table section. Units of the displayed parameter shall be identified in parantheses (e.g. PSIG) to the right of the label.

5.4.3 Each table associated with a particular step shall be bracketed and connected to its corresponding step(s) by a light weight dashed line.

5.4.4 An example of a typical flow chart table is provided in Attachment III.

5.5 Cautions and Notes.

5.5.1 Cautions shall appear in a flow path as a Caution Identification symbol containing the number(s) of the applicable caution(s). This symbol shall appear in the flow path directly ahead of the step to which it applies. When multiple numbers appear in a single Caution Identification symbol they shall be listed vertically in numerical order.

5.5.2 Notes shall appear in a flow path as a Note Identification symbol containing the number(s) of the applicable note(s). This symbol shall appear to the right of the step to which it applies. When multiple numbers appear in a single Note Identification symbol they shall be listed vertically in numerical order.

5.5.3 All cautions and notes referenced in a flow chart by number shall be written out and displayed in a Continue Rechecking Step symbol. The symbol

shall contain the heading "Cautions and Notes" which shall appear in bold face type, underlined twice. Cautions and notes shall appear within the symbol in numerical order running top to bottom then left to right. The symbol and number of the caution or note will be displayed with the caution or note appearing immediately to the right.

5.5.4 Cautions and notes that appear in the BWR Emergency Procedure Guidelines may be abbreviated on the flow charts provided that the abbreviations clearly convey the intent of the original notes and cautions.

5.5.5 An example of a typical Caution and Note Display is provided in Attachment III.

5.6 Line Weights.

TRIP procedure flow charts were originally developed using an Inter Graphics IGDS version 7.6.2 drafting system with a PECO IGDS STAND. PEN. Due to potential unavailability or obselesence of this system in the future, guidance is provided for this system and general guidance is provided for use with alternate systems.

5.6.1 Inter Graphics IGDS version 7.6.2 with PECO IGDS STAND. PEN.

5.6.1.1 Printing on the flow charts should be standard Inter Graphics IGDS version 7.6.2 print, line weight Ø. Different sized print may be used to improve clarity.

5.6.1.2 All flow chart symbols shall be drawn using line weight Ø.

5.6.1.3 Connecting lines between all flow path symbols except the Note Identification symbol shall be drawn using line style 2 (short dash), line weight 6. Arrows on their connecting lines shall be line weight 3.

5.6.1.4 Connecting lines between flow chart steps and associated Note Identification symbols, graphs, and tables shall be

drawn in line style 2 (short dash), line weight Ø.

5.6.1.5 Graph curves shall be drawn using line weight 9.

5.6.1.6 Graph and table alpha numeric identification labels shall be printed in line weight 9.

5.6.1.7 The "Cautions and Notes" heading which appears in the Continue Rechecking symbol on each flow chart containing a caution or note shall be printed in line weight 9 including the double line under each heading.

5.6.1.8 The title letter code and the procedure number in each flow chart title block shall be enlarged and drawn using line weight 9.

5.6.2 General Guidance

5.6.2.1 Printing on the flow charts should be large enough to be easily read but small enough to preclude the generation of large, unmanagable flow charts.

5.6.2.2 Printing size should remain consistant from flow chart to flow chart.

5.6.2.3 Flow chart symbols and printing should be drawn using a lighter line weight than the lines connecting the flow chart symbols in the main flow path. This enables the flow path to be highlighted.

5.6.2.4 Dashed lines should be used to connect flow chart symbols.

5.6.2.5 Lightweight dashed lines should be used to connect flow chart steps with associated Note Identification symbols, graphs, and tables. The line weight should be the same as that used for the flow chart symbols.

5.6.2.6 Graph curves should have a higher line weight than that of the background grid.

5.6.2.7 Graph and table alpha numeric identification labels should be highlighted.

5.6.2.8 The "Cautions and Notes" heading which appears in the Continue Rechecking symbol on each flow chart containing a caution or note should be highlighted.

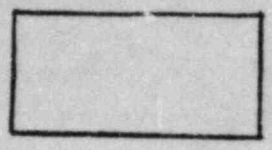
5.6.2.9 The title letter code and the procedure number in each flow chart title block should be enlarged and highlighted.

5.7 Flow Chart Boarders.

Space shall be allocated on the left side of each flow chart to accomodate the holes produced by a standard three hole punch without the loss of flow chart information.

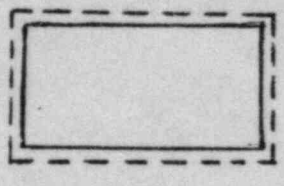
ATTACHMENT I

Command Step



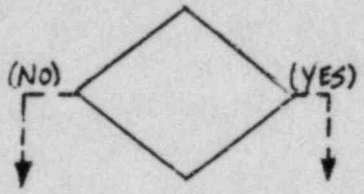
This symbol shall be used to identify one or more related actions which the operator may be required to perform. Lines, bullets, and parenthesis may be used within this symbol to separate information and improve clarity.

Continue Rechecking Step



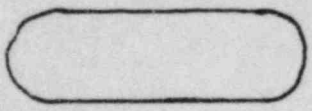
This symbol shall be used to identify conditional statements which must be checked frequently during the execution of a procedure.

Decision Step



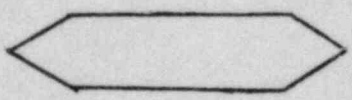
This symbol shall be used to ask a question concerning a plant parameter or operating condition. The answer to the question will determine which subsequent procedure steps will be performed.

Entry Condition



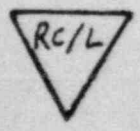
This symbol shall be used to identify a condition which requires execution of a procedure.

Information Block



This symbol is used to specify information which will aid the user in understanding and performing subsequent procedure steps.

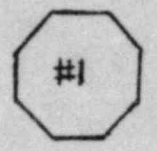
Flowpath Identification



This symbol shall be used to identify individual flowpaths on flow charts containing multiple flow paths. Letters within this symbol are used to identify the function of the flowpath.

ATTACHMENT I

Caution Identification



This symbol shall be used to specify the identification number of a caution. This symbol shall appear in the flowpath ahead of the step to which it applies. The actual caution bearing the identification number will appear in a continue rechecking symbol somewhere on the flow chart.

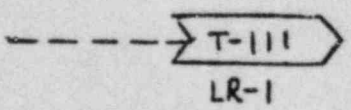
Note Identification

This symbol shall be used to specify the identification number of a note. This symbol shall appear to the right of the appropriate step and will be connected to that step with a light weight dashed line. The actual note bearing that identification number will appear in a continue rechecking symbol somewhere on the flow chart.

Continuation Block

This symbol shall be used to identify a flowpath which is terminated at the bottom of a flow chart sheet and is continued elsewhere. This symbol shall appear at the point where the flowpath is terminated and at the point where the flow path is resumed. Both continuation blocks will contain the same letter.

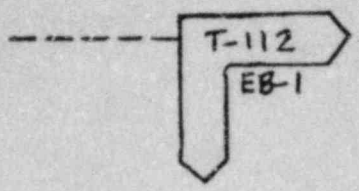
Exit Arrow



This symbol shall be used to indicate a point in a flowpath where plant conditions may require that the flow path be exited and another procedure must be entered. The procedure to be entered shall be identified within the arrow. The first step to be executed in the new procedure will be indicated below the arrow. This symbol shall always appear to the right of the exited step.

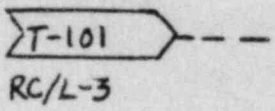
ATTACHMENT I

Exit and Continue Arrow



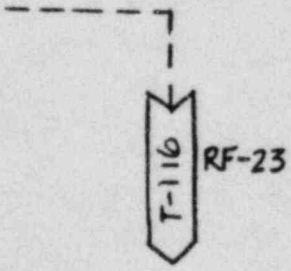
This symbol shall be used to indicate a point in a flow path where plant conditions may require that the flow path be executed concurrently with another procedure. The second procedure to be entered shall be identified within the horizontal arrow. The first step to be executed in the new procedure will be indicated below the horizontal arrow. This symbol shall always appear to the right of the original flow path step.

Entry Arrow



This symbol shall be used to indicate a point in a flow path where the flow path can be entered other than by receiving an "Entry Condition". The number of the procedure directing entry into the flowpath shall be identified within the arrow. The procedure step directing entry into the flow path shall appear below the arrow. This symbol shall always appear to the left of the entered flowpath or step.

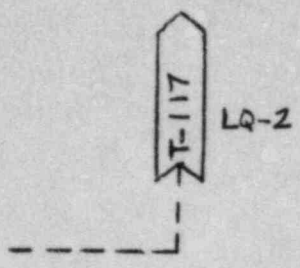
Advance Arrow



This symbol shall be used to indicate a point in a flow path where plant conditions may require that one or more subsequent steps be skipped. The number of the procedure being used shall appear within the arrow and the next procedure step to be performed shall be indicated to the right of the arrow. This symbol shall always appear to the right of the exited step.

ATTACHMENT I

Return Arrow

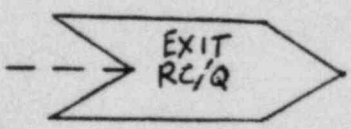


This symbol shall be used to indicate a point in a flowpath where plant conditions may require that the procedure be continued at a previous step in the same procedure. The number of the procedure being used shall appear within the arrow and the procedure step to be returned to shall be indicated to the right of the arrow. This symbol shall always appear to the right of the exited step.

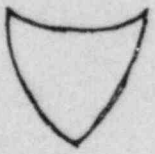
Check-Off Blank

This symbol shall be used to provide a space to check off completed steps and to indicate the decisions made in decision steps. This check-off blank shall appear to the left of all command and continue rechecking step numbers and caution identification symbols. If shall appear to the right of all exit, exit and continue, and termination arrows. It shall appear below the point of all advance arrows and above the point of all return arrows. It shall also appear adjacent to the answers to all decision steps.

Termination Arrow



This symbol is used to indicate a point in a flowpath where execution of that flowpath may be terminated without proceeding to another procedure. The letter code of the flow path or procedure being exited shall be identified within the arrow.

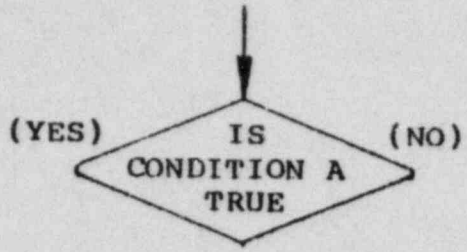


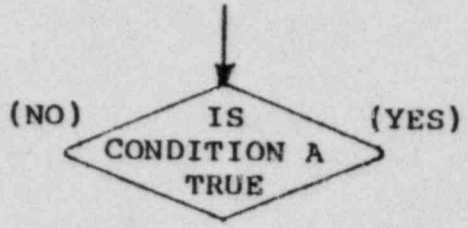
Or Gate This symbol is used to indicate that the completion of one or more parallel flow paths is required prior to performing a subsequent step. This symbol shall appear at the point in the flow path where the parallel flow paths reconverge.

DECISION STEPS

1

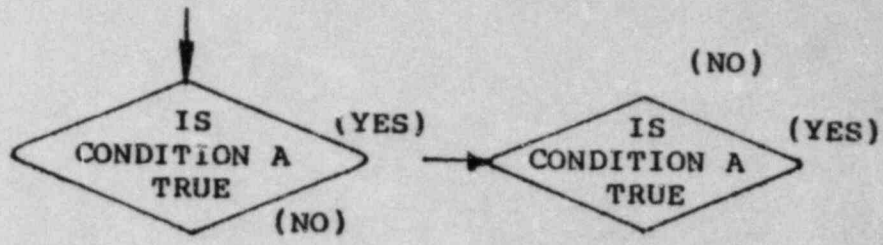
ACCEPTABLE

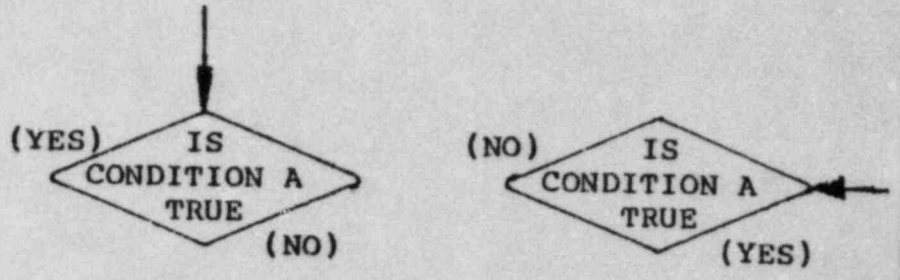


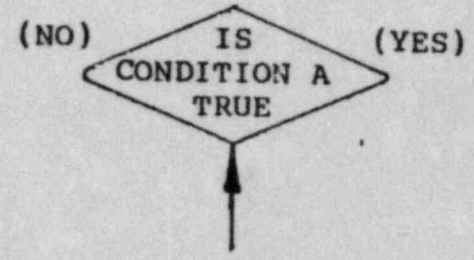


1. ENTER A DECISION STEP AT THE TOP.
2. YES/NO MAY BE ON EITHER SIDE, BUT NOT THE BOTTOM OR TOP.
3. YES/NO SHALL BE PLACED RIGHT OR LEFT, WHICH EVER MAKES SUBSEQUENT LOGIC FLOW MORE CLEARLY & PREVENTS FLOW LINES FROM CROSSING.

NOT ACCEPTABLE

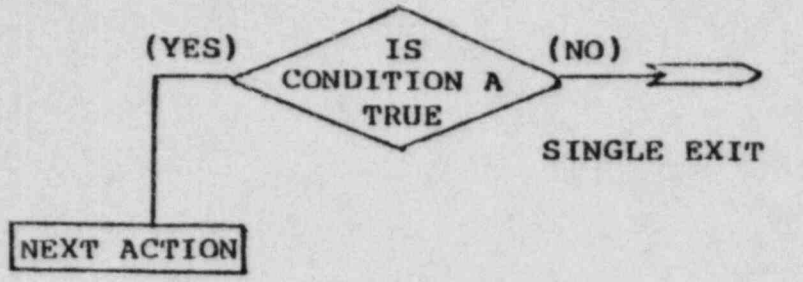




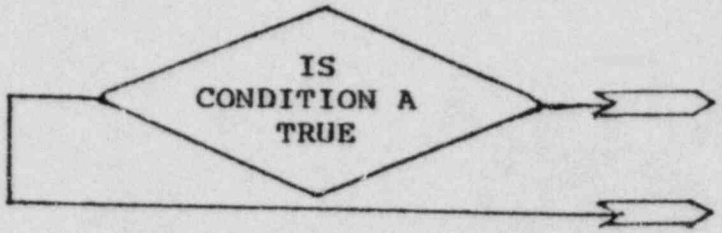


EXIT OF DECISION STEP

ACCEPTABLE



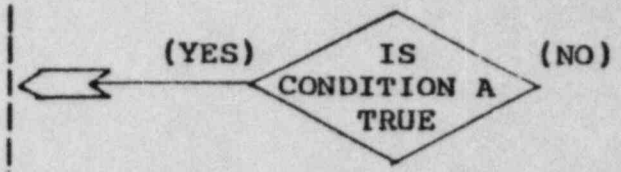
SINGLE EXIT



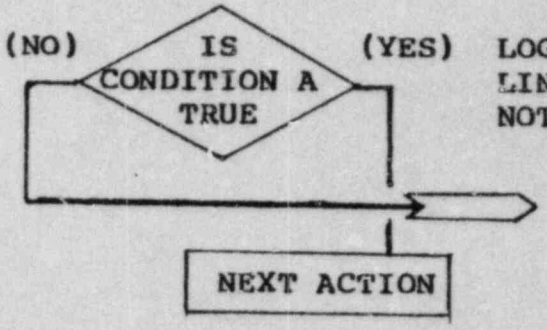
DOUBLE EXIT

1. ALL EXIT ARROWS MUST BE TO THE RIGHT.

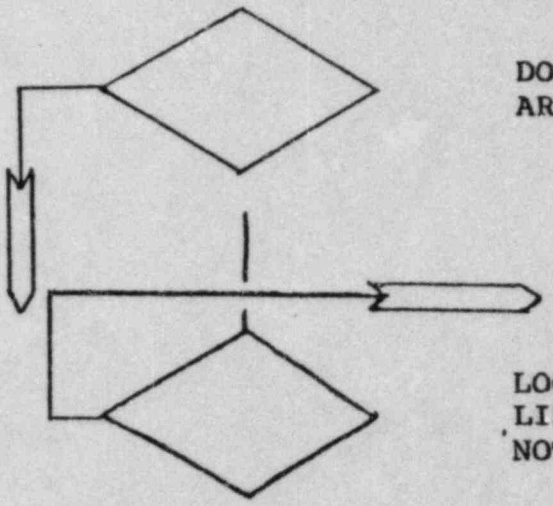
NOT ACCEPTABLE



DO NOT EXIT ARROW TO THE LEFT.



LOGIC FLOW LINES SHALL NOT CROSS.



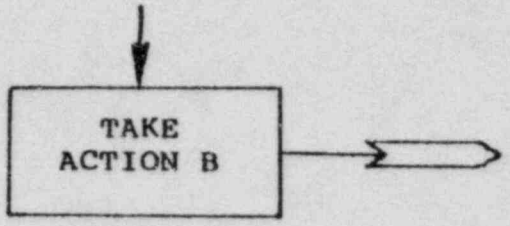
DO NOT EXIT ARROW DOWN.

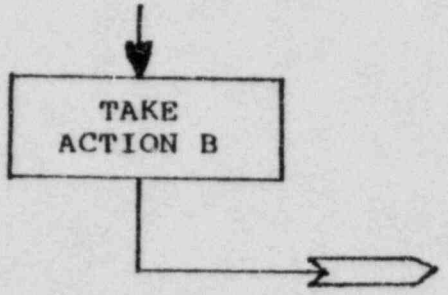
LOGIC FLOW LINES SHALL NOT CROSS.

EXIT OF A COMMAND STEP

3

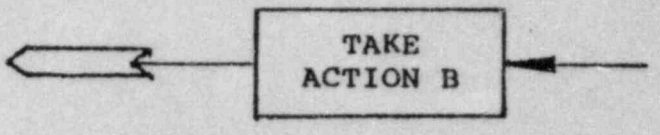
ACCEPTABLE

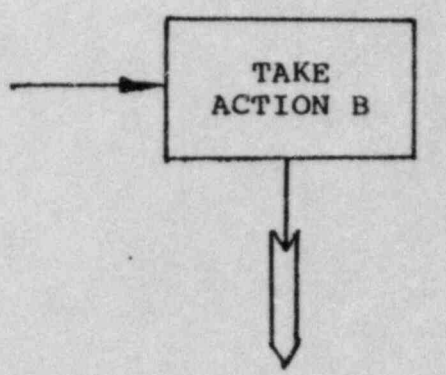


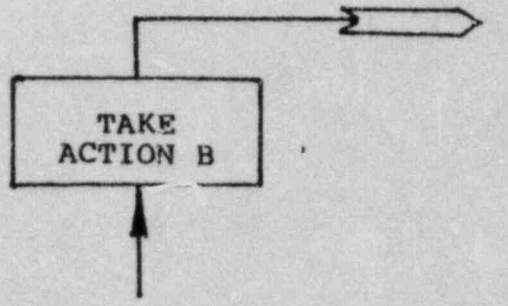


1. ALL EXITS MUST BE TO THE RIGHT.
2. EXIT LINE MAY BE FROM THE BOTTOM OR RIGHT SIDE OF THE COMMAND STEP BOX.
3. ENTER A COMMAND STEP BOX AT THE TOP.

NOT ACCEPTABLE





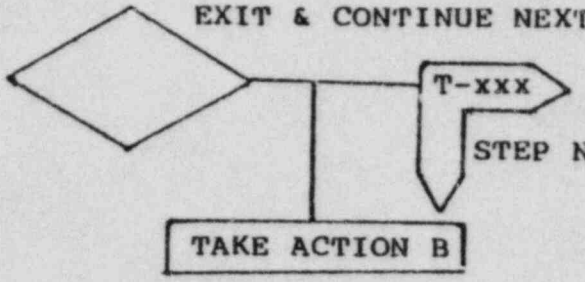


CONCURRENT EXITS

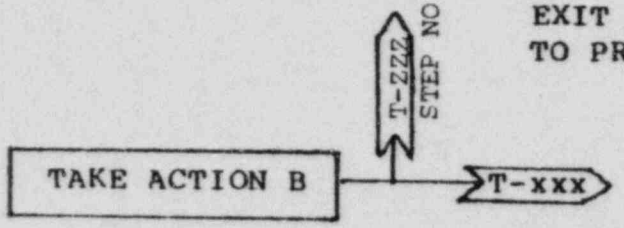
4

ACCEPTABLE

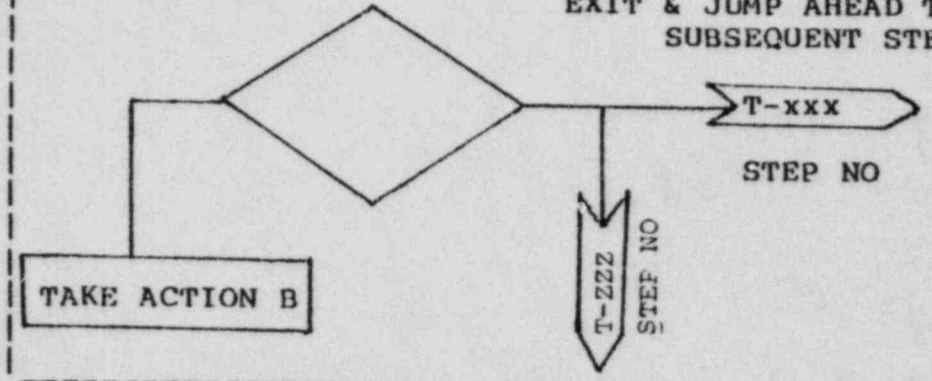
EXIT & CONTINUE NEXT STEP



EXIT & RETURN TO PREVIOUS STEP

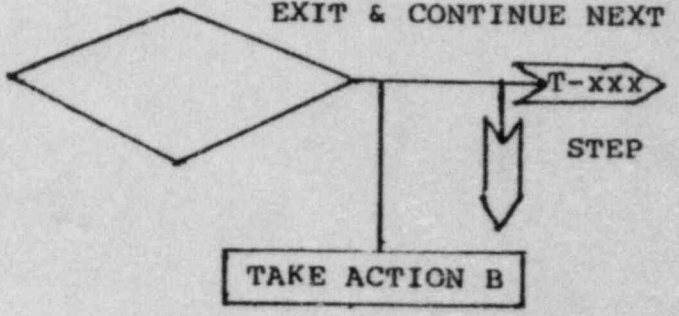


EXIT & JUMP AHEAD TO SUBSEQUENT STEP

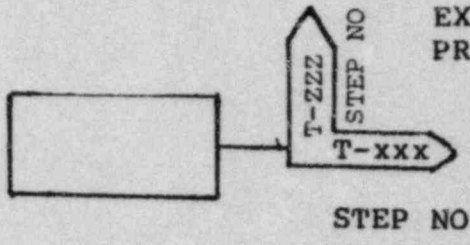


NOT ACCEPTABLE

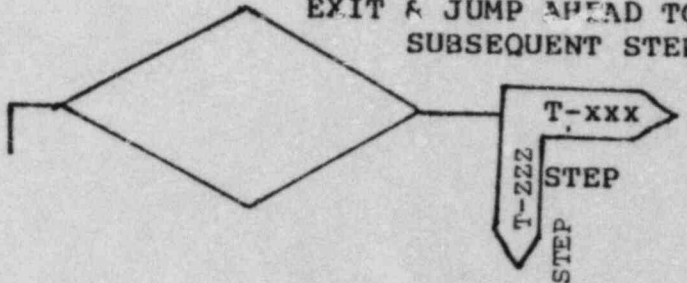
EXIT & CONTINUE NEXT STEP



EXIT & RETURN TO PREVIOUS STEP

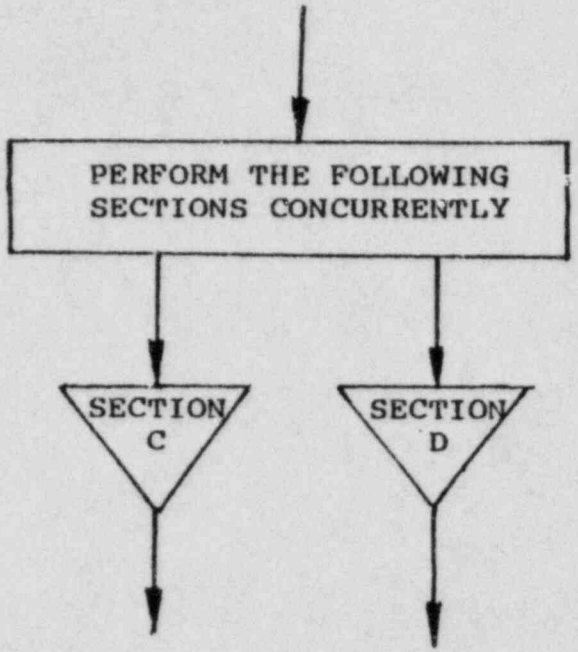


EXIT & JUMP AHEAD TO SUBSEQUENT STEP

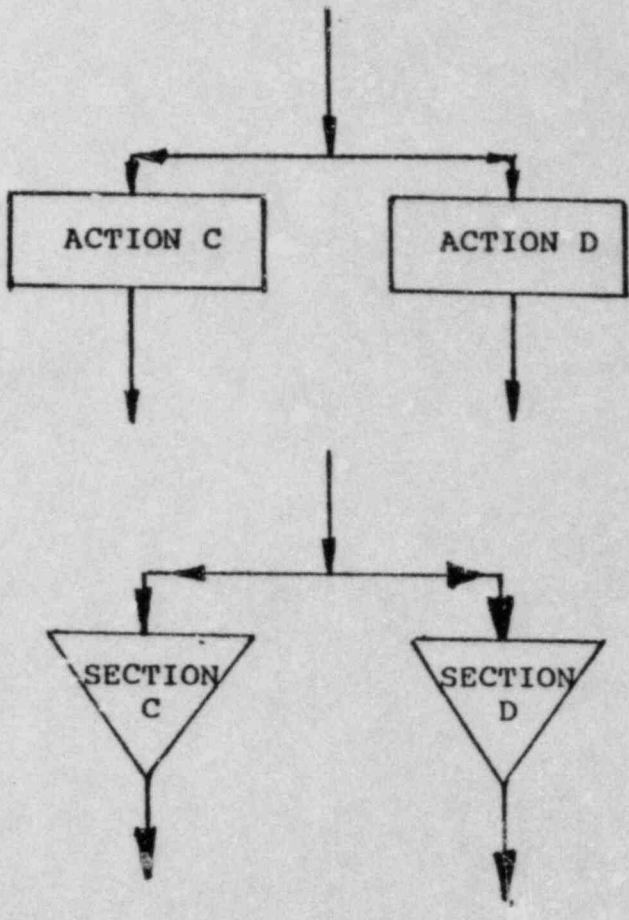


CONCURRENT FLOW PATHS

ACCEPTABLE

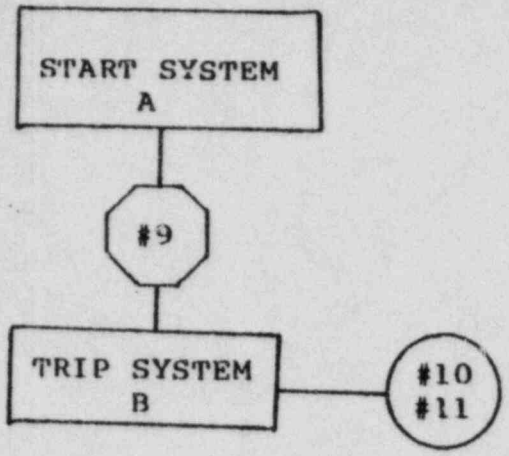


NOT ACCEPTABLE



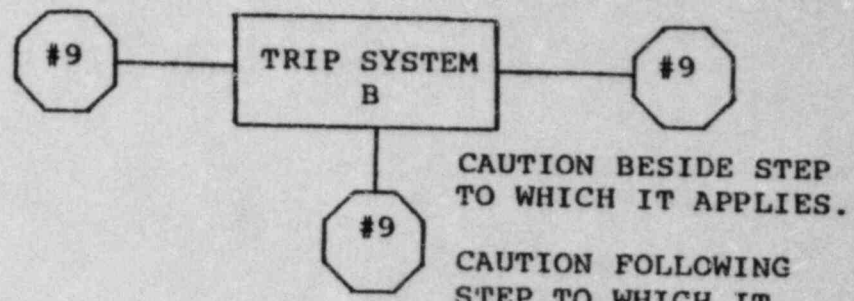
CAUTION & NOTE PLACEMENT

ACCEPTABLE



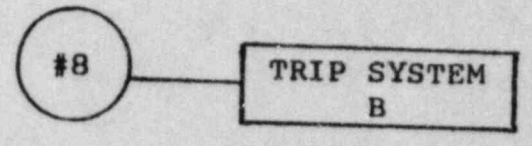
1. PLACE CAUTIONS WHICH MUST BE READ PRIOR TO INITIATING A STEP IN THE FLOW PATH PRIOR TO THAT STEP.
2. PLACE NOTES WHICH MAY BE READ DURING OR AFTER A STEP IS INIATED BESIDE THAT STEP TO THE RIGHT.
3. MORE THAN ONE CAUTION OR NOTE MAY BE INCLUDED IN ONE CIRCLE.
4. CAUTION NUMBER SHALL BE INSIDE AN OCTAGON.
5. NOTE NUMBERS SHALL BE INSIDE A CIRCLE.
6. IN STEPS WHICH CONTAIN MULTIPLE SYSTEMS, ATTACH NOTE CIRCLE NEXT TO SYSTEM(S) TO WHICH IT APPLIES.

NOT ACCEPTABLE

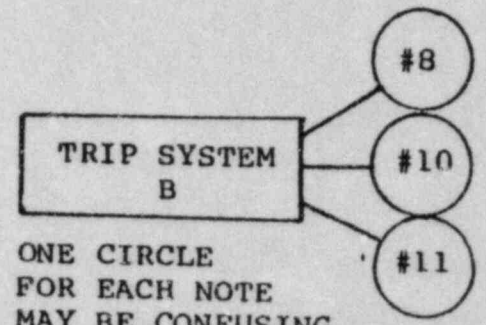


CAUTION BESIDE STEP TO WHICH IT APPLIES.

CAUTION FOLLOWING STEP TO WHICH IT APPLIES.



NOTE CIRCLE ON LEFT OF STEP.



ONE CIRCLE FOR EACH NOTE MAY BE CONFUSING.

NOTE PLACEMENT

7

ACCEPTABLE

FLOOD RPV WITH THE FOLLOWING:	#7
FW COND CRD HPCI RCIC SBLC	#10
CONTINUE FLOODING UNTIL RPV LEVEL INDICATION IS RESTORED	

#7 { RADID WATER INJECTION MAY CAUSE POWER TO SWING.

#10 { HPCI AND RCIC MIN. SPEED 2200 RPM.

1. IN TABULAR STEPS ATTACH NOTES TO BOX NEAR SYSTEM TO WHICH IT APPLIES.

2. CAUTION 7 APPLIES TO THE WHOLE STEP. PLACE IT WITH COMMAND STATEMENT.

NOT ACCEPTABLE

FLOOD RPV WITH THE FOLLOWING:	#10
FW COND CRD HPCI RCIC SBLC	

NOTE DOES NOT APPLY TO THE WHOLE STEP, IT IS ONLY APPLICABLE IF HPCI OR RCIC IS USED.

COMMAND STEPS

8

ACCEPTABLE

FLOOD RPV WITH THE FOLLOWING:	DIVIDED FOR CLARITY
FW COND CRD HPCI RCIC SBLC	TABULAR MATERIAL
CONTINUE FLOODING UNTIL RPV LEVEL INDICATION IS RESTORED	DIVIDED FOR CLARITY

1. COMMAND STEPS SHALL BE PLACED IN RECTANGULAR BOXES.

2. COMMAND STEP BOXES MAY BE DIVIDED TO PRESENT TABULAR MATERIAL.

3. COMMAND STEP BOXES MAY BE DIVIDED TO CLARIFY PORTIONS OF A STEP OR TO PREVENT CONFUSION.

4. COMMAND STEPS MAY CONTAIN CONDITIONAL STATEMENTS (IF.... THEN, WHEN.... THEN)

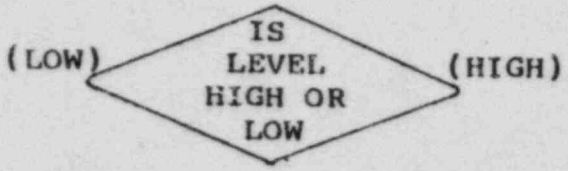
NOT ACCEPTABLE

FLOOD RPV WITH THE FOLLOWING:
FW COND CRD HPCI RCIC SBLC CONTINUE FLOODING UNTIL RPV LEVEL INDICATION IS RESTORED.

THIS PRESENTATION IS NOT AS CLEAR TO THE READER.

DECISION STEPS

ACCEPTABLE

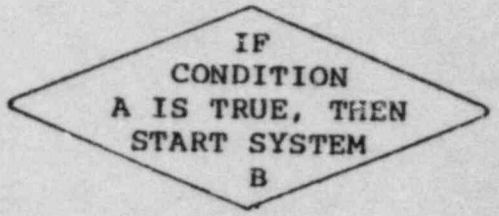


1. DECISION STEPS CONTAIN A QUESTION WITH TWO OR MORE ANSWERS.

2. DECISION STEPS SHALL NOT CONTAIN CONDITIONAL STATEMENTS (IF... THEN, WHEN... THEN)

3. DECISION STEPS SHALL NOT CONTAIN A COMMAND

NOT ACCEPTABLE



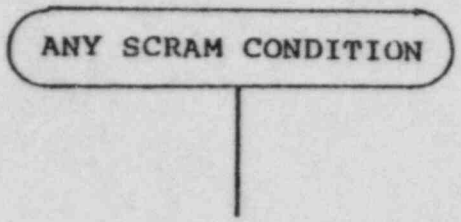
CONTAINS A CONDITIONAL STATEMENT (IF... THEN)

CONTAINS A COMMAND

ENTRY CONDITIONS

10

ACCEPTABLE



1. ENTRY CONDITIONS SHALL BE AS SHORT AND CONCISE AS POSSIBLE. THEY MUST BE MEMORIZED.

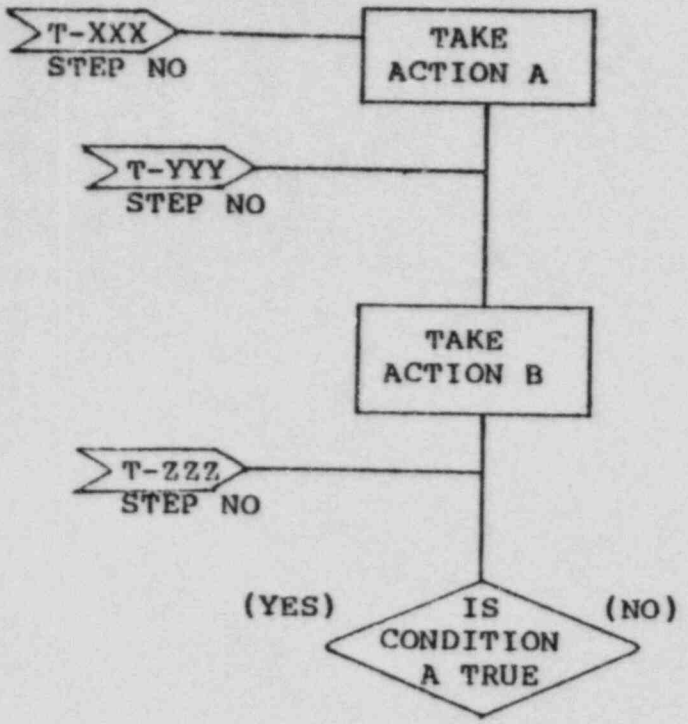
2. ENTRY CONDITIONS SHALL BE IN AN OVAL.

NOT ACCEPTABLE

11

ENTRY (INCOMING) ARROWS

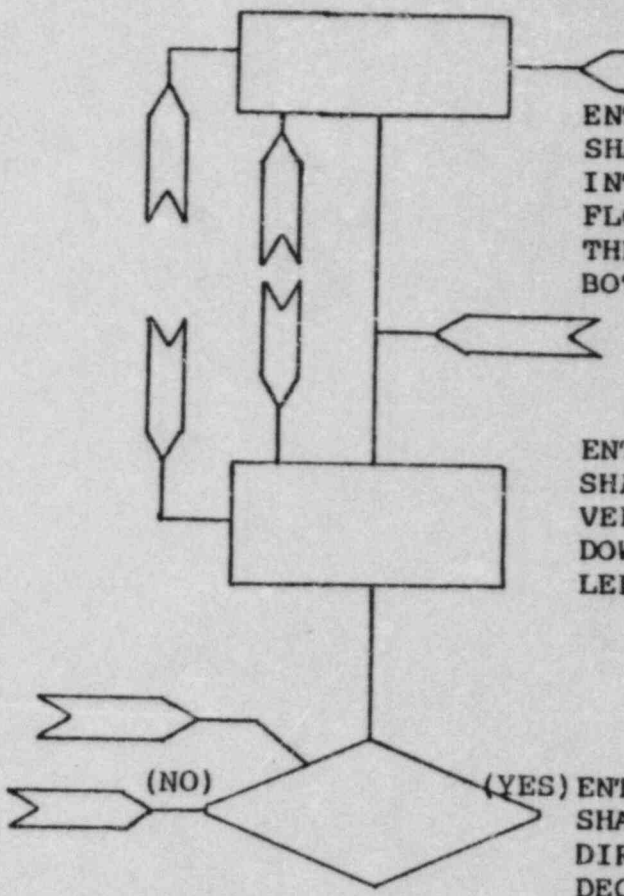
ACCEPTABLE



1. ENTRY ARROWS SHALL BE HORIZONTAL POINTING TO THE RIGHT.

2. ENTRY ARROWS MAY ENTER A COMMAND STEP OR A FLOW LINE ABOVE A COMMAND STEP OR DECISION STEP.

NOT ACCEPTABLE



ENTRY ARROWS SHALL NOT COME INTO A STEP OR FLOW LINE FROM THE RIGHT, TOP BOTTOM.

ENTRY ARROWS SHALL NOT POINT VERTICALLY UP OR DOWN NOR TO THE LEFT.

ENTRY ARROWS SHALL NOT ENTER DIRECTLY INTO A DECISION STEP.

INFORMATION NOTES

12

ACCEPTABLE

THE FOLLOWING STEPS SHALL BE PERFORMED CONCURRENTLY.

THE FOLLOWING STEPS DETERMINE IF THE REACTOR IS SHUTDOWN.

1. INFORMATION NOTES MAY BE USED TO CLARIFY THE INTENT OF STEPS. HOW STEPS SHOULD BE PERFORMED (EG. CONCURRENTLY), OR WHY STEPS ARE PERFORMED (EG. WHEN THE QUESTIONS ASKED MAY LEAD TO OPERATOR CONFUSION).

2. INFORMATION NOTES MAY CONTAIN EXPLANATORY COMANDS (EG. PERFORM THESE STEPS CONCURRENTLY).

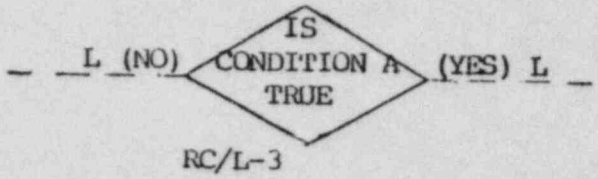
NOT ACCEPTABLE

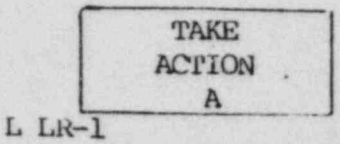
START PUMP A

INFORMATION NOTES SHALL NOT CONTAIN ORDINARY COMMANDS.

CHECK-OFF BLANK

ACCEPTABLE



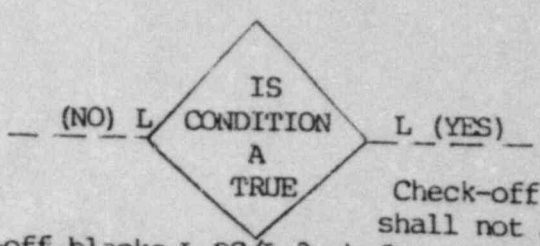


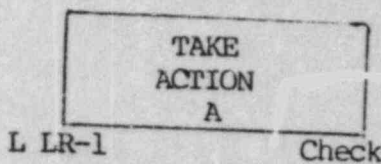
1. CHECK-OFF BLANKS FOR DECISION STEPS SHALL APPEAR ALONG THE FLOW PATH FOLLOWING EACH DECISION STEP ANSWER.

2. CHECK-OFF BLANKS FOR COMMAND AND CONTINUE RECHECKING STEPS SHALL APPEAR IMMEDIATELY TO THE LEFT OF THE STEP NUMBER.

3. CHECK-OFF BLANKS SHALL APPEAR TO THE LEFT OF CAUTION IDENTIFICATION SYMBOLS.

NOT ACCEPTABLE

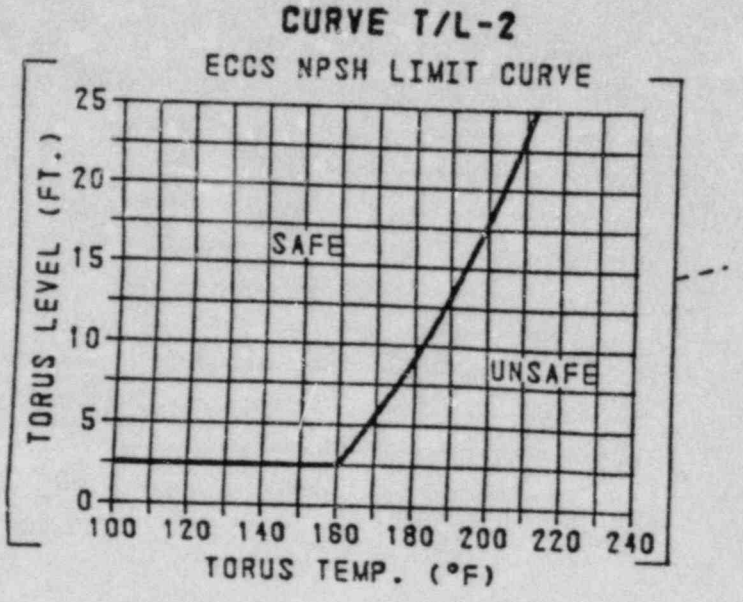




Check-off blanks shall not appear to the right of caution identification symbols.

ATTACHMENT III

TYPICAL FLOW CHART GRAPH



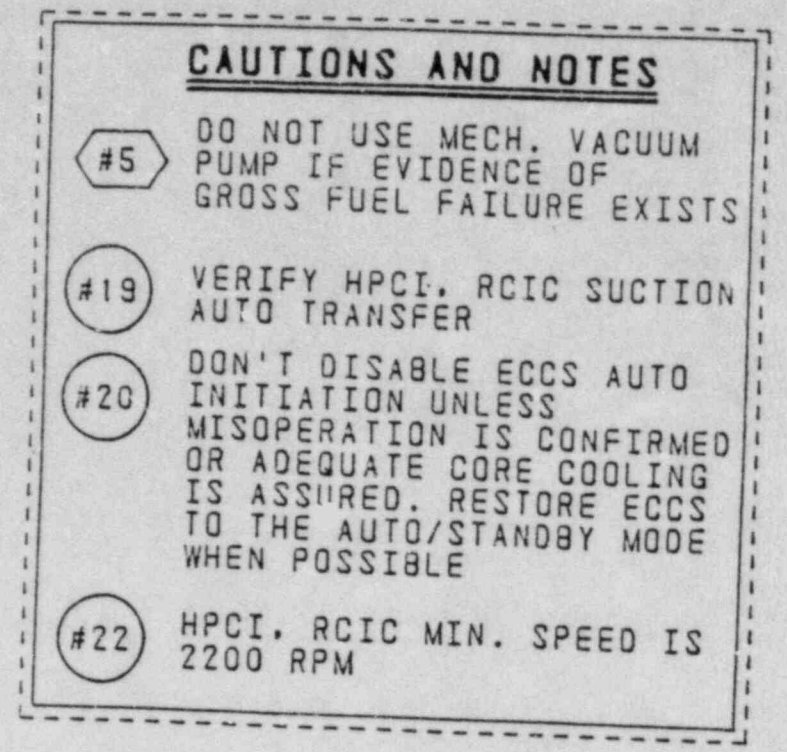
TYPICAL FLOW CHART CALCULATION

CONTAINMENT LEVEL IN FEET

	_____	PSIG TORUS PRESS ON PI-4592(5592)
MINUS (-)	_____	PSIG DW PRESS ON PR-2508(3508)
EQUALS (=)	_____	△PSIG
TIMES (X)	2.3	FT./PSIG
EQUALS (=)	_____	FT.
PLUS (+)	10.6	FT.
EQUALS (=)	_____	FT. CONTAINMENT LEVEL

ATTACHMENT III

TYPICAL FLOW CHART CAUTION AND NOTE DISPLAY



TYPICAL FLOW CHART TABLE

TABLE RF-1

# OF OPEN SRVS	MIN. ALTERNATE FLOODING PRESS.
5	210
4	270
3	360
2	630

APPENDIX IV

VERB LIST FOR TRIP PROCEDURES

ACTION VERBS

VERB	MEANING/APPLICATION
CONTROL	The ability to regulate a parameter or process, for example, "Control Drywell Temperature".
ESTABLISH	To make arrangements for a stated condition, for example, "Establish Torus Cooling".
ISOLATE	To separate or set apart from all other systems, for example, "Isolate Reactor Water Clean-up".
MAINTAIN	To preserve or retain, to keep within specified limits, for example, "Maintain Torus Level".
MAXIMIZE	To increase to highest or greatest possible, for example, "Maximize Drywell Cooling".
MONITOR	To check continuously or watch over, for example, "Monitor Drywell Temperature".
OPTIMIZE	To make the most effective use of, for example, "Optimize The Depressurization Rate".
PREVENT	To preclude the possibility of occurrence, for example, "Prevent All Injection Into The RPV".
RESTORE	To return to normal condition or configuration, for example, "When Possible Restore RPV Level To Normal".
RUNBACK	To reduce to a minimum, for example, "Runback Recirc".
SHUTDOWN	The intentional cessation of operation of any equipment, for example, "Shutdown Recirc. Pumps".
TERMINATE	To bring to an end or stop operation of, for example, "Terminate All Injection".
TRIP	To activate a semi-automatic feature, for example, "Trip The Recirc. Pumps".
VERIFY	To prove to be true. To verify an action has occurred, then, if it has not occurred make it occur, for example, "Verify Turbine Trip And Generator Lockout".

TRANSITIVE VERBS

VERB	MEANING/APPLICATION
CAN or CAN...BE	To be logically able to,for example, "Can water level be maintained?"
IS	A state of being - (singular - present) for example, "Is level above 0 inches?"
ARE	A state of being - (plural - present) for example, "Are all rods fully inserted?"
HAS or HAS BEEN	To cause to be, for example, "Has level indication been restored?"
WAS	A state of being - (singular or plural - past), for example, "Was rod motion observed?"
DID	Brought to pass - (past), for example, "Did the SRV close?"

APPENDIX V TRIP PROCEDURE TITLE AND NUMBERING SCHEME

Each TRIP procedure should be uniquely identified. This identification permits easy administration of the process of procedure preparation, review, revision, distribution, and operator use.

1. Procedure Titles

1.1 Procedure titles should be short, concise, and contain as few words as possible, while still completely identifying the procedure. Examples of TRIP procedure titles are listed in Table I to this Appendix. Appendix II covers titles for T-200 series procedures.

1.2 Procedure titles may be represented throughout the procedures by the use of letter codes. Examples of TRIP procedure title letter codes are listed in Table I to this Appendix.

2. Procedure Numbering

2.1 TRIP procedures should be numbered to closely parallel the BWR Owners' Group Emergency Procedure Guidelines (reference 6.3). Where additional procedures not specifically delineated in reference 6.3 are to be generated, they should be numbered to follow along with the previously written TRIP procedures. The 110 series TRIP procedures should be numbered so that the last digit of the procedure number is the same as the EPG contingency number.

2.2 T-200 Series Procedure Numbering

2.2.1 T-200 series TRIP procedures should be numbered so that they can be grouped by similar subjects. Examples of T-200 series procedure numbers are given in Table II to this Appendix.

APPENDIX V, TABLE I

TRIP PROCEDURE TITLE LETTER CODE

TRIP PROCEDURE TITLES

T-99 - Post Scram Recovery (PSR)
T-100 - Scram (S)
T-101 - RPV Control (RC)
T-102 - Containment Control (CC)
T-111 - Level Restoration (LR)
T-112 - Emergency Blowdown (EB)
T-113 - Blowdown Cooling (BK)
T-114 - Spray Cooling (SPK)
T-115 - Alternate Shutdown Cooling (AK)
T-116 - RPV Flooding (RF)
T-117 - Level/Power Control (LQ)

TITLE LETTER CODES

1st LETTER (OR GROUP)		2nd LETTER	
A	Alternate	B	Blowdown
B	Blowdown	C	Control
C	Containment	F	Flooding
DW	Drywell	K	Cooling
E	Emergency	L	Level
H	Hydrogen		
L	Level	P	Pressure
PS	Post Scram	Q	Power
RAD	Radiation		
R	Reactor	R	Restoration
RC	Reactor Control	T	Temperature

SP Spray

SC Secondary Containment

PC Primary Containment

APPENDIX V, TABLE II

T-200 SERIES PROCEDURES

T-200	18 Inch Drywell Vent Procedure
T-201	Containment Vent by Way of Sumps
T-210	CRD System SLC Injection
T-211	CRD System Boric Acid-Sodium Tetraborate Injection
T-212	RWCU System SLC Injection
T-213	Individual Control Rod Scram/Solenoid De-energization
T-220	RWM and RSCS Bypass
T-221	MSIV Bypass
T-222	Secondary Containment Ventilation Bypass
T-224	ADS Auto Initiation Bypass
T-225	Containment Spray Interlock Bypass
T-230	Suppression Pool to CST by Way of HPCI/RCIC
T-231	HPSW to Torus
T-232	Torus Cleanup Pump Isolation Bypass
T-233	Torus to Radwaste by way of RHR Loop "A"
T-240	Terminate Injection into RPV.
T-241	Alternate Injection from Condensate or Refueling Water Transfer or ECCS Stayfull Systems
T-242	Alternate Injection from SLC Test Tank
T-243	Alternate Injection by Way of HPSW to RHR Loop "B" (Unit 2)/Loop "A" (Unit 3)
T-244	Alternate Injection from the Fire System

APPENDIX VI VERIFICATION OF TRIP PROCEDURES

1.0 PURPOSE

The purpose of the verification appendix is to provide guidance regarding the applicability and execution of the verification process on revisions to TRIP procedures.

2.0 RESPONSIBILITIES

2.1 It shall be the responsibility of the person(s) charged with verifying TRIP procedure revisions to familiarize himself with:

a. the changes requiring that the procedures be revised

b. the verification process as delineated in this appendix

c. the applicable sections of the most recent revisions of A-94 and the BWR Owners Group Symptomatic Emergency Procedures Guidelines (EPG)

d. PBAPS Technical Specifications, current revision.

3.0 DEFINITIONS

3.1 VERIFICATION: for the purposes of this appendix, verification shall mean the systematic process of ensuring that the guidance in A-94 has been properly applied to revisions of TRIP procedures and that the TRIP procedures, as revised, still correctly implement the most current revision of the BWR Owners Group Symptomatic Emergency Procedures Guidelines (EPG) and the PBAPS Technical Specifications.

4.0 APPLICABILITY

4.1 This appendix shall be applicable and shall be used whenever revision is to be made to TRIP procedures.

4.2 The extent of application of the verification process depends on the nature and extent of the TRIP procedure revisions. This is further discussed in section 5.0.

5.0 PROCEDURE

5.1 The person charged with implementing the verification process (the verifier) shall, via the PORC review form, PORC minutes or other suitable means, identify the changes to the TRIP procedures necessitating the proposed revision.

5.2 The verifier will review the nature of the changes and analyze each change to determine which sections of Procedure A-94 are applicable to each change.

5.3 For each procedure step which is being changed, the verifier will identify the corresponding step in the latest revision of the EPG, if applicable.

5.4 A "PROCEDURE VERIFICATION FORM", Attachment 1 to this appendix, will be initiated listing all procedure steps which will be verified along with the sections and steps identified in 5.2 and 5.3 above.

5.5 The verifier will fill out the comments section by stating that the change conforms with the applicable sections of A-94 and correctly implements the EPG step, if appropriate, or, if these statements are not true, by identifying any exceptions.

5.6 The VERIFICATION FORM will be submitted as part of the PORC submittal for the proposed TRIP procedure change and will remain with the PORC history if approval is granted.

PROCEDURE VERIFICATION FORM

TRIP PROCEDURE NUMBER _____

PROPOSED REVISION NUMBER _____

NAME OF VERIFIER _____

DATE OF COMPLETION OF VERIFICATION _____

APPLICABLE TECH. SPECs _____

_____

TRIP STEP NUMBER	EPG STEP NUMBER	APPLICABLE SECTION(S) OF A-94	COMMENTS

APPENDIX VII VALIDATION OF TRIP PROCEDURES

1.0 PURPOSE

The purpose of the Validation Appendix is to provide guidance reguarding the applicability and execution of the validation process on revisions to TRIP Procedures.

2.0 RESPONSIBILITIES

2.1 It shall be the responsibility of the person(s) charged with validating TRIP procedure revisions to familiarize themselves with:

a. the changes requiring that the procedures be revised

b. the validation process as delineated in this Appendix

c. the applicable sections of the most recent revisions of A-94 and the BRW Owners Group Symptomatic Emergency Procedures Guidelines (EPG).

3.0 DEFINITIONS

3.1 VALIDATION: The evaluation performed to determine that the actions specified in the TRIP procedures can be followed by trained operators to manage an emergency condition in the plant.

4.0 APPLICABILITY

4.1 This Appendix shall be applicable and shall be used whenever a revision is to be made to TRIP procedures.

4.2 The extent of application of the validation process depends on the nature and extent of the TRIP procedure revisions. This is further discussed in Section 5.0.

5.0 PROCEDURE

5.1 The person charged with implementing the validation process (the validator) shall, via the PORC review form, PORC minutes or other suitable means, indentify the changes to the TRIP procedures necessitating the proposal revision.

5.2 The validator will review the nature of the changes and analyze each change to determine which section or paragraphs of A-94 validation must be made.

5.3 The validator will determine which validation method is appropriate, based on the type and extent of the revision being made.

5.4 A "Procedure Validation Form", Attachment 1 to this Appendix, will be initiated listing the information required.

5.5 A "Validation Check List", Table 1 to this Appendix, will be filled out. The validator will select (based on the validation method selected, the nature and extent of the TRIP procedure revisions) which portions of the check list are applicable. Those portions which are not applicable are checked N.A.

5.6 The validator will conduct the selected validation process, listing discrepancies noted and the method of resolution (eg. No Action, Step Revised).

5.7 The completed VALIDATION FORM will be submitted as part of the PORC submittal for the proposed TRIP procedure revision and will remain with the PORC history.

5.8 PORC or NRB may request additional validation, if appropriate.

PROCEDURE VALIDATION FORM

TRIP Procedure Number _____

Proposed Revision Number _____

Name of Validator _____ Date Completed _____

VALIDATION METHOD

Table Top Review _____ Control Room Walk Thru _____

Simulator Exercise _____ Other (Specify on Back) _____

Names of Validation Participants

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____

Discrepancies Identified (Attach Additional Pages If Required)

_____

_____

_____

_____

_____

Discrepancy Resolution Method (Attach Additional Pages If Required)

_____

_____

_____

_____

_____

Validation Completed _____ _____
Sign Date

TABLE 1

EVALUATION CRITERIA

Applicable to: I. USABILITY

T-T	W-T	S	A. LEVEL OF DETAIL	SAT	UNSAT	N.A.
X	X	X	1. Is there sufficient information to perform the specified actions at each step?	___	___	___
X	X	X	2. Are the alternatives adequately described at each decision step?	___	___	___
X	X	X	3. Are the labeling, abbreviations, and nomenclature as provided in the procedure sufficient to enable the operator to find the needed equipment?	___	___	___
X	X	X	4. Is the procedure missing information needed to manage the emergency condition?	___	___	___
X	X	X	5. Are the contingency actions sufficent to correct the condition?	___	___	___
X	X	X	6. Are the titles and numbers sufficiently descriptive to enable the operator to find referenced and branched procedures?	___	___	___

Legend:

X - applicable to the validation method

0 - not applicable to the validation method

T-T - table-top validation method

W-T - walk-through validation method

S - simulator validation method

T-T	W-T	S		SAT	UNSAT	N.A.
			B. UNDERSTANDABILITY			
X	X	X	1. Is the procedure easy to read?	—	—	—
X	X	X	2. Are the figures and tables easy to read with accuracy?	—	—	—
X	X	X	3. Can the values on figures and charts be easily determined?	—	—	—
X	X	X	4. Are caution and note statements readily understandable?	—	—	—
X	X	X	5. Are the procedure steps readily understandable?	—	—	—
			II. OPERATIONAL CORRECTNESS			
			A. PLANT COMPATIBILITY			
O	X	X	1. Can the actions specified in the procedure be performed in the designated sequence?	—	—	—
X	X	X	2. Are there alternate success paths that are not included in the Procedure? (Is there a better way to do it?)	—	—	—
O	X	X	3. Can the information from the plant instrumentation be obtained, as specified by the procedure?	—	—	—
O	O	X	4. Are the available control room instrumentation and annunciators adequate for the operator to recognize the entry conditions?	—	—	—

T-T	W-T	S		SAT	UNSAT	N.A.
O	O	X	5. Are the procedure entry conditions appropriate for the plant symptoms displayed to the operator?	___	___	___
O	X	X	6. Is information or equipment not specified in the procedure required to accomplish the task?	___	___	___
O	O	X	7. Do the plant responses agree with the procedure basis?	___	___	___
O	X	X	8. Are the instrument readings and tolerances stated in the procedure consistent with the instrument values displayed on the instruments?	___	___	___
O	X	X	9. Is the procedure physically compatible with the work situation (too bulky to hold, binding would not allow them to lay flat in work space, no place to lay the procedure down to use)?	___	___	___
O	X	O	10. Are the instrument readings and tolerances specified by the procedure remotely located instruments accurate?	___	___	___
			B. OPERATOR COMPATIBILITY			
O	X	X	1. If time intervals are specified, can the procedure action steps be performed on the plant within or at the designated time intervals?	___	___	___
O	X	X	2. Can the procedure action steps be performed by the operating shift?	___	___	___

T-T	W-T	S		SAT	UNSAT	N.A.
O	X	X	3. If specific actions are assigned to individual shift personnel, does the procedure adequately aid in the coordination of actions among shift personnel where necessary?	___	_____	___
O	X	X	4. Can the operating shift follow the designated action step sequences?	___	_____	___
O	X	X	5. Can the particular steps or sets of steps be readily located when required?	___	_____	___
O	X	X	6. Can procedure exit point be returned to without omitting steps when required?	___	_____	___
X	X	X	7. Can procedure branches be entered at the correct point?	___	_____	___
X	X	X	8. Are procedure exit points specified adequately?	___	_____	___

APPENDIX VIII TRIP PROCEDURE ABBREVIATIONS AND ACRONYMS

ADS	Automatic Depressurization System
Auto	Automatic
BPV	Main Turbine Bypass Valve
Circ.	Circulating
Cond.	Condensate
Cont.	Containment
CRD	Control Rod Drive
CST	Condensate Storage Tank
DW	Drywell
ECCS	Emergency Core Cooling System
Equip.	Equipment
Fd. Wtr.	Feedwater
Ft.	Feet
Gen.	Main Generator
GPM	Gallons Per Minute
Grp.	Group
H2	Hydrogen
HCU	Hydraulic Control Unit
HPCI	High Pressure Coolant Injection System
HPSW	High Pressure Service Water
Hr.(s)	Hour(s)
Inst.	Instrument
IRMs	Intermediate Range Monitors
Isol.	Isolation
lbs.	pounds
LPCI	Low Pressure Coolant Injection System
Max.	Maximum
Mech.	Mechanical
Min.	Minimum or Minute
MOV(s)	Motor Operated Valve(s)
MS	Main Steam
N2	Nitrogen
NPSH	Net Positive Suction Head
Press.	Pressure
Proc.	Procedure
PSIG	Pounds per square inch gage
Pt.(s)	Point(s)
RCIC	Reactor Core Isolating Cooling System
Recirc.	Recirculation
Ref.	Reference
Refuel.	Refueling
RFPT	Reactor Feed Pump Turbine
RHR	Residual Heat Removal System
RPM	Revolutions per minute
RPV	Reactor Pressure Vessel

RSCS	Rod Sequence Control System
RWCU	Reactor Water Cleanup
RWM	Rod Worth Minimizer
S/D	Shutdown or Shut Down
SJAE	Steam Jet Air Ejector
SLC	Standby Liquid Control
SRMs	Source Range Montors
SRV(s)	Safety Reflief Valve(s)
Stm.	Steam
TAF	Top of Active Fuel
Tech. Spec.	Technical Specification
Temp.(s)	Temperature(s)
Trans.	Transfer
Vlv.(s)	Valve(s)

APPENDIX IX WRITING STYLE FOR FLOW CHARTS

1.0 PURPOSE

The purpose of this appendix is to provide specific guidance on writing style to be used for TRIP procedure flow chart development.

2.0 WRITING STYLE GUIDANCE

2.1 Maintaining Simplicity in Order to Obtain Clarity

2.1.1 Decision and Action Steps shall deal with only one idea.

2.1.2 Complex evolutions should be prescribed in a series of steps, if possible.

2.1.3 Operator actions should be specifically stated.

2.1.4 Identification of components should be in everyday terms, i.e., operator language.

2.1.5 Expected results of routine tasks need not be stated.

2.1.6 Words and meanings shall be consistent throughout the flow charts.

2.1.7 Use only accepted abbreviations and acronyms that are familiar to the operator, i.e., the ones listed in Appendix VIII.

2.1.8 Avoid the use of time dependent operator actions.

2.1.9 Use units of measure that are familiar to the operator. The operator should be able to relate the units to those referenced on the plant instrumentation without conversion, translation or mental manipulation.

2.1.10 Generally, notes and tables should not be used on flow charts. However, it is permissible to use them if this simplifies the procedure.

2.1.11 Word order should be selected to require a minimum of punctuation on the flow charts.

2.1.12 When observations of a common plant parameter are required (e.g. reactor water level), no instrument number should be specified. However, when a specific parametric indication is required or when a parameter not commonly used in plant operation is to be observed, the instrumentation to be used should be identified using the name plate number.

2.2 Sentence Structure

2.2.1 The use of clear concise sentence fragments is recommended.

a. Command Steps:
The standard sentence syntax is to be:
Subject: Verb: Direct Object: Indirect Object

a.1 "YOU" is the understood subject and shall be omitted.
a.2 Begin the command with the action verb. Use those in Appendix IV as much as possible. If not, use commonly understood verbs.
a.3 The direct object is required to identify on which equipment the action verb is operating.
a.4 The indirect object further clarifies the action, if required. It is omitted if not required for clarity.
a.5 Example Command:
"Initiate Injection into the vessel."
You (subject-omitted) initiate (action verb) injection (direct object) into the vessel (indirect object-omitted if not required for clarity).

b. Decision Steps:

b.1 Begin the question with the transitive verb (e.g., is, can, are, has). Use verbs in Appendix IV, if not use common transitive verbs.
b.2 The subject is required to indicate what action, condition, or parameter is being interrogated.
b.3 An adverb is required to complete the question.
b.4 Example Decision Step:
"Can vessel level be maintained"
Can be (transitive verb)
Vessel level (subject)
Maintained (adverb)

the command or question, as rendered, is clearly understandable.

2.2.3 Conditional (If/Then) statements shall, whenever possible, be structured with the "If" statement preceeding the "Then" command to preclude inadvertant initiation of a wrong action resulting from the incomplete reading of a step.

2.2.4 Conditional (When/Then) statements also follow the guidance provided in the above step. However, it is appropriate to omit the work "Then" if it is not required to promote clarity.

2.2.5 Conditional prepositions (If/When/Then) will be underlined to help identify the condition and the action statement.

2.2.6 When conditions must be compounded within a single step, no two conditions shall occupy the same line within a box and each condition shall be proceeded by a "bullet" (a large bold dot preceeding the first letter of the first word in the condition). The conjunctions (and, or) which logically connect the compound conditions will exclusively occupy a line providing vertical separation between conditional statements and be underlines.

2.2.7 Statements which present options may be constructed as sentences (in the case of few options) or lists (in the case of three or more options). List shall be formatted as a single entry (option), vertical columns with "bullets" (see 2.2.6 above) preceeding each option. In the absence of qualifying conjunctions, "Or" shall be assumed.

2.2.8 Interrogative sentences used in a decision steps shall always issue in either of the two alternatives provided. These alternatives should normally be "yes" or "no" except where logic structure or clarity dictate otherwise.