PROCEDURES GENERATION PACKAGE

ST. LUCIE PLANT

UNIT 1 AND 2

TABLE OF CONTENTS

1. INTRODUCTION

1.1 PURPOSE

The purpose of this Procedures Generation Package (PGP) is to describe the emergency operating procedures (EOPs) development at the St. Lucie Plant, Unit 1 and Unit 2 CE-type pressurized water reactor.

1.2 SCOPE

This document was developed in response to Supplement 1 to NUREG-0737, Item 7.2b), page 15.

1.3 ORGANIZATION

This document consists of the following six parts:

- o Introduction
- o Plant-Specific Technical Guidelines
- o Writers Guide for EOPs
- o EOP Verification Program
- o EOP Validation Program
- o EOP Training Program

Each part describes the approach taken as part of the overall EOP Implementation Plan for St. Lucie Plant, Unit 1 and Unit 2.

2. PLANT-SPECIFIC TECHNICAL GUIDELINES

2.1 GENERAL

The following program for converting the Combustion Engineering Emergency Procedure Guidelines (EPGs) into EOPs has been developed and will be used by St. Lucie Plant Unit 1 and Unit 2.

The EPGs, CEN 152, Revision 1, Dated November, 1982, will be used for the initially implemented EOPs. When Revision 2 is completed and approved, the revised information will be incorporated using the established revision, review, and approval process.

The following major items were considered in the methodology to be used.

- o mechanics of conversion
- o location of the plant-specific technical information
- o how the plant-specific technical information will be used
- o the use of old EOPs
- o documentation requirements
- o use of the background information supplied with technical guidelines

2.2 PROGRAM DESCRIPTION

2.2.1 Mechanics of Conversion

2.2.1.1 Preparation

The designated EOP writing team will obtain and review the following plant-specific technical information (EOP source documents):

- o Combustion Engineering EPGs, Revision 1, with background information
- o FSAR Unit 1 and Unit 2
- o St. Lucie Plant Writers Guide for Emergency Operating Procedures (Rev. 0)
- o Technical Specifications for Unit 1 and Unit 2
- o the most current revision of existing EOPs
- o as-built plant drawings

The EOP source documents are located in the Document Control Center

2.2.1.2 Writing EOPs

The EOP writing team will follow the EPGs step-by-step, adding footnoted information where designated. Concurrently, the writers will review appropriate EOP source documents. The information on Figure 1 will be completed during the writing of the EOP. The justification section will be used to provide the plant-specific technical information or analysis to assist in the verification process.

2.2.2 Documentation

The completed Figure 1 (Documentation Sheet) will be provided as a source document to assist in the EOP verification process and in the revision, review, and approval process.

An example of a completed "Step Documentation" sheet is presented as Figure 2, LOCA Procedure Page 2 of 4, comparing it to the equivalent EPG Step of Page 5-72 Step 2a)

FIGURE 1

DOCUMENTATION SHEET

EOP Title _____

EOP Number _____ Rev. ____

Page ___ of ____

STEP NUMBER	EOP	CEN 152	JUSTIFICATION OF DIFFERENCES	SIGNATURE/DATE

FIGURE 2

DOCUMENTATION SHEET

EOP Title LOCA

EOP Number XXXXX Rev. 2

Page 2 of 4

STEP NUMBER	EOP	CEN 152	JUSTIFICATION OF DIFFERENCES	SIGNATURE/DATE
EPG Pg. 5-72 Step 2a)	If pressurizer level is outside normal operating band	If pressurizer level is between (35") and (245").	Reworded to remove reference to level in inches. St. Lucie Plant level instruments are in percentage	Joe Doe OCT 10 83

3. WRITERS GUIDE FOR EOPs

3.1 GENERAL

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

The writers guide will be revised, as necessary, based on feedback from operator training, experience, and validation.

3.2 DOCUMENT DESCRIPTION

Information on the following major items is included in the plant-specific writers guide for EOPs:

- o EOP format
- o EOP organization
- o EOP level of detail
- o role of the EOP within the procedure system and network
- o EOP content
- o mechanics of style

The St. Lucie Plant Writers Guide for Emergency Operating Procedures, Revision 0 is based on the industry document Emergency Operating Procedures Writing Guideline (INPO 82-017), developed by the Emergency Operating Procedures Implementation Assistance (EOPIA) Review Group and published by INPO. The St. Lucie Plant guide is provided as Attachment 1.

4. EOP VERIFICATION PROGRAM

4.1 GENERAL

EOP verification is the evaluation performed to confirm the written correctness of the procedure and to ensure that applicable generic and plant-specific technical information has been incorporated properly. This evaluation also checks that the human factors aspects presented in the writers guide for EOPs have been applied.

4.2 PROGRAM DESCRIPTION

When developing this EOP verification program, the following major items were considered:

- o how EOP verification will be performed
- o how completion of the EOP verification process will be documented
- o what process will be used in resolving discrepancies

The verification program is based on the industry document Emergency Operating Procedures Verification Guideline (INPO 83-004), developed by the EOPIA Review Group and published by INPO.

The St. Lucie Plant verification procedure for emergency operating procedures should address the following objectives:

- o EOPs are technically correct, i.e., they accurately reflect the technical guidelines and other EOP source documents.
- o EOPs are written correctly, i.e., they accurately reflect the plant-specific writers guide.
- o A correspondence exists between the procedures and the control room/plant hardware.
- o The language and level of information presented in the EOPs are compatible with the qualifications, training, and experience of the operating staff.

5. EOP VALIDATION PROGRAM

5.1 GENERAL

EOP validation is the evaluation performed to determine that the actions specified in the procedure can be performed by the operator to manage the emergency conditions effectively. The methodology for EOP validation utilizes present, available methods at the St. Lucie Plant while recognizing and allowing for future improvements. The EOP validation will evaluate the operators' ability to manage emergency conditions using the EOPs. It will validate that part of the EOP not covered by any technical validation of generic technical guidelines.

5.2 PROGRAM DESCRIPTION

When developing this EOP validation program, the following major items were considered:

- how EOP validation will be performed
- how to appropriately use simulators, walk-throughs, or table-top methods of validation
- how operating and training experience will be integrated into the program evaluation
- the evaluation criteria to be applied and the methods to be followed in resolving discrepancies
- how completion of the EOP validation process will be documented

The program is based on the industry document Emergency Operating Procedures Validation Guideline (INPO 83-006), developed by the EOPIA Review Group and published by INPO. The St. Lucie Plant validation procedure for emergency operating procedures should address the following objectives:

- EOPs are usable, i.e., they can be understood and followed without confusion, delays, and errors.
- A correspondence exists between the procedures and the control room/plant hardware.
- The instructions presented in the EOPs are compatible with the shift manpower, qualifications, training, and experience of the operating staff.
- A high level of assurance exists that the procedures will work, i.e., the procedures guide the operator in mitigating transients and accidents.

6. EMERGENCY OPERATING PROCEDURES TRAINING PROGRAM (EOPT)

6.1 GOALS

The EOPT will have as its basis the following goals:

- o To enable the operators to understand the structure of the EOPs.
- o To enable the operators to understand the technical basis of the EOPs.
- o To enable the operators to have a working knowledge of the technical content of the EOPs.
- o To enable the operator to be able to use the EOPs under operational conditions

Learning objectives will be developed to support each of these goals

6.2 TRAINING METHODS

The EOPT will utilize various combinations of classroom instruction, practice walk throughs, and simulator exercises as appropriate for the learning objectives.

6.2.1 Classroom Instruction

Classroom instruction session will include information on the following:

- o Technical bases of the EOPs
- o Technical content of the EOPs
- o Structure of the EOPs

6.2.2 Procedure Walk Throughs

Familiarity with procedural content, structure, and implementation will be gained by performing practice walk throughs in the control room.

6.2.3 Simulator Exercises

Simulator practice on performing EOPs will occur as a part of regularly scheduled simulator requalification or hot license training. Scenarios will be developed to be as specifically applicable as possible to the generic simulator now being used. Procedural practice will be structured such that operators are performing their normal control room functions. Until a plant specific simulator is available, complicated scenarios will be discussed during classroom instruction or control room walk throughs.

6.3 REFRESHER TRAINING

All licensed operators will conduct procedural walk throughs for refresher training. The walk throughs may be conducted either in the plant control room or the simulator. Simulator scenarios will be as described in 6.2.3 above. Simulator exercises will be evaluated by the Training staff or operations supervision. Evaluation results will be critiqued for feedback to the operators and to determine additional training needs.

6.4 TRAINING ON REVISIONS TO EOPs

Training on revisions to EOPs will be accomplished through a program of required readings (self taught), preshift briefings, or lectures in the requalification program. Determination of appropriate methods will be made by the training staff.

6.5 INPUTS INTO TRAINING PROGRAM CHANGES

6.5.1 Supporting Training Material Changes

Changes to supporting training material will be factored into updated lesson plans and operator memos.

6.5.2 Operator Feedback

Operator feedback resulting from EOP verification, EOP validation, and training critique forms will be used to keep the training program and EOPs current and relevant.

6.6 EVALUATION

An evaluation will be used to ensure that the training program goals have been accomplished.

ATTACHMENT 1

ST. LUCIE PLANT
WRITERS GUIDE
FOR
EMERGENCY OPERATING PROCEDURES

FIGURE 5

FLORIDA POWER & LIGHT COMPANY
ST. LUCIE PLANT
QUALITY INSTRUCTION NUMBER QI 5-PR/PSL-2
REVISION 0

1. TITLE: WRITERS GUIDE FOR EMERGENCY OPERATING PROCEDURES

2. PREPARED BY: F. M. Roger October 1, 1983

3. SUBCOMMITTEE REVIEW BY: (including content list)
W. S. Windecker for FP&L PNE October 1, 1983

4. REVIEWED BY FRG ON: October 12, 1983

5. APPROVED BY: J H Barrow Plant Manager 10/13 1983

6. REVISION REVIEWED BY FRG ON: 19

7. APPROVED BY: Plant Manager 19

* Type of procedure (such as Operating, I & C, Chemistry, etc.)
** Procedure number with prefix of 1 for Unit 1 only, 2 for Unit 2 only, and no prefix if for both units.

FLORIDA POWER & LIGHT COMPANY
NUCLEAR ENERGY DEPARTMENT
ST. LUCIE PLANT

WRITERS GUIDE FOR EMERGENCY OPERATING PROCEDURES

1.0 APPROVAL:

Reviewed by Facility Review Group October 12 19 83
Approved by J. H Barrow for Plant Manager Oct 13 1983
Revision ___ Reviewed by F R G _____ 19___
Approved by _____ Plant Manager _____ 19___

2.0 PURPOSE:

2.1 This document is intended to provide administrative guidance in the preparation of emergency operating procedures (EOPs).

3.0 SCOPE:

3.1 This guide applies to the preparation of all EOPs.

4.0 RESPONSIBILITIES:

4.1 Each person drafting or revising an EOP is responsible for using the format described in Appendix A to this procedure.

4.2 The Plant Manager is responsible for approving each EOP.

4.3 Each EOP shall be verified for technical accuracy and written correctness using QI 5-PR/PSL-3, "EOP Verification Procedure", prior to implementation.

4.4 Each EOP shall be validated for usability and operational correctness using QI 5-PR/PSL-4, "EOP Validation Procedure", prior to implementation.

5.0 INSTRUCTIONS:

5.1 The format and instructions for preparing EOPs is contained in Appendix A to this procedure.

APPENDIX A

FLORIDA POWER & LIGHT COMPANY
ST. LUCIE PLANT
WRITERS GUIDE
FOR
EMERGENCY OPERATING PROCEDURES

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

1 INTRODUCTION

1.1 PURPOSE

This document is intended to provide administrative guidance in the preparation of Emergency Operating Procedures, (EOPs).

The CE Emergency Procedures Guidelines shall be used as a format and technical guide during this preparation.

1.2 SCOPE

This guide applies to the preparation of all EOPs.

2 EOP DESIGNATION AND NUMBERING

2.1 COVER SHEET

Each EOP shall have a cover sheet (see Figure 1) which will identify the procedure and the authorized revision. To identify the procedure, a title should be used that is sufficiently short and descriptive of the emergency condition or purpose for which the procedure is applicable.

2.2 PROCEDURE DESIGNATION

The emergency operating procedure designator shall be EOP. The applicable unit is to be signified by the number 1 or 2 preceding EOP. Each unit shall have its own EOPs.

Figure 1. Cover Sheet

2.3 PROCEDURE NUMBERING

A sequential number shall follow the procedure designator and should consist of one or two digits.

Example 1 EOP 5

- 5 — Sequence Number
- EOP — Procedure Designator
- 1 — Applicable Unit

2.4 REVISION NUMBERING AND DESIGNATION

Revisions to EOPs shall follow the same flow path as Off-Normal and Operating procedures during the revision process.

One or two digits following the abbreviation "Rev" shall be used to designate the revision level of the EOP.

Example Rev 1

- 1 — Revision Level
- Rev — Abbreviation

To identify revisions to the text of an EOP, a change bar shall be located in the right margin, alongside the text change.

A § in the left margin shall indicate the text contains a licensing commitment and should not be revised without licensing approval.

2.5 PAGE IDENTIFICATION AND NUMBERING

Each page of the procedure will be identified by:

a) The procedure designator and numbers.

b) The revision number

c) An abbreviated title.

d) The page number, specified as "Page ___ of ___". This information will be together and located in the upper right hand corner of each page. (See Figure 2).

Figure 2. Page Format

3 FORMAT

The following format is to be applied consistently for all EOPs.

3.1 PAGE FORMAT

A dual-column format shall be used. The left-hand column is designated for operator actions, and the right-hand column is designated for contingency actions to be taken when the expected response is not observed. A sample page format is presented in Figure 2.

3.2 PROCEDURE ORGANIZATION

The following section headings will be used for all EOPs.

1 TITLE--The title will be stated for operator association with the ENTRY CONDITIONS.

2 ENTRY CONDITIONS--The entry conditions will include only those alarms, indications, operating conditions, automatic system actions, or other unique symptoms that the operator is to use in deciding to use the procedure.

3 OPERATOR ACTIONS--The operator actions will be short, concise, identifiable instructions that give appropriate directions to the user.

3.3 SECTION NUMBERING

Arabic numerals will be used for numbering sections and subsections in the decimal format. (See Figure 2, Page Format)

3.4 INSTRUCTION STEP NUMBERING

Instruction steps in a section or subsection shall be numbered and indented as follows:

1. Verify . . .
   a. Check . . .

The same step number scheme shall be used in both the right and left columns of the procedure.

4 WRITING INSTRUCTIONAL STEPS

4.1 INSTRUCTION STEP LENGTH AND CONTENT

Instruction steps shall be concise and precise. General guides to be used in meeting these objectives are as follows:

- Each instruction step should deal with only one idea.
- Short, simple sentences should be used in preference to long, compound, or complex sentences.
- Complex evolutions should be prescribed in a series of steps, with each step made as simple as practicable.
- Objects of operator actions should be specifically stated. This includes identification of exactly what is to be done and to what.
- For instructional steps that involve an action relating to three or more objects, the objects should be listed with space provided for operator checkoff.
- Limits should be expressed quantitatively whenever possible (refer to Subsection 5.5).

- Each step should have a check off to indicate that the following were either observed or performed:
  a. Symptoms
  b. Automatic Actions
  c. Operator Actions

- Mandatory sequence of steps is assumed unless otherwise stated.

- Identification of components and parts should be complete.

- Instruction content should be written to communicate to the operator.

- Expected results of routine tasks need not be stated.

- When actions are required based upon receipt of an annunciated alarm, the setpoint of the alarm should be given for ease of verification.

- When resetting or restoration of an alarm or trip is required, the expected results immediately following the resetting or restoration should be given if it would be beneficial to the operator.

- When considered beneficial to the operator for proper understanding and performance, describe the system response time associated with performance of the instruction.

- When system response dictates a time frame within which the instruction should be accomplished, prescribe such time frame. If possible, however, avoid using time to initiate operator actions. Operator actions should be related to plant parameters.

- When anticipated system response may adversely affect instrument indications, describe the conditions that will likely introduce instrument error and means of determining if instrument error has occurred by using a NOTE.

- When additional confirmation of system response is considered necessary, prescribe the backup readings needed.

4.1.1 Instruction Column

The left-hand column of the dual-column format shall contain the operator instructional steps. The following guides are established for this column, in addition to the general guides above.

- Expected indications should be presented in this column.

4.1.2 Contingency Actions Column

Contingency actions shall be presented in the right-hand column of the dual-column format. Contingency actions are operator actions that should be taken in the event a stated condition, event, or task does not represent or achieve the expected result. The need for contingency action occurs in conjunction with tasks involving verification, observation, confirmation, and monitoring. Contingencies should be written so that the conditional statement precedes the action statement. "If.....Then....."

Contingency actions should be specified for each circumstance in which the expected results or actions might not be achieved. The contingency actions should identify, as appropriate, directions to override automatic controls and to initiate manually what is normally automatically initiated.

4.2 USE OF LOGIC TERMS

The logic terms AND, OR, NOT, IF, IF NOT, WHEN, and THEN are often necessary to describe precisely a set of conditions or sequence of actions. When logic statements are used, logic terms will be highlighted so that all the conditions are clear to the operator. Emphasis will be achieved by using capitalization and underlining. All letters of the logic terms shall be capitalized and the words will be underlined.

The use of AND and OR within the same action shall be avoided. When AND and OR are used together, the logic can be very ambiguous.

The dual-column format used equates to the logic; IF NOT the action in the left-hand column, THEN follow the action specified in the right hand column.

Use other logic terms as follows:

- When attention should be called to combinations of conditions, the word AND shall be placed between the description of each condition. The word AND shall not be used to join more than three conditions. If four or more conditions need to be joined, a list format shall be used.

- The word OR shall be used when calling attention to alternative combinations of conditions. The use of the word OR shall always be in the inclusive sense. To specify the exclusive "OR," the following may be used: "either A OR B but not both."

- When action steps are contingent upon certain conditions or combinations of conditions, the step shall begin with the words IF or WHEN followed by a description of the condition or conditions, a comma, the word THEN, followed by the action to be taken. WHEN is used for an expected condition. IF is used for an unexpected but possible condition.

- Use of IF NOT should be limited to those cases in which the operator must respond to the second of two possible conditions. IF should be used to specify the first condition.

- THEN shall not be used at the end of an action step to instruct the operator to perform the next step because it runs actions together.

4.3 USE OF CAUTIONARY INFORMATION AND NOTES

Cautionary information can be considered in two fundamental categories: those that apply to the entire procedure and those that apply to a portion or a specific step of the procedure. Those that apply to the entire procedure are called "PRECAUTIONS" and are covered in operator training. Those that apply to a portion of a procedure are called "CAUTIONS" and are placed immediately before the action statements to which they apply.

Cautions shall extend across the entire page and shall be highlighted as shown in the Example CAUTION. This placement of cautions helps ensure that the procedure user observes the caution before performing the step. A caution cannot be used instead of an action statement. It should be used to denote a potential hazard to equipment or personnel associated with or consequent to the subsequent action statement

Cautions should be used to alert personnel to displays based on secondary sensing modes. For example, when a light indicates a circuit is energized and not the position of a valve.

If additional information other than cautions is necessary to support an action statement, a NOTE should be used. A NOTE should present information only, not instructions, and should be located in the right-hand column as as close to the applicable action statement as possible.

o The following examples illustrate these instructions.

a. Example NOTE:

NOTE
Break identification chart
(Figure 1) may be helpful
in evaluating the situation

b. Example CAUTION:

****

CAUTION

Overfeeding the Steam Generators may cause excessive cooldown.

Do not exceed 75°F/Hr cooldown rate.

****

4.4 CALCULATIONS

Mathematical calculations should be avoided in EOPs. If a value has to be determined in order to perform a procedural step, a chart or graph should be used whenever possible.

4.5 USE OF UNDERLINING

Underlining should be used for certain headings, emphasis of logic terms and CAUTION.

4.6 REFERENCING AND BRANCHING TO OTHER PROCEDURES OR STEPS

Referencing implies that an additional procedure or additional steps will be used as a supplement to the procedure presently being used. Referencing other steps within the procedure being used, either future steps or completed steps, should be minimized. When only a few steps are involved in the referencing, the steps should be restated in the procedure wherever they are needed.

To minimize potential operator confusion, branching should be used when the operator is to leave one procedure or step and use another procedure or step. Use the key words "go to." This will alert the operator to leave the present step and not return until directed.

Use quotation marks to emphasize the title of the referenced or branched procedure; examples: Go to E-1, "Loss of Reactor Coolant", Step 5.2.

4.7 COMPONENT IDENTIFICATION

With respect to identification of components, the following rules are to be followed:

- Equipment, controls, and displays will be identified in operator language (common usage). This language may not always match engraved names on panels but will be recognizable.

- When the engraved names and numbers on panel placards and alarm windows are specifically the item of concern in the procedure, the engraving should be quoted verbatim and emphasized by using all capitals.

- The names of plant system titles are emphasized by initial capitalization. When the word "system" is deleted from the title because of brevity and is understood because of the context, the title is still emphasized by initial capitalization.

- If the component is seldom used or it is felt that the component would be difficult to find, location information should be given in parentheses following the identification.

4.8 LEVEL OF DETAIL

Too much detail in EOPs should be avoided in the interest of being able to effectively execute the instructions in a timely manner. The level of detail required is the detail that a newly trained and licensed operator would desire during an emergency condition.

To assist in determining the level of EOP detail, the following general rules apply.

- For control circuitry that executes an entire function upon actuation of the control switch, the action verb appropriate to the component suffices without further amplification of how to manipulate the control device; for example, "Close FCV-07-1A, FCV-07-1B." Recommended action verbs are as follows:

  a. For power-driven rotating equipment, use Start, Stop.

  b. For valves, use Open, Close, Throttle Open, Throttle Close, Throttle.

  c. For power distribution breakers, use Synchronize and Close, Open.

- For control switches with a positional placement that establishes a standby readiness condition, the verb "Set" should be used, along with the engraved name of the desired position. Positional placements are typically associated with establishing readiness of automatic functions and are typically named AUTO or NORMAL; for example, "Set the GLAND STEAM EXHAUSTER Control Switch in AUTO."

- For multiposition control switches that have more than one position for a similar function, placement to the desired position should be specified; for example, "Place FIRE pump SELECTOR Switch to TEST NO. 2."

- Standard practices for observing for abnormal results need not be prescribed within procedural steps. For example, observation of noise, vibration, erratic flow, or discharge pressure need not be specified by steps that start pumps.

- Alignment instructions should contain all the following:

  a. Each item requiring alignment is individually specified. (Do not refer personnel to previous steps

  b. Each item is identified with a unique number or name.

c. The position in which the item is to be placed is specified.

d. The position in which the item is placed is verified.

4.9 PRINTED OPERATOR AIDS

When information is presented using graphs, charts, data sheets, tables, and figures, these aids must be self-explanatory, legible, and readable under the expected conditions of use and within the reading precision of the operator. Data sheets should designate the frequency of use. If the action step must be repeated every 15 minutes, the data sheet should contain enough spaces to comply with the action.

4.9.1 Units of Measure

Units of measure on figures, tables, and attachments should be given for numerical values that represent observed, measurement data, or calculated results. A slant line should be used instead of "per"; examples: ft/sec, lbs/hr.

4.9.2 Titles and Headings

Capitalization should be used for references to tables and figures, titles of tables and figures within test material, and column headings within a table.

Examples: Refer to Figure 201 for . . . .
. . . . as shown in Table 201, Equipment Power Supplies
the . . . .

4.9.3 Figure, Table, and Attachment Numbering

Sequential arabic numbers should be assigned to figures, tables, and attachments in separate series. The sequence should correspond with the order of their reference in the text. The symbol "#" and abbreviation "No." are unnecessary and should not be used. The number alone suffices.

Examples: Figure 1, Figure 2, etc.
Table 1, Table 2, etc.
Attachment 1, Attachment 2, etc.

Page identification for attachments should consist of a block of information that identifies (1) procedure number, (2) abbreviated title, (3) attachment number, (4) page number, and (5) revision number. Page numbering of attachments should meet the requirements of Subsection 2.5.

Section numbering for attachments should be in accordance with Subsection 3.3.

5. MECHANICS OF STYLE

5.1 SPELLING

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

5.2 HYPHENATION

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

- When doubt exists, the compound word should be restructured to avoid hyphenation.

- Hyphens should be used in the following circumstances:

  a. in compound numerals from twenty-one to ninety-nine; example: one hundred thirty-four

  b. in fractions; examples: one-half, two-thirds

  c. in compounds with "self"; examples: self-contained, self-lubricated

  d. 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; example: fire-escape or fire escape

e. when misleading or awkward consonants would result by joining the words; example: bell-like

f. to avoid confusion with another word; examples: re-cover to prevent confusion with recover, pre-position to avoid confusion with preposition

g. when a letter is linked with a noun; examples: X-ray, O-ring, U-bolt, I-beam

h. to separate chemical elements and their atomic weight; examples: Uranium-235, U-235

5.3 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.

5.3.1 Brackets

Do not use brackets.

5.3.2 Colon

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

5.3.3 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 conditional phrases for clarity and ease of reading. Example: WHEN level decreases to 60 inches, THEN start pump . . . .

5.3.4 Parentheses

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

5.3.5 Period

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

5.4 VOCABULARY

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

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

- Use common usage if it makes the procedure easier to understand.

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

- Verbs with specific meaning should be used. Examples are listed in Table 1.

- Equipment status should be denoted as follows:

  a. Operable/operability--These words mean that a system, subsystem, train, component, or device is capable of performing its specified function(s) and when all necessary attendant instrumentation, controls, electrical power, cooling or seal water, lubrication or other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its function(s) are also capable of performing their related support function(s).

b. Operating--This word means that a system, subsystem, train, component, or device is in operation and is performing its specified function(s).

c. Available--This word means that a system, subsystem, train, component, or device is operable and can be used as desired; however, it need not be operating.

Table 1. Action Verbs

Verb	Application
Allow	To permit a stated condition to be achieved prior to proceeding, for example, "allow discharge pressure to stabilize"
Check	To perform a comparison with a procedural requirement "Check if SI can be terminated"
Close	To change the physical position of a mechanical device so that it prevents physical access or flow or permits passage of electrical current, for example, "close valve V2530"
Complete	To accomplish specified procedural requirements, for example, "complete valve checkoff list 'A,'" "complete data report QA-1," "complete steps 7 through 9 of Section III"
Decrease	Do not use because of oral communication problems.
Establish	To make arrangements for a stated condition, for example, "establish communication with control room"
Increase	Do not use because of oral communication problems.
Inspect	To measure, observe, or evaluate a feature or characteristic for comparison with specified limits; method of inspection should be included, for example, "visually inspect for leaks"
Lower	To decrease, as in setpoint, flow, pressure, etc.
Open	To change the physical position of a mechanical device, such as valve or door to the unobstructed position that permits access or flow, for example, "open valve V1114"

Table 1. Action Verbs (Continued)

Verb	Application
Raise	To increase, as in setpoint, flow, pressure, etc.
Record	To document specified condition or characteristic, for example, "record discharge pressure"
Set	To physically adjust to a specified value an adjustable feature, for example, "set diesel speed to . . .'rpm'"
Start	To originate motion of an electric or mechanical device directly or by remote control, for example, "start . . . pump"
Stop	To terminate operation, for example, "stop . . . pump"
Throttle	To operate a valve in an intermediate position to obtain a certain flow rate, for example, "throttle valve V6550 to . . ."
Trip	To manually activate a semi-automatic feature, for example, "trip breaker . . ."
Vent	To permit a gas or liquid confined under pressure to escape at a vent, for example, "vent . . . pump"
Verify	To observe an expected condition or characteristic, for example, "verify discharge pressure is stable"

5.5 NUMERICAL VALUES

The use of numerical values should be consistent with the following rules:

- Arabic numerals should be used.

- For numbers less than unity, the decimal point should be preceded by a zero; for example: 0.1.

- The number of significant digits should be equal to the number of significant digits available from the display and the reading precision of the operator.

- Acceptance values should be specified in such a way that addition and subtraction by the user is avoided if possible. This can generally be done by stating acceptance values as limits. Examples: 510°F maximum; 300 psig minimum; 580° to 600°F. For calibration points, statement of the midpoint and its lower and upper limits for each data cell would accomplish the same purpose; for example, 10 milliamperes (9.5 to 10.5). Avoid using ±.

- Engineering units should always be specified for numerical values of process variables. They should be the same as those used on the control room displays, for example: psig instead of psi.

5.6 ABBREVIATIONS, LETTER SYMBOLS, AND ACRONYMS

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. The full meaning of the abbreviation, other than the abbreviations listed in AP0010137, should be fully written before the first use of the abbreviation and whenever in doubt. Consistency should be maintained throughout the procedure.

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.

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

An acronym is a type of symbol formed by the initial letter or letters of each of the successive parts of major parts of a compound term. Acronyms may be used if they are defined or commonly used.

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.

6. TYPING FORMAT

6.1 GENERAL TYPING INSTRUCTIONS

For emergency operating procedures, the following general requirements are to be followed.

- Paper size should be 8-1/2 X 11 inches.
- Procedures should be typed on a word processor.
- Prestige Elite 12, 82052 WP printwheel should be used.

6.2 PAGE ARRANGEMENT

- Page margins are specified by the printed borders. Two type spaces are to be maintained between the text and borders.

- Page identification information (refer to Subsection 2.4) will be one line space below the top page printed border and one line space to the left of the right printed border.

- The 8-1/2 inch edges shall constitute top and bottom of pages and text. Tables and figures shall be readable with the page so arranged. Rotation of printed matter should be avoided for emergency operating procedures. Refer to Subsection 6.5 if rotation is absolutely necessary.

6.3 HEADING AND TEXT ARRANGEMENT

Block style, as illustrated in Figure 2, shall be used. First-level section headings shall be in full capitals, with an underscore; second-level section headings shall be in full capitals without an underscore; and third-level section headings shall be placed in initial capitals without an underscore (refer to Subsection 3.3 for its numbering).

- Section numbers shall begin two spaces from the left-hand printed border.

- Three line spaces shall be allowed between headings and respective text.

- Three line spaces shall be allowed between paragraphs.

- Text shall be typed using one-and-a-half line spacing.

6.4 BREAKING OF WORDS

Breaking of words shall be avoided to facilitate operator reading.

6.5 ROTATION OF PAGES

If pages need to be rotated, these rules shall be followed:

- The top of the page with rotated print is the normal left-hand edge.

- The page margins do not rotate.

- Page identification and numbering will not be rotated.

6.6 PRINTED OPERATOR AIDS

Figures include graphs, drawings, diagrams, and illustrations. The following rules are established.

- The figure number and its title are placed three line spaces above the figure field (refer to Subsection 4.9).
- The figure number and title should be of Prestige Elite 12, 82052 WP type.
- The figure field must not violate specified page margins.
- The figure field should be of sufficient size to offer good readability
- The essential message should be clear; simple presentations are preferred.
- Grid lines of graphs should be at least 1/8-inch apart; numbered grid lines should be bolder than unnumbered grid lines.
- Labeling of items within the figure should be accompanied by arrows pointing to the item.
- The items within the figure should be oriented naturally insofar as possible. For example, height on a graph should be along the vertical axis.
- In general, items within the figure should be labeled. Typed labels should use Prestige Elite 12, 82052 WP printwheel. Handwritten labels should be printed, using all capitals, with letters and numbers at least 1/8-inch high.
- All lines in figures should be reproducible.

Tables should be typed using the following rules.

- Type style and size should be the same as that for the rest of the procedure.

- The table number and title should be located above the table field and three line spaces below preceding text.

- A heading should be entered for each column and centered within the column; the first letter of words in the column headings should be capitalized.

- Horizontal lines should be placed above and below the column headings; vertical lines, while desirable, are not necessary or required.

- Tabular headings should be aligned as follows:

  a. horizontally by related entries

  b. vertically by decimal point for numerical entries

  c. vertically by first letter for word entries; however, run-over lines should be indented three spaces

- Double spacing between horizontal entries suffices to segregate such entries, although horizontal lines may also be used if desired. If used, double horizontal lines should be used above and below the column headings.

  There should not be a vacant cell in the table. If no entry is necessary, "N.A." should be entered to indicate not applicable.

6.7 CAUTIONS AND NOTES

All notes and cautions should be distinguishable from the rest of the text by using the following format.

- The applicable heading "NOTE" and "CAUTION" should be capitalized, centered, and placed three line spaces below the preceding text.

- The text of the note or caution should be block format, line-and-a-half spaced. The caution text should be indented five spaces from the left-hand printed margin and begun one-and-a-half line spaces below the heading. The text for notes should begin 10 spaces from the column dividing line.

- A caution statement should not continue to a second page, unless unusually lengthy.

- The right-hand margin of the text of the note or caution should be five spaces to the left of the right-hand printed margin.

- CAUTIONS shall be further highlighted by a line of asterisks one-and-a-half spaces above the heading and one-and-a-half spaces below the last line of the text.

- Examples are presented in Subsection 4.3.

6.8 USE OF FOLDOUT PAGES

When used, a foldout page is treated as a single page. It should follow the same format as a standard page except the width is different. The page should be folded so that a small margin exists between the fold and the right-hand edge of standard pages. This will reduce wear of the fold.

6.9 USE OF OVERSIZED PAGES

Oversize pages should not be used. They should be reorganized or reduced to a standard page. If this cannot be done, a foldout page should be used.

6.10 USE OF REDUCED PAGES

Reduced pages should be avoided whenever possible. Final size of reduced pages should be standard page size. Reduced pages should be readable.

7. REPRODUCTION

Reproduction will be done on a standard copier, single-sided copy only.

___ EOP ___
Abbreviated Title
Rev. ___
Page ___ of ___

FLORIDA POWER & LIGHT COMPANY

ST. LUCIE PLANT

UNIT NO. ___

EMERGENCY OPERATING PROCEDURE

(TITLE)

Rev.	Reviewed By	Approved By	Date
0			/ /
			/ /
			/ /
			/ /
			/ /
			/ /

1" → | 1/2"

1 TITLE - Reactivity Control — 1-EOP-01

Rev. 1

2 ENTRY CONDITIONS — TLOP

1. Reactor Power 100% — Page 1 of 20

2. Reactor Power cannot be determined

3 OPERATOR ACTIONS

Instructions	Contingency Actions
1. Trip Reactor	1. Drive Rods
a. Depress switch	a. Select rod
(2 spaces)	(2 spaces)
(5 spaces)	(5 spaces)
(9 spaces)	
(35 spaces)	

1/2"

1"