



NUCLEAR OPERATIONS DEPARTMENT
PILGRIM NUCLEAR POWER STATION

Procedure 1.3.4-10

WRITERS GUIDE
FOR
EMERGENCY OPERATING PROCEDURES

Total Pages: 40

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I. INTRODUCTION

A. PURPOSE

The purpose of this document is to provide guidance and instruction for the preparation and processing of new Emergency Operating Procedures (EOP) and/or revisions to existing EOPs.

B. SCOPE

This Writers Guide applies to the preparation of all EOPs for Pilgrim Nuclear Power Station, and is applicable to all personnel.

C. CONTROL

This procedure is "QA Program related" and the owner is the Chief Operating Engineer. All revisions shall be processed in accordance with PNPS Procedure 1.3.4 "Procedures", and requires Nuclear Operations Manager Approval. The Writers Guide is valid for an indefinite period.

II. EOP DESIGNATION AND NUMBERING

EOPs are procedures that govern PNPS plant operation during emergency conditions. Each PNPS EOP shall be uniquely identified to permit easy administration of the process of procedures preparation, review, revision, distribution, and operator use.

A. COVER SHEET

Every EOP will have a cover sheet, see figure 1. The primary purposes of this cover sheet are (1) to identify the procedure, (2) to provide a list of effective pages, and (3) to identify

the latest approved revision of each individual page. Each time an EOP is revised, the title page will be reissued to contain an updated List of Effective Pages and Attachment. To identify the procedure, a descriptive title is used that also designates the scope. The EOP revision located in the control room is considered the most current authorized revision.

B. PROCEDURE DESIGNATION

The designator used for Emergency Operating Procedures is EOP.

C. PROCEDURE NUMBERING

A sequential number follows the procedure designator and consists of two or more digits. Page numbers are listed separately.

Example EOP 01

Sequence Number
Procedure Designator

D. REVISION NUMBERING AND DESIGNATION

The revision number, along with the abbreviation "Rev", is used to designate the revision level of each individual page of the emergency operating procedure and is entered on the same line as the procedure designator and page number.

(1) PROCEDURE TEXT

Example EOP-01 - 2 of 15 Rev. 1

Latest Revision No.
Total Pages
Page No.
Procedure No.



NUCLEAR OPERATIONS DEPARTMENT
PILGRIM NUCLEAR POWER STATION
PROCEDURE NO. EDP-01
RPV CONTROL LEVEL AND PRESSURE

List of Effective Pages

1 of 5 Rev. 10
2 of 5 Rev. 8
3 of 5 Rev. 5
4 of 5 Rev. 10
5 of 5 Rev. 4

Attachments

A. 1 of 1 Rev. 0

Owner _____
Chief Operating Engineer Date

Approved _____
Nuclear Operations Manager Date

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Figure 1. Example of Cover Sheet

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(2) PROCEDURE ATTACHMENT

Example EOP-01 F 7 of 10 Rev. 1

└────────── Page No. of Attachment

└────────── Attachment

A change bar is drawn alongside the left-hand margin of the text change to indicate the change within the text. Refer to Figure 2.

E. PAGE IDENTIFICATION AND NUMBERING

Each page of the procedure is identified by (1) the procedure designator and number, (2) the page number, and (3) the page revision number. This information is located at the bottom right of each page, as shown in Figure 2.

III. FORMAT

The following format is established and applies to all EOPs. The format is designed to enhance operator use of the EOPs.

NOTE:

It is not necessary that each procedure format be in the order specified, however, as EOPs are revised an attempt shall be made to standardize the format in accordance with the following.

A. PAGE FORMAT

A single-column format is used for text in PNPS EOPs and logic sequence diagrams where applicable. A sample page format is presented in Figure 2.

B. PROCEDURE ORGANIZATION

The following section headings are used for all EOPs:

- I. PURPOSE: The purpose of the EOP is stated for operator association with the ENTRY CONDITIONS.
- II. ENTRY CONDITIONS: The entry conditions include only those alarms, indications, operating conditions, automatic system actions, or other unique symptoms that the operator uses to decide what procedure to use under emergency situations.
- III. OPERATOR ACTIONS: The operator actions are short, concise identifiable instructions that give appropriate directions to the user. The operator actions may be in the form of instruction steps, logic sequence diagrams, or a combination of the two.
- IV. DISCUSSION: Brief description of what using the EOP accomplishes and support information the operator may use in self study to enhance his familiarity with the procedural requirements.
- V. ATTACHMENTS: This section will contain, as required by the EOP, additional supporting information such as:
 - Special case procedural guidance.
 - Description of automatic actions that may take place (Diesel Load Shedding).
 - Material source supplies (Nitrogen, etc.)

I. PURPOSE

The purpose of this procedure is to:

- A. RESTORE and MAINTAIN RPV water level within a SATISFACTORY range from ABOVE TOP of Active Fuel to BELOW +40 in.
- B. CONTROL RPV pressure and COOLDOWN the RPV to COLD conditions such that RPV water temperature is BETWEEN 212°F and 100°F.
- C. MAINTAIN core cooling to prevent excessive cladding heatup and oxidation.
- D. PLACE the reactor in a safe, stable condition.

II. ENTRY CONDITIONS

The entry conditions for this procedure are any of the following:

- A. RPV WATER level BELOW +9 in.
OR
- B. Drywell PRESSURE ABOVE 2.5 psig.
OR
- C. A condition exists which REQUIRES MSIV Closure.
- D. RPV pressure ABOVE 1085 psig.
- E. OFF SITE Radioactive release rate 10 time the Technical Specification limit.

III. OPERATOR ACTIONS

- _____ A. VERIFY or MANUALLY INITIATE Reactor Scram.
- _____ B. ENTER Procedure _____ & EXECUTE concurrently.

Figure 2. Example of Page Layout, Text

C. SECTION NUMBERING

Roman numerals are used for numbering major sections with the following sequence of procedural levels:

- I. (First-Level Procedural Number)
- II. (First-Level Procedural Number)
 - A. (Second-Level Procedural Number)
 - B. (Second-Level Procedural Number)
 - (1) (Third-Level Procedural Number)
 - (2) (Third-Level Procedural Number)
 - (a.) (Fourth-Level Procedural Number) - Not desirable
 - (b.) (Fourth-Level Procedural Number)

As most EOPs are short demand/reponse type procedures, the third and fourth level procedural numbers will seldom be used.

D. INSTRUCTION STEP NUMBERING

Instruction steps are numbered and may be indented as follows:

Verify. . . .
 Check. . . .
 Position. . . .

NOTE: Place a line in front of any instruction that requires an operator action so the operator can check-off each step as it is performed. Refer to Figure 2 for examples of operator action checks.

IV. WRITING INSTRUCTIONAL STEPS

A. INSTRUCTION CONTENT

Instruction steps must be concise and precise. Conciseness denotes brevity; preciseness means exactly defined. Thus, instructions should be short and exact. This is easily stated, but not so easily achieved. General rules to be used in meeting these objectives are as follows:

- ° Instruction steps should deal with only one action or reaction.
- ° 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 verb relating to three or more objects, the objects will be listed with space provided for operator checkoff.
- ° Limits should be expressed quantitatively whenever possible (refer to Subsection V.E, Numerical Values).
- ° Mandatory sequence of steps is assumed unless otherwise stated.

- Identification of components and parts shall be as commonly defined in every day operational procedures and checklists used by the operators or identified by panel or equipment nomenclature. (Refer to subsection IV. F, Component Identification).
- Instruction content should be written to communicate to the user.
- Expected results of routine tasks need not be stated.
- When actions are required based upon receipt of an annunciated alarm, list the setpoint of the alarm for ease of verification.
- When requiring resetting or restoration of an alarm or trip, list the expected results immediately following the task statement that resets or restores the plant system.
- 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 or when considered critical, a CAUTION (Refer to Subsection IV. C, Use of Cautionary Information and Notes)
- When additional confirmation of system response is considered necessary, prescribe the available and expected backup readings to be made.
- Procedures should be written in such a manner that each individual action step, caution, or note is

completed on the page where it began, whenever possible.

- The language and level of information presented in the EOPs, shall be compatible with the minimum number, qualifications, training and experience of the operating staff.

(1) Operator Instructions

The following rules are established for operator instructions in addition to the general rules above:

- Expected indication should be presented.
- Operator actions should be appropriate for the expected indications.

(2) Contingency Actions

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.

Contingency actions will 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.

(3) Logic Sequence Diagrams

To facilitate operator reactions to system conditions the use of logic sequence diagrams (refer to Figure 3), rather than instructional steps, to depict operator actions should be considered when multiple actions and/or responses are possible. The diagrams will consist of basic logic symbols as illustrated in Figure 4. Logic sequence diagram action flow is always from the top of the diagram to the bottom. Action flow is always in the top of an action or decision symbol, and out the bottom and or sides (for decision symbol).

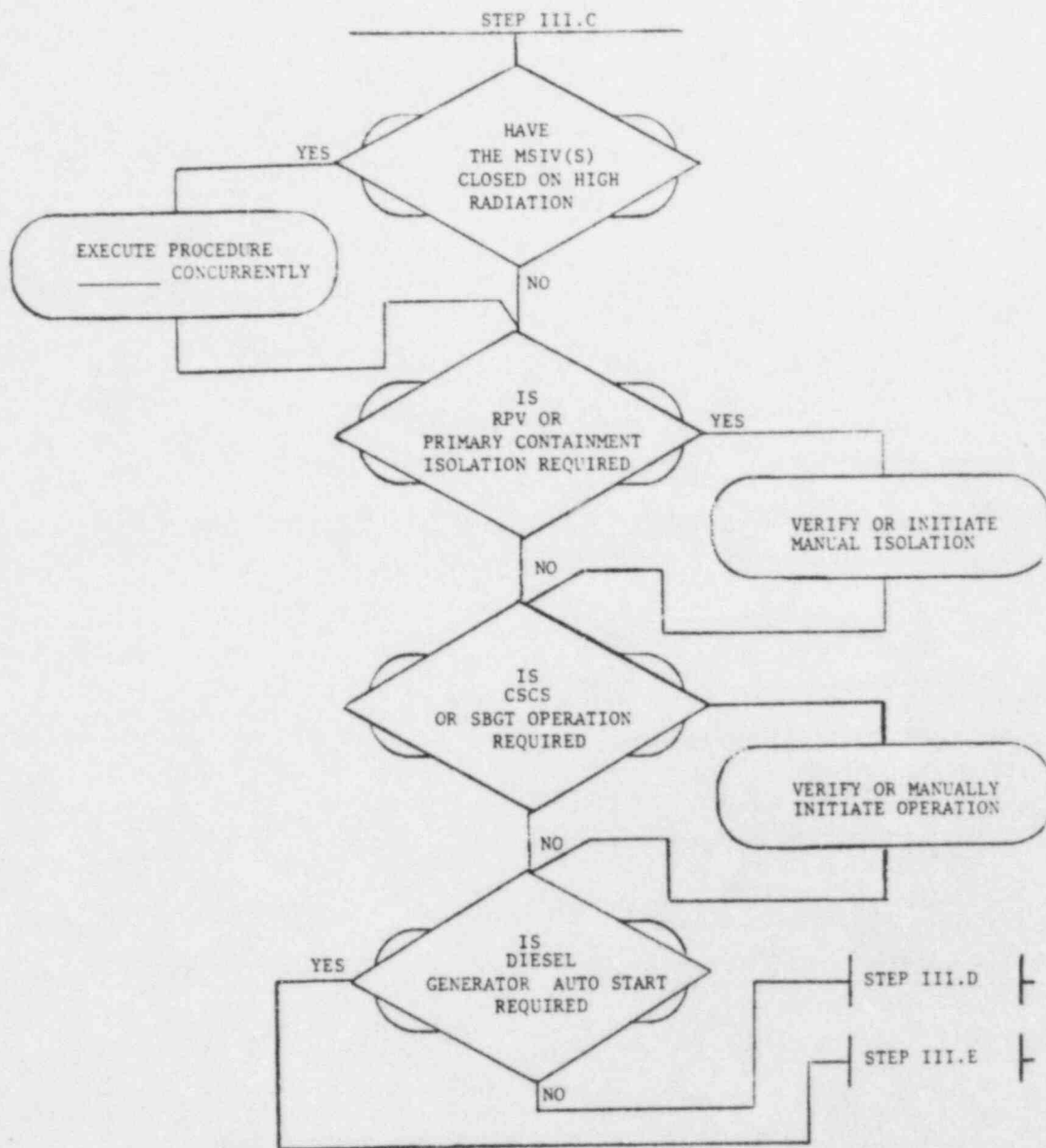
(4) Control Room Staffing

Utilization and normal location of crew and shift personnel, plus the number and qualification of personnel in the control room, should be considered when determining the number of actions, concurrent actions, and other responsibilities that can be carried out, and the efficiency with which they can be accomplished.

Other factors which should be considered when writing the EOPs are:

- ° Minimization of physical conflicts between personnel (performing actions at the same locations at the same time).
- ° Avoidance of unintentional duplication of tasks by control room personnel.

III. OPERATOR ACTIONS (Continued)



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Figure 3. Example of Logic Sequence Diagram

- Minimum number of personnel on any one crew and shift that are available to respond to an emergency.
- Knowledge and skill of the EOP users.

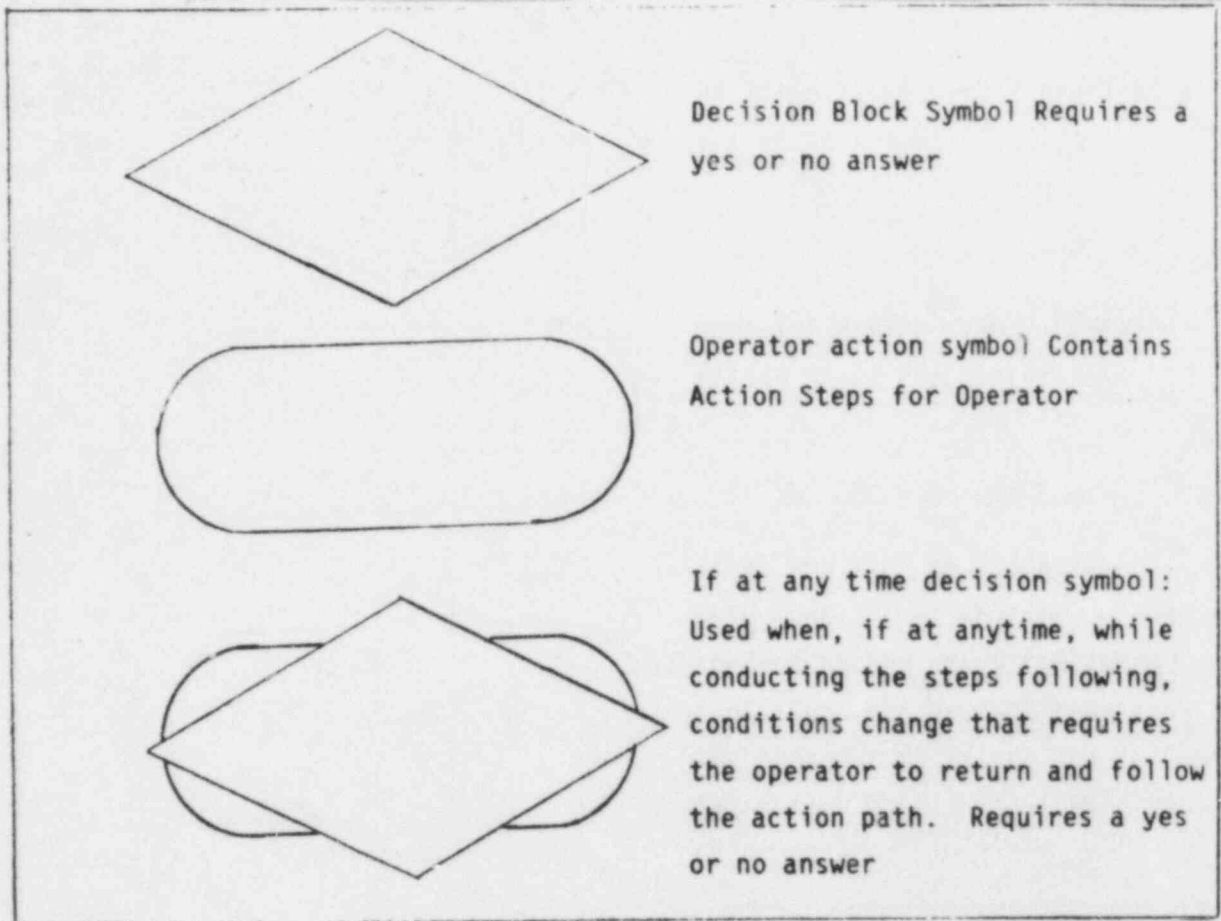


Figure 4. Logic Sequence Diagram Symbols

B. 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. Refer to Figure 5 for example of use of logic terms.

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.

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 more than three 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 (the antecedent), a comma, the word THEN, followed by the action to be taken (the consequent). WHEN is used for an expected condition. IF is used for an unexpected but possible condition.

III. OPERATOR ACTIONS (Continued)

D. If Diesel generator operation is REQUIRED,

- (1) VERIFY or MANUALLY start diesels.
- (2) VERIFY or MANUALLY tie power to BUSES A5 and A6.
- (3) ENTER Procedure 5.3.5 AND EXECUTE concurrently.
- (4) IF either OR both diesels FAIL to START, ENTER Procedure 5.3.17 AND EXECUTE concurrently.

E. IF Diesel generator operation is NOT REQUIRED,

- (1) VERIFY or MANUALLY tie power to 4160V Busses.
- (2) Send AO to monitor unloaded Diesel operations.
- (3) WHEN auto start signal clears, return diesels to STANDBY lineup.

Go on to Step III. F of this procedure.

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Figure 5. Example Showing Use of Logic Terms

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- ° 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.

C. 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 of the procedural content. 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 procedural content to which they apply. CAUTIONS extend across the entire page. 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 instructional step. It should be used to denote a potential hazard to equipment or personnel associated with or consequent to the subsequent instructional step.

If additional information other than cautions is necessary to support an action instruction, a NOTE should be used. A NOTE should present information only, not instructions, and should be located as close to the applicable instruction as possible. Notes are also extended across the page but are not boxed in as are CAUTIONS.

Refer to Figure 6 for examples of CAUTION statements. Figure 7 provides an example concerning placement of "notes" within text.

Poor Example

CAUTION

IF signals of high suppression pool water level OR low condensate storage tank water level occur, CONFIRM automatic transfer of, OR manual transfer of HPCI, and RCIC suction FROM the condensate storage tank TO the suppression pool.

+4 in. on LR 5049 and LR 5038
-2 FT. 2 in. on LI 1001-604A,B.
+128 in. on LR 1001-604A,B.

OR

+18 in. from condensate storage tank zero.

Good Example

CAUTION

Rapid addition of feedwater following a reactor trip will cause excessive cooldown which could result in a safety injection activation.

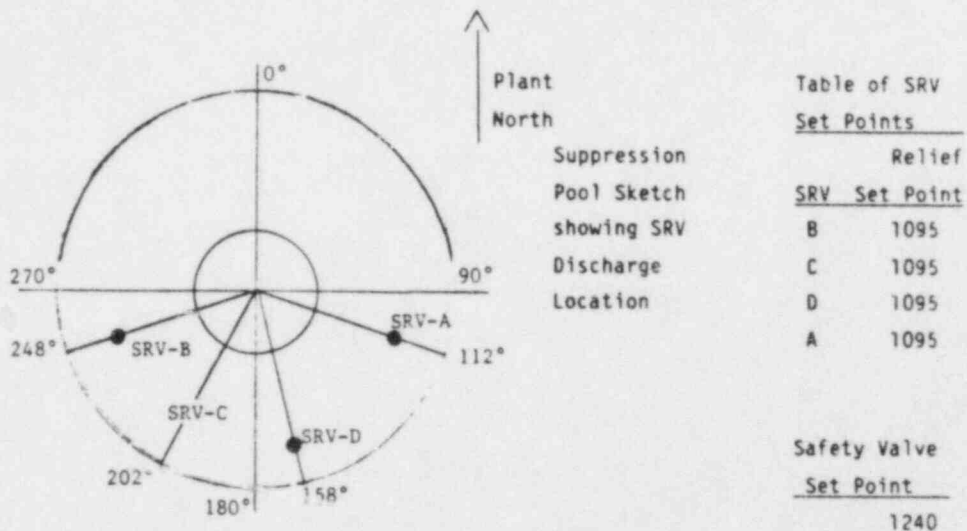
Figure 6. Example of "Caution" Statements

III. OPERATOR ACTIONS (Continued)

- ____ F. MONITOR RPV water level closely AND place RPV Level Recorder 640-26 on FAST SPEED.
- ____ G. VERIFY that Recorder 640-28 is monitoring RPV level (WIDE RANGE)
- ____ H. IF any SRV is cycling, MANUALLY open SRVs in the following sequence if possible: B,C,D,A.
- ____ I. Reduce RPV pressure to 930 psig.

NOTE

One minute of relief valve operation is equal to approximately one foot of RPV level change.



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Figure 7. Example Showing Placement of "Note" Within Text

D. CALCULATIONS

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

E. USE OF UNDERLINING

Underlining will be used for emphasis of logic terms, CAUTION, and NOTES.

F. REFERENCE AND BRANCHING TO OTHER PROCEDURES OR STEPS

Referencing implies that the procedure or 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 stated in the procedure wherever they are needed.

To minimize potential operator confusion, branching will be used when the operator is to leave one procedure and use another procedure. Use the key words "go to", "EXECUTE Procedure" or "ENTER Procedure." Therefore, the operator will know when to leave the procedure and not return until directed. During some conditions, the procedure entered must be performed concurrently. Refer to Figure 5 for examples of branching and concurrent actions.

G. COMPONENT IDENTIFICATION

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

- ° Equipment, controls, and displays will be identified in operator language (common usage) terms. These terms may not always match engraved names on panels.
- ° Where 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 also 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.

H. 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 is that detail that a newly trained and licensed operator would require during an emergency condition.

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

- ° For each infrequently used control with a number engraved on the control panel placard, the number should be

included in parentheses within the instructional step.

Example: Start RCIC Water Leg Pump (S33).

- ° For control circuitry that executes an entire function upon actuation of the control switch, the action verb appropriate to the component suffices with further amplification of how to manipulate the control device. Example: close RECIRC PUMP A SUCTION VALVE. Examples of recommended action verbs are as follows:
 - For power-driven equipment, use Start, Stop.
 - For valves, use Open, Close, Jog Open, Jog Close, Throttle.
 - For power distribution breakers, use Synchronize and Close, Trip.
- ° 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 SEAL AIR COMPRESSOR Control Switch (S15) in AUTO.
- ° For multi-position control switches that have more than one position for a similar function, placement to the desired position should be specified. For example: "Place DIESEL FIRE pump SELECTOR Switch to TEST NO. 2."

- Standard practices for observing 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.

I. PRINTED OPERATOR AIDS

When information is presented using graphs, charts, tables or figures, these aids should be located to facilitate access and usability. They should also be self-explanatory, legible, and readable under the expected conditions of use, and must be within the reading precision of the operator.

(1) Units of Measure

Units of measure in instructional steps (text), and on figures, tables, and attachments should be given for numerical values which represent observed measurement data or calculated results. Use a virgula (slant line) instead of "per." Examples: ft/sec, lbs/hr.

(2) Titles and Headings

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

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

(3) Figure, Table, and Attachment Numbering

Sequential arabic numbers will 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 A, Attachment B, etc.

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

(4) Tabs

To aid the operator in identifying and accessing the relevant Emergency Operating Procedure, the EOPs are uniquely identifiable. Each procedure will contain a set of labeled tabs to facilitate rapid identification and access to any procedure or part thereof. These tabs are used to aid the operator in locating the next required step or sequence of steps. They also facilitate referencing backwards in the procedure as is often required.

V. MECHANICS OF STYLE

A. SPELLING

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

B. 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:
 - In compound numerals from twenty-one to ninety-nine. Example: One hundred thirty-four.
 - In fraction. Examples: one-half, two-thirds.
 - In compounds with "self." Examples: self-contained, self-lubricated.
 - 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.
 - When misleading or awkward consonants would result by joining the words. Example: hell-like.

- To avoid confusion with another word. Examples:
re-cover to prevent confusion with recover,
pre-position to avoid confusion with preposition.
- When a letter is linked with a noun. Example:
X-ray, O-ring, U-bolt, I-beam.
- To separate chemical elements and their atomic
weight. Examples: Uranium-235, U-235.

C. 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 will be in accordance with the following rules.

(1) Brackets

Do not use brackets.

(2) Colon

Use a colon to indicate that something is to follow. For example: Restore cooling flow as follows:

(3) Comma

Use of many commas is a sign the instruction is too complex and needs to be rewritten.

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

(4) Parentheses

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

(5) Period

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

D. VOCABULARY

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

- ° Use single 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, and precise rather than blanket.
- ° Define key words that may be understood in more than one sense.

- ° Verbs with specific meaning should be used. Examples are listed in Table 1, Sample list of Action Verbs: This listing is not intended to be all-inclusive.
- ° Equipment status will be denoted as follows:
 - Operable/operability - These words mean that a system, subsystem, train, component, or device is capable of performing its specified function(s) in its intended manner. Implicit in this definition should be the assumption that all necessary attendant instrumentation, controls, normal and emergency electrical power sources, 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 functions(s).
 - Operating - This word means that a system, subsystem, train, component, or device is in operation and is performing its specified function(s).
 - 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.

E. NUMERICAL VALUES

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

- ° Arabic numerals should be used.

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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 physical action that achieves a result such as "Check lube oil level."
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 IFP142."
Complete	To accomplish specified procedural requirements. For example: "Complete valve check-off list 'A'," "complete data report QA-1," and "Complete steps 7 through 9 of Section III."
Decrease	<u>Do not use.</u>
Establish	To make arrangements for a stated condition. For example: "Establish communication with control room."
Increase	<u>Do not use.</u>
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."
Jog	To change the physical positions of a mechanical device such as a valve, using short abrupt changes to permit or prevent flow. For example: "jog open valve."

Table 1. Sample List of Action Verbs (Sheet 1 of 2)

VERB	APPLICATION
Open	To change the physical position of a mechanical device, such as a valve or door, to the unobstructed position that permits access or flow. For example: "Open valve IFP143".
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 electrical or mechanical device directly or by remote control. For example: "Start . . . pump."
Stop	Opposite of start. For example: "Stop . . . pump."
Synchronize	To make synchronous in operation. For example: "synchronize and close."
Throttle	To operate a valve in an intermediate position to obtain a certain flow rate. For example: "Throttle valve IFP140 to"
Trip	To manually activate a semiautomatic 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 prove to be true, exact, or accurate by observation of a condition or characteristic for comparison with an original or a procedural requirement. For example "Verify discharge pressure."

Table 1. Sample Lists of Action Verbs (Sheet 2 of 2)

- ° For numbers less than unity, the decimal point will 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°F 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)

F. 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 should be 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 or 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 mathematical ideas. The first time an abbreviation is used in an EOP, spell out the word(s) followed by the abbreviation in parentheses. Thereafter, use the abbreviation.

VI. TYPING FORMAT

A. GENERAL TYPING INSTRUCTIONS

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

- ° Paper size should be 8-1/2 x 11 inches.
- ° Procedures will be typed on an electric typewriter or word processor.
- ° Letter Gothic, pitch 12, or similar typewriter element minimum size should be used.

B. PAGE ARRANGEMENT

- ° Page margins shall be as follows:
 - 1-1/4 inch margin on the bottom, and binding edges
 - 1 inch margin on the right hand edge
 - 3/4 inch border on top edge.

- Page identification information (refer to Section II.D(1)) will be ~~six~~ line spaces above the bottom margin of the page, right side.
- the page shall be oriented vertically so that the two 8-1/2 inch edges constitute the page top and bottom. Tables and figures shall be readable with the page so arranged. Rotation of the page to a horizontal position should be avoided for emergency operating procedures. Refer to Subsection VI.E. if rotation is absolutely necessary.

C. HEADING AND TEXT ARRANGEMENT

Block style, as illustrated in Figure 2, will be used. First-level section-headings will be placed in full capitals, with an underscore;

Second-level section headings will be placed in full capitals without an underscore; and third-level headings will be placed in initial capitals without an underscore. In the unlikely event that a fourth-level section heading is used, it will be placed in initial capitals without an underscore (refer to Section III.C for its numbering).

- Section numbers shall begin two spaces from the left page margin. If a fourth-level paragraph is needed, it will be indented ~~eight~~ spaced form the page margin.
- Three line spaces shall be allowed between headings and respective text.
- Three line spaces shall be allowed between paragraphs.
- Text will be typed using one and a half line spacing.

D. BREAKING OF WORDS

Breaking of words shall be avoided to facilitate operator reading.

E. ROTATION OF PAGES

If pages need to be rotated, these rules will be followed.

- ° The top of the page with rotated print becomes the normal left edge.
- ° The page margins do not rotate.
- ° Page identification and numbering will not be rotated.

F. 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 below the figure field.
- ° The figure number and title should be the same type face and pitch as used for the text.
- ° 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 line 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 vertical axis.
- ° In general, items within figures should be labeled. Typed labels should use **letter gothic type, pitch 12.** 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 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.

G. CAUTIONS AND NOTES

All NOTES and CAUTIONS should be distinguishable from 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 will be indented five spaces from the left margin and begun one-and-a-half line spaces below the heading. The text for NOTES will be five spaces from the left margin.

- ° The right margin of the text of the NOTE or CAUTION should be two spaces to the left of the right margin.
- ° CAUTIONS will be further highlighted by an enclosed line around the CAUTION one-and-a-half spaces above the heading and one-and-a-half spaces below the text.

H. 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 edge of standard pages. This will reduce wear of the fold and enable binding the procedure in the unique Emergency Operational Procedure binder.

I. 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.

J. USE OF REDUCED PAGES

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

VII. REPRODUCTION

Reproduction may be done on a standard copier, single-sided copy only. Additionally, every page should be checked for proper reproduction by the office supervisor.