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EMERGENCY OPERATING PROCEDURE
WRITERS' GUIDE

1.0 PURPOSE

The purpose of this Writers' Guide is to provide administrative and technical guidance to be used in the development and review of the emergency operating procedure set.

This Writers' Guide is used to develop the Point Beach Nuclear Plant emergency operating procedures that are derived from the Westinghouse Owners Group Emergency Response Guideline Program, Revision 1. These Point Beach Nuclear Plant emergency operating procedures are currently being developed and are expected to be implemented prior to February 1, 1985. This Writers' Guide is not intended for use for emergency operating procedure revisions prior to the date these reformatted procedures are implemented.

2.0 REFERENCES

2.1 Westinghouse Owners Group Low Pressure ERG's, Volume I to III

2.2 "Checklist for Evaluating Emergency Procedures Used in Nuclear Power Plants," NUREG/CR-2005

2.3 "Guidelines for the Preparation of Emergency Operating Procedures," NUREG-0899, Draft

2.4 "Emergency Operating Procedures Writing Guideline," INPO 82-017, July, 1982

2.5 Westinghouse Owners Group, "Writers' Guide for Emergency Response Guidelines, Revision 0

3.0 EMERGENCY OPERATING PROCEDURE DESIGNATION & NUMBERING

3.1 Emergency Operating Procedure Identification

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

3.1.1 Each event specific emergency operating procedure (derived from the Westinghouse Owners Group Optimal Recovery Guidelines and Emergency Contingency Actions) shall be identified with the designator EOP followed by a sequential number.

Example: EOP-0, EOP-1.1, EOP-8

3.1.2   Each function related emergency operating procedure (derived from the Westinghouse Owners Group Function Restoration Guidelines) shall be identified with the designator CSP followed by an alphanumeric symbol that is consistent with the generic ERG numbering scheme for function restoration guidelines.

Example: CSP-P.1, CSP-H.4

3.1.3   Each procedure is identified using its designator and number and a descriptive title that is consistent with the respective generic ERG. It is acceptable to change the generic title in the plant specific procedure to incorporate plant terminology or to better describe the scope of the procedure.

3.2 Revision Identification

3.2.1   The word "DRAFT" shall be used in the title block to designate a procedure that has not received Plant Staff approval.

3.2.2   The abbreviation "ORIG" shall be used in the title block to designate the original issuance of each procedure.

3.2.3   The abbreviation "REV" followed by a number shall be used in the title block to identify revisions to each procedure for changes made subsequent to the implementation of the original plant emergency operating procedures.

3.2.4   To identify revision to the text of an emergency operating procedure, a change bar located in the right margin along side the text change will be used to indicate a change in either the left column or the right column.

3.3 Page Identification & Numbering

The title page of each procedure will be identified in the title block by 1) the procedure designator and number; 2) the revision number; 3) the date of issue. Each subsequent page of the procedure will have only the procedure designator and number, along with the page number, in the title block. The page number will be repeated at the bottom of each page of the procedure. The last page of each procedure will additionally be identified by the word "END" following the last instruction step.

4.0 FORMAT

The following format is to be applied consistently for all emergency operating procedures.

4.1 Procedure Organization

All procedures in the emergency operating procedure series will have three sections. The cover sheet will summarize the procedure intent and state either entry symptoms or means of entry. The operator actions will comprise the bulk of each procedure and present the actual stepwise guidance. A foldout page will summarize information which is continually required for operator guidance. A single foldout page will be used for each emergency operating procedure series.

The procedures in the CSP series will have only the cover sheet and operator actions.

4.2 Page Formats

The cover page will be in a format similar to other plant procedures. This means it will generally have complete sentences that extend over the entire page width. Each cover sheet will contain two explanatory sections addition to the procedure title and title block. The first will be titled "PURPOSE" and will briefly describe what the procedure is intended to do for the operator. The second section is a summary of those symptoms which require entry into the procedure. This section will be titled "SYMPTOMS OR ENTRY CONDITIONS". Certain procedures can be entered primarily based on symptoms; for these procedures a symptom summary is sufficient. Some other procedures can only be entered by transitions from previous procedures and a summary of the entry conditions (and procedure step) should be provided.

All of the operator actions will be in a two-column format where the left-hand column is designated for operator actions. The right-hand column is designated for contingency actions when the expected response is not obtained. See Figure 1 for a sample of the page format.

The foldout page is intended to summarize only that information which an operator should have continuously available, and content will vary from procedure to procedure. Each foldout page shall be titled "Foldout for EOP-X Series".

4.3 <u>Instructions Step Numbering</u>

Instruction steps in the operator actions will be numbered and indented as follows:

1. <u>Verify</u> ...

   a. Check ...

      1) Valve (not desirable)

The same step number scheme is to be used in both the right and left columns of the procedure. Substeps are lettered sequentially accordingly to desired order of performance, (the (a) level of indentation above). If the order of importance is not important then the substeps will not be designated by a letter but will be preceded by a dash. Use of the third level of indentation detailed above should be minimized.

5.0 WRITING INSTRUCTIONAL STEPS

5.1 <u>Instructional Step Length & Content</u>

General rules to be used in writing instructional steps are as follows:

5.1.1 Instructional steps will be concise and precise.

5.1.2 Short simple sentences or sentence fragments should be used.

5.1.3 Complex evolutions should be prescribed in a series of steps, with each step made as simple as practicable.

5.1.4 For instructional steps that involve an action verb relating to three or more objects, the objects will be listed.

5.1.5 Limits should be expressed quantatively whenever possible.

5.1.6 Mandatory sequence of steps is assumed unless otherwise stated. Actions required in a particular step should not be expected to be complete before the next step is begun. If assigned tasks are short, then the expected action will probably be completed prior to continuing. However, if an assigned task is very lengthy, additional steps may be performed prior to completion. If a particular task must be completed prior to continuation, this condition must be stated clearly in the step or substep.

5.1.7   Expected results of routine tasks need not be stated.

5.1.8   When considered beneficial for proper understanding and performance, provide the system response time associated with performance of the instruction.

5.1.9   When system response dictates a time frame within which the instruction must be accomplished, prescribe such time frame. Avoid using time to initiate operator actions. Operator actions should be related to plant parameters.

5.1.10   When additional confirmation of system response is considered necessary, prescribe the backup readings to be made.

5.2   Operator Actions Column

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

5.2.1   Expected indications should be present in this column.

5.2.2   Operator actions in this column should be appropriate for the expected indications.

5.3   Contingency Actions Column

Contingency actions shall be presented in the right-hand column of the two-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.

If possible, contingency actions will be specified for each circumstance in which the expected results or actions might not be achieved. Contingency actions are not necessary when the action may be overly difficult to accomplish or provide minimal benefit when compared to leaving the expected condition unsatisfied. The contingency actions should specify, as appropriate, directions to override automatic controls and to initate manually what is normally automatically initiated.

5.4   Use of Logic Terms

The logic terms AND, OR, NOT, IF, IF NOT, WHEN, and THEN, are often
necessary to precisely describe or set conditions or sequency of
actions. When logic statements are used, the logic terms shall be
underlined so that all the conditions are clear to the operator. Only
the logic terms IF, WHEN, and THEN, will be full capitals and
underlined.

The following rules shall apply to the use of logic terms:

5.4.1   The use of AND and OR within the same action shall be
         avoided.

5.4.2   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.

5.4.3   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".

5.4.4   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 that may not have occurred
         yet. It is expected that the user of the procedure will
         evaluate this logic statement when the condition does occur.
         IF is used when the logic statement only has to be evaluated
         once and does not have to be reevaluated later in the
         accident based upon the status of the antecedent.

5.4.5   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.

5.4.6   All sentences that begin with IF are considered logic
         statements and must include the word THEN and these logic
         words should be highlighted as described above.

5.4.7 To be consistent with standard logic, the user of the procedures should only transfer to the contingency column when the logic statement (IF ..., THEN ...) is false. This occurs only when the antecedent is true and the consequent is false. Care should be taken to ensure the operator is not expected to transfer to the contingency column when the antecedent is false.

5.4.8 In the contingency column, the user must read the whole contingency for the substep, (or high level step if there are not substeps) prior to returning to the expected response column. This is the case regardless of whether the initial logic statement is true or false. This ensures that important actions are not missed.

5.4.9 In both the expected response column and the contingency column, the word IF in a logic statement will always be positioned to be the first word in a line of text. This makes each logic statement more visible than if they are written in standard paragraph form.

5.5 Use of Cautionary Information

Cautionary information can be considered in two categories: 1) those that apply to the entire procedure, and 2) those that apply to a portion or specific step of the procedure. Caution statements that apply to the entire procedure are placed at the beginning of the procedure; those that apply to a portion of a procedure are placed immediately before the procedural steps to which they apply.

Caution statements do not contain operator actions. 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 instructional step.

Cautions shall extend across the entire page and be in full capitals as shown below:

Example:

CAUTION: DO NOT TERMINATE ALL FEEDWATER FLOW UNTIL STEAM GENERATOR LEVEL IS IN THE NARROW RANGE.

5.6   Use of Notes

If additional information other than caution is necessary to support
an instruction step a note should be used. A note shall present
advisory or administrative information and should not contain operator
actions. Procedure transitions can be included in a note when
absolutely necessary.

Example:

NOTE: THE STEPS OUTLINED WITH BOXES ARE TO BE DONE IF A LOSS OF
          OFFSITE AC HAS OCCURRED.

5.7   Calculations

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

5.8   Use of Underlining

Underlining will be used for emphasis of high level steps and for some
logic terms.

5.9   References & 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 stated in the
procedure whenever they are needed.

To minimize potential operator confusion, branching will be used when
the operator is to leave one procedure or step and use another
procedure or step. Use the key words "Go to" or "Return to".
Therefore, the operator will know to leave the present step and not
return until directed. Use quotation marks to emphasize the title of
the referenced or branched procedure. When branching to a step
number, include a short description of the high level step in brackets
following the number. There should not be any action verbs in this
description to prevent confusion.

It is always more desirable to repeat steps where they are needed in the procedure. Occasionally it may not be feasible. The instruction, "Perform step" is used when the operator is expected to repeat an earlier step in the same procedure and then return to the current step. This is an undesirable transition and should only be used when all other alternatives are overly complicated or bulky.

Example: Go to EOP-1, "Loss of Reactor Coolant."
         Go to Step 20, (reactor coolant)

5.10   Component Identification

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

5.10.1   Equipment, controls and displays will be identified in operator language (common usage) terms. These terms may not always match engraved names on panels but will be complete to ensure correct performance.

5.10.2   When the engraved names and numbers on panel nameplates and alarm windows are specifically the item of concern in the procedure, the engraving should be quoted verbatim.

5.10.3   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.

5.10.4   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.

5.11   Level of Detail

Too much detail in emergency operating procedures 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 emergency operating procedure detail, the following general rules apply.

5.11.1 Any information which an operator is expected to know (base on his training and experience) should not be included.

5.11.2 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, "Start one reactor coolant pump per OP-4B". Recommended action verbs are as follows:

    a. Use "start/stop" for power-driven rotating equipment.

    b. Use "open/shut/throttle/pull to lock" for valves.

    c. Use "trip/close/lockout" for electrical breakers.

5.11.3 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 "manual".

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

5.12 Printed Operator Aids

When information is presented using graphs, charts, 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.

5.12.1 Limits of Measure - units of measure on figures, tables, and attachments should be given for numerical values that represent observed data or calculated results.

5.12.2 Titles & 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.

Example: Refer to Figure 2 for ...

5.12.3   Figure, Table & Attachment Numbering - Sequential arabic
numbers should be assigned to figures and tables in separate
series. Letters should be assigned to attachments. The
sequence should correspond with the order of their reference
in the text. The symbol "#" and abbreviations "No." should
not be used. The number alone suffices.

Example: Table 1, Table 2, etc.
          Attachment "A", Attachment "B", etc.

All tables and figures will be placed in the bulk of the
procedure near where they are referenced if possible.

5.12.4   Foldout Page - Each "EOP series" will have a foldout page
that will be numbered as the final page of the last procedure
in the series. (That procedure will still be captioned with
"END" after the last instructional step.) The foldout will
be titled "Foldout for EOP-X Series", and will use a single
column format (vs two-column).

Each set of operator information will be numbered
sequentially and have an explanatory title. The title will
be capitalized and underlined. Each foldout page will have a
colored tab affixed as an operator reminder to pull open the
page.

6.0   MECHANICS OF STYLE

6.1   Spelling

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

6.2   Hyphenation

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

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

6.2.2   Hyphens should be used in the following circumstances:

a.   In compound numerals from twenty-one to ninety-nine; for
example, one hundred thirty-four.

b.   In fractions; example, 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, pre-position.

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.

6.3 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.

6.3.1 Brackets - Do not use brackets.

6.3.2 Colon - Use a colon to indicate that a list of items is to follow, for example, restore cooling flow as follows:.

6.3.3 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: IF no RCP is running, THEN start one per OP-4B.

6.3.4   Parenthesis - Parentheses shall be used in steps that have transfers in order to enclose a brief description of the step to be performed. This is not necessary when transferring to the first step of a procedure.

Example: Go to Step 10, (reactor coolant).

Parenthenses shall also be used to indicate alternative items in a procedure, instruction, or equipment identifiers.

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

6.4   Capitalization

6.4.1   Caution and notes will be in full capitals including the word "CAUTION" or "NOTE".

6.4.2   The logic terms "IF", "THEN", and "WHEN" will be full capitals and underlined.

6.4.3   Title of procedures will be capitalized and in quotations whenever referenced in any procedure.

6.4.4   Abbreviations and anonyms are in full capitals where appropriate (see Table 2).

6.4.5   All high level steps are capitalized and underlined.

6.4.6   The first word of sentences and sentence fragments will be capitalized.

6.4.7   Section headings on foldout pages are capitalized and underlined.

6.4.8   The column headings, procedure title and title block will all be in full capitals.

6.5   Vocabulary

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

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

6.5.2   Use common usage of it makes the procedure easier to understand.

6.5.3   Use words that are concrete rather than vague, specific rather than general, familiar rather than formal, precise rather than blanket. Avoid using the words stable, approximately, rapidly, slowly or normal if possible.

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

6.5.5   Verbs with specific meanings should be used.

6.5.6   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) in the intended manner. Implicit in this definition is the assumption that all necessary attendant instrumentation, controls, normal and emergency power sources, cooling or seal water, lubrication or other auxiliary equipment required for the system, subsystem, train, component, or device to perform its function(s) are also capable of performing related support functions.

   b.   Operating - this word means that a system, subsystem, train, component, or device is in operation and is performing its specified function(s) and that other conditions do not prevent it from maintaining that service.

   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.

6.5.7   Some key words and phases are defined in Table 1.

6.6   Numerical Values

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

6.6.1   Arabic numerals should be used.

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

6.6.3   The number of significant digits should be consistent with
the number of significant digits available from the display
and the reading precision of the operator.

6.6.4   Acceptable values should be specified in such a way that
addition and subtraction by the user is unnecessary. This
can generally be done by stating acceptance values as limits.

Examples: 510°F maximum, 300 psig minimum, 580°F to 600°F.

Tolerances can be expressed by stating the nominal value
followed by the acceptable range in parentheses.

Example: 550°F (540°F to 560°F)
         Avoid - 550°F ± 10°F

6.6.5   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.

6.7   Abbreviations, Letter Symbols & Acronyms

The use of abbreviations or letter symbols should be minimized because
they may be confusing to those who are not throughly familiar with
them. Abbreviations and letter symbols may be used when their meaning
is unquestionably clear to the reader. Consistent usage should be
maintained throughout the procedure.

Capitilization of abbreviations should be uniform. If the
abbreviation is comprised of lower case letters, it should appear in
lower case in a title or heading. The period should be omitted in
abbreviations except in cases where the omission would result in
confusion. Only the abbreviations that appear in Table 2 should be
used in the emergency procedures.

Abbreviations, symbols and anonyms should not be over used. 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.

6.8   End

To designate the end of each procedure the word "END" will be placed below the last line of text centered on the page.

7.0   TYPING FORMAT

7.1   General Typing Instructions

The following general requirements are to be followed for the emergency operating procedures:

7.1.1   Paper size should be 8½" x 11"

7.1.2   Procedures will be on white paper

7.1.3   Procedures are to be typed on a word processor

7.2   Page Arrangement

There will be a 7/8" margin on the left-hand side of the page to allow for punching holes. There will be a 5/8" margin on the right-hand side of the page. There will also be a 5/8" margin between the top of the page and the title block, and a one inch margin between the page number and the bottom of the page.

The page number will appear in the title block and also at the bottom of each page. Each new copy of these procedures will be checked to ensure the page number appears at the bottom of each page prior to the procedures being placed in use in the control room.

7.3   Heading & Text Arrangement

The cover page of each procedure is composed of two sections, one titled "Purpose" and the other titled "Symptoms or Entry Conditions". These section headings will be in full capitals and underscored. Any subsections on the title page will be in initial capitals with an underscore.

The bulk of the procedure consists of the operator actions. Each high level step will be in initial capitals with an underscore. The substeps will be indented and will have the initial word capitalized. All complete sentences will end in a period. The following rules will also be used:

7.3.1   There will be two blank lines above each high level step and one line space below.

7.3.2   There will be at least one blank line between substeps. All substeps will have one line space separating it from the last line of the previous contingency action.

7.3.3   There will be two blank lines below the column headings.

The text will be arranged so the user will not have to rotate any pages to ready information. For additional clarification of text arrangement, see Figure 1.

7.4   <u>Breaking of Words</u>

Breaking of words shall be avoided.

7.5   <u>Figures</u>

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

7.5.1   The figure number and its title are placed three line spaces below the figure field.

7.5.2   The figure field must not violate specified page margins.

7.5.3   The figure field should be of sufficient size to offer good readability.

7.5.4   The essential message should be clear; simple presentations are preferred.

7.5.5   Grid lines of graphs should be at least 1/8" apart; numbered grid lines should be bolder than unnumbered grid lines.

7.5.6   Labeling of items within the figure should be accompanied by arrows pointing to the item.

7.5.7   The items within the figure should be oriented as naturally as possible. For example, height on a graph should be along the vertical axis.

7.5.8   In general, items within the figure should be labeled.

7.5.9   All lines in figures should be reproducible.

7.6   Tables

Tables should by typed using the following rules:

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

7.6.2   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.

7.6.3   Horizontal lines will be placed above and below the column headings. Vertical lines will be used to separate columns.

7.6.4   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.

7.6.5   There should not be a vacant cell in the table. If no entry is necessary, "NA" or "--" should be entered to indicate not applicable.

7.7   Cautions & Notes

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

7.7.1   The applicable heading "NOTE" and "CAUTION" should be capitalized and placed three line spaces below the preceding text when possible.

7.7.2   The text of the note or caution should be in block format. The word note or caution should be in the step column and the text should extend to the right-hand margin of the page.

7.8   Use of Foldout Pages

When used, a foldout page is treated as a single page. It should follow a single column format similar to the cover 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.

7.9   <u>Use of Oversized Pages</u>

Oversize pages shall not be used.

7.10   <u>Use of Reduced Pages</u>

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

TABLE 1

DEFINITIONS OF KEY WORDS & PHRASES IN THE EOP PACKAGE

AVAILABLE

Available implies that the system is ready for use and produces the desired result. This word is often used to present another, less desirable, method or system for producing a desired effect. If the system is not both ready for use and producing the desired effect, the alternative method should be used.

Example: IF auxiliary spray is not available, THEN use one pressurizer PORV.

CHECK

Observe a system or parameter to determine its present condition. When "check" is used there will always be criteria included (possible in a subsequent substep) to be used in the evaluation. The word "check" alone does not imply that any action is to be taken beyond observing the condition.

Example: Check if SI is Acutated

DO NOT PROCEED... (DO NOT CONTINUE...)

The procedure user should not continue in this procedure until the desired condition that follows is obtained. If another procedure is being done concurrently, it does not have to be halted but the operator should be cautious to avoid taking any actions that this statement is attemping to avoid.

Example: Do not proceed to next step until RCS pressure is reduced to 1200 psig.

FAULTED (NON-FAULTED)

"Faulted" refers to a steam generator with an uncontrolled secondary system release.

Example: Identify Faulted Steam Generator

GO TO (RETURN TO)

This phrase tells the procedure user to leave the procedure at this point and continue executing procedure steps beginning with the step number in this statement. The user will sometimes be instructed to go to an earlier step in the procedure (i.e., "Return to") or a later step in the procedure (i.e., "Go to") or another procedure altogether. Whenever the user leaves a procedure, prior to the end, a ribbon should be inserted as a page marker. Often the procedure that the user is transferred to will have an instruction to "return to the procedure in effect". This page marker will allow the user to continue the original procedure where it was left off.

INTACT

"Intact" refers to a steam generator that is neither faulted nor ruptured. This means the steam generator does not have a secondary depressurization or a tube rupture. Often if neither steam generator is intact, one of them will have to be considered intact to complete necessary actions in the procedure. This is also described in the appropriate procedure.

Example: Depressurize Intact Steam Generator to 250 psig.

LOCALLY

This word is used to remind the procedure user that the action that follows cannot be executed from the control room.

MANUALLY

This word is used to remind the procedure user that the action that follows can be done from the control room.

Example: CAUTION: IF RCS PRESSURE DROPS BELOW 150 PSIG, THE RHR PUMPS MUST BE MANUALLY RESTARTED TO SUPPLY WATER TO THE RCS.

PER

This word is used to present a reference procedure identifier that is to be used in satisfying the step. This is used when there are additional concerns that have to be addressed beyond the information that can be put in the emergency operating procedure. The user is expected to obtain the referenced procedure and satisfy the directives of this procedure while performing the emergency operating procedure step.

RUPTURED (NON-RUPTURED)

"Ruptured" refers to a steam generator with a ruptured tube.

VERIFY

"Verify" is used to confirm that an expected desirable condition exists.
If the condition does not exist, the operator should follow any procedural
guidance to establish the condition.

Example: Verify at least one RCP running.

UNAFFECTED UNIT

This word is used to describe the unit (plant) that is not having the
accident. Some accidents would have a similar impact on both units.

Example: Isolate Auxiliary Feedwater Flow to Unaffected Unit.

TABLE 2

ABBREVIATIONS & ACRONYMS AUTHORIZED FOR USE WITH
EMERGENCY OPERATING PROCEDURES

AC	Alternating current
AFW	Auxiliary feedwater (undesirable abbreviation)
amps	Amperes
AOV	Air-operated valve (used as a valve identifier)
BAST	Boric acid storage tank
CCW	Component cooling water system
CRDM	Control rod drive mechanism (undesirable abbreviation)
CSP	Critical safety procedure (used as a procedure identifier)
CST	Condensate storage tank
CV	Control valve (used as a valve identifier)
CVCS	Chemical & volume control system
DCS	Duty & Call Superintendent
DTA	Duty Technical Advisor
El.	Elevation
EOP	Emergency Operating Procedures
EPIP	Emergency Plan Implementing Procedures
°F	Farenheit
gpm	Gallons per minute
HCV	Hand-control valve (used as a valve identifier)
Hz	Hertz
KW	Kilowatts
LOCA	Loss of coolant accident
MOV	Motor-operated valve (used as a valve identifier)
MSIV	Main steam isolation valve
NaOH	Sodium hydroxide
OP	Operating procedure (used as a procedure identifier)
PORV	Power-operated relief valve
psid	Pounds per square inch differential
psig	Pounds per square inch gauge
RCP	Reactor coolant pump
RCS	Reactor coolant system
RHR	Residual heat removal system
RTD	Resistance temperature device
RWST	Refueling water storage tank
SGTR	Steam generator tube rupture
SI	Safety injection
T (ΔT)	Temperature (delta temperature)
Tavg	RCS average temperature
TSC	Technical Support Center
V	Volts
VCT	Volume control tank

STEP	ACTION/EXPECTED RESPONSE	RESPONSE NOT OBTAINED

16 Check RCP Cooling

a. RCP CCW system flow >205 gpm.

b. RCP seal injection flow >6 gpm.

c. Either conditions a or b above
are satisfied for both RCP's.

d. Motor bearing temperatures
<200°F.

17 Check RCP Status

a. At least one RCP running

—————— (5 spaces)

—————— (9 spaces)

—————————————— (41 spaces)

—————————————— (49 spaces)

—————————————— (53 spaces)

a. Establish CCS flow to RCP's
per OP-4B.

b. Adjust charging hand control
valve (HCV-135) as necessary.

c. IF neither conditions in
Substeps 16a or b can be met,
THEN trip the pump(s).

d. Trip any RCP's with high
motor bearing temperatures.

IF no RCP is running, and seal
cooling and motor bearing cooling
is available for either RCP,
THEN start one RCP per OP-4B.

IF a RCP cannot be started, THEN
monitor natural circulation from
trended values:

a. RCS subcooling >50°F.

b. Steam pressure stable or
slowly decreasing.

c. RCS hot leg temperature stable
or slowly decreasing.

d. Core exit thermocouples stable
or slowly decreasing.

e. RCS cold leg temperature near
saturation temperature for
steam pressure.

IF natural circulation not
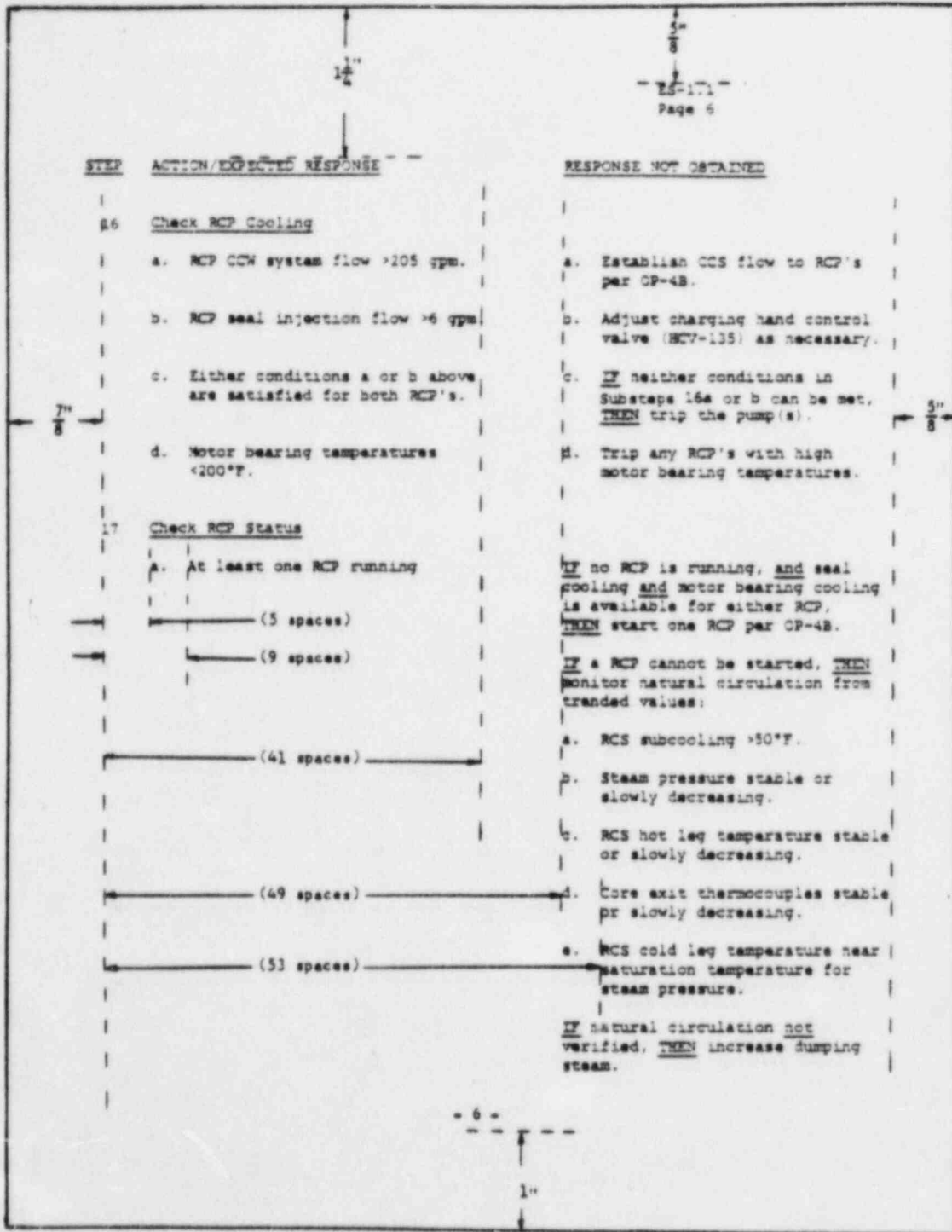verified, THEN increase dumping
steam.

- 6 -

1"

FIGURE 1

EMERGENCY OPERATING PROCEDURE PAGE FORMAT

ATTACHMENT 3

The EOP Verification and Validation Procedures are provided in Attachments 3.1 and 3.2, respectively. As specifically identified in the cover letter, these documents are part of a dynamic process and are subject to change as refinements are deemed necessary.

The verification process started on May 21, 1984, by holding the first meeting of the Verification Team. The purpose, process and procedure for EOP verification were reviewed. The initial effort is to develop consistency between team members in how they are to review the EOPs. As a training exercise, the procedure-general, a note, a caution and a step of EOP-0 were verified. The forms were filled in and only the discrepancies were identified. The results of this training exercise are provided as Attachment 3.3. The verification process will provide a detailed examination of the EOPs and assess their compliance with source documents. The documentation resulting from this process will be available for NRC review at Wisconsin Electric.