

Sturzwelder
Date
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Vogtle Electric Generating Plant
NUCLEAR OPERATIONS



Georgia Power

Procedure No.
10011-C

Revision No.
13

Page No.
1 of 35

Unit COMMON

READ AND DESTROY 05-131-90

OPERATIONS PROCEDURE PREPARATION AND REVIEW GUIDELINES

FOR INFORMATION ONLY

1.0 PURPOSE

This procedure is to provide guidance for preparing Operations Department procedures and reviewing plant procedures. Topics are as contained in the following sections:

- 2.0 Operations Procedure Writer/Reviewer Qualifications
- 3.0 Procedure Writing Guide
- 4.0 Writing Technique
- 5.0 Reviews

2.0 OPERATIONS PROCEDURE WRITER/REVIEWER QUALIFICATIONS

2.1 Operations Department procedure writers/reviewers must have a minimum of 5 years of power plant experience. A maximum of 4 years of training requirement may be fulfilled by related technical and/or academic training.

2.2 A Procedure Writer/Reviewer Qualification Checklist (Figure 1) shall be completed for each operations procedure writer/reviewer.

2.3 Disposition of the completed checklist is as follows:

- a. Original to Document Control for filing as a permanent record,
- b. Copy to the Superintendent, Nuclear Training for insertion in the individual's training record file.

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3.0 PROCEDURE WRITING GUIDE

This section provides specific detailed guidance for writing and handling Operations Department procedures. The general guidance contained in 00050-C, "Procedure Development", should be followed for all procedures except as modified in this section.

3.1 GENERAL

- a. Unit Operating Procedures (UOP), System Operating Procedures (SOP), Operations Surveillance Procedures (OSP), Forms/Data Sheets (F/DS) and Annunciator Response Procedures (ARP) should follow this general guidance. A separate procedure applies to the writing of Emergency Operations Procedures (EOP) and Abnormal Operating Procedures (AOP).
- b. Before starting to write a procedure, the writer should determine if the document is needed. He should determine if the instructions are covered in another procedure, or if it should be a different type of procedure. He should also determine, for example, if just the lineup will be sufficient, or the SOP needs no lineup, or what forms are needed.

3.1.1 Definitions

a. Status

The status of a system may be secured, standby or operating. Each level is independent, and a system can be brought to operating status without going through the standby status.

b. Secured

The condition of a system when it is incapable of operating. Equipment is not necessarily isolated and ready for maintenance. The equipment breakers may be racked out, or the control switch may be off. If the system has an automatic initiation the system is shut down and the automatic initiation is prevented.

c. Standby

The condition of an operable system when it is ready to perform its intended function.

d. Operating

The condition of a system when it is actively performing its intended function.

3.1.2 Formats

Formats should generally conform to 00050-C, "Procedure Development" guidance. Specific sections to be used when writing a UOP, or SOP are set forth below. Other types of procedures will vary from this format as described later. Prepare preliminary drafts of procedures in the same format as that desired for typing.

3.1.2.1 1.0 PURPOSE

Provide a clear, concise statement of what the procedure is to accomplish. If the INSTRUCTION section contains more than three major objectives (e.g., Startup Of The XYZ System, Shifting High Pressure Pumps, Shutdown Of The High Pressure Unit, Shutdown Of The XYZ System, Filling The EHC Reservoir) list these objectives by sub-instruction title.

3.1.2.2 2.0 PRECAUTIONS AND LIMITATIONS

This subsection should be divided into two sections as follows:

a. Precautions

Precautions are the cautionary notes that are intended to protect equipment and personnel or to avoid an abnormal or emergency situation.

Precautions listed should apply to the entire procedure. Place cautionary notes that apply to a portion of a procedure immediately preceding the step for which they are applicable and on the same page.

b. Limitations

This section contains operating limits and Technical Specification limits that shall not be exceeded during the performance of the procedure. Specify limitations on the parameters being controlled and appropriate corrective measures to return the parameter to normal control band, where applicable, in the Main Body.

3.1.2.3 3.0 PREREQUISITES OR INITIAL CONDITIONS

Prerequisites or initial conditions will identify those independent actions or procedures which must be completed or those plant conditions which must exist prior to use. Prerequisites or initial conditions applicable only to certain sections of a procedure should be identified by preceding the prerequisite with a conditional statement. (e.g., Prior to reaching 350°F, Prior to starting XYZ fan, the Turbine Plant Cooling Water (TPCW) System shall be in operation.)

Prerequisites are needed to accomplish the following:

- a. Establish valve and system alignments for the system under consideration,
- b. Establish operating status of systems required to support the system under consideration,
- c. Establish portions of other procedures that may be required for the system under consideration,
- d. Establish the need for Control Room notification prior to commencing an evolution.

3.1.2.4 4.0 INSTRUCTION

The main body of the procedure. Content is described separately for UOPs, SOPs, ARPs and OSPs. If an alternate train/component is being shown in parenthesis, a note should be placed following the Instruction section heading to inform the user.

3.1.2.5 5.0 REFERENCE

List reference documents that may help the user of the procedure to better understand the procedure. An example of the type documents to be included in this section are a suggested format follows.

- 5.1 Applicable Technical Specifications or FSAR paragraphs
- 5.2 Any applicable procedures used or referred to within the procedure (i.e., If you start a pump per its appropriate procedure, then that procedure should be referenced.)
- 5.3 P&ID's (applicable to the procedure)
- 5.4 Electrical Diagrams (applicable to the procedure)
- 5.5 Elementary Diagrams (applicable to the procedure)
- 5.6 Logic Diagrams (applicable to the procedure)
- 5.7 Technical Manuals
- 5.8 Other:

3.1.2.6 List Of Incomplete Items

List all items within a procedure which are omitted or incomplete. Place this list at the end of the procedure. This requirement applies to UOPs, SOPs, F/DS, Lineups, OSPs and ARPs.

3.2 FORMS/DATA SHEETS (F/DS)

3.2.1 F/DS Guidelines

3.2.1.1 Develop F/DS with the corresponding procedure, to have:

- a. A borderline all the way around the page with the text within the borderlines,
- b. Clear headings,
- c. Sufficient size to provide good readability,
- d. Adequate detail to prevent user error,

3.2.1.2 Horizontal or vertical format may be used depending upon page content and complexity. In checklists, rounds sheets and forms, procedures may be referenced by number only, not followed by the title.

- 3.2.2 Valve And Electrical Lineups (See Figure 2)
- 3.2.2.1 Lineups are written for normal operation. Differences between the alignment for startup and the normal operating configuration are shown by footnotes with a number in parenthesis placed just to the left of the lineup column.
- 3.2.2.2 Handswitches will normally be listed on checklists in the SOP. Air operated valves are included in alignments to verify that air is available.
- 3.2.2.3 The sequence number of the lineup is the same as the associated SOP. For example: 13405-1, "125V DC IE Electrical Distribution System" would correspond with alignment 11405-1, "125V DC IE Electrical Distribution System Alignment". In some cases there may only be a lineup and no associated SOP.
- 3.2.2.4 Order components in accordance with the procedure application, equipment complexity, safety and the path an operator can take. Minimize the potential for equipment damage during startup of a system or component by performing the valve or mechanical alignment to ensure flowpath prior to placing power to the component or its control circuitry, and vice versa for system or component shutdown.
- 3.2.2.5 Valves inaccessible due to location or plant conditions such as radiation levels are annotated as "inaccessible due to (condition)".
- 3.2.2.6 Valves and breakers should be described as given on their tags:
- a. List valves by area and flowpath,
 - b. Breakers:
 - (1) List each breaker by its engraved cabinet/cubicle number and description, (e.g. 1BA0319, Bus 1BA03 EMER INCM BRKR),
 - (2) Prioritize switchgear starting with highest voltage.
- 3.2.2.7 If a revision changes a component's required condition, add an informal note to the approving authority calling his attention to the change.

3.3 UNIT OPERATING PROCEDURES (UOP)

3.3.1 UOP Numbering

UOP's shall be numbered per 00050-C, "Procedure Development".

3.3.2 UOP Format

- a. UOP's should be written as common procedures,
 - b. UOP format is as given in Sub-subsection 3.1.2,
 - c. Instructional steps may have a sign-off space in the right hand margin to allow the user to systematically work through the procedure,
 - d. UOP's may duplicate parts of other procedures by incorporating steps into the UOP that can be completed by operators in the Control Room. Support required outside of the Control Room or from any other functional group should be indicated by reference to the applicable procedure,
 - e. Unit designators should be omitted when referencing or branching to unit specific procedures. Common unit procedures will be referenced as XXXXX-C,
 - f. Unit designators should be omitted when identifying equipment or components unless the equipment or component numbers differ between Unit 1 and Unit 2,
- (1) The preferred methods for distinguishing unit differences are illustrated below.

Multiple components - Table form

EXAMPLE:

UNIT 1

1-HV-XXXX
1-LV-XXXX
1-1301-U4-XXX

UNIT 2

2-HV-XXXX
2-LV-XXXX
2-1301-U4-XXX

Single components referenced within a sentence

EXAMPLE:

OPEN XXXX pump suction isolation valve
UNIT 1: 1-HV-XXXX or UNIT 2: 2-HV-XXXX

2.4 SYSTEM OPERATING PROCEDURES (SOP)

3.4.1 SOP Numbering:

- a. SOPs are numbered per 00050-C, "Procedure Development",
- b. SOPs have separate Unit 1 and Unit 2 procedures if there is different equipment for each unit,
- c. They are common procedures if the equipment is common, or shared, between Unit 1 and Unit 2,
- d. If the system is a combination of shared and unit specific equipment, one procedure deals with the Unit 1 and Common parts of the system. The other procedure deals with the Unit 2 equipment.

3.4.2 SOP Format

- 3.4.2.1 In addition to guidance in Sub-subsection 3.1.2, the SOP format includes:

4.0 INSTRUCTION

This section contains the detailed instructions to operate the system. The sections do not need to be in the order listed below but should include applicable steps. Some format guidelines are:

- a. Instructional steps are sequentially numbered for major steps and alphabetically designated for lists within substeps,
- b. Indent each subsection as in Figure 3, 00050-C, "Procedure Development",
- c. Section headings have all capitals and underlined, subsection headings all capitals, and sub-subsection headings the first letter in each word capitalized. Steps of a section have the first letter of the first word capitalized,
- d. Start major logical breaks within the procedure at the top of a new page.

3.4.2.2 Startup

This section of the SOP provides detailed, step by step instructions for taking a system from a low status level (toward non-operating) to a higher status level (toward operating). This section should contain subsections that provide for each planned method of startup. The sequence of the subsection should take the system from the second status, through standby, if applicable, to the operating status.

Title each subsection so the title indicates the nature of the evolution. For example: "Startup to Standby". "Startup to Full Operation".

Certain systems may not have an overall startup but instead have startups of individual components. Also, individual components within a system may have startups and shutdowns. In such cases, prepare a subsection for each individual component startup. Examples include startup of a demineralizer, a hydrogen recombiner, and a fan unit within a HVAC System.

3.4.2.3 System Operation

This section contains the instructions for acceptable methods of system operation. Such instructions are necessary when operational steps are anticipated and such steps do not change the operational status of the system. Such steps alter the operation but maintain the system in an operation status. Examples of such operations include shifting pumps, shifting suctions, shifting between normal power supplies, etc.

This section contains subsections for each type of operation and provides for altering the operation in either direction. For example, a subsection that shifts a suction from its normal source to an alternate source followed by a subsection that shifts the suction from the alternate source to the normal source.

3.4.2.4 Shutdown

This section of the SOP contains the instructions for taking a system from a higher status to a lower status. As appropriate to the system, subsections provide for automatic shutdown, full operation to standby, standby to full shutdown and manual shutdown from full operation.

An interface exists between SOPs and Emergency Operating Procedures with respect to shutdown following an automatic startup from standby. The EOP may include instructions for securing operation of the system following automatic startup. However, such instruction is typically limited to a few steps to shut down the system. For this reason, an SOP is needed for the shutdown from operation to standby. This permits the EOP to deal solely with the plant emergency and allows use of the SOP for restoring the system to standby.

For an SOP having individual component startup subsections, provide a corresponding component shutdown subsection.

3.4.2.5 Non Periodic Operation

This section of the SCP provides detailed instruction on unusual or off-normal operations. These operations do not fit the other sections of the SOP. They may pertain to a method of operation other than the design functions of the system. Examples of non Periodic Operations include filling the cooling tower basin, venting pumps, operating on the bypass, etc.

3.4.3 Checklists

3.4.3.1 Checklists are used to list and provide sign-off space for system handswitch alignment.

3.4.3.2 Where independent verification is required for more than a few valve positions, provide a checklist with sign-off spaces.

3.5 OPERATIONS SURVEILLANCE PROCEDURE (OSP)

3.5.1 OSP Numbering

OSP's shall be numbered per 00050-C, "Procedure Development".

3.5.2 OSP Format

a. Title

The title of the procedure appears on Page 1.

b. Purpose

- (1) State the purpose of the procedure in a clear, unambiguous manner. The user should be able to determine the intent of the procedure without reading the entire procedure.
- (2) As appropriate, list the following information:
 - (a) Identification of the component(s)/system(s) that the surveillance includes,
 - (b) The frequency of the surveillance,
 - (c) The Surveillance Requirements of the Technical Specifications that are implemented, if applicable,
 - (d) The ASME Section XI requirements of the Inservice Test Program that are to be satisfied by the OSP, if applicable.

c. Applicability

State the plant conditions or operational mode(s) which require the applicable systems/components to be operable,

d. Precautions and Limitations

- (1) Identify and warn the user of any personal safety hazards, radiation hazards, equipment operating problems, or effects on plant safety which might arise during the performance of the OSP,
- (2) See also paragraph 3.1.2.2.

e. Prerequisites or Initial Conditions

Include those items to be satisfied prior to performance of the OSP. Each prerequisite or initial condition shall have a sign-off space. These items may include:

- (1) Alignment/Operation of appropriate systems, subsystems, or components,
- (2) Verification that certain conditions exist, including suitable or controlled environmental conditions,
- (3) Verification that the proposed test does not affect other tests currently in progress or jeopardize plant operation,
- (4) Authorization from the Shift Supervisor to perform the test,
- (5) Adequate and appropriate special test equipment, including identification number,
- (6) Communications established as required.

f. Instructional Steps

- (1) Structure the instructional section on two levels, a heading which states the goal of a group of procedural steps ("Isolating SI Pump 1A"), followed by a series of action steps which carry out the goal. Put the action steps in a logical order, grouped together by operations that can be performed at one location,
- (2) Link important steps to other actions so that an omitted step will be immediately apparent to the user,
- (3) When appropriate state the anticipated response and method of observation prior to the step which will cause the response,
- (4) Address only one action per step when possible. Clearly identify actions which result in a system response. If there is a delay, state the time until a response will be seen,

- (5) Place warnings, cautions, or notes immediately before the first applicable step. Clearly identify them for the user.
- (6) Steps may have a sign-off space in the right margin to allow the user to work through the procedure systematically and to locate his place within the procedure at any time.
- (7) Address system, instrument channel, equipment and/or component restoration at completion of testing.

g. Acceptance Criteria

- (1) State clearly and concisely the acceptable criteria to be used to evaluate the results.
- (2) Structure the acceptance criteria to address each component, system or train as applicable so that the procedure may be used to prove operability of individual components, systems or trains during non periodic testing.
- (3) Use quantitative acceptance criteria when possible. Where it is not possible to quantify acceptance criteria, establish clear qualitative criteria.

h. Evaluation and Review

- (1) Note results obtained through test performance, i.e., acceptance criteria met or not met.
- (2) Identify corrective actions taken, including any reports submitted.

i. References

As described in Step 3.1.2.5.

3.5.3 OSP Content

- a. The objective of the procedure and method of implementation should be clearly understood by the writer before drafting begins. Be aware of which Surveillance Requirement(s) of the Technical Specifications are to be implemented by the procedure. Review for any ASME Section XI requirements of the Inservice Test Program that are to be included.

- b. Take into account not only the qualifications of the intended user, but also any physical or organizational constraints which may affect procedure performance,
- c. Use more detail for procedures which are used less frequently,
- d. Consider the number of personnel required for the performance of the procedure,
- e. Prepare the procedure to ensure plant safety remains unaffected during procedure performance,
- f. Use NOTES or CAUTIONS prior to steps that will cause an ESFAS or RPS actuation to alert operator of that fact,
- g. The procedure shall identify all Technical Specifications' Limiting Conditions for Operation applicable if a system and/or component is determined inoperable by the surveillance,
- h. Unless otherwise required to satisfy a Technical Specification requirement, all OSPs shall be written to test one component/system train at a time,
- i. Blanks shall be provided for dates, times and signatures of individuals performing the surveillance and performing the supervisory review,
- j. A blank shall be provided for M&TE equipment number,
- k. Independent verifications shall be provided for as required by 00308-C, "Independent Verification Policy",
- l. Installation and removal of temporary jumpers and lifted wires shall be documented including location, notification of the Shift Supervisor when installed/removed and independent verification per Step j above,
- m. Provisions for data collection may be made in the body of the procedure or on separate attachments. The method used to derive test data or results shall be provided,
- n. These procedures develop administrative controls and frequencies for Operations Department responsible surveillances, in accordance with the plant surveillance tracking system.

3.6 ANNUNCIATOR RESPONSE PROCEDURES (ARP)

This guide provides criteria and instructions for the preparation of ARP's for responses to mitigate single specific annunciated alarms. Multiple alarms usually indicate abnormal or emergency situations covered in AOPs or EOPs.

3.6.1 ARP Numbering

Number ARPs per 00050-C, "Procedure Development". The seventeen thousand indicates the ARP series and the last two digits are the Annunciator Light Board (ALB) number.

3.6.2 Assembly of Procedures

All of the ARP sub-procedures for one ALB are contained in one procedure. Each procedure contains a title page, ALB drawing, and ARP sub-procedure index.

3.6.2.1 Title Page

- a. The title page identifies the ALB, and has a drawing of its relative location in the Control Room. The page also has a statement of the procedure purpose,
- b. The title page is numbered as Page 1.

3.6.2.2 ALB Drawing

- a. Include a drawing showing all of the annunciator windows for the ALB in the procedure. Label each annunciator window just as it appears on the ALB,
- b. The light board drawing is Page 2.

3.6.2.3 ARP Sub-procedure Index

- a. Each ARP includes an ARP Sub-procedure Index. The index lists the annunciator window coordinates, title, and procedure page number of each sub-procedure. Blank annunciator window numbers are included in the index, however, the title and page number sections are left blank,

- b. Number index pages sequentially as part of the procedure starting with Page 3.

3.6.3 ARP Sub-procedure

3.6.3.1 Content and Detail:

- a. A good ARP Sub-procedure is concise and identifies what to check and what to do,
- b. Each step reflects one operator action. Order steps in operating sequence. When a step is listed for clearing an alarm, follow it with a verification step and one describing what to do if the anticipated result does not occur,
- c. ARP may interface with UOP, SOP, AOP and EOP. If the ARP Sub-procedure can be complete but not lengthy without reference to other procedures, do not refer to other procedures. If the step involves an action that the operator is expected to know other procedures need not be referenced. However, if the ARP Sub-procedure involves complex actions that are described in another procedure, that other procedure should be referenced,
- d. ARPs generally prescribe actions for mitigating a single specific alarm. When the alarm indicates a plant abnormal or emergency condition, the appropriate EOP or AOP should be referenced and relied upon. ARP should not attempt to deal with plant emergencies,
- e. ARPs direct the operator to Emergency Response procedure 91001-C, "Emergency Classification and Implementing Instructions", when applicable.

3.6.3.2 Title

- a. Write the title of each ARP Sub-procedure at its position in the window illustration. The title shall be the same as the engraving on the actual alarm window. Capitalization, abbreviations, and acronyms will duplicate the engravings,
- b. ALB windows are identified by an alpha-numeric coordinate, e.g.: A01, A02, B01. The top left annunciator is A01. Letters proceed top to bottom, and numbers left to right.

3.6.3.3 Setpoint and Origin

Each sub-procedure should provide a list of the origins which may cause the actuation of an alarm. For the actual alarm setpoints the operator may be referred to the Master Setpoint Document.

3.6.3.4 Probable Cause

- a. This section should list, in order of probability, the conditions likely to have caused the alarm. Only the reasonably probable causes should be listed.
- b. For alarms that actuate as a result of any of several alarm conditions at a remote panel (i.e. Liquid Waste Panel-Trouble), each specific condition that may have caused the alarm need not be listed. For these alarms, the cause of the alarm section should state that one of the alarms for the specific panel has actuated and provide reference to the appropriate ARP.

3.6.3.5 Automatic Actions

This section lists automatic actions that should have occurred at the actuation of the alarm. If further automatic actions may follow, this section should so state.

3.6.3.6 Initial Operator Actions

- a. This section should contain only those steps which need to be performed quickly and with high priority to:
 - (1) Prevent equipment damage or plant trip,
 - (2) Mitigate degradation of safety related systems,
 - (3) Respond to a personnel safety hazard.
- b. When the alarm condition is covered by an EOP or AOP, this section should refer to, not duplicate it.
- c. If there are no Initial Actions, then this section should state "NONE".

3.6.3.7 Subsequent Operator Actions

This section should list those steps that do not need to be performed quickly and with high priority. This section is used to state the method for returning the system to normal operation or, in the event return to normal is delayed or prevented, the steps to minimize the consequences of the alarm conditions. If no subsequent operator actions are necessary, this section should state "NONE."

3.6.3.8 Compensatory Operator Actions

This section should list any applicable operator actions and their frequency to be performed when the annunciator has been disabled.

If no compensatory actions are necessary, this section should state "NONE".

3.6.3.9 References

A list of the major references used to prepare the sub-procedure should be included at the bottom of the last page. This list need not include all references used in the research and writing of the sub-procedure but should include reference to plant drawings or technical manuals that show the alarm actuation circuitry and associated setpoint(s).

4.0 WRITING TECHNIQUE

4.1 PUNCTUATION

Use punctuation only where necessary to aid reading and prevent misunderstanding. Select wording to require minimum punctuation. If extensive punctuation is required, rewrite or separate into several sentences.

4.1.1 Use hyphens sparingly. Restructure compound words to avoid hyphenation, if possible. Use hyphens in the following circumstances:

- a. In compound numerals from twenty-one to ninety-nine.
Example: One hundred thirty-four,
- b. In fractions, which cannot be avoided Examples:
One-half, two-thirds,
three sixty-fourths,

- c. In compounds with self.
Examples: self-contained,
self-lubricated,
- d. Where misleading or awkward
consonants would result by
joining the words. Example:
bell-like,
- e. To avoid confusion with
another word. Examples:
re-cover to prevent
confusion with recover,
pre-position to avoid
confusion with preposition,
- f. Where a letter is linked with
a noun. Examples: X-ray,
O-ring, U-bolt, I-beam,
- g. To separate chemical elements
and their atomic weight.
Examples: Uranium-235, U-235.

4.1.2 Apostrophe

Use an apostrophe to indicate the possessive form of a noun. Example: "The company's audit plan ..." Use an apostrophe to indicate plural of letters and figures. Examples: PM's, Form 4's.

4.1.3 Brackets

Use brackets when two or more parenthetical phrases are in the same sentence.

4.1.4 Colon

Use a colon to indicate something is to follow.
Example: Restore cooling flow as follows:

4.1.5 Comma

Use of many commas is an indication that the instruction is too complex and needs to be rewritten. Use commas for the following:

- a. Before "and" or "or" in a series of three or more.
Example: a, b, and c,
- b. To separate five or more digits. Examples:
14,500; 1,600,000,
- c. After introductory phrases or clauses when
necessary for clarity or ease of reading. Example:
When level decreases to 60 inches, start pump . . .

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4.1.6 Dash

Do not use dashes except within procedure and component numbers.

4.1.7 Parentheses

Parentheses are used to:

- a. Set off supplementary, parenthetical, or explanatory material when the interruption is more marked than that usually indicated by commas and when the inclusion of such material does not essentially alter the meaning of the sentence.

Examples: (1) Effluent points (vent, drains, or other lines) may require

(2) The Chemical and Volume Control System (CVCS) should be ...

- b. Enclose numerals or letters in a series.

Example: The reasons for flushing are:

- (1) To reduce equipment damage, and
- (2) To meet legal requirements.

- c. Indicate the alternate train's components for instructions dealing with two similar sets of equipment. For three or more similar sets use tables, checklists or separate sections for each set. A note explaining the use for the procedure is written at the beginning of the instructions section:

Example:

NOTE

This procedure is written using Train A designations. Train B designations are shown in parentheses.

4.1.8 Period

Use a period at the end of complete sentences, with abbreviations for No. (number) and in. (inches), at the end of paragraph numbers, and for indicating the decimal place in numbers.

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4.1.9 Quotation Marks

Avoid using quotation marks. Where jargon or figurative language must be used, the first use only should be set off with quotation marks. Use when making direct quotations, such as from a tech spec, or to indicate a title of a referenced procedure.

4.1.10 Semicolon

Use semicolons to set off independent clauses and a run-on listing when such clauses or listings are internally punctuated with commas.

4.1.11 Virgule

Use a virgule to indicate an "either/or" situation and as a substitute for "per" in units of measure. Examples: either/or, ft/sec, lbs/hr.

4.2 WRITING STYLE

4.2.1 Abbreviations, Letter Symbols, And Acronyms

- a. Acronyms may be used in the text portion of the procedure provided they are defined in the first use,
- b. Abbreviations and symbols should not be used in text. They may be used in data sheets, checklists, tables, or when giving label engravings.

4.2.2 Component Identification

Identify components by either their precise tag nomenclature (in all capital letters) or their full descriptive name (each word capitalized), followed by the identification numbers.

4.2.2.1 Precise tag nomenclature is used for lineups, checklists and similar tabulations.

4.2.2.2 In procedure text the normal name may be used if it provides easier, more natural operator understanding and identification. Further considerations are:

- a. When it first appears in the text, use the full descriptive name followed by system identifier and component number. The full descriptive name should be the words that are abbreviated on the tag unless these are clearly not descriptive. If the tag nomenclature is not clearly descriptive of the component, initiate action to have the tag changed.
- b. After its first use, identify the component by either name or number. (Numbers are the preferred way to indicate valves and panels.) The first letter of each word in the noun should be capitalized to enhance readability. Example: STOP the Jockey Pump.
- c. If two trains or similar components are alternatives in an action step, indicate the alternate train as described in Step 4.1.7c.
- d. If three or more similar components are alternatives in an action step, do not use parentheses to set them apart. Use either a separate checklist with the complete tag nomenclature, or list each alternate component with its train for each step. Example:

"START one or more NSCW Cooling Tower Makeup Pumps as required:

- a. Pump 1, A-HS-17419,
- b. Pump 2, A-HS-17420,
- c. Pump 3, A-HS-17421."

or:

"OPEN the inlet and outlet header isolations for the gas decay tank aligned for service.

- a. If Gas Decay Tank 1-1902-V6-001, 2, 3, or 4 is inservice:
 - (1) OPEN the GWPS ISO GDT 1-4 IN HDR, 1-1902-U4-056,
 - (2) OPEN the GWPS ISO GDT 1-4 OUT HDR, 1-1902-U4-077.

b. If Gas Decay Tank 1-1902-V6-005, 6, or 7 is inservice:

(1) OPEN the GWPS ISO CDT 5-7 IN HDR,
1-1902-U4-046,

(2) OPEN the GWPS ISO GDT 5-7 OUT HDR,
1-1902-U4-071."

4.2.2.3 Where the procedure deals entirely with a specific system, the system identifier need not be used in component numbers except for any components of other systems which are used in this procedure.

4.2.3 Definition of Terms

- a. Terms which may be understood in more than one sense should be defined as a note. It is important that the same term be given the same definition by all procedures which define the term,
- b. Do not assume that key terms are understood by all users of procedures. If the term is fundamental to the proper understanding and use of the procedure, define it.

4.2.4 Directing the Specific Manipulation of Controls

The features of controls must be known in order to select the proper terminology for directing the manipulation of control devices. Switches may maintain positional placement or may be spring return. Associated circuitry may lock in or the switch may need to be held in position until the desired function is completed. The following guidelines should be used to govern terminology for the specific manipulation of controls.

- a. For a control, whose number is engraved on the control panel placard, the number should be included within the instructional step unless the control is so frequently used that it is very familiar to all trained operators.

Example: START Condensate Pump B 1-1405-P3-002,

- b. For control circuitry that executes the entire function upon actuation of the control switch, use the action verb appropriate to the control device.

Example: CLOSE RHR PUMP A SUCTION VALVE
1-1224-U4-001,

c. Recommended action verbs are:

- (1) For power driven rotating equipment: Start or Stop,
- (2) For valves: Open or Close, Throttle Open or Throttle Closed, Throttle,
- (3) For power distribution breakers: Synchronize, Close or Trip,
- (4) For supply breakers and switches to individual components: Close or Trip,
- (5) Multi-position switches: Place handswitch (HS-XXX) in XX position,
- (6) Controllers: Set controller (HICXXXY) at 47%, or Adjust controller (HICXXYX) to control flow at 100 gpm,
- (7) For air operated valves: Operable.

4.2.5 Description of Component Status

Indicate component status as:

- a. In Service or Out of Service. The component is or is not functioning within the plant mode of operation. For Example, a demineralizer may be Out of Service although it is operable,
- b. Running or Shutdown. The condition of rotating equipment,
- c. On Line or Off Line. A generating unit is or is not tied into the power grid,
- d. On or Off. Used for simple equipment, such as recorders, and lights that are or are not powered,
- e. Racked In or Racked Out. The physical status of switchgear. The switchgear is available or not available to equipment supplied thereby,
- f. Energized or De-energized. Indicates status of electrical circuits, such as logic circuits and electrical buses. The circuit is or is not powered.

4.2.6 Instruction Step Length And Content

Instruction steps should 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 done. Guidelines which support these objectives are as follows:

- a. Paragraphs and instruction steps should deal with only one idea,
- b. Short, simple sentences should be used in preference to long, compound, or complex sentences,
- c. Complex operations should be defined in a series of steps. Each step should be as simple as possible,
- d. Verbs with specific meaning should be used. Full capitalization of verbs will help the user to readily recognize the action to be taken. Examples are listed in Table 1,
- e. Objects of verbs should be specifically stated. This includes identification of exactly what is to be done and what it is to be done to,
- f. Limits should be expressed quantitatively whenever possible. Qualitative acceptance criteria given by governing codes and standards should be described in quantitative terms if possible,
- g. Avoid vagueness. It is recognized by lack of specific meaning and it fosters different interpretations. It leads toward divergent implementation that can result in noncompliance,
- h. Content should be consistent with the minimum level of training and experience of the user. That is, the instruction should not amplify on verbs, locations of components and controls, basis for limits, or other information that the user is expected to already know,

- i. Action steps should not appear in caution statements and notes,
- j. Instruction steps should be included for any required documentation, notification, report, independent verification, and obtaining review or approval.

4.2.7 Plant Instrument Values

- a. Values should be listed in the same units of measurements as found on the instrument,
- b. Values should be listed as maximum and minimum whenever possible,
- c. Use a conservative value within the precision of operator reading. Persons are generally able to read one-half the distance between instrument markings accurately,
- d. Minimize the use of "approximately" as it is difficult to quantify and interpretation of an acceptable "band" will vary from person to person,
- e. Tolerance symbol use should be minimized, use wording such as "greater than or equal to".

5.0 REVIEWS

5.1 PRE APPROVAL PROCEDURE REVIEWS

Each Operations procedure initial draft shall receive a thorough technical review by a reviewer, not the original author. Reviewer and author will then mutually resolve comments before issuing the department initial reference revision. Subsequent reviews may be made as deemed necessary, prior to approval and issue as a "Rev 0".

5.1.1 General Instructions

Reviewers should exercise good judgement and technical competence. They should have a valid basis for all their comments. Comments should contain only relevant information that will correct format and technical errors, or improve ease of understanding. Avoid ambiguous or extraneous comments.

- 5.1.1.1 Refer to the "Operations Procedure Review Checklist", 1 and 2 when reviewing an unapproved procedure.

5.1.1.2 The Operations Department Procedure Coordinator ensures that OSPs (as identified by the QC Superintendent) are routed to the QC Superintendent for a hold point review.

5.2 POST APPROVAL REVIEWS

5.2.1 Reviews should be in compliance with 00051-C, "Procedure Review And Approval".

5.2.2 Biennial reviews will be as thorough as initial reviews, and be conducted referring to Checklist 2, attached.

5.3 INTERDEPARTMENTAL REVIEWS

Some Operations procedures may require a separate review by other departments. The Operations Procedure Coordinator is responsible for identifying procedures requiring a review by others, for forwarding the documentation to the reviewer and for resolving comments.

6.0 REFERENCES

6.1 PROCEDURES

6.1.1 00050-C, "Procedure Development"

6.1.2 00051-C, "Procedure Review And Approval"

6.1.3 00308-C, "Independent Verification Policy"

6.2 ANSI N18.1-1971 "Standard For Selection And Training Of Personnel For Nuclear Power Plants"

6.3 ANSI N18.7 - 1976 "Administrative Controls And Quality Assurance For The Operational Phase Of Nuclear Power Plants"

6.4 USNRC Regulatory Guide 1.33, Revision 2 "Quality Assurance Program Requirements (Operation)"

6.5 USNRC Regulatory Guide 1.118, Revision 2, "Periodic Testing of Electric Power and Protection Systems"

6.6 VEGP FSAR Chapter 13 and 14.2

END OF PROCEDURE TEXT

Table 1. Action Verbs

Verb	Application
Allow	To permit a stated condition to be achieved prior to proceeding, e.g., "ALLOW discharge pressure to stabilize"
Check	To perform a comparison with a procedural requirement "CHECK if SI can be terminated"
Close	Is the opposite of open for valves, e.g., "CLOSE valve HV-142"; opposite of TRIP for breakers, e.g., "CLOSE breaker ANB1002".
Complete	To accomplish specified procedural requirements, e.g., "COMPLETE valve checkoff list 'A,'" "complete data report QA-1," "complete steps A through G of Sub-subsection 4.1.1"
Decrease	<u>Do not use</u> because of oral communication problems.
Ensure	Take necessary actions to guarantee conditions are as specified, e.g., "ENSURE all FWIVs CLOSED".
Establish	To make arrangements for a stated condition, e.g., "ESTABLISH communication with control room"
Increase	<u>Do not use</u> 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, e.g., "visually INSPECT for leaks"
Lower	To adjust a value towards a smaller magnitude.
Monitor	To periodically check the status to detect current trends, "MONITOR SG Blowdown flow".
Open	To change the physical position of a mechanical device, such as valve or door to the unobstructed position that permits access or flow, e.g., "OPEN valve IFP143"
Raise	To adjust a value upward, towards a larger magnitude.
Record	To document specified condition or characteristic, i.e., "RECORD discharge pressure"

Table 1. Action Verbs (Cont'd.)

Verb	Application
Set	To physically adjust to a specified value an adjustable feature, i.e., "SET diesel speed to ... rpm"
Start	To originate motion of an electric or mechanical device directly or by remote control, e.g., "START ... pump"
Stop	To terminate operation, e.g., "STOP ... pump"
Throttle	To operate a valve in an intermediate position to obtain a certain flow rate, e.g., "THROTTLE valve IFP140 to ..."
Trip	To manually activate a semi-automatic feature, e.g., "TRIP breaker ..."
Vent	To permit a gas or liquid confined under pressure to escape at a vent, e.g., "VENT ... pump"
Verify	To observe an expected condition or characteristic, e.g., "VERIFY discharge pressure is stable"

PROCEDURE WRITER/REVIEWER
QUALIFICATION CHECKLIST

1. NAME _____
(PLEASE PRINT)

I have a minimum of 5 years of power plant experience. I have read the following and am familiar with their content:

- 00050-C, "Procedure Development"
- 00051-C, "Procedure Review And Approval"
- 00052-C, "Temporary Changes To Procedures"
- 10011-C, "Operations Procedure Preparation And Review Guidelines"
- 00308-C, "Independent Verification Policy"

I can locate and use applicable reference materials.

SIGNATURE

DATE

2. I have assessed the performance and experience of this employee. To the best of my knowledge and judgment, he/she is qualified as a procedure writer/reviewer. This individual has a minimum of 5 years of power plant experience. A maximum of 4 years of this experience may be fulfilled by related technical and/or academic training.

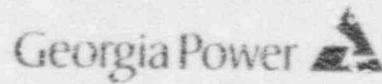
OPERATIONS SUPERINTENDENT

DATE

FIGURE 1

Approval

Date



NUCLEAR OPERATIONS
VOGTLE ELECTRIC GENERATING PLANT
UNIT 1

Procedure No.
10011-C

Revision No.
13

Page No.
31 of 35

TITLE: TURBINE BUILDING DRAIN SYSTEM ALIGNMENT

LINEUP COMPLETED BY:

Signature	Initial	Date	Signature	Initial	Date
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

COMMENTS: _____

RESOLUTION: _____

REVIEWED BY: _____

Figure 2.

<u>COMPONENT</u>	<u>DESCRIPTION</u>	<u>CONDITION REQUIRED</u>	<u>LINEUP (INITIALS)</u>	<u>VERIFICATION (INITIALS)</u>
<u>TOP OF PRZR ROOM</u>				
1-1201-X4-072	RCS PRZR SPRAY LINE VENT VALVE	CLOSED	_____	_____
1-1201-X4-084	RCS PRZR SPRAY LINE VENT VALVE	CLOSED/CAPPED	_____	_____
<u>TOP OR PRZR</u>				
1-1201-U4-102	RCS PRZR SFTY VLV PSV-8010A LOOP SEAL DRAIN	CLOSED	_____	_____
1-1201-U4-103	RCS PRZR SFTY VLV PSV-8010B LOOP SEAL DRAIN	CLOSED	_____	_____
1-1201-U4-104	RCS PRZR SFTY VLV PSV-8010C LOOP SEAL DRAIN	CLOSED	_____	_____
1-1201-U4-105	RCS PRZR SFTY VALVES LOOP SEAL HEADER ISO	CLOSED	_____	_____
1-1201-U4-106	RCS PRZR SAFETY VALVE RELIEF HDR VENT	CLOSED/FLANGED	_____	_____

(Do not include
this column if
Independent
Verification is
not required.)

* May be used when only one footnote is used throughout the procedure.
(1), (2), (3), etc. Footnotes are numbered and in parenthesis if more than one is required.

Figure 2 (Cont'd.)

OPERATIONS GROUP PROCEDURE REVIEW CHECKLIST #11.0 Administrative Review Requirements

Check that procedure is consistent with 10011-C, 10012-C, and 00050-C for the following items:

- 1.1 The exception list is present and correct, if applicable.
- 1.2 Each page has appropriate borders and endings.
- 1.3 Proper numbering of pages.
- 1.4 All supporting materials are referenced in proper procedure section.
- 1.5 Supporting material number and name(s) are consistent throughout the procedure body.
- 1.6 References are current, adequate and applicable to the procedure.
- 1.7 Cautions and Notes adhere to guidelines.
- 1.8 Component identification number derivations adhere to guidelines.
- 1.9 If flow chart is part of the procedure, verify that flow chart represents the procedure.
- 1.10 Capitalization and use of action verbs adhere to guidelines.
- 1.11 Use of acronyms, abbreviations, and action verbs adheres to guidelines.
- 1.12 Subdivision of steps adheres to guidelines.
- 1.13 Adequate and applicable limits and precautions are addressed for the performance of the procedure.
- 1.14 All procedural information is clear, concise, and NOT ambiguous.
- 1.15 Contents of a procedural step are placed on the same page.
- 1.16 Independent verification is provided as required.

OPERATIONS GROUP PROCEDURE REVIEW CHECKLIST #2Technical Review Requirements1.0 Sources To Be Used For Review

- 1.1 FSAR
- 1.2 Technical Specifications
- 1.3 Design Criteria
- 1.4 P&ID, C&ID, Logic Drawing, etc.
- 1.5 Westinghouse Precautions, Limitations, and Setpoints
- 1.6 Technical/ Vendor Manuals
- 1.7 Other Vendor Drawings

2.0 Procedure is technically correct as follows:

- 2.1 Precautions and Limits are clear, of sufficient detail and are ordered according to importance.
- 2.2 Prerequisites are not too general, and adequate detail for easy operator understanding.
- 2.3 All actions, manipulations addressed in procedure meet the requirements and intent of the Purpose/Scope as stated in the procedure.
- 2.4 The procedure contains sufficient level of detail to sequentially start up the system/component in a manner that reflects good operating practices.
- 2.5 The procedure contains sufficient level of detail to sequentially shut down the system/component in a manner that reflects good operating practices.
- 2.6 The procedure contains sufficient level of detail for operating evolutions to maintain the system/component in a safe, efficient and effective status that reflects good operating practices.

OPERATIONS GROUP PROCEDURE REVIEW CHECKLIST #2

- 2.7 The valve and electrical lineups contain:
- a. Sufficient valving to support the procedure.
 - b. Correct valve positioning to support the procedure.
 - c. Valve names are precisely as given on tags.
 - d. Correct control switch/breaker positioning to support the procedure, as applicable.
 - e. Remotely operated VALVE/BREAKER identification is as found on the control panels.
- 2.8 All supporting materials/attachments are legible and useable. Are additional attachments required to facilitate the efficient and effective use of the procedure?
- 2.9 Verification and approval signatures are addressed where applicable in the main body and where required in supporting materials.
- 2.10 For normal operations, procedure interrelations with other procedures are not in conflict with:
- a. Purpose/Scope of other operations procedures.
 - b. Prerequisites/Initial Conditions of other operating procedures.
 - c. Valve and Electrical Lineup attachments of other operating procedures.