

Duke Energy McGuire Nuclear Station Use of Operating and Periodic Test Procedures Information Use	Procedure No. OMP 4-1
	Revision No. 028
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Revision History (significant issues, limited to one page)

Rev 028 (12/01/04)

- Corrected various typos and format errors.
- Updated Attachment 5 to reflect Rev. 25 of NSD-703.
- Minor change section references.
- Appendix M renamed.
- Documenting review/approval over the phone.
- Temporary approval deletion.

Rev 027 (08/25/04) Revised Section 8.5 to conform to new NSD 704 requirements.

Rev 026 (07/06/04)

- Deleted "Shift Work Manager" throughout the OMP and replaced with "WCC SRO".
- Added rounds as an acceptable method of configuration control in support of deleting the rounds procedures.

Rev 025 (06/25/2003) Made the following changes:

- Incorporated changes from NSD 703 (Administrative Instructions for Technical Procedures) Rev 024 for merging Major and Minor Change Forms into one form on NSD 703 Appendix F (Procedure Change Process Record) form (Attachment 5)
- Incorporated changes from NSD 704 (Technical Procedure Use and Adherence) Rev 011, revising guidance for:
 - Transferring signatures, initials, and data in procedures (Step 8.4.2.6)
 - NA of steps/section in procedures (Steps 8.5.2 and 8.5.4)
- Changed "satellite file" to "satellite procedure" or "satellite location" throughout procedure
- Added processes for removing OTG Control Copies.

Rev 024 (01/20/2003) Incorporated the following:

- Replaced SWM with WCC SRO & updated nomenclature related to SWM.
- Added "OPS Perform Procedure Change Guidance" as Attachment 5
- Deleted Step 8.11.
- Deleted Steps 3.2.1, 3.3 and 3.6 in Attachment 1.
- Made various changes to Attachment 2 and Attachment 3.
- Added Step 10.4: "The process for performing a procedure change is described in Attachment 5 (OPS Perform Procedure Change Guidance)."
- Deleted Attachment 6

Rev 023 (09/24/02) Deleted Reference to Attachment 5.

Use of Operating and Periodic Test Procedures

1. Purpose

Provide guidance concerning the proper use and control of Operating and Periodic Test Procedures.

2. References

- 2.1 TS 5.4 (Procedures)
- 2.2 NSD 703 (Administrative Instructions For Technical Procedures)
- 2.3 NSD 704 (Technical Procedure Use and Adherence)
- 2.4 Regulatory Guide 1.33, Rev, 2, February, 1978
- 2.5 NUREG-0737
- 2.6 MAD 1-92-01-023D,I
- 2.7 PIR 2-M91-0106B
- 2.8 PIP 1-M94-1370
- 2.9 PIP M96-2558
- 2.10 INPO Good Practice OA-106, "Technical Procedure Use and Adherence"

3. Description

- 3.1 This procedure is intended to be a stand-alone document for OPS group procedure use and adherence. It interprets and supplements the guidance in NSD 704 (Technical Procedure Use and Adherence) and at times is more restrictive based on OPS management philosophy. Therefore, NSD 704 does **NOT** need to be used in conjunction with this OMP for guidance on procedure use and adherence.
- 3.2 This procedure is divided into the following areas:
 - Responsibilities
 - Procedure Use "Shalls"
 - General Philosophy Of Procedure Use
 - Procedure Control
 - Procedure Use Preparation
 - Performance of Procedures
 - Completion of a Procedure

The first four sections are administrative or philosophical in nature, providing high level information on procedure use and adherence. The Responsibilities section describes the responsibilities of those involved in technical procedure use. General OPS procedure use philosophy is given in the General Philosophy section, and administrative issues are covered in the Procedure Control section. Finally, a short list of big picture items that are absolutely necessary for successful procedure use and adherence are given in the Procedure Use "Shalls" section.

The last three sections are structured to be a step by step roadmap for procedure use and adherence. These sections detail the actions necessary each time a procedure is used, from items needed to be accomplished for Procedure Use Preparation, guidance during Performance of Procedures, and finally what needs to be done for Completion of a Procedure.

4. Responsibilities

- 4.1 OSM, Shift Supervisor and OPS Test Supervisor - Responsible for implementation and effectiveness of procedure use and adherence. This includes:
 - 4.1.1 Ensuring personnel are aware of management's expectations concerning procedure use and adherence.
 - 4.1.2 Ensuring personnel are properly trained and qualified to accomplish their assigned tasks.
 - 4.1.3 Ensures personnel follow procedures.
 - 4.1.4 Ensuring personnel are meeting management's expectations regarding the use of procedures by monitoring procedural effectiveness.
 - 4.1.5 Holding personnel accountable for proper procedure use and adherence by providing feedback on inappropriate actions at the time observed.
 - 4.1.6 Encouraging personnel to provide feedback regarding the adequacy of procedures used.
 - 4.1.7 Ensures Independent Verification is performed by a second qualified operator per OMP 8-2 (Separate and Double Verification).
 - 4.1.8 Reviews and approves completed procedures in accordance with this OMP.

4.2 Shift Support Assistant Responsibilities

- 4.2.1 Places new-rewritten OP, EP and AP procedures into Working Copy file.
- 4.2.2 Distributes procedure changes to Control Copy and Working Copy.
- 4.2.3 Distributes procedure changes to all satellite procedure locations.
- 4.2.4 Replenishes Working Copy files and maintains Working Copy and Control Copy procedure folders in good condition.
- 4.2.5 Ensures completed OPs and PTs are routed to Master File.

4.3 All Personnel who use procedures must:

- 4.3.1 Follow policies on procedure use and adherence during activities in which they are involved.
- 4.3.2 Ensure the procedure Working Copy (Regardless of Level of Use) is compared to the Control Copy before using and at a minimum of once every 14 calendar days while work is being performed.
- 4.3.3 Know the procedure requirements prior to starting the job. This may be accomplished by reviewing the procedure prior to use or by training on the current revision of the procedure.
- 4.3.4 Understand anticipated response from procedure actions prior to performing the action and the need to ensure or check that a response has occurred.
- 4.3.5 Initiate action to improve the quality of the procedure or to correct procedure problems found.
- 4.3.6 Stop the activity any time the anticipated results are **NOT**, or will **NOT** be obtained (e.g., equipment malfunction, procedure technical inadequacy, procedure imposes unsafe, unstable, or unreliable conditions on the plant).
 - 4.3.6.1 Procedure problems do **NOT** relieve the performer of the responsibility for maintaining safe plant operation, while conducting the activity.

- 4.3.7 Take the following actions if limits are exceeded:
- 4.3.7.1 **WHEN** performing surveillance test procedures to meet Technical Specifications or other regulatory requirements, the Control Room SRO and OSM shall be notified as soon as possible if the acceptance criteria are **NOT** met in order to determine operability and reportability.
 - 4.3.7.2 **IF** an administrative limit listed in procedure is exceeded, the user shall note the exceeding of the limit in the Remarks section of the procedure cover sheet. The Control Room SRO and OSM shall be notified to evaluate the impact.
- 4.3.8 Ensure only operable instrumentation is used for surveillance data.

5. Procedure Users Shall:

- 5.1 Correctly compare the Working Copy to the Control Copy.
- 5.2 Be qualified to perform the task.
- 5.3 Perform a Level 1 or Level 2 Pre-Job Briefing.
- 5.4 Ensure all Prerequisites, Limits and Precautions, and Initial conditions are reviewed.
- 5.5 **INITIAL** or **CHECK** each step, **AFTER** the action is **COMPLETE**.
- 5.6 **NOT** deviate from the sequence of steps, unless approved.
- 5.7 **NOT** NA any Non-Conditional step, unless approved.

6. General Philosophy Of Procedure Use

- 6.1 Where there is an approved procedure that covers a specific activity, that activity shall be conducted in accordance with the provisions of the applicable approved procedure.
- 6.2 Procedures are completed and "closed out" after the task is completed. However, the procedural guidance, and configuration control, is still in effect until superseded by another procedure, and is the only guidance needed for some activities that manipulate components:
- 6.2.1 These activities, considered routine and of a methodical and well understood nature, and which do **NOT** change the status/configuration of the component (e.g. the valve is still throttled, **NOT** changing a valve from open to closed) are:
- 6.2.1.1 Maintaining Control Rods within the Insertion and Withdrawal Limits and AFD within its target band.
- 6.2.1.2 Adjustment of Main Generator voltage to maintain generator load within the Capability Curves or to change VARS per dispatcher instruction.
- 6.2.1.3 Minor adjustments to valve positions (**NOT** changing the state of a valve, e.g., from closed to open) that make minor adjustments to system parameters. These adjustments must be within the normal system operating bands specified by the last procedure affecting the parameter. Some examples are (other examples must still meet NSD 703 Appendix G, "Technical Procedure Questionnaire"):
- A. Adjusting S/G Blowdown flow per Secondary Chemistry instructions.
 - B. Adjusting NV letdown using 1/2NV-459.
 - C. Adjusting NC pump seal injection flow.
 - D. Adjusting steam pressure to high pressure turbine seals from the control room.
 - E. Adjusting valves to control outlet temperature of heat exchangers or other system temperatures (RN to KC HX, LT to lube oil, AS to UST).

- 6.3 For activities **NOT** covered by procedures:
 - 6.3.1 Qualified operators are required to take appropriate action in an emergency to place the plant in a safe condition, independent of procedures.
 - 6.3.2 NSD 703 Appendix G, "Technical Procedure Questionnaire" should be referenced to determine whether a procedure is required.
 - 6.3.2.1 For activities that are **NOT** covered by a procedure, configuration control of the evolution needs to be maintained, whether by a Configuration Control Card, an R&R, Operator Rounds or another method.
- 6.4 Procedures shall be followed without deviating from the original intent and purpose.
 - 6.4.1 **IF** a procedure is obviously incorrect, will damage equipment, is unsafe, or will result in incorrect parameters or results, stop the task and contact a supervisor for direction.
 - 6.4.1.1 Performer should be aware that attempting to "undo" an unexpected situation can make matters worse.
 - 6.4.1.2 Only when there is an immediate personnel hazard or risk of equipment damage should attempts be made to change the state of the system. For all other situations, the performer shall involve supervision or the Control Room SRO prior to changing state
 - 6.4.2 There may be situations when we know we are meeting the desired goal of the step but **NOT** meeting it with the step written as is. In these situations there are two options. Stop and get a supervisors opinion about whether to proceed or Stop and get the procedure changed.
 - 6.4.2.1 It is **NOT** necessary to change the step prior to proceeding if the procedure meets the criteria of a minor procedure change/revision as defined in NSD 703.

- 6.5 Procedures are written for trained and qualified individuals. They are **NOT** written for the most or least qualified individuals.
- 6.5.1 At least one person performing the task described by the procedure shall be qualified to the procedure/task, or the task shall be directly supervised.
- 6.5.2 Prior to performing a step, performers should ensure they understand what is to be done and its effect on the plant.
- 6.5.3 After performing a step, performers should evaluate the results to ensure the desired or anticipated results are achieved.
- 6.5.4 **IF** desired or anticipated results are **NOT** achieved, the performer should **NOT** proceed and should contact their supervisor for direction.
- 6.5.5 Self verification should be performed in accordance with OMP 8-1 (STAR and Peer Checking).
- 6.6 ROs and SROs are expected to manually initiate safeguards actions when an automatic action setpoint is being approached in an uncontrolled manner.
- 6.7 ROs and SROs are expected to manual initiate any action which should have automatically occurred if the automatic function fails.
- 6.8 **WHEN** performing actions directed by organizations outside OPS, the following must be met:
- 6.8.1 The action(s) shall be in an approved procedure.
- 6.8.2 All operators involved shall understand the specific actions and intent and the affect on plant operation.
- 6.8.3 An SRO shall determine if operators performing actions directed by outside organizations should have a working copy of the procedure based on complexity, volume, and vulnerability to error. **IF** a working copy is **NOT** required, the applicable steps shall be read verbatim. {PIP 1-M94-1370}
- 6.8.4 Configuration Control needs to be maintained by OPS, using a Configuration Control Card, an R&R, or another method (e.g., copy of the procedure).
- 6.9 Signoffs are generally used for configuration control when manipulating equipment. Checkoff blocks are generally used to provide for placekeeping. This philosophy may be modified; for example, for frequently used procedures, checkoff blocks may be used instead of signoffs to allow the procedure to be placed in a plastic sleeve and placekeeping performed using an erasable marker.

7. Preparation for Procedure Use

- 7.1 Understand that all OPS technical procedures shall be considered "Continuous Use" procedures unless designated otherwise. Other use type designations are described in NSD 704. Continuous Use means:
- 7.1.1 Performed using step-by-step adherence unless flexibility is allowed by the procedure or other criteria in this OMP.
 - 7.1.2 A copy of the procedure shall be in the possession of the performer(s) at the job site, as described in Section 7.2.
 - 7.1.3 The use type designation will **NOT** be identified on most continuous use procedures.
- 7.2 Determine what type of copies and the number of copies to use.
- 7.2.1 Each enclosure of an OP may be treated as a separate procedure for verification and performance and shall have a Procedure Process Record sheet or NEDL cover sheet attached.
 - 7.2.2 Determine the type of copy:
 - 7.2.2.1 Working Copies are to be used, except in the following cases:
 - A. Control Copies may be used at satellite procedure locations as long as there are no signoffs, if placed in plastic sleeves, and with checkoff block placekeeping performed using an erasable marker.
 - B. Control Copies may be used for single use procedures (e.g., TOs or TTs).
 - C. Control Copy may be used instead of a Working Copy when degrading plant conditions do **NOT** allow adequate time to obtain and compare a Working Copy.
 - D. Since copies of OPs are maintained in satellite procedure locations for emergency situations, the Control Copy of the procedure will be used to perform steps. The Control Copy satellite procedure should be replaced immediately after use and the SSA notified. After use, each satellite procedure will be stamped with location and replacement guidance.

7.2.2.2 Copies printed from an electronic document library, NEDL are considered Working Copies.

- A. Procedures can only be printed from the ISSUED state. Procedures on CHANGE HOLD or TECHNICAL HOLD in NEDL shall **NOT** be used if printed; the Working Copy in the hard copy Control Copy file must be used.

7.2.3 Copies of the procedure will typically be in hand at each location that steps are being performed. However, the number of copies used can depend on a number of factors:

7.2.3.1 Complexity of the procedure – only one location may need the procedure if the other location’s actions are simple or only a few steps.

7.2.3.2 Quality of communications – if communications are difficult, procedure step number direction instead of word by word reading of steps may reduce the potential for communications errors; this requires multiple copies.

7.2.3.3 Level of qualifications or experience of individuals performing procedure steps at other locations.

7.2.4 Regardless of the number of copies used, one person is to be the lead person in charge of successful performance of the procedure.

7.2.4.1 The lead person will have a complete copy of the procedure, while portions of the procedure may be used by other performers.

7.3 Compare the Working Copies to the Control Copy.

7.3.1 Compare working copies **NOT** printed from NEDL, as follows:

7.3.1.1 Ensure the procedure is for the correct unit and system.

7.3.1.2 Compare the Working Copy to the Control Copy and ensure the procedure ID # and the Revision # (by number) located in the upper right hand corner of the Procedure Process Record are the same.

7.3.1.3 **IF** Control Copy has been printed from NEDL (e.g., Approval date on Procedure Process Record is **NOT** available), compare the Working Copy to the Control Copy and ensure the Date and Time printed on the Electronic Procedure Process Record are the same.

- 7.3.1.4 **IF** Control Copy **NOT** printed from NEDL, compare the Working Copy to the Control Copy and ensure the "Approved By" date on the Procedure Process Record PREPARATION section is the same.
- 7.3.1.5 Ensure all outstanding changes are entered in the Working Copy for the procedure body/enclosure(s) being used by either handwriting changes in or by ensuring changes photocopied in.
- A. **IF** any outstanding changes are written in the Working Copy, the approved change number and the initials of the person writing in the change shall be noted near the change.
- B. Restricted changes are **NOT** "pre-written" into the Control Copy (except for Annunciator Response procedures), but are annotated at the location of where the change could apply by "See Restricted Change ####a". They shall **NOT** be written into the Working Copy being verified if the restriction for which the change was written does **NOT** or no longer applies.
- 7.3.1.6 Check each page of the Working Copy to ensure that all pages are included with none missing, duplicated, or unreadable (except for portions that are **NOT** used (NA'd) per Section 8.5).
- 7.3.1.7 Sign the "compared with control copy" on the Procedure Process Record of the Working Copy; this person is accountable for ensuring all expectations of this Step are completed prior to use of the subject procedure.
- 7.3.1.8 Compare Working Copy procedures that remain in use (e.g., while work is being performed) at a maximum of every 14 calendar days.
- 7.3.2 Compare copies of procedures printed from NEDL, as follows:
- 7.3.2.1 The ISSUED State procedure printed from NEDL, using the Controlled Printing option, is a Working Copy that is considered compared to the Control Copy (that resides within NEDL) at time of printing (has date and time stamped on the cover sheet).
- A. A Working Copy is printed using NEDL Controlled Printing.
- B. A procedure **NOT** in the Issued State (i.e., Change Hold, Tech Hold, Admin Hold) shall **NOT** be used if printed from NEDL. A Working Copy must be made from the hard copy Control Copy.

- 7.3.2.2 Ensure the procedure is for the correct unit and system.
- 7.3.2.3 Check each page of the procedure to ensure that all pages are included with none missing, duplicated or unreadable.
- 7.3.2.4 Compare Working Copy procedures that remain in use (e.g., while work is being performed) at a maximum of every 14 calendar days using one of the following methods:
 - A. Compare the revision number of the Working Copy to the Revision number in the NEDL library:
 - 1. **IF** the Working Copy revision is still in the ISSUED state in NEDL, the Working copy is compared.
 - 2. The revision number is shown as follows in NEDL:

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With "048" being the revision number.
 - 3. Sign the NEDL cover sheet.
 - B. Compare the Working Copy to a hard copy Control Copy per Step 7.3.1.
- 7.3.3 Working Copies or portions of Working Copies may be made from another Working Copy after comparing that Working Copy to the Control Copy. A page check of each copy made shall be performed to ensure all pages or portions are included and legible.
- 7.4 Determine if the procedure can be performed per the plant conditions.
 - 7.4.1 Review any applicable Removal & Restoration Procedures (R&R) and Configuration Control Cards to determine if they could affect the planned actions and if the R&Rs or Configuration Control Card should remain in effect.
 - 7.4.1.1 A component **CANNOT** be repositioned in a PT when that position is contrary to an outstanding R&R without first clearing the component from the R&R or lifting the R&R tag for testing.

- 7.4.2 Check the Initial Conditions, Prerequisite System Conditions, or Prerequisite Plant Status, as applicable. **IF** these conditions are **NOT** satisfied:
- Do **NOT** perform the procedure until the conditions are satisfied,
OR
 - Evaluate the validity of the required conditions and change the procedure,
OR
 - NA the required condition per Section 8.5.
- 7.4.3 Review the Limits and Precautions to ensure the relevant Limits and Precautions are known and understood.
- 7.5 Perform a pre-job briefing per OMP 3-2.
- 7.5.1 Ensure appropriate pre-job procedure reviews, job observations, and post-job reviews of results are conducted to ensure proper procedure compliance and desired results are obtained.
- 7.5.2 Procedures which are complex or infrequently used may require a more thorough discussion, illustrations, or examples with a crew prior to start of the activity (91-01).

8. Procedure Use

- 8.1 At least one person performing the task described by the procedure shall be qualified to the procedure/task, or the task shall be directly supervised by a qualified individual. Documentation of directly supervised tasks shall be included in the procedure or in the work order.
- 8.2 Persons placing their initials in a procedure which contains signoff steps are to include their printed name along with their initials somewhere within the procedure (cover sheet, first page on which their initials appear, dedicated name/initial attachment, etc.).
- 8.3 Persons using procedures are familiar with definitions of common terms listed on Attachment 10 (Definitions of Frequently Used Procedure Related Terms).
- 8.4 Rules for Signoffs and Placekeeping during procedure use:
- 8.4.1 The objectives of signoffs and placekeeping are twofold: configuration control and performance of the correct step sequence. The two basic rules that accomplish this are:
- 8.4.1.1 The performer's initial must be documented at each step that is a signoff step.
- A. **IF** the performer is **NOT** signing their own initials, the documenter's initials must also be entered at the step.
- 8.4.1.2 Steps shall be signed off or check block checked after the action is completed (step by step adherence).
- 8.4.2 Recommended methods to accomplish these objectives:
- 8.4.2.1 **WHEN** it is **NOT** practical for the performer to sign off a step, a separate qualified (or directly supervised) person may sign as the performer based on positive verification of correct step performance.
- A. Acceptable methods of positive verification include:
- Face to face communication
 - Radio, telephone, or other communication device
 - Direct visual observation of a step with an obvious, easy to determine outcome (e.g., removing a breaker from a cubicle)
- B. Both the performer and documenter initials are entered at each applicable step.

- C. The performer is accountable for correct step performance. The documenter is accountable for correct step sequencing, proper placekeeping, and correct documentation.
- D. During performance of a single procedure by several persons (potentially at several locations):
 - One person is to have the lead (be in charge) of the procedure.
 - The appropriate number of copies of the procedure are in hand per Section 7.2.

8.4.2.2 **IF** a block of steps are being performed repetitively:

- A. For a short series of steps, unless otherwise noted in the procedure:
 1. Sign off during the last pass through the block of steps.
 2. Checkoff boxes can be checked once during the last pass or once during each pass, whichever is best for the user to maintain placekeeping.
- B. For a long series of steps, a procedure section, or the whole procedure, sign/check the steps during the initial pass through the procedure, resign or recheck next to the earlier sign/check during subsequent passes.
 1. These procedures/enclosures shall be written to account for the repetition of the procedure steps and it will state in the procedure/enclosure the conditions for which repetition is allowed.
 2. **WHEN** repetitively performing the same procedure or section, review the Initial Conditions and Limits and Precautions each time the procedure is performed to ensure that system conditions are still as expected and requirements are being met for performance of the procedure. {PIP M96-2558}

8.4.2.3 Control Copy procedures in satellite procedure locations can be placed in plastic sleeves and marked with an erasable marker, provided no signoffs are required.

8.4.2.4 Sign off when the step is already fulfilled by plant conditions:

- A. **IF** the outcome of a step is already present due to plant conditions, the step can be signed off since it has been fulfilled by plant conditions.
- B. Procedure steps that produce conditions that may be overcome by later procedure steps (for example, one procedure section closes a valve that had been previously opened, and the next section (that you are going to perform next) opens the valve again) are **NOT** fulfilled by plant conditions. In this case, if the step has been evaluated to be appropriate **NOT** to be performed, then it should be NA'd per the NA process.

8.4.2.5 Sign off by reviewing completed OP or PT valve checklists, outstanding R&Rs, or in-progress PTs, as follows:

- A. For Initial Conditions or Prerequisite steps that require the system to be aligned per the system OP or the system valve checklist to be completed, the step can be signed off by either reviewing the checklist or outstanding R&Rs, unless **NOT** allowed by the procedure.
- B. Valve positions in OP or PT procedure body steps may be signed off by reviewing completed current OP or PT valve checklists or outstanding R&Rs only when the OP or PT states that this action is allowed.
 - 1. The person reviewing the valve position signs the original performer's initials (including original IV initials) in addition to their own.

- C. Valve checklists may be completed for full system alignment verification or main flowpath alignment verification, as described in Section 7 of OMP 2-3.

The OP checklists are written for the system in a Non-operating mode. **IF** a component is in a position other than the OP checklist, and the component has been placed in the alternate position by a controlling procedure (OP, PT, etc.) or by an outstanding R&R, the checklist should be completed by one of the following:

1. Leave blank until the component is restored to the OP checklist position,

OR

2. Document the procedure (OP, PT) or R&R number that is controlling its position, and initial the checklist.

- D. Components found out of the OP checklist position with no controlling procedure or R&R in effect, should be treated as mispositioned per Section 7 of OMP 2-3.

8.4.2.6 Transfer signatures, initials, and data from an in progress or completed procedure as follows:

A. The following requirements apply:

1. Signatures, initials, and data by any work group personnel (except QC Inspectors) may be transferred.
2. Signatures, initials, and data of QC Inspectors shall be transferred only by QC personnel.

B. Transfer shall be as follows:

1. Transfer signatures, initials, and data (as applicable) of individual who performed procedure step to new procedure.
2. Place an asterisk (*) by signatures, initials, and data transferred.
3. Initial, date, and add a notation to all applicable pages indicating that signatures, initials, and data (as applicable) have been transferred. (*JXD=John X Doe transferred initials from original procedure on [date].)

- C. It is acceptable to create a photocopy or fax of a contaminated procedure in lieu of actually transferring signatures, initials, and data.
- D. **IF** required action of step in new procedure has been changed, an individual shall **NOT** transfer initials/signature to a new procedure. The step shall be repeated.
- E. Place a note in Remarks section of cover sheet for new Working Copy stating that all initials have been transferred from an old Completed Working Copy.

8.5 Rules for when procedure steps may be marked NA: {PIR 2-M91-0106B}

8.5.1 Procedure steps may be marked NA and initialed without prior approval, when:

8.5.1.1 Steps are written as conditional (e.g., begin with "IF").

- A. **IF** the condition may be met later in the procedure (**WHEN**, **IF** at any time), leave the initial blank, and initial only after the condition is met or the procedure is being completed.

8.5.1.2 Steps are written to be performed as applicable, such as rounds or Technical Specification surveillance items in which equipment is **NOT** running or the plant is **NOT** in the applicable mode.

8.5.1.3 Specific instructions in the procedure indicate a test section, sequence of steps, or individual steps are to be marked NA when **NOT** used.

8.5.2 Steps in unused procedure sections **NOT** performed are **NOT** required to be marked NA.

8.5.3 Non-Conditional steps shall **NOT** be NA'd, unless approved.

8.5.4 Non-Conditional steps or sections determined to be NA and do **NOT** meet the criteria of Steps 8.5.1 - 8.5.2 shall be marked NA whether or **NOT** steps have placekeeping aids (signoffs or checkoffs).

- 8.5.5 To NA Non-Conditional procedure steps, the performer and supervisor shall perform the following:
- 8.5.5.1 For all non-conditional steps marked NA, which should have been identified in the pre-job brief, a supervisor must complete Attachment 9 (Procedure Use Worksheet) or equivalent, prior to using the procedure.
 - 8.5.5.2 No NAs will be allowed via phone unless approved by the OSM.
 - 8.5.5.3 The performer shall initial the step(s) marked NA.
 - 8.5.5.4 The performer shall ensure explanation clarifying the need for marking the step NA is documented within the procedure or on the procedure cover sheet.
 - 8.5.5.5 To approve, the supervisor (SRO or Test Team Supervisor) shall initial at the step(s) marked NA or on the procedure cover sheet, and ensure that the explanation is documented and appropriate.
 - 8.5.5.6 Any NAs **NOT** identified in the Pre-Job Brief shall also be documented on Attachment 9 (Procedure Use Worksheet).
 - 8.5.5.7 Forward Attachment 9 (Procedure Use Worksheet) to the OPS Support Manager.
- 8.5.6 To NA a consecutive group of steps, place a NA in the first step and last step, along with the performer's and supervisor's initials for non-conditional steps, and draw a vertical line through the remaining steps involved.
- 8.5.7 **WHEN** entire page(s) of a procedure are NA, it is **NOT** necessary to mark these pages and retain for documentation as long as the reason and supervisor approval for **NOT** using these pages are specified, either within the procedure or on the procedure cover sheet.

8.6 Rules for steps sequence

8.6.1 Do **NOT** deviate from the sequence of steps, unless approved.

8.6.1.1 Numbered steps shall be performed in the sequence written unless otherwise noted in the procedure.

8.6.1.2 Steps listed with bullets (•) may be performed in any order.

8.6.1.3 Checklists may be performed in any order unless otherwise stated in the checklist.

8.6.2 To perform steps out of sequence:

8.6.2.1 A supervisor and a licensed operator shall review the procedure to ensure the desired sequence will cause no adverse effects.

A. Any sequence deviations should be discussed in the Pre-Job Brief if known, and Attachment 9 (Procedure Use Worksheet) or equivalent, must be completed by the supervisor prior to using the procedure.

B. Deviation from the original intent of the procedure shall **NOT** be allowed without an approved procedure change.

8.6.2.2 Written guidance should be provided on the sequence deviation.

A. The intent is to ensure that the revised step sequence is performed as agreed upon, which is especially important if there is a time lag between agreement and performance.

B. This may be burdensome and unnecessary for sequence changes identified immediately before performance of the step(s).

C. Written guidance may be a handwritten note indicating the sequence change or a pen and ink change renumbering the steps, or any other method to indicate the change.

8.6.2.3 An explanation shall be documented within the procedure or on the procedure cover sheet and initialed by the licensed operator and the supervisor.

8.6.2.4 Any sequence deviations **NOT** identified in the Pre-Job Brief shall also be documented on Attachment 9 (Procedure Use Worksheet) or equivalent.

8.6.2.5 Forward Attachment 9 (or equivalent) to the OPS Support Manager.

8.7 Rules for Procedure Problems encountered during use:

8.7.1 Initiate procedure changes to correct procedural inadequacies as they are discovered.

8.7.1.1 Any inadequacy that could affect the successful completion or change the intent of the procedure shall have a procedure change approved prior to continuing.

8.7.1.2 Any minor inadequacy that does **NOT** impact the performance of the procedure shall be evaluated by a supervisor prior to proceeding.

8.7.2 **IF** a procedure problem meets the criteria of minor procedure change/revision as defined in NSD 703:

8.7.2.1 A procedure change does **NOT** need to be made before completion of the procedure.

8.7.2.2 **IF** a procedure change is **NOT** made prior to completion:

A. Correct the problem with a black pen.

B. Initial the correction.

C. Obtain an SRO's approval and initial.

D. Document the problem either in the procedure or on the cover sheet.

E. Initiate a procedure change.

8.7.3 **IF** a procedure problem does **NOT** meet the criteria of a minor procedure change/revision, the procedure step/section should be changed before completion of the procedure step/section.

- 8.8 Rules for when limits are exceeded:
- 8.8.1 **WHEN** performing surveillance test procedures to meet Technical Specifications or other regulatory requirements, the Control Room SRO and OSM shall be notified as soon as possible if the acceptance criteria are **NOT** met in order to determine operability and reportability.
 - 8.8.2 **IF** an administrative limit listed in a procedure is exceeded, the user shall note the exceeding of the limit in the Remarks section of the procedure cover sheet. The Control Room SRO and OSM shall be notified to evaluate the impact.
- 8.9 Rules for performing a surveillance PT that requires a channel check:
- 8.9.1 Use only operable channels/instruments when determining the average of the channels.
 - 8.9.2 Perform the required channel check using the operable channels/instruments.
 - 8.9.3 For any inoperable channels/instruments, note in the remarks section of the coversheet which operable channels/instruments were used in the comparison.
 - 8.9.4 Fill out a Procedure Discrepancies Process Record Sheet for the inoperable channel/instrument and attach it to the PT.
- 8.10 A component **CANNOT** be repositioned in a procedure when that position is contrary to an outstanding R&R without first clearing the component from the R&R or lifting the R&R tag for testing.
- 8.11 Rules for transition to another procedure
- 8.11.1 **IF** a procedure is **NOT** going to be completed prior to transitioning to another procedure, two OPS personnel (one being a shift SRO) must perform the following:
 - 8.11.1.1 Evaluate the impact that steps performed or **NOT** performed in the initial procedure have on the plant.
 - 8.11.1.2 Evaluate where to enter the second procedure.
 - 8.11.1.3 Ensure the second procedure will restore the plant to normal alignment {PIP M96-2558}.
 - 8.11.1.4 NA the steps in the initial and second procedure per Section 8.5.

9. Completion Of A Procedure

- 9.1 Complete the procedure
 - 9.1.1 For OPs that have sign off steps, the person completing or ensuring completion of the procedure should fill out the Date(s) Performed and Procedure Completion Verification sections of the Procedure Process Record or NEDL cover sheet.
 - 9.1.2 For PTs with discrepancies, the person completing or ensuring completion of the procedure should also fill out a Procedure Discrepancies Process Record.
- 9.2 Review the procedure
 - 9.2.1 For OPs, an OPS Supervisor shall review the completed procedure.
 - 9.2.1.1 For OPs that have sign off steps, the supervisor shall sign the Procedure Completion Approved on the Procedure Process Record or NEDL cover sheet.
 - 9.2.1.2 Control Copy procedures in satellite procedure locations that are in plastic sleeves do **NOT** need to be reviewed.
 - 9.2.2 For PTs without discrepancies, perform the following:
 - 9.2.2.1 An OPS Supervisor or the Test Team Supervisor shall review the completed procedure to ensure that each surveillance item met its specified acceptance criteria, sign the Procedure Completion Approved on the Procedure Process Record or NEDL cover sheet.
 - 9.2.2.2 The OPS Supervisor or Test Team Supervisor who reviewed the procedure shall ensure that the R041 screen is updated for the W/O associated with the PT. Ensure start and complete dates are correct.
 - 9.2.3 For PTs with discrepancies, perform the following:
 - 9.2.3.1 An OPS Supervisor shall review the Procedure Discrepancies Process Record to determine if any discrepancy is a deficiency, and that appropriate corrective action has been initiated.
 - 9.2.3.2 **IF** the discrepancy does **NOT** affect the PT Acceptance Criteria, note "No" for deficiency and ensure the generation of any needed Work Request. The PT and applicable W/O can be completed.

- 9.2.3.3 **IF** the discrepancy does affect the PT Acceptance Criteria, note "Yes" for deficiency and:
- A. Evaluate Tech Specs and make appropriate entries. At a minimum, the PT should be entered into TSAIL with the PT late date as the required time in TSAIL.
 - B. Note in the Remarks section that the associated PT must be completed before the TSAIL can be cleared.
 - C. OPS Supervisor or Test Team Supervisor who reviewed the procedure should ensure that the R041 screen is updated for the W/O associated with the PT. This will include documentation on the R121 screen what the deficiency is, any work requests that were initiated, and the late date for the PT. The W/O associated with the PT **SHOULD NOT** be made L/Complete.
 - D. Retain the procedure. PTs performed by OPS shift should be retained in the Work Control Center or in the Control Room. PTs performed by the OPS Test Team should be retained in the OPS Test Team area.

9.2.3.4 **IF** the deficiency prevents completion of the procedure:

- A. Check "Yes" for deficiency.
- B. Take appropriate action to correct the deficiency.
- C. Retain the procedure.

9.3 Retain the procedure

9.3.1 For OPs that have signoff steps, (does **NOT** apply to R&R procedures) perform the following:

9.3.1.1 The Shift Support Assistant shall send completed Working Copies of OPs to Master File via a transmittal.

9.3.1.2 In the case of Reactivity Balance Calculation OP, the completed Working Copy will be routed to the Reactor Group for review and transmittal to Master File.

9.3.2 For OPs that do **NOT** contain signoffs, the Working Copy may be discarded.

- 9.3.3 For R&Rs, the Shift Support Assistant shall file completed R&Rs in the Control Room by date cleared. The Shift Support Assistant shall route the R&Rs to Document Control for microfilming.
- 9.3.4 For OPS PTs, the Shift Support Assistant shall ensure the procedure coversheet was completed properly, and transmit the procedure to Master File.

10. Procedure Control

- 10.1 The control of Control Copies and Working Copies of approved procedures is described in Attachment 1 (Control of Approved Procedures).
- 10.2 The Procedure Hold process is described in Attachment 2 (Procedure Hold Process). **WHEN** circumstances indicate that a procedure (or enclosure) should **NOT** be used until a procedure change has been made or a procedure revision completed, and resources are **NOT** immediately available to make the needed changes, the procedure (or Enclosure) may be rendered temporarily unusable by placing it on Hold. This process should only be used when the use of the procedure (or enclosure) would result in a significant and undesired situation.
- 10.3 The periodic review of approved procedures is described in Attachment 3 (Periodic Review of Approved Procedures).
- 10.4 The process for performing a procedure change is described in Attachment 5 (OPS Perform Procedure Change Guidance).

11. Attachments

- 11.1 Attachment 1 (Control of Approved Procedures)
- 11.2 Attachment 2 (Procedure Hold Process)
- 11.3 Attachment 3 (Periodic Review of Approved Procedures)
- 11.4 Attachment 4 (Hold Cover Sheet)
- 11.5 Attachment 5 (OPS Perform Procedure Change Guidance)
- 11.6 Attachment 6 Deleted
- 11.7 Attachment 7 Deleted
- 11.8 Attachment 8 Deleted
- 11.9 Attachment 9 (Procedure Use Worksheet)
- 11.10 Attachment 10 (Definitions of Frequently Used Procedure Related Terms)

End of Body

1. Control Copy Procedures

- 1.1 Control Copies of OPS Periodic Test Procedures and Operating Procedures will be maintained in the Control Room. Control Copies of OPS Test Team Periodic Test Procedures on HOLD will be maintained in the Control Room.
- 1.2 Local Annunciator Response procedures may be kept at the local panel. The OPS Support Manager will authorize placing procedures at other local stations.
- 1.3 Control Copy procedures may be kept at satellite procedure locations. The OPS Support Manager will authorize placing procedures at satellite procedure locations. The Shift Support Assistant shall distribute changes to all satellite procedure files.
- 1.4 Control Copies of specific enclosures of procedures may be posted at various local work stations in the form of placards. These placards will indicate the procedure and enclosure number of which they are part. The OPS Support Manager will authorize placement of the placards at the local work stations.
- 1.5 Control Copies shall **NOT** be removed from their authorized area except for copying.
- 1.6 A Control Copy may be replaced by reproducing the remaining Control or Master File copy.
- 1.7 Restricted Changes should **NOT** be written in the Control Copy except for Annunciator Response procedures. At the location of where change would apply in Control Copy, write "See Restricted Change ####a", initial and date. (Where ####a would be correct revision number followed by change number.)

2. Working Copy Procedures

<p>NOTE: This section applies to working copies made from Control Copies and does <u>NOT</u> apply to copies from NEDL.</p>

- 2.1 Working Copies are made from the Control Copy or Master File copy.
- 2.2 Approved permanent changes shall be written into the Control Copy before the working copies are made.
- 2.3 **IF** the Control or Master File copy is used, those stamps will be blanked out prior to copying.
- 2.4 Working Copies shall be stamped Working Copy.

End of Attachment

1. Procedure Hold

- 1.1 **WHEN** circumstances indicate that a procedure (or enclosure) should **NOT** be used until a procedure change has been made or a procedure revision completed, and resources are **NOT** immediately available to make the needed changes, the procedure (or enclosure) may be rendered temporarily unusable by placing it on Hold. This process should only be used when the use of the procedure (or enclosure) would result in a significant and undesired situation.
- 1.2 There are three types of Procedure Hold as defined by NSD 703 (Administrative Instructions for Technical Procedures). "Admin Hold" is used to place the entire procedure on hold for an extended period. "Technical Hold" is used as a short term hold for sections or enclosures of the procedure. "Change Hold" is used to place the entire procedure on hold when manual changes have been implemented to an approved procedure. Refer to NSD 703 (Administrative Instructions for Technical Procedures) for further information.
- 1.3 Admin Hold is normally used for Periodic Tests and only very rarely for other types of procedures. Tech Spec 5.4 requires procedures for operating plant equipment. Placing an Operating Procedure (or Enclosure) on Admin Hold may violate this Tech Spec. Refer to Tech Spec 5.4 and any available Management guidance before placing any Operating Procedure on Admin Hold.
- 1.4 Change Hold
 - 1.4.1 A procedure is placed on Change Hold when there is a Major or Minor Change written against the procedure.
 - 1.4.2 For hand changes implemented by shift, an SRO will place the procedure on Change Hold in NEDL. Normally, the OPS Procedure Group performs this action.
 - 1.4.3 The procedure revision affected by change will remain on Change Hold.

1.5 Admin Hold

1.5.1 To place a procedure on Admin Hold:

1.5.1.1 Anyone may place a procedure on Admin Hold. However, the OPS Procedure Group should normally be contacted to take this action.

1.5.1.2 Perform the following for procedures at Satellite procedure locations:

A. OPS Support Manager shall be notified to correct Procedure Problem.

B. Enter a DocuTracks request to expeditiously reissue procedure.

1.5.1.3 Remove the Control Copy of the procedure being placed on Admin Hold from its normal place in the procedure files and move it to the Admin Hold file.

1.5.1.4 **IF** an Admin Hold file is **NOT** available, create one as follows:

A. Hang a file folder in the appropriate Unit procedure rack at the beginning (lowest procedure number) of the files.

B. Label this folder "Admin Hold".

1.5.1.5 Destroy all Working Copies of the procedure being placed on Admin Hold.

1.5.1.6 Place a copy of Attachment 4 (Hold Cover Sheet) in the Control Copy file, indicating the procedure is on Admin Hold and indicating it is in the Admin Hold file.

1.5.1.7 For hand changes implemented by shift, the SRO will place the procedure on Admin Hold in NEDL. Normally, the OPS Procedure Group performs this action.

1.5.1.8 Fill out and place Attachment 4 (Hold Cover Sheet) in the Control Copy folder in front of the procedure.

1.5.1.9 Add notes and memoranda to the Hold Cover Sheet detailing the problem and listing references.

1.5.1.10 Forward a copy of the Procedure Cover Sheet and Hold Cover Sheet to Master File for the Master Copy of the procedure and to the OPS Procedure Group.

- 1.5.1.11 The OPS Procedure Group will transition procedure to "Admin Hold" in NEDL.
- 1.5.1.12 The OPS Procedure Group shall ensure that arrangements are made to review/rewrite the procedure.
- 1.5.2 To remove a procedure from Admin Hold:
 - 1.5.2.1 The appropriate changes shall be made to the procedure.
 - 1.5.2.2 The procedure shall receive a complete review accomplished by issuing a new revision of the procedure.
 - 1.5.2.3 A memorandum should be attached to the copy of the procedure change, or revised procedure, being sent to the Master File to cancel the Admin Hold.
 - 1.5.2.4 After the procedure has been reissued, the Control Copy file shall be returned to its normal place in the procedure files.
- 1.6 Technical Hold
 - 1.6.1 To place a procedure (or Enclosure) on Technical Hold:
 - 1.6.1.1 Anyone may place a procedure on Tech Hold, however, the Procedure Group should normally be contacted to take this action.
 - 1.6.1.2 Perform the following for procedures at Satellite procedure locations:
 - A. **IF** Tech Hold affects Satellite procedure/enclosure, notify OPS Support Manager to correct procedure problem.
 - B. Enter a DocuTracks request to expeditiously reissue procedure.
 - 1.6.1.3 Remove the Control Copy of the procedure being placed on Technical Hold from its normal place in the procedure files and move it to the Technical Hold file.
 - 1.6.1.4 **IF** a Technical Hold file is **NOT** available, create one as follows:
 - A. Hang a file folder in the appropriate Unit procedure rack at the beginning (lowest procedure number) of the files.
 - B. Label this folder "Technical Hold".

Attachment 2
Procedure Hold Process

OMP 4-1
Page 4 of 4

- 1.6.1.5 Place a copy of Attachment 4 (Hold Cover Sheet) in the Control Copy file, indicating the procedure is on Technical Hold and indicating it is in the Technical Hold file.
- 1.6.1.6 For hand changes implemented by shift, the WCC SRO will place the procedure on Admin Hold in NEDL. Normally, the Operations Procedure Group performs this action.
- 1.6.1.7 Fill out and place Attachment 4 (Hold Cover Sheet) in the Control Copy folder in front of the procedure or enclosure.
- 1.6.1.8 Add notes and memoranda to the Hold Cover Sheet detailing the problem and listing references.
- 1.6.1.9 Forward a copy of the Procedure Cover Sheet and Hold Cover Sheet to Master File for the Master Copy of the procedure and to the OPS Procedure Group.
- 1.6.1.10 The OPS Procedure Group will ensure procedure is transitioned to "Tech Hold" in NEDL.
- 1.6.1.11 The OPS Procedure Group shall ensure that arrangements are made to review/rewrite the procedure.
- 1.6.1.12 A procedure (or enclosure) placed on Technical Hold may be used if the reason for the hold does **NOT** apply to the work activity. In this case, document on the Procedure Cover Sheet (in the Remarks section) the reason that you are using this procedure (or enclosure) that is on Technical Hold.
- 1.6.2 To remove a procedure from Technical Hold:
 - 1.6.2.1 The procedure shall receive an appropriate review which may or may **NOT** result in changing the procedure.
 - 1.6.2.2 A memorandum should be attached to the copy of the procedure change, or revised procedure, being sent to the Master File to cancel the Technical Hold.
 - 1.6.2.3 The Control Copy file shall be returned to its normal place in the procedure files.
 - 1.6.2.4 **IF** the current revision is acceptable, the OPS Procedure Group will remove the procedure from "Tech Hold" in NEDL.

End of Attachment

1. Periodic Review Of Approved Procedures

- 1.1 All approved OP and PT "A" procedures shall be reviewed per NSD 703 (Administrative Instructions for Technical Procedures) **NOT** to exceed 6 years.
- 1.2 All approved OP and PT "B" procedures shall be reviewed per NSD 703 (Administrative Instructions for Technical Procedures) **NOT** to exceed 6 years.
- 1.3 The reviews shall be scheduled and documented as a PT.

End of Attachment

WARNING!!! This Procedure # _____ Rev. # _____ is on
HOLD

Admin Hold: **DO NOT USE**

Technical Hold: Procedure may be used if the reason for Hold does **NOT** conflict with the activity being performed.

Reason for hold:

Placing On Hold:

The Person placing procedure on Tech or Admin Hold performs the following:

- 1. Remove the Control Copy of the procedure being placed on Hold (**Tech/Admin**) from its normal place in the procedure files and move it to the Hold (**Tech/Admin**) file.
- 2. **IF** OTG Procedures **NOT** on HOLD, print a copy from NEDL and stamp it Control Copy.
- 3. Place Hold Cover Sheet in the normal place where the procedure was removed if **NOT** an OTG procedure.
- 4. **IF** procedure does **NOT** have a file, create one per Attachment 2.
- 5. **IF** placing procedure on Admin Hold, destroy all Working Copies of the procedure.
- 6. Place Hold Cover Sheet on the front of Control Copy.
- 7. Forward a copy of the Procedure Cover Sheet and Hold Cover Sheet to:
 - Master File
 - OPS Procedure Group.
- 8. Transition procedure to (**Tech/Admin**) Hold in NEDL (SRO or Procedure writer).

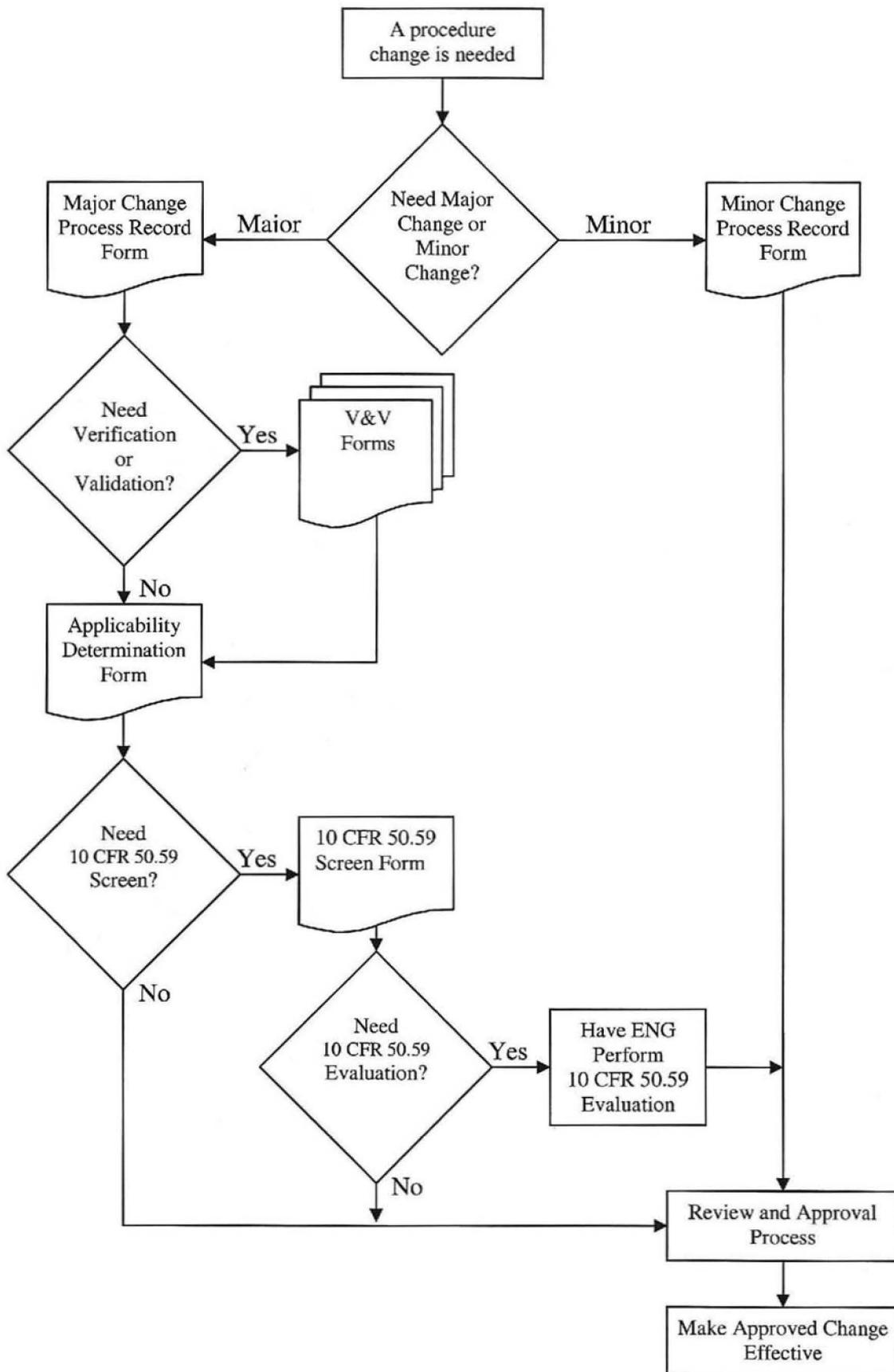
Initiated By: _____ Procedure Group Contact: _____ Date: _____

Removing from Hold:

The person removing procedure from Tech or Admin Hold performs the following:

- 1. The appropriate changes shall be made to the procedure.
- 2. The procedure shall receive an appropriate review.
- 3. Send memorandum to Master File to cancel the Tech/Admin Hold.
- 4. Control Copy file is returned to its normal place.
- 5. **IF** OTG Procedure, destroy Control Copy File (Copies are now printed from NEDL).
- 6. **IF** the current revision is acceptable (For Tech Hold only), the OPS Procedure Group will:
 - Remove the procedure from "Tech Hold" in NEDL.
 - Ensure title is correct.
 - In the notes attribute, annotate that procedure was on Tech Hold.

Attachment 5
OPS Perform Procedure Change Guidance



Use of Guidance

How do I use this guidance?

The Flowchart provides a visual representation of the overall process from preparing a change, through the review and approval process, and the eventual implementation of the change. If familiar with the procedure change process, a change can be fast tracked using mostly the Flowchart as a guide.

This document provides a text based guidance of the procedure change process. Combined with the Flowchart, this document can guide a user through the entire process.

Electronically this document provides hyperlinks to guidance, forms, and documents.

In a hard copy, this guidance can still be used with:

- NSD hard copies located in Control Room
- Forms from applicable NSD hard copies
- OMP hard copies located in Control Room

Change Needed?

A procedure change is needed...

Ask: **Is a procedure change needed to continue with the procedure?**

IF needed, refer to NSD 704 (Technical Procedure Use and Adherence) for guidance on when a procedure change is needed when problems are encountered during procedure use. Generally, **IF** the procedure discrepancy:

- Is an obvious typographical or editorial error, a procedure change does **NOT** have to be completed prior to completing the procedure. (NSD 704.7.10.3.A.1)
- Is **NOT** editorial, the performer and supervisor should evaluate the need for a procedure change. NA and out of sequence are processes available and may be an option as long as the intent of the procedure is NOT changed. (NSD 704.7.10.3.A.3)
- Affects the acceptance criteria of the procedure, the supervisor shall evaluate the need for a procedure change prior to completion of the procedure. NA and out of sequence are processes available and may be an option as long as the intent of the procedure is NOT changed. PIPs with operability determinations documented may be justification to complete procedure. (NSD 704.7.10.4.A)
- Affects the successful completion **OR** changes the intent of the procedure, a procedure change shall be approved prior to continuing. (NSD 704.7.10.4.B)

IF a procedure change is **NOT** needed to continue with the procedure, but a procedure change is still desired, submit a DocuTracks Request for the applicable procedure detailing the requested change.

IF any of the following apply, it is suggested that a member of the OPS Procedure Group be contacted to support the procedure change activity:

- Procedure needs a revision or an extensive change
- Procedure needs a Verification completed prior to change Approval per NSD 705 (Instructions For The Verification and Validation of Technical Procedures)

Major or Minor?

Need Major Change or Minor Change?

IF the procedure change does any of the following, perform a **Major** Change per NSD 703 (Administrative Instructions for Technical Procedures), Section 703.8:

- Delete or alter commitment related steps or information.
- Change the purpose or scope of the procedure.
- Change when the procedure may be performed (Unit Status).
- Change items that could alter the results or the way in which the procedure is performed unless there is an OBVIOUS typographical error (e.g., valve or equipment numbers, specifications, acceptance criteria).

IF the procedure change does **NOT** alter the intent of the procedure, perform a **Minor** Change per NSD 703 (Administrative Instructions for Technical Procedures), Section 703.7. See examples of Minor Changes in NSD 703 (Administrative Instructions for Technical Procedures), Step 703.4.6.

Enter data on the NSD 703 Appendix F (Procedure Change Process Record) Form.

Most procedure changes are PERMANENT, but if the change needs to be RESTRICTED (valid only for a specified period of time or duration of an event), include the Restricted information on the applicable Procedure Change Process Record Form. If necessary, refer to One Pager on **Expectations - Changes and Restricted Changes** for additional guidance on Restricted Changes.

IF adding component positioning with change, see OMP 8-3 (Electrical Breakers Requiring Independent Verification) or OMP 8-4 (Components Requiring Independent Verification).

The Preparer of a Procedure Change should type their name and date in the applicable Procedure Change Process Record Form (if used on-line), but they shall also **sign** their name in black ink.

Normally, the change will be written into the Control Copy during change implementation.

IF replacing entire page(s) for change:

- Obtain copy of pages to be changed from Control Copy and write in changes.
- Place change information (see below) in upper left corner of page(s), numbered sequentially with Procedure Change Process Record Form as Page 1. Leave other underlines blank until implementation. Format for change information should be as follows:

Revision # _____ Change # _____

Initials/Date _____ / _____

Page _____ of _____

The Procedure Change Process Record Form (and any attached pages) begins the Procedure Change Package.

Need V&V?

Need Verification or Validation?

Ask: **Is a Verification or Validation needed before the procedure change can be Approved?**

Verification and Validation (V&V) is a process in which procedures are analyzed to determine if they are properly written, technically correct, and can be performed effectively. Procedures may undergo the full V&V process or only part of the process depending on the scope of the change.

- Verification is the process of objectively analyzing a procedure to determine whether it is technically accurate (Technical Accuracy Verification) and written correctly (Procedure Writer's Manual Verification).
- Validation is the process of evaluating procedures to ensure they are usable and operationally correct.

IF a procedure has extensive changes, the procedure should be V&V'd. IF V&V is **NOT required, no V&V documentation needs to be completed.**

The need for V&V is determined by the Procedure Change Preparer. See NSD 705 (Instructions For The Verification and Validation of Technical Procedures) for additional guidance on when V&V is required.

Only current OPS Procedure Group members can perform Procedure Writer's Manual Verifications.

IF procedure to be changed is listed in OMP 4-9 (EP and AP Support Procedures), additional Validation requirements may be needed. See NSD 705 (Instructions For The Verification and Validation of Technical Procedures) for additional guidance on V&V of EP and AP Support Procedures.

V&V Forms:

NSD 705 Appendix A (Verification and Validation Documentation Sheet)

NSD 705 Appendix B (Procedure Writer's Manual Verification Checklist)

NSD 705 Appendix D (Validation Team Checklist)

NSD 705 Appendix E (Validation Checklist)

NSD 705 Appendix F (Verification and Validation Comment Resolution Sheet)

NSD 705 Appendix G (Step Timing Validation)

As applicable, obtain (if Appendix F refers to marked up copies, attach applicable marked up pages):

- **Verification** using NSD 705 Appendices A, B, and F
- **Validation** using NSD 705 Appendices A (should be same sheet as for Verification), D, E, F, and G (Appendix G only applicable to EP and AP Support Procedures)

Attach the completed V&V forms and documentation to the Procedure Change Package.

10 CFR 50.59 Screen?

Need 10 CFR 50.59 Screen?

A Major Change to a procedure requires an Applicability Determination per NSD 228 (Applicability Determination), regardless of whether a 10 CFR 50.59 Screen is also needed. The Applicability Determination form will indicate whether the 10 CFR 50.59 Screen is needed. Additionally, the Applicability Determination form will indicate if other actions are needed to support the procedure change.

IF a 10 CFR 50.59 Screen is needed, prepare, sign, and date the screen form. If additional guidance is needed, see NSD 209 (10 CFR 50.59 Process).

Note that a 10 CFR 50.59 Screen Preparer shall be listed on Qualified 50.59 Preparers List (list is maintained by MNS Regulatory Compliance).

IF the Applicability Determination indicates that other programs, processes, or documents need to be changed, take the actions necessary to process the change.

e.g., if procedure change involves Independent Spent Fuel Storage Facility (ISFSI), a 10 CFR 72.48 Screen is needed per NSD 211 (10 CFR 72.48 Process).

Forms:

NSD 228 Appendix C (Applicability Determination) Form

NSD 209 Appendix B (10 CFR 50.59 Screen) Form

IF change is a Major Change, attach the following to the Procedure Change Package:

- The completed Applicability Determination Form
- **IF** indicated by Applicability Determination Form, other documentation (e.g., 10 CFR 50.59 Screen, 10 CFR 72.48 Screen, etc.)

10 CFR 50.59 Eval?

Need 10 CFR 50.59 Evaluation?

IF the 10 CFR 50.59 Screen indicates that a 10 CFR 50.59 Evaluation is needed, contact the appropriate Engineering support to perform this activity.

Attach the 10 CFR 50.59 Evaluation Form and documentation to the Procedure Change Package.

Review / Approval

Review and Approval Process

Procedure Change Review(s)

Procedure Change Reviewers are required to be Qualified Reviewers (QRs) per NSD 703 (Administrative Instructions for Technical Procedures).

QRs shall be listed on Qualified Reviewers List (list is maintained by MNS Regulatory Compliance).

IF needed, NSD 703 (Administrative Instructions for Technical Procedures), Appendix M (Reviewer Considerations List) provides additional guidance for QR review.

The Procedure Change Reviewer shall determine if other procedure reviews are needed, such as:

- Cross-Disciplinary Review (a CDR shall be a QR)
- Reactivity Management Review (shall be a QR) - Major Change only
- Management Involvement Review (OPS Supt) - Major Change only
- Additional Reviewers (NOT required to be a QR)
- Qualified QA Reviewer (signs as Additional Reviewer)

The identified reviews shall be obtained prior to Approval of the procedure change. **If no CDRs are required, the Procedure Change Reviewer shall initial and date the NA blank(s)** on the Procedure Change Process Record Form.

The Procedure Change Reviewer shall:

- Sign and date **Reviewed By** on Procedure Change Process Record Form
- **IF** applicable, sign and date **Screen Reviewer** on 10 CFR 50.59 Screen Form

IF it is necessary to obtain a Review (or Approval) by telephone, the following criteria will apply:

- The person called for a Review (or Approval) will maintain full responsibility for ensuring the review or approval granted is adequate.
- The person calling shall document the Review (or Approval) on the Procedure Change Process Record Form by writing the name of the person called, signing their name and writing the date.

Procedure Change Approval

Procedure Change Approvers shall be listed on the Procedure Approvers List (list is maintained by MNS Regulatory Compliance). **IF** listed on the PA List, the On-Duty OSM can Approve a Major or Minor Change.

Procedure Approver shall sign and date **Approved By** on the Procedure Change Process Record Form.

Implement Change

Make Approved Change Effective

(The following is performed after the procedure change has been Approved.)

IF OTG Procedures to be placed on HOLD and a HOLD file does **NOT** exist in the Control Room, print copy from NEDL and Stamp Control Copy and place in the HOLD files.

IF procedure is **NOT** in CHANGE HOLD state in NEDL/Portal, have STA or WCC SRO place procedure on CHANGE HOLD in NEDL/Scribe.

Implement the change: (if available, SSA can perform implementation)

For **Restricted** Changes: (except some special cases, e.g., where change will apply for entire outage)

- For non-OTG procedures, in Control Copy, write "See Restricted Change # _____" at location of where change would apply in procedure and initial and date (where underline space is combination of applicable Rev#Chg#).
- For OTG procedures, in Control Copy, do **NOT** write anything.
- For OPS and OTG procedures, in Working Copy, do **NOT** write anything.

IF Permanent change is to be written in Control Copy:

- Write change in Control Copy.
- Indicate applicable Change # (Rev # plus next sequential alphabet character) beside written in change and initial and date.
- Make 1 copy of Control Copy page(s) changed. (If applicable, make additional copy for each Satellite procedure.)

Using Originals from Procedure Change Package, make copies and distribute as follows (ensure applicable Change # is written on Procedure Change Process Record Form, any attached pages, and if applicable, Applicability Determination and 10 CFR 50.59 screen):

- **IF** change is to be incorporated with page changeout, discard superseded page(s) from Control Copy procedure **AND** place copy of new change page(s) in Control Copy procedure.
- Place copy of Procedure Change Process Record Form (and attached new change pages, if any) in Control Copy folder (on right-hand side of Control Copy).
- **IF** Working Copy folder exists, replace copy of new change page(s) in Working Copy folder. (1 copy in Working Copy folder)
- **IF** applicable, make changes to any satellite procedure copies. (See list of Control Copies Located at Satellite Procedure Locations or PT/1/A/4700/011 (Auxiliary Plant Panels Document File Verification) or PT/2/A/4700/011.)

Post-Implementation:

Place entire Original Procedure Change Package on OPG Admin Support's desk (during normal work hours) or on SSA's desk (off normal work hours).

Submit a DocuTracks Request to reissue procedure to regain on-line printing availability.

End of Attachment

Attachment 6
Deleted (Rules of Use Flowchart Procedures)

OMP 4-1
Page 1 of 1

Deleted

Attachment 7
Deleted (First Time Usage Form)

OMP 4-1
Page 1 of 1

Deleted

Attachment 8
Deleted (First Time Usage Validation Form)

OMP 4-1
Page 1 of 1

Deleted

NOTE: This worksheet may be combined with other procedure use or evolution forms (pre-job brief, post-job brief, etc).

Note: Circle yes or no.

For non-conditional steps being NA'd:

IF the step is **NOT** performed or condition **NOT** met, will this change the intent of the procedure? Yes/No

Will the NA'd steps delete or alter commitment related information? Yes/No

For steps being performed out of sequence:

Will the deviation in step sequence change the intent of the procedure? Yes/No

- IF** any questions are answered 'Yes', a procedure change will be required.
- IF** 'No', explain 'why' in detail the NA or sequence deviation was required.

- Procedure # and Title: _____
- Procedure Enclosure #: _____
- Page/step Numbers(s): _____
- Name/Date: _____
- Route to OPS Support Manager.

End of Attachment

Attachment 10
Definitions of Frequently Used Procedure
Related Terms

OMP 4-1
Page 1 of 1

Check	Determine present status. (No action to position components should be taken.)
Ensure	Take necessary/appropriate actions to guarantee component, reading, etc. is as specified.
Evaluate	Appraise the situation. Implies technical knowledge. (Frequently used to clear items from TSAIL. "Evaluate" is used to ensure other items unrelated to this step are also considered.)
Go To	Proceed to and maintain where specified. In the case of procedures, discontinue use of present procedure and perform actions of cited procedure.
Hold	Maintain in a given position or condition. (Do NOT proceed until this condition is met.)
Refer To	Directs a user to another procedure, section, or enclosure for concurrent performance while remaining in the initial procedure.
Vent	<ol style="list-style-type: none">1. Process in which a valve is slowly opened and then closed to remove gases from a system, including removal and re-installing pipe caps. (OPEN and CLOSE, plus actions in OMP 13-4 "Pipe Caps".)2. Process in which a plug or cap is loosened or removed to drain or depressurize a system.
Verify	Observe that an expected condition exists. (Similar to Check, No Action.....)
When	Is used in procedures to describe a set of conditions, to sequence action steps contingent upon conditions, or to express complex combinations of conditions and actions. (This step remains in effect until condition is met. User may proceed to subsequent steps and return to this step when appropriate.)

End of Attachment

Reviewed By FB King

Approved By Charles Sawyer

TASK: **Determine Requirements for Work in a Radiation Area**

POSITION: **RO/SRO**

Operator's Name _____

Location: **Classroom**

Method: **Perform**

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature _____

Date / /

References: **RWP-**

JPM verified current with references by _____

Date / /

INITIAL CONDITIONS

Unit 1 is in Mode 3 following coming off line due to equipment problems. An RV containment penetration valve was rebuilt and its associated penetration is required to be tested. The U-1 BOP is attempting to complete an R&R to align the RV penetration for testing and needs to close a containment isolation valve from the C/R when the penetration has finished draining. The penetration is located in the U-1 Midget Hole area and a NLO needs to be dispatched to verify draining is complete. Upon checking with RP, the RWP needed to be used is RWP 1064 as a G worker. Using RWP 1064 determine the requirements of this RWP for entry into the U-1 Midget Hole area in order to properly brief the NLO assigned for this task

JPM OVERALL STANDARD: Operator determines proper dress requirements, dosimetry requirements, respiratory requirements, Dose Alarm set point. Dose Rate alarm set point, RWP reevaluation criteria and overhead entry criteria.

NOTES: Operator will be provided with a copy of RWP #1064
Along with a list of "RWP Dress Category Codes.

START TIME _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1		<div style="border: 1px solid black; padding: 5px;"> <p>Cue: Determine the required protective clothing necessary to perform work under this RWP.</p> </div>		
*2	Determine the required protective clothing necessary to perform work under RWP # 1064	<p>Operator determines the following protective clothing required:</p> <p>Cloth Hood, disposable coveralls, cotton and rubber gloves, booties and shoe covers. Secure gloves and booties with tape, elastic, or Velcro straps.</p> <div style="border: 1px solid black; padding: 5px;"> <p>Cue: Determine if any special dosimetry or respiratory requirements apply.</p> </div>		
*3	Determine if any special dosimetry or respiratory requirements apply using RWP # 1064	Operator determines that there are no special dosimetry or respiratory requirements.		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
		<div style="border: 1px solid black; padding: 5px;"> <p>Cue: Determine the Dose Alarm set point and the Dose Rate alarm set point in effect for this RWP</p> </div>		
*4	<p>Determine the Dose Alarm set point and the Dose Rate alarm set point in effect for this RWP.</p>	<p>Operator determines the following set points: Dose Alarm: <u>50 MREM</u></p> <p>Dose Rate Alarm: <u>100 MREM/HR</u></p> <div style="border: 1px solid black; padding: 5px;"> <p>Cue: With no RP coverage how would an Extra High radiation area in the Midget Hole be designated.</p> </div>		
5	<p>Operator determines from General Plant Access knowledge that the area will be ether locked or designated with a flashing light.</p>	<p>In this area, the Extra High Radiation area would be designed by a <u>Yellow Flashing Light</u></p> <p>If entry into the designated area would be required, continuous RP coverage would be required.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
		<div style="border: 1px solid black; padding: 5px;"> <p>Cue: While moving through the area one of the operators receives a "Dose Rate" alarm. What would be the correct action to be taken by the operator?</p> </div>		
6	Operator should determine the proper course of action based on general knowledge from Radiation Worker Training	<p><u>Operator should move away from the radiation source. If alarms stops then continue work, if not, exit the area and contact RP.</u></p>		

STOP TIME _____

INITIAL CONDITIONS

Unit 1 is in Mode 3 following coming off line due to equipment problems. An RV containment penetration valve was rebuilt and its associated penetration is required to be tested. The U-1 BOP is attempting to complete an R&R to align the RV penetration for testing and needs to close a containment isolation valve from the C/R when the penetration has finished draining. The penetration is located in the U-1 Midget Hole area and a NLO needs to be dispatched to verify draining is complete. Upon checking with RP, the RWP needing to be used is RWP 1064 as a G worker. Using RWP 1064 determine the requirements of this RWP for entry into the U-1 Midget Hole area in order to properly brief the NLO assigned for this task

***** Important - Please Read! *****

Verify the RWP Revision number on this page with the RWP displayed on EDC or the posted hard copy at the EDC Access Station

McGuire Nuclear Station

Radiation Work Permit #: 1064

Revision #:9

Job Description: UNIT-1 AUX. & REACTOR BLDGS. ALL WORK ASSOCIATED WITH FORCED OUTAGE

ED(MG) Set Points

Dose Alarm: 50 mrem -->**Dose Rate Alarm: 100 mrem/hr**

Dress Category	Task Description	Special Dosimetry	Respiratory Requirements
A	PERSONNEL WORKING IN CLEAN AREAS	NONE	NONE USED
D	WORKER WALKING UNOBSTRUCTED IN DRY CONTAMINATED AREA FOR SHORT DURATION.	NONE	NONE USED
E	WORK ASSOCIATED WITH A CONTAMINATED SYS AND/OR CONTAMINATED/RAD MATL WHERE POTENTIAL FOR PERSONNEL CONTAMINATION IS LOW.	NONE	NONE USED
G	WORKER IN DRY CONTAMINATED AREA TO PERFORM LIGHT WORK.	NONE	NONE USED
H	WORKER IN DRY CONTAMINATED AREA.	NONE	FULL FACE PART (ADD HOOD)
K	WORKER IN CONTAMINATED AREA WHERE ADDITIONAL CONTAMINATION CONTROLS ARE REQUIRED OR HOT PARTICLES EXIST.	NONE	FULL FACE PART (ADD HOOD)
M	WORKER IN DRY CONTAMINATED AREA WHERE HEAVY WORK IS PERFORMED AND ADDITIONAL CONTROLS ARE NEEDED-RP APPROVAL REQ.	NONE	FULL FACE PART (ADD HOOD)
N	WORKER IN WET AREA (BOTTOMS ONLY WHEN CONCERNS ARE BELOW THE WAIST).	NONE	FULL FACE PART (ADD HOOD)

Comments/Special Inst

Comments:

EXPECTED RADIOLOGICAL CONDITIONS:

HIGHEST EXPECTED CONTACT DOSE RATES: .1 MREM/HR - 5000 MREM/HR

EXPECTED GENERAL AREA DOSE RATES: <.1 MREM/HR - 5000 MREM/HR

EXPECTED CONTAMINATION LEVELS: <1K TO 50MRAD/HR

RP JOB COVERAGE REQUIREMENTS:

CONTINUOUS COVERAGE IN EXTRA HIGH RADIATION AREAS

START OF JOB/INTERMITTENT OR NO COVERAGE FOR HIGH RADIATION AREAS OR LESS

*

AN AUXILIARY ED IS REQUIRED IN AREAS WHERE GENERAL AREA DOSE RATES ARE >5 MREM/HR IF ANY OF THE FOLLOWING CONDITIONS EXIST:

1. HIGH NOISE LEVEL IN THE WORK AREA
2. USE OF HEADPHONES
3. HEARING IMPAIRMENT
4. ANY OTHER CONDITION THAT WOULD IMPAIR HEARING THE ED ALARM

ALL TOOLS AND EQUIPMENT SHOULD BE WIPED DOWN AND SURVEYED PRIOR TO REMOVAL FROM A CONTAMINATED AREA.

FACE SHIELD MAY BE REQUIRED BY RP TO PREVENT FACIAL CONTAMINATION.

MONITOR ED EVERY 15 MINUTES

*

ADDITIONAL COMMENTS & NOTES ON NEXT PAGE

RESPIRATORY REQUIREMENTS WILL BE BASED ON TEDE/ALARA EVALUATION

MAXIMUM STAY TIME ON THIS RWP IS 16 HOURS

RWP Dress Category Codes

NOTE: Orex™ garments can be substituted for disposable or cloth garments at RP discretion.

Dress Category	Protective Clothing
A	None.
B	Surgical gloves.
C	Cotton and rubber gloves.
D	Cotton and rubber gloves, booties and shoe covers.
E	Lab coat, cotton and rubber or surgical gloves.
F	Lab coat, cotton and rubber gloves, booties and shoe covers.
G	Cloth hood, disposable coveralls, cotton and rubber gloves, booties, and shoe covers. Secure gloves and booties with tape, elastic, or Velcro straps.
H	Cloth hood, cloth coveralls, cotton and rubber gloves, booties, and shoe covers, no personal outer clothing. Secure gloves and booties with tape, elastic, or Velcro straps.
I	Cloth hood, cloth coveralls, cotton gloves, 2 pair rubber gloves, booties shoe covers, no personal outer clothing. Secure gloves and booties with tape, elastic, or Velcro straps.
J	Cloth hood, cloth coveralls, cotton gloves, 2 pair rubber gloves, 2 pair booties, 2 pair shoe covers, no personal outer clothing. Secure gloves and booties with tape, elastic, or Velcro straps.
K	Cloth hood, cloth coveralls, disposable coveralls, cotton and rubber gloves, booties, shoe covers, no personal outer clothing. Secure gloves and booties with tape, elastic or Velcro straps.
L	Cloth hood, cloth coveralls, disposable coveralls, cotton gloves, 2 pair rubber gloves, 2 pair booties, 2 pair shoe covers, no personal outer clothing. Secure gloves and booties with tape, elastic, or Velcro straps..
M	Cloth hood, 2 pair cloth coveralls, cotton gloves, 2 pair rubber gloves, 2 pair booties, shoe covers, no personal outer clothing. Secure gloves and booties with tape, elastic, or Velcro straps.
N	Cloth hood, cloth coveralls, wetsuit, cotton gloves, 2 pair rubber gloves, booties, shoe covers, no personal outer clothing. Secure gloves and booties with tape, elastic, or Velcro straps.
O	Cloth hood, cloth coveralls, bubble suit, cotton gloves, 2 pair rubber gloves, booties, shoe covers, no personal outer clothing and additional shoe covers or jump boots. Secure gloves and booties with tape, elastic, or Velcro straps.
Z	Special dress

Contact CSPOC for problems with this RM&C Display RWP Page.

Prepared By: L.P. Bluff

Reviewed By: Charles Sawyer

Approved By: Chris B. Hall

TASK: **Start the Hydrogen Recombiner**

POSITION: **NLO**

Operator's Name _____

Location: **Plant**

Method: **Walkthrough**

Estimated JPM Completion Time: 10 Minutes

Actual JPM Completion Time: Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature _____ Date / /

References: EP/1/A/5000/G-1
Unit 1 Data Book

Generic Enclosures
Curve 1.8

JPM verified current with references by _____

Date / /

INITIAL CONDITIONS

- You are the Unit 1 Turbine Building Rounds person.
- A LOCA has occurred on Unit 1 and EP/1/A/5000/E-1 (Loss of Reactor or Secondary Coolant) has been implemented. The procedure is complete through Subsequent Step 12.d.
- **The C/R SRO dispatches you to place the 1A Hydrogen Recombiner in service per EP/1/A/5000/G-1 (Generic Enclosures), Enclosure 4 (Placing H₂ Recombiners in Service).**
- **Another operator will place 1B Hydrogen Recombiner in service.**
- **Containment Pressure is 5.25 PSIG.**

JPM OVERALL STANDARD: 1A Hydrogen Recombiner is started and loaded to the appropriate KW value (50 +/- 2 KW) in accordance with EP/1/A/5000/G-1, Enclosure 4.

NOTES: Evaluator shall provide EP/1/A/5000/G-1, Enclosure 4, Unit 1 Data Book curve 1.8 and a calculator upon request.

KA 028 000 A4.01 4.0/4.0

TASK:MO-4018

START TIME _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	<p>Select one train of H2 Recombiner to be placed in service:</p> <ul style="list-style-type: none"> • To start 1A H2 Recombiner, <u>GO TO</u> Step 2. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • To start 1B H2 Recombiner, <u>GO TO</u> Step 5. 	<p>Operator proceeds to Step 2 to start 1A H2 Recombiner, per JPM initial conditions</p>		
2	<p>Determine 1A H2 Recombiner power setting as follows:</p> <p>Determine "PRESSURE FACTOR CP" from Data Book Curve 1.8.</p>	<p><u>Note to examiner:</u> Evaluator should provide Data Book curve 1.8 upon request.</p> <p>Operator uses curve 1.8 to determine the CP for "A" and "B" Recombiner to be <u>1.4</u></p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2	<p>Continued</p> <p>Multiply "1A REFERENCE POWER" listed on Data Book Curve 1.8 by "PRESSURE FACTOR, CP" to determine 1A Hydrogen Recombiner Power Setting</p> <p>1A: "<u>1A REFERENCE POWER</u>" X "<u>PRESSURE FACTOR, CP</u>" = <u>1A Power Setting</u></p> <p>Record "1A POWER SETTING"</p>	<p>Operator determines the power setting for "A" Recombiner to be <u>50 +/- 2 KW.</u></p> <p>(POWER SETTING for 1A = 35.670 X 1.4 = 49.94)</p> <p>Value calculated from step above is recorded.</p> <p><u>49.94 (round to 50)</u></p>		

*

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3	<p>At "1A ELECTRICAL HYDROGEN RECOMBINER CONTROL PANEL: (MG set room, BB-51), place 1A Hydrogen Recombiner in service as follows:</p> <p>Check "POWER AVAILABLE" light - ON</p> <p>Check "POWER OUT SWITCH" position - OFF</p> <p>Ensure "POWER ADJUST" is set to zero (000)</p> <p>Place "POWER OUT SWITCH" in the "ON" position</p> <p>Check the "POWER OUT SWITCH" red light - ON</p>	<p>SAME</p> <p>Cue: Light is illuminated</p> <p>Cue: Switch is in the down position</p> <p>Operator simulates adjusting control knob to (000) after receiving the following cue.</p> <p>Cue: "POWER ADJUST" dial indicates 20 KW</p> <p>Cue: Control Knob rotated counterclockwise and dial indicates 000</p> <p>Cue: Switch is moved up</p> <p>Cue: Red light is illuminated</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3	<p>CONTINUED</p> <p>Turn "POWER ADJUST" dial until 5 KW is obtained on the "POWER OUT" meter</p> <p>Hold this setting for 10 minutes</p> <p>Turn "POWER ADJUST" dial until 10 KW is obtained on the "POWER OUT" meter</p> <p>Hold this setting for 10 minutes</p> <p>Turn "POWER ADJUST" dial until 20 KW is obtained on the "POWER OUT" meter</p> <p>Hold this setting for 5 minutes</p>	<p>Cue: Control knob rotated clockwise and meter indicates 5 KW</p> <p>Cue: 10 minutes have elapsed</p> <p>Cue: Control knob rotated clockwise and meter indicates 10KW</p> <p>Cue: 10 minutes have elapsed</p> <p>Cue: Control knob rotated clockwise and meter indicates 20KW</p> <p>Cue: 5 minutes have elapsed</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3 *	<p>CONTINUED</p> <p>Turn "POWER ADJUST" dial until the 1A power setting recorded in Step 2.c is obtained on the "POWER OUT" meter</p>	<p>Note to examiner: "Power Adjust" dial should be adjusted until Power Out meter reads 50 +/- 2 KW in order to successfully complete this critical step.</p> <p>A calculation error in JPM step #2 could result in an overall JPM failure here.</p> <p>Cue:</p> <p>Control knob rotated clockwise and meter indication is at value recorded in step 2.c</p>		
4	<p><u>GO TO</u> Step 7.</p>	<p>Same</p>		
5	<p><u>WHEN</u> TSC activated, <u>THEN</u> notify TSC to perform the following....</p>	<p>Cue:</p> <p>Another operator will continue in this procedure and notify the TSC when it is activated.</p>		

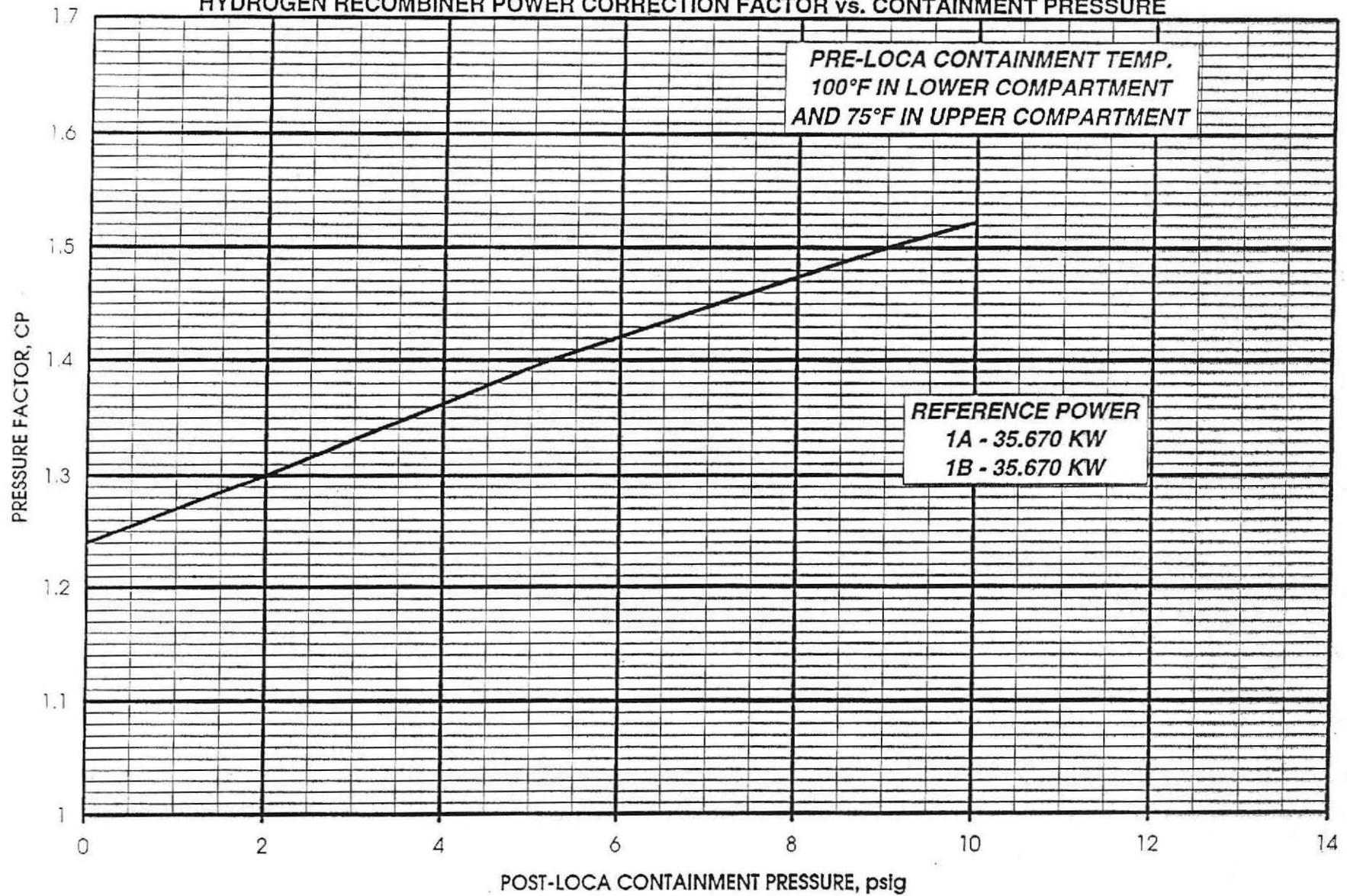
STOP TIME _____

* DENOTES CRITICAL

UNIT 1

OP/1/A/6100/22
ENCLOSURE 4.3
CURVE 1.8

HYDROGEN RECOMBINER POWER CORRECTION FACTOR vs. CONTAINMENT PRESSURE



UNIT 1

INITIAL CONDITIONS

- You are the Unit 1 Turbine Building Rounds person.
- A LOCA has occurred on Unit 1 and EP/1/A/5000/E-1 (Loss of Reactor or Secondary Coolant) has been implemented. The procedure is complete through Subsequent Step 12.d.
- **The C/R SRO dispatches you to place the 1A Hydrogen Recombiner in service per EP/1/A/5000/G-1 (Generic Enclosures), Enclosure 4 (Placing H₂ Recombiners in Service).**
- **Another operator will place 1B Hydrogen Recombiner in service.**
- **Containment Pressure is 5.25 PSIG.**

Prepared By: L. P. B. Belt

Reviewed By: Charles Sawyer

Approved By: Steve B. King

TASK: **Start and Stop # 2 Turbine Driven CA Pump**

POSITION: **RO/SRO**

Operator's Name _____

Location: **Plant**

Method: **Walkthrough**

Estimated JPM Completion Time: 20 Minutes

Actual JPM Completion Time: _____ Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature _____ Date / /

References: OP/2/A/6250/002

Auxiliary Feedwater System

JPM verified current with references by _____

Date / /

Rev. 00 / 11-7-06

INITIAL CONDITIONS

Unit 2 is at 100% power when the OAC alarm M2A1276 (U2 CA Temp at Chk Vlv 2CA-37) is received. The RO reports that the temperature in the TD CA Pump discharge to "D" S/G is 223°F. The SRO has determined the #2 TD CA Pump should be started to cool the piping.

The SRO directs you to locally start Unit 2 TDCAP per OP/2/A/6250/002, Enclosure 4.4. The Initial Conditions have been met and all R&Rs have been evaluated.

JPM OVERALL STANDARD: #2 TD CA Pump started and valves aligned to provide cooling.
#2 TD CA Pump secured and ready to be placed in Standby Readiness.

NOTES:

KA: 061 A2.04 (3.4/3.8)

TASK:

START TIME _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	Evaluate all outstanding R&Rs that may impact performance of this procedure.	Determines from the JPM Initial Conditions that all R&Rs have been evaluated.		
2	Ensure that a pre-job briefing has been performed that includes discussion of reactivity management concerns with this procedure.	Same. CUE: SRO Sam Smith has performed the pre-job brief.		
3	IF #2 TD CA Pump to be operated locally, obtain key #172.	Operator should go to the Work Control Center to obtain a key, or will describe where to obtain the key. Then provide the following cue: CUE: Key 172 has been obtained.		
4	Perform the following sections as applicable: <ul style="list-style-type: none"> • Section 3.5, Starting #2 TD CA Pump. • Section 3.6, Stopping #2 TD CA Pump. 	Same. Operator proceeds to Section 3.5 N/A		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
5	<p>Starting #2 TD CA Pump</p> <p>Notify RP of #2 TD CA Pump start.</p>	<p>Operator documents the current date & time. Provide the following cue:</p> <p>CUE:</p> <p>John Frazier of RP has been contacted.</p>		
6	<p>IF in Modes 1-3, declare #2 TD CA Pump inoperable.</p>	<p>Operator calls the CR or WCC to inform the SRO of TD CA Pump inoperability.</p> <p>CUE:</p> <p>SRO Don Jones has been notified.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
7	<p>IF operating #2 TD CA Pump locally, perform the following at "Turbine Driven CA Pump Control Panel":</p> <ul style="list-style-type: none"> • Place "#2 TD CA Pump" in "LOCAL". • Place the following in "M-Local": <ul style="list-style-type: none"> ○ 2CA-64 (TD CA Pump to S/G A) ○ 2CA-52 (TD CA Pump to S/G B) ○ 2CA-48 (TD CA Pump to S/G C) ○ 2CA-36 (TD CA Pump to S/G D) 	<p>Same.</p> <p>CUE: Switch rotated clockwise. "LOCAL" light lit.</p> <p>Same.</p> <p>Provide the following cue for each manual loader:</p> <p>CUE: Switch moved to the down position.</p>		
* 8	<p>Close the following:</p> <ul style="list-style-type: none"> • 2CA-64 (TD CA Pump to S/G A) • 2CA-52 (TD CA Pump to S/G B) • 2CA-48 (TD CA Pump to S/G C) • 2CA-36 (TD CA Pump to S/G D) 	<p>Same.</p> <p>Provide the following cue for each valve:</p> <p>CUE: Control knob rotated counterclockwise. Needle indicates at 0%. Green light lit.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
* 9	<p>Drain moisture from #2 CA Pump Turbine stop valve as follows:</p> <p>Slowly open the following:</p> <ul style="list-style-type: none"> • 2SA-39 (Unit 2 TD CA Pump Turb Stop Valve Above Seat Drn) • 2SA-40 (Unit 2 TD CA Pump Turb Stop Valve Below Seat Drn) <p>WHEN 30 seconds have elapsed, close the following:</p> <ul style="list-style-type: none"> • 2SA-39 (Unit 2 TD CA Pump Turb Stop Valve Above Seat Drn) • 2SA-40 (Unit 2 TD CA Pump Turb Stop Valve Below Seat Drn) 	<p>Same.</p> <p>CUE: Handle turned counterclockwise.</p> <p>CUE: Handle turned counterclockwise</p> <p>Same.</p> <p>CUE: 30 seconds have elapsed.</p> <p>CUE: Handle rotated clockwise.</p> <p>CUE: Handle rotated clockwise.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
9	<p>Continued</p> <p>IF water hammer occurred while draining moisture from #2 CA Pump Turbine Stop Valve, notify System Engineer.</p>	<p>N/A</p> <p>CUE:</p> <p>Water hammer did not occur.</p>		
10	<p>Check the following open:</p> <ul style="list-style-type: none"> • 2CA-2 (Unit 2 CA Pumps Suct From CA Storage Tank Isol) • 2CA-7A (Unit 2 TD CA Pump Suction Isol) 	<p>Same.</p> <p>CUE:</p> <p>Red light lit.</p> <p>CUE:</p> <p>Red light lit.</p>		
11	<p>Start #2 TD CA Pump per Step 3.5.7.1 or 3.5.7.2 (N/A step NOT performed)</p>	<p>Operator proceeds to step 3.5.7.1 after receiving the following cue:</p> <p>CUE:</p> <p>A normal start is desired.</p>		
12	<p>IF normal start desired, perform the following:</p> <ul style="list-style-type: none"> * Place "#2 TD CA Pump" in "START". 	<p>Same.</p> <p>CUE:</p> <p>Switch rotated clockwise.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
12	<p>Continued</p> <ul style="list-style-type: none"> • Check the following open: <ul style="list-style-type: none"> ○ 2SA-48ABC (2C S/G SM Supply to Unit 2 TD CA Pump Turb Isol) ○ 2SA-49AB (2B S/G SM Supply to Unit 2 TD CA Pump Turb Isol) • Check recirc valve opens by "FLOW" lit. • IF operating CA Pump to cool piping, allow pump to run for at least 10 minutes 	<p>Same.</p> <p>CUE: Red light is lit.</p> <p>CUE: Red light is lit.</p> <p>CUE: Red light is lit.</p> <p>Same.</p>		
13	<p>IF slow start desired, perform the following:</p>	N/A		
14	<p>IF desired to feed 2A S/G, perform the following:</p> <p>IF desired to feed 2B S/G, perform the following:</p>	<p>N/A</p> <p>N/A</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
14	<p>Continued</p> <p>IF desired to feed 2C S/G, perform the following:</p> <p>IF desired to feed 2D S/G, perform the following:</p> <ul style="list-style-type: none"> • Check M2A1276 (U2 CA Temp At Chk Vlv 2CA-37) < 280 °F • Ensure 2CA-38B (TD CA Pump to S/G D Isol) open. • Maintain desired level in 2D S/G using 2CA-36 (TD CA Pump to S/G D) 	<p>N/A</p> <p>Same.</p> <p>CUE: Temperature is 224 °F</p> <p>CUE: Red light lit.</p> <p>Operator throttles 2CA-36 after receiving the following cue:</p> <p>CUE: The SRO directs you to maintain 50 gpm flow to "D" S/G.</p> <p>CUE: 2CA-36 throttled. 50 gpm flow to "D" S/G.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
15	<p>IF #2 TD CA Pump will be feeding S/Gs for greater than 2 hours, perform EP/2/A/5000/G-1 (Generic Enclosures), Enclosure 21 (CA Storage Tank (Water Tower) Makeup)</p>	Operator N/As this step.		
16	<p>Stopping #2 TD CA Pump</p> <p>IF stopping pump following EP/AP, check "TURB" depressed on the following:</p> <ul style="list-style-type: none"> • CA Modulating Valves Reset Train A • CA Modulating Valves Reset Train B 	<p>Operator continues with this step after receiving the following cue:</p> <p>CUE:</p> <p>10 minutes have elapsed. The CA piping has cooled and the SRO directs you to shut down the TD CA Pump.</p> <p>N/A</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
17	<p>IF operating #2 TD CA Pump locally, perform the following at "Turbine Driven CA Pump Control Panel":</p> <ul style="list-style-type: none"> • Ensure "#2 TD CA Pump" in "LOCAL". • Ensure the following in "M-Local": <ul style="list-style-type: none"> ○ 2CA-64 (TD CA Pump to S/G A) ○ 2CA-52 (TD CA Pump to S/G B) ○ 2CA-48 (TD CA Pump to S/G C) ○ 2CA-36 (TD CA Pump to S/G D) 	<p>Same. Cue if needed: CUE: Switch is still in local.</p> <p>Same. Provide the following cue for each valve: CUE: Switch is in the down position.</p>		
18	<p>Ensure the following closed:</p> <ul style="list-style-type: none"> • 2CA-64AB (TD CA Pump to S/G A) • 2CA-52AB (TD CA Pump to S/G B) • 2CA-48AB (TD CA Pump to S/G C) * 2CA-36AB (TD CA Pump to S/G D) 	<p>Operator closes 2CA-36AB after receiving the following cue: CUE: 2CA-36B is 10% open. The other three valves are closed.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
19	Ensure "RESET" lit on "TD CA Pump Auto Start Reset".	Operator calls the Control to ensure the "RESET" lit. CUE: "Reset" light is lit.		
* 20	Place "#2 TD CA Pump" in "STOP".	Same. CUE: Switch rotated counterclockwise.		
21	Check the following closed: <ul style="list-style-type: none">• 2SA-48ABC (2C S/G SM Supply to Unit 2 TD CA Pump Turb Isol)• 2SA-49AB (2B S/G SM Supply to Unit 2 TD CA Pump Turb Isol)	Same. CUE: Green light lit. CUE: Green light lit.		
22	IF operating #2 TD CA Pump for troubleshooting with CA NOT aligned for standby readiness, exit this procedure.	N/A		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
23	Ensure "TURB" released on the following: CA Modulating Valves Reset Train A CA Modulating Valves Reset Train B	Operator calls the Control Room to ensure the Modulating Valves Reset pushbuttons have been released. CUE: "TURB" is released on Modulating Valves Resets.		
24	Monitor #2 TD CA Pump suction pressure.	Same. CUE: Suction pressure is 60 psig and stable.		
* 25	Slowly open the following one at a time: <ul style="list-style-type: none"> • 2CA-64 (TD CA Pump to S/G A) • 2CA-52 (TD CA Pump to S/G B) • 2CA-48 (TD CA Pump to S/G C) • 2CA-36 (TD CA Pump to S/G D) 	Same. Provide the following cue for each valve: CUE: Controller knob rotated clockwise. Needle indicates 100%		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
26	IF suction pressure increases indicating check valve leakage, perform the following:	The operator N/As this step after receiving the following cue: CUE: Suction pressure is 60 psig and stable.		
27	Check the following stable: <ul style="list-style-type: none"> • S/G A – M2A1439 (U2 CA Temp at Chk Vlv 2CA-65) • S/G B – M2A1421 (U2 CA Temp at Chk Vlv 2CA-53) • S/G C – M2A1294 (U2 CA Temp at Chk Vlv 2CA-49) • S/G D – M2A1276 (U2 CA Temp at Chk Vlv 2CA-37) 	Operator calls the Control Room to obtain temperatures. CUE: All 4 temperatures are stable.		
28	IF increasing temperatures indicates check valve leak-by, notify System Engineer.	Same. CUE: Another operator will call the System Engineer if needed.		
29	IF temperature approaching 280 °F while aligned to CA Storage Tank, perform the following:	N/A CUE: Temperature is stable at 120 °F.		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
30	Perform Enclosure 4.1 (Alignment for Standby Readiness)	CUE: Another operator will perform Enclosure 4.1 and complete this task.		

STOP TIME _____

* DENOTES CRITICAL

INITIAL CONDITIONS

Unit 2 is at 100% power when the OAC alarm M2A1276 (U2 CA Temp at Chk Vlv 2CA-37) is received. The RO reports that the temperature in the TD CA Pump discharge to "D" S/G is 223°F. The SRO has determined the #2 TD CA Pump should be started to cool the piping.

The SRO directs you to locally start Unit 2 TDCAP per OP/2/A/6250/002, Enclosure 4.4. The Initial Conditions have been met and all R&Rs have been evaluated.

Prepared By: L. P. Schlyt

Reviewed By: Charles Sawyer

Approved By: Tom B. [Signature]

TASK: **Restore Normal Power to 1ETA and Shutdown D/G 1A**

POSITION: **NLO**

Operator's Name _____

Location: **Plant/DG Simulator**

Method: **Walkthrough/ Perform**

Estimated JPM Completion Time: 15 Minutes

Actual JPM Completion Time: _____ Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature _____

Date / /

References: OP/1/A/6350/002

Diesel Generator

JPM verified current with references by _____

Date / /

Rev. 06 /11-15-06

INITIAL CONDITIONS

- Unit 1 is recovering from a loss of power to 1ETA due to an inadvertent Normal breaker trip.
- Power has been restored to 1ETA from 1A D/G per AP/1/A/5500/07, Case II (Loss of Normal Power to Either 1ETA or 1ETB).
- All steps have been completed up to step 73.
- 1A D/G output is approximately 2100 KW.

- **The SRO directs you to return the 4160V Bus (1ETA) to normal power supply (Normal Breaker Closed) and shutdown the D/G locally PER OP/1/A/6350/002, DIESEL GENERATOR, Enclosure 4.3 (D/G 1A Shutdown).**
- **All initial conditions of the Operating Procedure have been satisfied.**
- **The Control Room D/G Mode Select Switch has been placed to Local.**
- **All R&R's have been evaluated.**

JPM OVERALL STANDARD: Power to 4160V Bus 1ETA is being supplied from 1ATC and D/G 1A is shutdown.

NOTES:	This JPM is designed to be performed as a SIMULATION or as a WALKTHROUGH . <u>Cues found in shaded boxes should be given to the trainee for either setting.</u>
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KA 064000 A4.01 4.0/4.3

TASK: MO-5003

START TIME _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	If D/G is operating unloaded, go to Step 3.6.	Operator will N/A and proceed to next step. Cue: D/G output is 2100 KW		
2	<p>If D/G is carrying 1ETA separated from Duke grid, parallel D/G to grid as follows:</p> <ul style="list-style-type: none"> • Check "Line Volts" 3960 - 4360 volts. • Match D/G voltage with line voltage using "1A D/G Voltage Adjust". 	<p>Operator determines that the D/G is carrying 1ETA separated from Duke grid then proceeds to step 3.4.1.</p> <p>Cue: The red light is lit for the D/G Emerg Breaker and the green light is lit for the Normal Breaker.</p> <p>Same</p> <p>Cue: "Line Volts" Meter indicates 4000V</p> <p>Operator adjusts D/G voltage after receiving the following cue:</p> <p>Cue: "D/G Volts" Meter indicates 4050V, (pause) Switch rotated counterclockwise and meters indicate the same (4000V)</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2	<p>Continued</p> <ul style="list-style-type: none"> * • Place "1A D/G Sync" switch to "ON". * • Using "1A D/G Gov Control", adjust D/G speed to allow synchroscope to move slowly and smoothly in "FAST" direction. If desired to align 1ETA to normal supply (1ATC), perform the following: * • WHEN synchroscope pointer is within 3 minutes before 12 o'clock position, firmly depress and release "CLOSE" on "1ETA Normal Breaker". 	<p>Same</p> <p>Cue:</p> <p>Switch rotated clockwise to the "ON" position and meter dial is moving slowly in the slow direction</p> <p>Operator depresses the RAISE pushbutton causing the synchroscope to move slowly in the "FAST" direction</p> <p>Cue:</p> <p>Pushbutton depressed, Meter needle is moving slowly in the clockwise direction</p> <p>Operator determines from initial conditions that it is desired to close the <u>normal</u> breaker</p> <p>Cue:</p> <p>Pointer is 3 minutes before vertical, Pushbutton is depressed, "Normal Breaker" red lamp is lit, KW meter reads 0 KW.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2	<p>Continued Perform concurrently:</p> <p>Quickly raise D/G output to 800 - 1000 KW using "1A D/G Gov Control"</p> <p>Adjust power factor to 0.90 - 0.92 lagging using "1A D/G Voltage Adjust"</p> <p>Place "1A D/G Sync switch to "OFF".</p>	<p>Load is raised to approximately 800-1000 KW within 60 seconds of closing the Normal breaker and PF is adjusted to approximately 0.90 - 0.92 lagging once load is stabilized.</p> <p>Same Cue: Raise pushbutton has been depressed and meter indicates between 800-1000KW</p> <p>Same Cue: Meter reads 0.6 LAG, (pause)</p> <p>Voltage Adjust handle rotated counter clockwise, meter indication reads 0.9 Lagging</p> <p>Same Cue: Switch rotated counterclockwise and is in the "OFF" position</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
2	<p>Continued</p> <p>Evaluate Offsite Power operability.</p> <p>Go to step 3.5.5.</p>	<p>Cue: The SRO will evaluate Offsite Power operability.</p> <p>Same</p>		
3	<p>WHEN D/G operated at 800 - 1000 KW for 10 minutes, perform the following:</p> <ul style="list-style-type: none"> • Lower D/G load to less than 200 KW using "1A D/G Gov Control" • Open "1ETA Emergency Breaker" 	<p>Same</p> <p>Cue: 10 minutes have elapsed</p> <p>Same</p> <p>Cue: Lower pushbutton depressed, Meter indicates less than 200 KW.</p> <p>Same</p> <p>Cue: Pushbutton depressed and green lamp is illuminated.</p>		
4	<p>Ensure D/G operates unloaded for 15 minutes</p>	<p>Cue: 15 minutes have elapsed</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
5	If performing Hot Bearing Deflection Measurements.....	Operator determines that the D/G is not being run for maintenance and N/A's this step.		
6	Place "Before & After Lube Oil Pump" in "RUN"	Same Cue: Switch rotated clockwise. Red Light Illuminated		
*7	Depress "STOP" on "1A Diesel Generator".	Same Cue: Pushbutton depressed, and green lamp is illuminated		
8	Check 1A D/G coasts to a complete stop.	Same Cue: D/G shaft has stopped rotating.		
9	Place "Before & After Lube Oil Pump" in "AUTO"	Same Cue: Switch rotated counterclockwise.		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
10	Check Running: <input type="checkbox"/> Jacket & Intercooler Water Pumps. <input type="checkbox"/> Before & After Lube Oil Pump <input type="checkbox"/> Crankcase Vacuum Blower	Same Cue: Red Light Illuminated Red Light Illuminated Red Light Illuminated		
11	Have the control room.....	Cue: Another NLO will perform step 3.13 and complete the enclosure.		

STOP TIME _____

* DENOTES CRITICAL

INITIAL CONDITIONS

- Unit 1 is recovering from a loss of power to 1ETA due to an inadvertent Normal breaker trip.
 - Power has been restored to 1ETA from 1A D/G per AP/1/A/5500/07, Case II (Loss of Normal Power to Either 1ETA or 1ETB).
 - All steps have been completed up to step 73.
 - 1A D/G output is approximately 2100 KW.
-
- **The SRO directs you to return the 4160V Bus (1ETA) to normal power supply (Normal Breaker Closed) and shutdown the D/G locally PER OP/1/A/6350/002, DIESEL GENERATOR, Enclosure 4.3 (D/G 1A Shutdown).**
 - **All initial conditions of the Operating Procedure have been satisfied.**
 - **The Control Room D/G Mode Select Switch has been placed to Local.**
 - **All R&R's have been evaluated.**

Prepared By: L. P. Bell
Reviewed By: Charles Sawyer
Approved By: FB King

TASK: **Restore Normal Letdown from Excess Letdown**

POSITION: **RO**

Operator's Name _____

Location: **Simulator**

Method: **Perform**

Estimated JPM Completion Time: 20 Minutes

Actual JPM Completion Time: Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature _____ Date / /

References: AP/1/A/5500/12 Loss of Letdown, Charging, or Seal Injection

JPM verified current with references by _____

Date / /

INITIAL CONDITIONS

You are the Unit 1 Balance of Plant (BOP) Operator.

Unit 1 is operating at 100% Full Power with normal letdown isolated due to valve 1NV-1A (NC L/D Isol To Regen Hx) failing closed (which in turn caused 1NV-35A to close). Excess Letdown has been placed in service. IAE reports that 1NV-1A has been repaired allowing normal letdown to be re-established. The Letdown header has been locally pressurized per step 47 of AP/1/A/5500/12 (Loss of Letdown, Charging or Seal Injection) and all personnel have exited containment.

The Control Room SRO directs you to re-establish Normal Letdown of 75 gpm and Isolate Excess Letdown per AP/1/A/5500/12 (Loss of Letdown, Charging, or Seal Injection), beginning with step 48.

JPM OVERALL STANDARD: Normal Letdown re-established and Excess Letdown isolated.

NOTES:

KA 004 A2.07 (3.4/3.7)

TASK:MO-3302

START TIME _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	<p>Establish normal letdown:</p> <p>Ensure 1NV-459 (Variable L/D Orifice Outlet Flow Cntrl) is closed</p>	<p>Same</p> <p>Cue:</p> <p>Needles indicate at 0%</p>		
* 2	<p>Place 1NV-124 (Letdown Pressure Control) in manual between 10-20% open</p>	<p>Same</p> <p>Cue:</p> <p>Light is illuminated</p> <p>Controller indication is at 15%</p>		
3	<p>Check the following – OPEN:</p> <ul style="list-style-type: none"> • 1NV-1A (NC L/D Isol to Regen Hx) • 1NV-2A (NC L/D Isol to Regen HX) <p>Ensure all personnel are out of lower containment prior to continuing.</p>	<p>Operator determines the valves are closed and goes to the RNO.</p> <p>CUE:</p> <p>Green lights lit.</p> <p>Per the JPM Initial Conditions, all personnel are out of lower containment. Cue if needed:</p> <p>CUE:</p> <p>All personnel are out of lower containment.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
* 4	<p>Establish cooling to Regenerative Hx by performing the following concurrently:</p> <ul style="list-style-type: none"> • Establish at least 65 GPM charging flow by throttling open 1NV-238 (Charging Line Flow Control) or raising PD pump speed. • Throttle 1NV-241 (Seal Inj Flow Control) to establish approximately 8 GPM seal injection flow to each NC pump. 	<p>Same</p> <p>Cue: Pushbutton depressed and seal injection flow is indicated</p> <p>Same.</p> <p>Cue: Control knob rotated clockwise and flow is indicated</p>		
6	<p>Open letdown line Isolation valves:</p> <p>1NV-7B (Letdown Cont Outside Isolation)</p> <p>* 1NV-1A (NC L/D Isol To Regen Hx)</p> <p>* 1NV-2A (NC L/D Isol To Regen Hx)</p>	<p>Same</p> <p>Cue: Red light is lit</p> <p>Cue: Switch rotated clockwise. Red light is lit.</p> <p>Cue: Switch is rotated clockwise. Red light is lit.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
6 *	Continued 1NV-35A (Variable L/D Orifice Outlet Cont Isol)	Cue: Switch is rotated clockwise. Red light is lit.		
7 * *	Establish desired letdown flowrate (normally 75 GPM) by completing the following concurrently: Slowly throttle open 1NV-459 (Variable L/D Orifice Outlet Flow Cntrl) to achieve desired letdown flow. As letdown pressure rises, adjust 1NV-124 to maintain letdown pressure between 250 PSIG and 350 PSIG	Operator determines from initial conditions that it is desired to have 75 GPM letdown flow. Same Cue: Control knob rotated clockwise and needles are rising Same. Cue: Open(close) pushbutton(s) depressed, meter indication is up		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
7 *	<p>Continued</p> <p>Adjust charging flow as desired while maintaining:</p> <ul style="list-style-type: none"> • NC pump seal injection flow greater than 6 GPM • Regenerative HX letdown temperature less than 380 °F • PZR level at program level 	<p>NCP Seal Injection flow is > 6 GPM.</p> <p>Regenerative HX Hi Temperature alarm does not annunciate.</p> <p>PZR level is trending down.</p> <p>Cue: Open (closed) pushbutton(s) depressed, seal flow is 7 gpm, L/D temperature indication is below the red line, PZR level is trending down.</p>		
8	<p>IF more letdown flow is required OR a different letdown orifice is desired, <u>THEN REFER TO:</u></p>	<p>N/A</p> <p>CUE: More letdown flow is NOT required.</p>		
9	<p>Check 1NV-124 (Letdown Pressure Control) – IN MANUAL</p>	<p>Same.</p> <p>CUE: Amber light is lit.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
10	Check potentiometer setting for 1NV-124 (Letdown Pressure Control) set at – APPROXIMATELY 5.8.	Operator notes the pot is set at 4.6 and proceeds to the RNO. CUE: Pot setting is at 4.6		
11	<p>IF letdown pressure other than 350 PSIG desired, THEN perform the following:</p> <ul style="list-style-type: none"> * • Ensure potentiometer setting for 1NV-124 is set to value for desired letdown pressure. * • Manually adjust 1NV-124 to obtain desired letdown pressure. 	<p>CUE: The SRO directs you to control letdown pressure at 250 PSIG.</p> <p>Pot is set at approximately 4.16 Cue: Pot is set at 4.16</p> <p>1NV-124 adjusted to obtain letdown pressure of approximately 250 psig Cue: Pushbutton depressed, meter indicates 250 PSIG</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
11	<p>Continued</p> <ul style="list-style-type: none"> Place 1NV-124 in "AUTO". Ensure letdown pressure controlled at desired pressure. <p>GO TO Step 48.n.</p>	<p>Same</p> <p>Cue: Pushbutton depressed and lamp is illuminated</p> <p>Same</p> <p>Cue: Letdown pressure is stable at 250 PSIG</p> <p>Same.</p>		
12	<p>Check 1A or 1B NC pump – SUPPLYING NORMAL CHARGING.</p>	<p>Same.</p> <p>CUE: "B" NV pump is running.</p>		
* 13	<p>WHEN Pzr level matches program level, THEN perform the following:</p> <ul style="list-style-type: none"> Place "PZR LEVEL MASTER" in "MAN". Place "PZR LEVEL MASTER" demand to approximately 50%. 	<p>Pzr level will be close to program by this time, so the operator <u>may</u> perform this step. This step is not critical if it is not performed.</p> <p>Same.</p> <p>Same.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
* 13	<p>Continued</p> <ul style="list-style-type: none"> • Place "PZR LEVEL MASTER" in "AUTO". • Place 1NV-238 (Charging Line Flow Control) in "AUTO". • Adjust 1NV-241 (Seal Inj Flow Control) as necessary to maintain approximately 8 GPM seal injection flow to each NC pump. 	<p>Same.</p> <p>Same.</p> <p>Same.</p> <p>CUE: Level master and 1NV-238 in "AUTO". 1NV-241 adjusted. Seal flow 8 GPM.</p>		
14	Notify Chemistry that normal letdown is in service	<p>Same</p> <p>Cue: Chemistry has been notified.</p>		
15	Check position of 1NV-127A (L/D Hx Outlet 3-Way Temp Cntrl) – ALIGNED TO "DEMIN".	<p>Same.</p> <p>CUE: 1NV-127A is in the "DEMIN" position.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
16	Operate Pzr heaters as desired.	Operator may place heaters on in manual or leave them as is.		
17	<p>WHEN time allows, THEN notify engineering to document the following transients:</p> <p>Letdown isolation</p> <p>Potential charging nozzle transient.</p> <p>IF NV Aux Spray in service, THEN spray nozzle transient.</p>	<p>Same.</p> <p>Same.</p> <p>N/A</p> <p>Cue: Engineering has been notified.</p>		
18	<p>Check excess letdown – ISOLATED.</p> <p>GO TO Step 49.y.</p>	<p>Operator determines excess letdown is still in service and goes to the RNO.</p> <p>CUE: Excess Letdown is still in service.</p> <p>Same.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
19	<p>WHEN desired to isolate excess letdown, THEN perform the following:</p> <p>* Close 1NV-26 (Excess L/D Hx Outlet Cntrl)</p> <p>* Close 1NV-24B (C NC Loop to EXS L/D Hx Isol)</p> <p>* Close 1NV-25B (C NC Loop to EXS L/D Hx Isol)</p> <p>* Close 1KC-305B (Excess Letdn Hx Sup Otsd Isol)</p> <p>* Close 1KC-315B (Excess L/D Hx Ret Hdr C/I Otsd)</p>	<p>Same</p> <p>Cue: Control knob rotated counterclockwise and needle is down</p> <p>Same</p> <p>Cue: Pushbutton depressed and light is illuminated</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
20	RETURN TO procedure and step in effect.	Same		

STOP TIME _____

* DENOTES CRITICAL

INITIAL CONDITIONS

You are the Unit 1 Balance of Plant (BOP) Operator.

Unit 1 is operating at 100% Full Power with normal letdown isolated due to valve 1NV-1A (NC L/D Isol To Regen Hx) failing closed (which in turn caused 1NV-35A to close). Excess Letdown has been placed in service. IAE reports that 1NV-1A has been repaired allowing normal letdown to be re-established. The Letdown header has been locally pressurized per step 47 of AP/1/A/5500/12 (Loss of Letdown, Charging or Seal Injection) and all personnel have exited containment.

The Control Room SRO directs you to re-establish Normal Letdown of 75 gpm and Isolate Excess Letdown per AP/1/A/5500/12 (Loss of Letdown, Charging, or Seal Injection), beginning at step 48.

SIMULATOR OPERATIONAL GUIDELINES (NV-30)

1. Reset Simulator to IC-39
2. Close the following valves:
 - A. 1NV-1A
 - B. 1NV-2A
 - C. 1NV-457A
 - D. 1NV-458A
 - E. 1NV-35A
 - F. Run manual loader for 1NV-459 to 0%
3. Establish excess letdown per AP/1/A/5500/12 step 49.
4. Allow the plant to stabilize
5. Ensure AP/12 steps are properly checked off
6. Freeze the Simulator

TEMPORARY SNAP IC-78

(March, 2007)

Prepared By: L. P. Bell

Reviewed By: Chuck Sawyer

Approved By: FB King

TASK: **Calculate Boric Acid Potentiometer Setting and begin Manual Makeup to VCT**

POSITION: **RO**

Operator's Name _____

Location: **Simulator** Method: **Perform**

Estimated JPM Completion Time: 20 Minutes

Actual JPM Completion Time: _____ Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature _____ Date / /

References: OP/1/A/6150/009 Boron Concentration Control
OP/1/A/6100/22 Unit 1 Data Book

JPM verified current with references by _____

Date / /

INITIAL CONDITIONS

- IAE testing has the automatic portion of the NC SYS M/U Controller out of service.
- VCT level - 42%
- BAT Boron Concentration 7090 ppm
- NC System Boron Concentration 1314 ppm
- Blender Flow Rate 90 gpm

The Control Room SRO directs you to raise VCT level to 54% using OP/1/A/6150/009 Encl. 4.5 (Manual Makeup to VCT using “NC System Makeup” Controller).

- **All Initial Conditions have been satisfied for OP/1/A/6150/009 Encl. 4.5**
- **NV System is in normal operation per OP/1/A/6200/001A**
- **There are no outstanding R&R's that will impact the performance of OP/1/A/6150/009 Encl. 4.5**

JPM OVERALL STANDARD: Calculates total makeup of 232 gal and total boric acid of 43 gal. Manual make up is terminated when actual Boric acid flow is observed to be less than calculated.

NOTES: When makeup is started, a malfunction that causes Boric Acid flow to decrease 0 GPM will be ramped in over 30 seconds.

KA 004 A4.02 3.2/3.9

START TIME _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	If desired NC System boon concentration is greater than or equal to 2200 ppm, go to Encl. 4.15 (VCT Makeup with High NC System Boron Concentration)	Determines NC system Boron concentration is less than 2200 ppm and N/As the step.		
2	Evaluate all outstanding R&Rs that may impact the performance of this procedure	Determines from initial conditions that R&Rs have already been evaluated		
3	When changing NC system boron concentration, evaluate energizing additional PZR heaters per OP/1/A/6100/003 to enhance mixing (R.M.).	<p>Determine from initial conditions NC system boron concentration will not be changed and N/As the step.</p> <p>If candidate asks SRO, cue as follows:</p> <p>CUE: Additional heaters are not required.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
* 4	Determine volume of blended makeup to be added as follows: IF increasing VCT level, determine total volume of makeup required as follows:	Calculates the required blended makeup is 232 gal using the formula in the procedure: $(19.3 \text{ gal/\%}) \times (12 \%)$ $= 231.6 \text{ gal.}$		
* 5	Calculate the amount of boric acid required (rounded up to the nearest whole number) to achieve proper blended flow for the Total Makeup Volume recorded in Step 3.4.2 as follows (R.M.)	Calculates 43 gal boric acid required based on the formula in the procedure: $(231.6 \text{ gal}) \times (1314 \text{ ppm})$ 7090 ppm $= 42.9 \text{ gal boric acid}$ Total Boric Acid = 43 gal		
* 6	Set Total Make Up Flow Counter to value determined in step 3.4.2 (R.M.)	Total Make Up Flow Counter set to 231 or 232.		
7	WHEN Total Make Up Flow Counter cover closed, check counter at desired value (R.M.)	Value does not change when cover closed		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
* 8	Set Boric Acid Flow Counter to value determined in Step 3.5 (R.M.)	Boric Acid Flow Counter set to 43 .		
9	WHEN Boric Acid Flow Counter cover closed, check counter at desired value	Value does not change when cover closed		
* 10	Select "MANUAL" on "NC SYS M/U Controller"	Same Cue: Switch placed in Manual		
11	IF "BA Flow Control" potentiometer setpoint less than or equal to 0.05, set potentiometer at 0.1 (R.M.)	Determines pot setting is 4.17 and N/As this step. The operator may decide to confirm the correct setpoint of the B.A. Flow Control. If requested, the operator may refer to the Data Book to determine correct pot setting.		
* 12	Open 1NV-175A (BA Blender to VCT Outlet)	Same Cue: Switch rotated to Open		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
13	Maintain normal VCT level, using 1NV-137A (NC Filters Otlt 3-Way Control).	No action by the operator at this step.		
* 14	Momentarily select START on "NC System Make Up"	Same Cue: Switch rotated to START		
15	Check "NC System Make Up" red light lit.	Same Cue: Red light is lit		
	NOTE: Steps 16, 17, and/or 18 may not be performed before makeup is terminated.			
16	Check the following throttled <ul style="list-style-type: none"> • 1NV-252A (Rx M/U Water to Blender Control) • 1NV-267A (Boric Acid to Blender Control) 	Same Cue: Valves indicate intermediate position		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
17	Check RX M/U Water Pump starts	Same Cue: RX M/U Water Pump (1A) selected to AUTO starts		
18	If in "AUTO", check BA Trans Pump starts	Operator will N/A step and continue. Cue: 1B BA Trans pump is in the start position and on for recirc		
* 19	Do NOT continue until one of the following occurs: Amount of total makeup recorded per Step 3.4.2 and amount of boric acid recorded per Step 3.5 added OR Blended makeup addition manually terminated.	Operator monitors makeup. OAC alarm "Boric Acid Filter High DP" will alarm, then annunciator 1AD-7, I3 (Boric Acid Flow Deviation). Operator may first refer to ARP for 1AD-7, I3 and then terminates makeup by placing "NC Makeup Control" to STOP. CUE: NC Makeup Control placed in STOP.		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
* 20	<p>Ensure makeup terminated as follows (R.M.)</p> <p>IF in "AUTO", ensure the following off:</p> <ul style="list-style-type: none"> • 1A BA Trans Pump • 1B BA Trans Pump • 1A Rx M/U Water Pump • 1B Rx M/U Water Pump <p>Ensure the following closed:</p> <ul style="list-style-type: none"> • 1NV-252A (Rx M/U Water to Blender Control) • 1NV-267A (Boric Acid to Blender Control) 	Same.		
21	Informs SRO that makeup was manually terminated due to low Boric Acid flow.	<p>Same.</p> <hr/> <p>CUE:</p> <p>The Control Room SRO will investigate problem and have another RO complete makeup.</p> <hr/>		

STOP TIME _____

* DENOTES CRITICAL

INITIAL CONDITIONS

- IAE testing has the automatic portion of the NC SYS M/U Controller out of service.
- VCT level - 42%
- BAT Boron Concentration 7090 ppm
- NC System Boron Concentration 1314 ppm
- Blender Flow Rate 90 gpm

The Control Room SRO directs you to raise VCT level to 54% using OP/1/A/6150/009 Encl. 4.5 (Manual Makeup to VCT using “NC System Makeup” Controller).

- **All Initial Conditions have been satisfied for OP/1/A/6150/009 Encl. 4.5**
- **NV System is in normal operation per OP/1/A/6200/001A**
- **There are no outstanding R&R's that will impact the performance of OP/1/A/6150/009 Encl. 4.5**

SIMULATOR OPERATIONAL GUIDELINES (NV-207A)

1. Reset the Simulator to IC-20
2. Place 1NV-137A to divert until VCT level is at 42%, then place back to VCT.
3. Insert: **MAL-NV012, Set = 100%, Ramp = 30, Trigger 1**
4. Freeze the simulator
5. Update status board with NC boron (1314 ppm) and BAT Boron (7090 ppm)
6. Reset Boric Acid and Total Makeup Flow counters (remove setting from previous JPM)
7. Set Boric Acid potentiometer to 4.17
8. **Insert malfunction when make up is started.**

TEMPORARY SNAP IC-100

March, 2007

Manual Makeup to VCT Using "NC System
Makeup" Controller

1. Limits and Precautions

- 1.1 This procedure is Reactivity management related because it controls activities that can affect core reactivity by changing NC System boron concentration. (R.M.)
- 1.2 The following Limits and Precautions are Reactivity Management related: (R.M.)
- 1.2.1 **WHEN** changing NC System boron concentration, a minimum of one NC Pump shall be in operation to ensure adequate mixing of NC loops, with the following exceptions: {SOER 94-2} {PIP-M99-2915}
- Boration per Abnormal or Emergency Procedures
 - Both the NC System and makeup source greater than required boron concentration (Shutdown Margin, refueling concentration)
- 1.2.2 **WHEN** reactor subcritical and count rate on either Source Range Channel increases by a factor of two or more during a Boron Concentration change, the evolution must be immediately stopped until a satisfactory evaluation of the situation has been made.
- 1.2.3 Piping downstream of Blender will contain 20 - 35 gallons of fluid at previous makeup concentration.
- 1.2.4 **WHEN** utilizing the Boron Concentration Control System, the following should be closely monitored for expected response:
- VCT Level
 - SM Pressure
 - Tavg
 - Reactor Power
 - Rod motion
- 1.2.5 NSD 304 (Reactivity Management), states that Operations shall be responsible for control of reactivity and taking conservative actions to safeguard integrity of the reactor fuel.
- 1.2.6 **IF** the unit has operated continuously for several months, significant Boron 10 depletion may have occurred. The effective boron concentration of the NC System may be lower than indicated by Chemistry samples. NC temperature should be carefully monitored following VCT makeup.
- 1.2.7 **IF** boric acid flowrate is less than or equal to 0.2 gpm (BA Flow Control potentiometer setting less than or equal to 0.05) the Boric Acid Flow Counter will **NOT** count. {PIP M-04-00865}
- 1.2.8 **IF** total makeup flowrate is less than or equal to 8 gpm (BA Blend Disch Cntrl potentiometer setting less than or equal 0.5) the Total Make Up Counter will **NOT** count. {PIP M-04-00865}

Unit 1

**Manual Makeup to VCT Using "NC System
Makeup" Controller**

- 1.3 Dilution operations are limited by available capacity in RHT.
- 1.4 Dual Boric Acid Tank Pump operation is minimized due to potential to deadhead weaker pump.

2. Initial Conditions

- 2.1 **IF** in Mode 1 **OR** 2, ensure R3 Reactivity management controls established per SOMP 01-02 (Reactivity Management). (R.M.)
- 2.2 Boron Concentration Control System aligned for automatic makeup per Enclosure 4.1 (Automatic Makeup).

OR

- 2.3 Directed to flush blender per one of the following:

- Enclosure 4.2 (Borate)

OR

- Enclosure 4.3 (Dilute)

OR

- Enclosure 4.4 (Alternate Dilute)

3. Procedure

NOTE:

- The "BA Flow Control" potentiometer setpoint will determine makeup water boron concentration. Inaccuracies in the Boron Concentration Control System may result in a boration or dilution of the NC System. Diluting or borating the NC System will add reactivity to the core by changing the percentage of neutron absorbers in the NC System. With the reactor critical and above the point of adding heat (POAH), a corresponding change in NC System temperature will occur. (R.M.)
- Inadequate mixing of the NC System during makeup can result in pockets of water at a different boron concentration than the NC System which can cause unexpected NC System temperature response. (R.M.)

- 3.1 **IF** desired NC System boron concentration is greater than or equal to 2200 ppm, go to Enclosure 4.15 (VCT Makeup With High NC System Boron Concentration).
- 3.2 Evaluate all outstanding R&Rs that may impact performance of this procedure.

Manual Makeup to VCT Using "NC System Makeup" Controller

3.3 WHEN changing NC System boron concentration, evaluate energizing additional pressurizer heaters per OP/1/A/6100/003 (Controlling Procedure For Unit Operation) to enhance system mixing. (R.M.)

3.4 Determine volume of blended makeup to be added as follows:

3.4.1 IF increasing VCT level, determine total volume of makeup required as follows:

(19.3 (gal/%) X (Desired level change (%)) = Required Blended Makeup (gal)

(19.3 (gal/%) X (_____ (%) = _____ Required Blended Makeup (gal)

3.4.2 Record the largest value of the following as Total Blended Makeup:

Flush requirement of 60 gallons

OR

Required Blended Makeup determined in Step 3.4.1

Total Blended Makeup: _____ gal

3.5 Calculate the amount of boric acid required (rounded up to the nearest whole number) to achieve proper blended flow for the Total Makeup Volume recorded in Step 3.4.2 as follows: (R.M.)

(Total Makeup Volume recorded per Step 3.4.2 (gal)) X (Desired Boron Concentration (ppm)) = Boric Acid (gal)
(BAT Concentration (ppm))

(_____ (gal)) X (_____ (ppm)) = _____ Boric Acid (gal)
(_____ (ppm))

Total Boric Acid: _____ gal (rounded up)

**Manual Makeup to VCT Using "NC System
Makeup" Controller**

CAUTION: WHEN the "NC SYS M/U Controller" is selected to "MANUAL", IF either batch integrator is satisfied before the other has recorded its required total, the pump and valve associated with the integrator which has been satisfied terminates flow. The flow controlled by the other integrator continues until that integrator is satisfied. (R.M.)

NOTE:

- Integrator Thumbwheel covers should NOT be opened unless associated counter reset pushbutton depressed.
- Integrator Thumbwheel covers must be closed for NC Makeup System to operate.
- Flow integrators may count up 1 - 5 gallons after makeup termination.

- 3.6 Set Total Make Up Flow Counter to value determined in Step 3.4.2. (R.M.)
- 3.7 WHEN Total Make Up Flow Counter cover closed, check counter at desired value. (R.M.)
- 3.8 Set Boric Acid Flow Counter to value determined in Step 3.5. (R.M.)
- 3.9 WHEN Boric Acid Flow Counter cover closed, check counter at desired value. (R.M.)
- 3.10 Select "MANUAL" on "NC SYS M/U Controller".

NOTE: IF boric acid flowrate is less than or equal to 0.2 gpm (BA Flow Control potentiometer setting less than or equal to 0.05) the Boric Acid Flow Counter will NOT count. This will prevent automatic termination of boric acid flow. (R.M.)

- 3.11 IF "BA Flow Control" potentiometer setpoint less than or equal to 0.05, set potentiometer at 0.1. (R.M.)
- 3.12 Open INV-175A (BA Blender To VCT Outlet).
- 3.13 Maintain normal VCT level, using INV-137A (NC Filters Otlt 3-Way Control).

NOTE:

- "NC Make Up Control" switch can be placed in "STOP" to terminate makeup at anytime. (R.M.)
- Steps 3.14 - 3.20 may be completed and then checked off as time allows.

- 3.14 Momentarily select "START" on "NC System Make Up". (R.M.)
- 3.15 Check "NC System Make Up" red light lit.

Unit 1

**Manual Makeup to VCT Using "NC System
Makeup" Controller**

- 3.16 Check the following throttled:
- 1NV-252A (Rx M/U Water To Blender Control)
 - 1NV-267A (Boric Acid To Blender Control)
- 3.17 Check Rx M/U Water Pump starts.
- 3.18 **IF** in "AUTO", check BA Trans Pump starts.
- 3.19 Do **NOT** continue until one of the following occurs:
- Amount of total makeup recorded per Step 3.4.2 and amount of boric acid recorded per Step 3.5 added
- OR
- Blended makeup addition manually terminated
- 3.20 Ensure makeup terminated as follows: (R.M.)
- 3.20.1 **IF** in "AUTO", ensure the following off:
 - 1A BA Trans Pump
 - 1B BA Trans Pump
 - 1A Rx M/U Water Pump
 - 1B Rx M/U Water Pump
 - 3.20.2 Ensure the following closed:
 - 1NV-252A (Rx M/U Water To Blender Control)
 - 1NV-267A (Boric Acid To Blender Control)
- 3.21 Ensure 1NV-175A (BA Blender To VCT Outlet) in "AUTO".

**Manual Makeup to VCT Using "NC System
Makeup" Controller**

- 3.22 **IF** "BA Flow Control" potentiometer setpoint adjusted per Step 3.11, perform the following: (R.M.)

- 3.22.1 Determine "BA Flow Control" potentiometer setpoint for desired boron concentration:

$$\frac{(\text{Desired VCT Boron Concentration (ppmB)}) \times (90 \text{ (gpm)})}{(\text{BAT Concentration (ppmB)})} = \text{Boric Acid Flow Rate (gpm)}$$

$$\left(\frac{\quad (\text{ppmB}) \times (90 \text{ (gpm)})}{\quad (\text{ppmB})} \right) = \quad \text{Boric Acid Flow Rate (gpm)}$$

$$\frac{(\text{Boric Acid Flow Rate (gpm)})}{4} = \text{"BA Flow Control" Potentiometer Setting}$$

$$\left(\frac{\quad (\text{gpm})}{4} \right) = \quad \text{"BA Flow Control" Potentiometer Setting}$$

- 3.22.2 Set "BA Flow Control" potentiometer to value determined per Step 3.22.1.
- 3.23 Ensure 1NV-137A (NC Filters Oilt 3-Way Control) in "AUTO".
- 3.24 Select "AUTO" for "NC Sys M/U Controller".
- 3.25 Momentarily select "START" on "NC System Make Up".
- 3.26 Check "NC System Make Up" red light lit.
- 3.27 Ensure the following reset to zero:
- Total Make Up Flow Counter
 - Boric Acid Flow Counter
- 3.28 Record in Auto Log that final blender content is Blend.

End of Enclosure

Unit 1

Prepared By: Rob Billings

Reviewed By: KG Carnley

Approved By: Steve Helms

TASK: **Transfer To Hot Leg Recirc**

POSITION: **RO**

Operator's Name _____

Location: **Simulator**

Method: **Perform**

Estimated JPM Completion Time: 15 Minutes

Actual JPM Completion Time: Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature _____ Date / /

References: EP/1/A/5000/ES-1.4 Transfer to Hot Leg Recirculation

JPM verified current with references by _____

Date / /

Rev. 08/03-29-04

FOR TRAINING PURPOSES ONLY

INITIAL CONDITIONS

Unit 1 experienced a Loss of Coolant Accident six (6) hours ago. EP/1/A/5000/E-1 (Loss of Reactor or Secondary Coolant) has been implemented and is completed through step 20. Transfer to Cold Leg Recirculation is complete. The 1A NI Pump failed to start initially and cannot be started.

The SRO directs the RO to transfer to Hot Leg Recirc by performing EP/1/A/5000/ES-1.4 (Transfer to Hot Leg Recirculation).

JPM OVERALL STANDARD: B Train ND has been realigned and is injecting in the Hot Leg Recirc Mode.

NOTES: The simulator initial conditions will have containment pressure still greater than 3 psig and will have "A" Train of ND aligned to Containment Spray. Therefore, only "B" train ND is required (critical) to be aligned to Hot Leg Recirc.

KA 006 A4.07 4.4/4.4

START TIME _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	<p>Align NI flow path for Hot Leg Recirc:</p> <p>Stop 1A NI Pump</p> <p>Close 1NI-118A (Train A NI To Cold Leg Isol)</p> <p>Check 1NI-118A (Train A NI to Cold Leg Isol) - CLOSED</p> <p>Open 1NI-121A (Train A NI To B & C Hot Leg)</p> <p>Check 1NI-121A (Train A NI to B&C Hotleg) - OPEN</p>	<p>Operator realizes 1A NI Pump failed to start initially per initial conditions</p> <p>Same</p> <p>Cue:</p> <p>Green lamp illuminated</p> <p>Same</p> <p>Cue:</p> <p>Pushbutton depressed, green lamp illuminated</p> <p>Cue:</p> <p>Green lamp illuminated</p> <p>Same</p> <p>Cue:</p> <p>Pushbutton depressed, red lamp illuminated</p> <p>Cue:</p> <p>Red lamp illuminated</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	<p>CONTINUED</p> <p>Check if 1B NI Pump should be started.</p> <p>1NI-150B (Train B NI to Cold Leg Isol) CLOSED</p> <p>1NI-152B (Train B NI to A&D Hot Leg) OPEN</p> <p>Start NI Pump 1B</p> <p>Check the following windows on ESF Monitor Light Panel, Group 5 - LIT:</p> <p>A-1 "1NI-118A TRAIN A NI TO CL ISOL CLOSED"</p> <p>B-1 "1NI-121A TRAIN A NI TO HL ISOL OPEN"</p>	<p>Same</p> <p>Cue: Green lamp illuminated</p> <p>Cue: Red lamp illuminated</p> <p>Same</p> <p>Cue: Pushbutton depressed, green lamp illuminated</p> <p>Same</p> <p>Cue: Window is illuminated</p> <p>Cue: Window is illuminated</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	<p>CONTINUED</p> <p>A-8 "1NI-150 TRAIN B NI TO CL ISOL CLOSED"</p> <p>A-3 "1NI-162A NI PUMPS COLD LEG ISOL CLOSED"</p> <p>B-8 "1NI-152 TRAIN B NI TO HL ISOL OPEN"</p>	<p>Cue:</p> <p>Window is illuminated</p> <p>Cue:</p> <p>Window is illuminated</p> <p>Cue:</p> <p>Window is illuminated</p>		
2	<p>Check for flow from at least one train of NI.</p> <p>Perform the following:</p> <p>Notify station management that NI flow not indicated.</p> <p>IF both trains of NI have failed to operate in Hot Leg Recirc Mode, THEN GO TO Step 4.</p>	<p>Operator determines that there is no flow from either NI Pump and proceeds to the RNO</p> <p>Cue:</p> <p>Meter indicates 0 gpm flow</p> <p>Same</p> <p>Cue:</p> <p>Station Management has been notified</p> <p>Same</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3	<p>Align ND S/I flowpath for Hot Leg Recirc:</p> <p>Check the following valves - CLOSED:</p> <p>1ND-1B (C NC Loop to ND Pumps)</p> <p>1ND-2A, C (C NC Loop to ND Pumps)</p> <p>1ND-30A (Train A ND to Hot Leg Isol)</p> <p>1ND-15B (Train B ND to Hot Leg Isol)</p> <p>* Open 1NI-183B (ND to B&C Hot Legs Isol)</p>	<p>Same</p> <p>Cue:</p> <p>Computer indicates valve is closed</p> <p>Cue:</p> <p>Computer indicates valve is closed</p> <p>Cue:</p> <p>Green lamp is illuminated</p> <p>Cue:</p> <p>Green lamp is illuminated</p> <p>Cue:</p> <p>Pushbutton depressed, red lamp is illuminated</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3	<p>CONTINUED:</p> <p>For A ND train:</p> <p>Check 1NS-43A (A ND to NS Cont Outside Isol) - CLOSED</p> <p>GO TO Step 4.d.</p> <p>For B ND Train:</p> <p>Check 1NS-38B (B ND to NS Cont Outside Isol) - CLOSED</p>	<p>Operator realizes "A" train ND is aligned to NS and proceeds to <u>RNO</u>.</p> <p>Cue:</p> <p>Red lamp is illuminated</p> <p>Same</p> <p>Same</p> <p>Cue:</p> <p>Green lamp is illuminated</p>		
*	<p>Close 1NI-178B (Train B ND to C&D CL)</p>	<p>Cue:</p> <p>Pushbutton depressed, green lamp is illuminated</p>		
*	<p>Open 1ND-15B (Train B ND to Hot Leg Isol)</p>	<p>Cue:</p> <p>Pushbutton depressed, red lamp is illuminated</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3	<p>CONTINUED</p> <p>Check the following windows on ESF Monitor Light Panel, Group 5 - LIT:</p> <p>A-6 "1NI-183B ND to HL B&C ISOL OPEN"</p> <p>A-7 "1NI-178B Train B ND to CL C&D CLOSED"</p>	<p>Same</p> <p>Cue:</p> <p>Window is illuminated</p> <p>Cue:</p> <p>Window is illuminated</p>		
4	<p>Check for flow to NC hot legs from at least one train of ND.</p>	<p>Same</p> <p>Cue:</p> <p>NC Flow to NC HL B&C meter indicates 3200 gpm</p>		
5	<p>RETURN TO procedure and step in effect.</p>	<p>Cue:</p> <p>The SRO will implement procedure and step in effect</p>		

STOP TIME _____

* DENOTES CRITICAL



INITIAL CONDITIONS

Unit 1 experienced a Loss of Coolant Accident six (6) hours ago. EP/1/A/5000/E-1 (Loss of Reactor or Secondary Coolant) has been implemented and is completed through step 20. Transfer to Cold Leg Recirculation is complete. The 1A NI Pump failed to start initially and cannot be started.

The SRO directs the RO to transfer to Hot Leg Recirc by performing EP/1/A/5000/ES-1.4 (Transfer to Hot Leg Recirculation).

SIMULATOR OPERATIONAL GUIDELINES (NC:115A)

1. Reset the Simulator to IC-39 (100% Power MOL)
2. Insert Malfunction NC008A (Cold Leg LOCA)
3. Complete EP-E-0 and perform EP-E-1 through step 20.
4. Shutdown A & B D/G's by inserting the following LOA's:

DG003	SET = STOP DG
DG004	SET = STOP DG
5. Close 1RN-171 and 1RN-70
6. Allow Accident to continue until the FWST Lo Level Alarm sounds and the Auto Transfer of ND to Cold Leg Recirc initiates
7. Complete the transfer to Cold Leg Recirc Per EP/1/A/5000/ES-1.3 (Transfer To Cold Leg Recirc)
8. Insert the following LOA's to complete EP-E-1 step 19 and **remove stickers**:

NI019 (NI-162)	SET = Racked In
NI022 (NI-121)	SET = Racked In
NI023 (NI-152)	SET = Racked In
NI024 (NI-173)	SET = Racked In
NI025 (NI-178)	SET = Racked In
NI026 (NI-183)	SET = Racked In
9. Allow the NS System to bring FWST level to the LO LO level setpoint then Transfer NS to Cold Leg Recirc
10. Ensure "A" Train ND aligned to Containment Spray via 1NS-43A per the procedure.
11. Stop the 1A NI Pump and insert LOA NI014, SET = Racked Out, to rack out the 1A NI pump.
12. Insert malfunction NI001B (Failure of NI Pump 1B to start) SET = Both.
13. Freeze the Simulator.

TEMP SNAP # 67 (March, 2007)

A. Purpose

This procedure provides the necessary instructions for transferring the Safety Injection System to Hot Leg Recirc.

B. Symptoms or Entry Conditions

This procedure is entered from EP/1/A/5000/E-1 (Loss Of Reactor Or Secondary Coolant), Step 20, when the specified time interval has elapsed.

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

C. Operator Actions

1. Align NI flow path for Hot Leg Recirc:

- ___ a. Stop 1A NI Pump.
- ___ b. Close 1NI-118A (Train A NI To Cold Leg Isol).
- ___ c. Check 1NI-118A (Train A NI To Cold Leg Isol) - CLOSED.

- ___ d. Open 1NI-121A (Train A NI To B & C Hot Leg).
- ___ e. Check 1NI-121A (Train A NI To B & C Hot Leg) - OPEN.

- ___ f. Start 1A NI Pump.
- ___ g. Stop 1B NI Pump.
- ___ h. Close 1NI-150B (Train B NI To Cold Leg Isol).
- ___ i. Close 1NI-162A (NI Pumps Cold Leg Isol).
- ___ j. Open 1NI-152B (Train B NI To A & D Hot Leg).

c. Perform the following:

- ___ 1) **IF** 1NI-118A is in intermediate position, **THEN** wait up to 30 seconds for valve to complete valve movement.
- ___ 2) **IF** 1NI-118A is closed, **THEN GO TO** Step 1.d.
- ___ 3) **IF** 1NI-118A will not close, **THEN GO TO** Step 1.g.

e. Perform the following:

- ___ 1) **IF** 1NI-121A is in intermediate position, **THEN** wait up to 30 seconds for valve to complete valve movement.
- ___ 2) **IF** 1NI-121A is open, **THEN GO TO** Step 1.f.
- ___ 3) **IF** 1NI-121A will not open, **THEN GO TO** Step 1.g.

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

1. (Continued)

k. Check if 1B NI Pump should be started:

- 1NI-150B (Train B NI To Cold Leg Isol) - CLOSED
- 1NI-152B (Train B NI To A & D Hot Leg) - OPEN.

l. Start 1B NI Pump.

m. Check the following windows on ESF Monitor Light Panel, Group 5 - LIT:

- A-1 "1NI-118A TRAIN A NI TO CL ISOL CLOSED"
- B-1 "1NI-121A TRAIN A NI TO HL ISOL OPEN"
- A-8 "1NI-150 TRAIN B NI TO CL ISOL CLOSED"
- A-3 "1NI-162A NI PUMPS COLD LEG ISOL CLOSED"
- B-8 "1NI-152 TRAIN B NI TO HL ISOL OPEN".

2. **Check for flow from at least one train of NI.**

3. **RETURN TO procedure and step in effect.**

k. Perform the following:

- 1) **IF** valve(s) in intermediate position, **THEN** wait up to 30 seconds to allow valves to complete valve movement.
- 2) **IF** valves are properly aligned, **THEN GO TO** Step 1.i.
- 3) **IF** either valve fails to go to its required position, **THEN GO TO** Step 1.m.

m. Notify station management of valve positions.

Perform the following:

- a. Notify station management that NI flow not indicated.
- b. **IF** both trains of NI have failed to operate in Hot Leg Recirc mode, **THEN GO TO** Step 4.

UNIT 1

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

4. **Align ND S/I flow path for Hot Leg Recirc:**

a. Check the following valves - CLOSED:

- 1ND-1B (C NC Loop to ND Pumps)
- 1ND-2AC (C NC Loop To ND Pumps)
- 1ND-30A (Train A ND To Hot Leg Isol)
- 1ND-15B (Train B ND To Hot Leg Isol).

b. Open 1NI-183B (ND To B & C Hot Legs Isol).

c. For A ND train:

- 1) Check 1NS-43A (A ND To NS Cont Outside Isol) - CLOSED.
- 2) Close 1NI-173A (Train A ND To A & B CL).
- 3) Open 1ND-30A (Train A ND To Hot Leg Isol).
- 4) Check the following windows on ESF Monitor Light Panel, Group 5 - LIT:
 - A-6 "1NI-183B ND TO HL B & C ISOL OPEN"
 - A-2 "1NI-173A TRAIN A ND TO CL A & B CLOSED".

a. Perform the following:

- 1) Contact station management to evaluate guidance to align NI or ND for Hot Leg Recirc.
- 2) **RETURN TO** procedure and step in effect.

b. Perform the following:

- 1) Contact station management to evaluate guidance to align NI or ND for Hot Leg Recirc.
- 2) **RETURN TO** procedure and step in effect.

1) **GO TO** Step 4.d.

4) Notify station management of valve positions.

UNIT 1

ACTION/EXPECTED RESPONSE

RESPONSE NOT OBTAINED

4. (Continued)

d. For B ND train:

___ 1) Check 1NS-38B (B ND To NS Cont Outside Isol) - CLOSED.

___ 1) **GO TO** Step 5.

___ 2) Close 1NI-178B (Train B ND To C & D CL).

___ 3) Open 1ND-15B (Train B ND To Hot Leg Isol).

4) Check the following windows on ESF Monitor Light Panel, Group 5 - LIT:

___ 4) Notify station management of valve positions.

___ • A-6 "1NI-183B ND TO HL B & C ISOL OPEN"

___ • A-7 "1NI-178B TRAIN B ND TO CL C & D CLOSED".

___ 5. **Check for flow to NC hot legs from at least one train of ND.**

___ **Contact station management to evaluate guidance to align NI or ND for Hot Leg Recirc.**

___ 6. **RETURN TO procedure and step in effect.**

END

Prepared By: LPB
Reviewed By: Bob B...
Approved By: Charlie Sawyer

TASK: **Make up to the NCS following a Loss of Level while in Midloop Operation**
POSITION: **RO**

Operator's Name _____

Location: **Simulator** Method: **Perform**

Estimated JPM Completion Time: 15 Minutes

Actual JPM Completion Time: Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature _____ Date / /

References: AP/1/A/5500/19 Loss of ND or ND System Leakage

JPM verified current with references by _____

Date / /

Rev. 13 / 01-14-07

INITIAL CONDITIONS

- Unit 1 is in mode 5 during a refueling outage.
 - All primary manways are installed and the Reactor Head is set.
 - ND Pump 1B was in operation and NC Level was being maintained at 10" above centerline of 'C' Hotleg.
 - Upon receipt of the "NC System Lo Level" OAC Alarm, NC Level is observed at approximately 3.0 – 4.0 inches.
 - AP/1/A/5500/19 (Loss of ND or ND System Leakage) has been entered and completed up to Step 5. Step 5 directs the SRO to initiate makeup per enclosure 3.
-
- **The SRO desires makeup to be initiated from the NV pumps through the SI flowpath and directs you to makeup to the NCS to a level of ≥ 10 inches per Enclosure 5 (Makeup via NV Pumps Through S/I Flowpath) of AP/1/A/5500/19.**
 - **The crew will continue with the completion of AP/1/A/5500/19.**

JPM OVERALL STANDARD: NCS Level is raised to ≥ 10 inches by performing enclosure 5 of AP/1/A/5500/19.

NOTES:

This JPM is designed to be performed as a **SIMULATION** or as a **WALKTHROUGH**. Cues found in shaded boxes should be given to the trainee for either setting.

KA 000 025 EA1.02 3.8/3.8

TASK: MO-7317

FOR TRAINING PURPOSES ONLY

START TIME _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	<p>Open the following:</p> <p>* 1NV-221A (NV Pumps Suct From FWST)</p> <p>* 1NV-222B (NV Pumps Suct From FWST)</p>	<p>Note: Only one valve is required to be opened to satisfy the critical element of this step. (These two valves provide a parallel flowpath.) Any valve not opened can be N/A'd.</p> <p>Cue:</p> <p>Pushbutton depressed, red lamp illuminated</p> <p>Cue:</p> <p>Pushbutton depressed, red lamp illuminated</p>		
2	<p>Close the following:</p> <p>* 1NV-141A (VCT Outlet Isol)</p> <p>* 1NV-142B (VCT Outlet Isol)</p>	<p>Note: Only one valve is required to be closed to satisfy the critical element of this step. (These two valves are in series.) Any valve not closed can be N/A'd.</p> <p>Cue:</p> <p>Pushbutton depressed, green lamp illuminated</p> <p>Cue:</p> <p>Pushbutton depressed, green lamp illuminated</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3	Ensure NV Pump miniflow valves open: <ul style="list-style-type: none"> • 1NV-151A (NV Pumps Recirculation) • 1NV-150B (NV Pumps Recirculation) 	Same Cue: Red lamp illuminated Cue: Red lamp illuminated		
4	Close one of the following to prevent pump runout: * 1NV-244A (Charging Line Cont Outside Isol) or * 1NV-245B (Charging Line Cont Outside Isol)	Note: Only one valve is required to be closed to satisfy the critical element of this step. (These two valves are in series.) Any valve not closed can be N/A'd. Cue: Pushbutton depressed, green lamp illuminated Cue: Pushbutton depressed, green lamp illuminated		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
5	<p>Open from the Control Room or dispatch operator to open one or more of the following:</p>	<p><u>Note:</u> Only one valve is required to be open to satisfy the critical element of this step. (1NI-9A and 1NI10B are parallel flowpaths.)</p> <p>RO opens 1NI-9 and/or 10 from Main Control Board or dispatches an NLO to locally open valve 1NI-3</p>		
*	<p>1NI-9A (NC Cold Leg Inj From NV)</p>	<p>Same</p> <p>Cue:</p> <p>Pushbutton depressed, red lamp illuminated</p>		
*	<p>1NI-10B (NC Cold Leg Inj From NV)</p>	<p>Same</p> <p>Cue:</p> <p>Pushbutton depressed, red lamp illuminated</p>		
	<p>Dispatch operator to open 1NI-3...</p>	<p>Same</p> <p>Cue:</p> <p>1NI-3 is not available</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
6	Check NV pump – RUNNING	Operator proceeds to <u>RNO</u> after recognizing all NV pumps are OFF. Cue: NV pump indications are green.		
7	Perform the following: <ul style="list-style-type: none"> • Close 1NV-238 (Charging Line Flow Control) • Start associated NV Lube Oil pump. * • Start an NV pump. • Place associated NV Lube Oil pump in "AUTO". 	Same Cue: Pushbutton depressed, green lamp illuminated for 1NV-238. Cue: Pushbutton depressed, red lamp illuminated Cue: Pushbutton depressed, red lamp illuminated Cue: OFF pushbutton depressed. Green lamp illuminated		
8	Check NC pump seal injection – IN SERVICE	Operator proceeds to <u>RNO</u> after recognizing Seal Injection is NOT in service. Cue: Seal injection flow gauges indicate zero flow.		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
9	Observe caution before Step 9 and GO TO Step 9.	Same		
10	IF AT ANY TIME FWST level reaches 20 inches, THEN GO TO Step 13 to secure makeup via S/I flowpath	Same Cue: FWST level indicates 455 inches		
11	IF AT ANY TIME it is desired to reduce makeup flow, THEN perform one of the following.....	Same <div style="border: 1px solid black; padding: 5px;">Cue: It is not desired to throttle flow</div>		
12	WHEN desired to secure makeup via S/I flowpath, THEN GO TO step 13	Operator proceeds to step 13 when NCS level is greater than or equal to 10 inches. Cue: NCS level is 10 inches. WHEN the operator recognizes that level has reached 10 inches, give the following cue: <div style="border: 1px solid black; padding: 5px;">CUE: ND leak has been isolated. The SRO directs you to secure makeup.</div>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
13	<p>Align NV pump to normal charging as follows:</p> <p>Ensure NV Pump minimum flow valves open:</p> <ul style="list-style-type: none"> • 1NV-151A (NV Pumps Recirculation) • 1NV-150B (NV Pumps Recirculation) <p>Close from Control Room or dispatch operator to close valve(s) opened in step 5</p>	<p>Same</p> <p>Cue: Red lamp illuminated</p> <p>Cue: Red lamp illuminated</p> <p>Operator closes 1NI-9 and/or 1NI-10 from the main control board</p> <p>Note: Any valve not opened in step d. is not critical.</p> <p>Cue:</p> <p>Pushbutton depressed, green lamp illuminated</p> <p>Cue:</p> <p>Pushbutton depressed, green lamp illuminated</p> <p>Cue:</p> <p>Manual loader pointer indicates 0%</p>		
*	<ul style="list-style-type: none"> • 1NI-9A 			
*	<ul style="list-style-type: none"> • 1NI-10B 			
	<p>Close 1NV-241(Seal Inj Flow Control).</p>			

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
13	<p>Continued</p> <p>Open the following valves:</p> <ul style="list-style-type: none"> • 1NV-244A (Charging Line Cont Outside Isol) • 1NV-245B (Charging Line Cont Outside Isol) <p>Throttle the following valves to desired flow, not to exceed 200 gpm.</p> <ul style="list-style-type: none"> • 1NV-241 (Seal Inj Flow Control) • 1NV-238 (Charging Line Flow Control). <p>Check FWST level - GREATER THAN 20 INCHES.</p>	<p>Note: One of these valves may already be open. Cue accordingly.</p> <p>Cue: Pushbutton depressed, red lamp illuminated</p> <p>Cue: Pushbutton depressed, red lamp illuminated</p> <p>Operator should decide not to establish charging flow, since valves were originally closed. IF the operator asks the SRO for guidance, provide the following cue:</p> <p>CUE: The SRO directs you to leave NV-241 and NV-238 closed.</p> <p>Same</p> <p>Cue: FWST level indicates 440 inches.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
13	<p>Continued</p> <p>Check FWST level - GREATER THAN 100 INCHES.</p>	<p>Cue:</p> <p>FWST level indicates 440 inches.</p>		
14	<p><u>WHEN</u> desired to realign NV pump suction to VCT, <u>THEN:</u></p> <p>Ensure Step 13 has been completed.</p> <p>Ensure NV pump miniflow valves open:</p> <ul style="list-style-type: none"> • 1NV-151A (NV Pumps Recirculation) • 1NV-150A (NV Pumps Recirculation) 	<p><u>IF</u> the operator asks the SRO for guidance, give the following cue:</p> <p>CUE:</p> <p>The SRO directs you to realign pump suction to the VCT.</p> <p>Same.</p> <p>Same.</p> <p>Cue:</p> <p>Red lamp illuminated</p> <p>Cue:</p> <p>Red lamp illuminated</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
14	<p>Continued</p> <p>Open the following:</p> <ul style="list-style-type: none"> * • 1NV-141A (VCT Outlet Isol) * • 1NV-142B (VCT Outlet Isol) <p>Close the following:</p> <ul style="list-style-type: none"> * • 1NV-221A (NV Pumps Suct from FWST) * • 1NV-222B (NV Pumps Suct from FWST) <p>Maintain VCT level using normal makeup or emergency boration as required.</p> <p><u>IF AT ANY TIME</u> VCT level goes below 16%, <u>THEN</u> reduce charging flow to prevent loss of pump suction.</p>	<p>Same.</p> <p>Cue:</p> <p>Pushbutton depressed, red lamp illuminated</p> <p>Cue:</p> <p>Pushbutton depressed, red lamp illuminated</p> <p>Same.</p> <p>Cue:</p> <p>Pushbutton depressed, green lamp illuminated</p> <p>Cue:</p> <p>Pushbutton depressed, green lamp illuminated</p> <p>Same.</p> <p>Same.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
14	<p>Continued</p> <p>IF plant conditions no longer require a charging pump in service, THEN evaluate stopping NV pump.</p> <p>Exit this enclosure.</p>	<p>If operator asks for guidance, give the following cue:</p> <p>CUE:</p> <p>The SRO directs you to stop the NV pump.</p> <p>Same.</p>		

STOP TIME _____

* DENOTES CRITICAL

INITIAL CONDITIONS

- Unit 1 is in mode 5 during a refueling outage.
- All primary manways are installed and the Reactor Head is set.
- ND Pump 1B was in operation and NC Level was being maintained at 10" above centerline of 'C' Hotleg.
- Upon receipt of the "NC System Lo Level" Alarm, NC Level is observed at approximately 3.0 – 4.0 inches.
- AP/1/A/5500/19 (Loss of ND or ND System Leakage) has been entered and completed up to Step 5. Step 5 directs the SRO to initiate makeup per enclosure 3.

- **The SRO desires makeup to be initiated from the NV pumps through the SI flowpath and directs you to makeup to the NCS to a level of ≥ 10 inches per Enclosure 5 (Makeup via NV Pumps Through S/I Flowpath) of AP/1/A/5500/19.**
- **The crew will continue with the completion of AP/1/A/5500/19.**

SIMULATOR OPERATORS GUIDELINES (ND-105A)

1. Reset to IC-40, EOC, NCS at ~9.5".
2. Close NI-178B.
3. Insert LOA ND001 - 1ND35 ND to FWST Isol select new value = 0.3; when NCS level is ~2.8" on highest Ultrasonic Channel, repeat LOA ND001 with a new value = 0.
4. Stop ND Pump 1B.
5. Open NI-178B
6. Level will rise to desired level of ~3.5"
7. Freeze the Simulator
8. **Place Redtag Stickers on NC Pump Safety Breakers and NV pump 1A**
9. **Update Thermal Margin to 30 minutes on the Unit Status Board**

TEMPORARY SNAP IC-101
March, 2007

Prepared By: L. P. B. Blit
Reviewed By: Charles Sawyer
Approved By: Fred B. Blit

TASK: **Manually Sequence Loads during a Blackout**

POSITION: **RO**

Operator's Name _____

Location: **Simulator**

Method: **Perform**

Estimated JPM Completion Time: 20 Minutes

Actual JPM Completion Time: Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature _____ Date / /

References: AP/1/A/5500/07 Loss of Electrical Power

JPM verified current with references by _____

Date / /

INITIAL CONDITIONS

Unit 1 is operating at 100% power with "B" train equipment in service. Electrical testing of the '1A' Train Diesel Generator Sequencer requires the Control Power to be removed. While in this condition, a low voltage condition occurs on 1ETA. The Diesel Generator has been started manually from the Control Room. The crew has implemented AP/1/A/5500/07 (Loss of Electrical Power) Case II (Loss of Normal Power to either 1ETA or 1ETB) and performing the actions of step 42.

The SRO directs you to load Essential Bus 1ETA by performing AP/1/A/5500/07, Enclosure 1 (Manual Loading of Emergency Bus).

JPM OVERALL STANDARD: Essential Bus 1ETA is loaded per Enclosure 1 of AP/1/A/5500/07

NOTES:

KA064000 A4.06 (3.9/3.9)

START TIME _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	Ensure S/I reset	Same Cue: “S/I Actuated” status light is dark. “S/I RESET” light is lit.		
2	Check 1ETA - ENERGIZED FROM OFFSITE POWER	RO determines 1ETA is NOT energized from offsite power and goes to the RNO. Cue: Green light illuminated on 1ETA Normal breaker		
3	<u>GO TO</u> step 4	Same		
4	Check 1ETA - ENERGIZED FROM 1A D/G	RO determines that 1ETA is not energized from 1A D/G and proceeds to the RNO Cue: Green lamp is illuminated for 1A D/G Emergency Breaker		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
5	<p>Perform the following:</p> <p><u>IF</u> 1A D/G off, <u>THEN GO TO</u> step 15</p> <p><u>IF</u> 1A D/G is running , <u>THEN GO TO</u> step 7</p>	<p>RO determines that 1A D/G is running and proceeds to step 7</p> <p>Cue: 1A D/G is running</p> <p>Cue: 1A D/G is running</p>		
6	<p>Hold "Reset" on "1A D/G Load Seq" while completing steps 8-10</p>	<p>NOTE:</p> <p>The sequencer control power is pulled and it is not required that the reset pushbutton be held down. The RO may realize this and not hold the button. If he does want to hold down the pushbutton, you may allow the simulator runner to hold it for him while he performs the other tasks</p> <p>Same</p> <p>Cue: Pushbutton is depressed</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
7	<p>Unload 1ETA bus as follows:</p> <p>Open 1A CA Pump Breaker</p> <p>Open remaining pump breakers on 1ETA:</p> <p style="padding-left: 40px;">NV</p> <p style="padding-left: 40px;">ND</p> <p style="padding-left: 40px;">NI</p>	<p>Note: Most of the following breakers will already be open and will NOT require pushbutton depression. Each breaker should be verified OPEN. Cue accordingly.</p> <p>Same</p> <p>Cue: Pushbutton depressed, green light is illuminated</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
7	<p>Continued</p> <p>KC</p> <p>RN</p> <p>KF</p> <p>Ensure Train A Containment Spray is reset and open NS Pump breaker.</p> <p>Open 600V essential transformer feeder breakers:</p> <p>1ELXA</p>	<p>Same</p> <p>Cue: Pushbutton depressed, green light is illuminated</p> <p>Same</p> <p>Cue: Pushbutton depressed, green light is illuminated</p> <p>Same</p> <p>Cue: Pushbutton depressed, green light is illuminated</p> <p>Same</p> <p>Cue: Train "A" Containment Spray "Reset" light lit. Pushbutton depressed, green light is illuminated</p> <p>Same</p> <p>Cue: Pushbutton depressed, green light is illuminated</p>		
*				

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
7	Continued			
*	1ELXC	Same Cue: Pushbutton depressed, green light is illuminated		
*	1ELXE	Same Cue: Pushbutton depressed, green light is illuminated		
8	Place "1A D/G MODE SELECT" switch to "C/R"	Same Cue: Switch rotated counterclockwise		
* 9	Close "1ETA EMERG BREAKER"	Same Cue: Pushbutton depressed, red lamp is illuminated		
10	Release "RESET" on "1A D/G LOAD SEQ"	Same Cue: Pushbutton is up		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
11	<p>IF any equipment is manually started in next step, THEN observe the following limitations:</p> <p>Continuous load on 1A D/G should not exceed 4000 KW</p> <p>Maximum load on 1A D/G should not exceed 4400 KW for 2 hours in any 24 hour period</p> <p>Voltage and frequency should be allowed to stabilize before applying the next load group</p>	<p>Same</p> <p>Same</p> <p>Same</p>		
12	<p>Check the following status lights on 1SI-14 - DARK</p> <p>"ELXA STD-BY BKR CLOSED"</p> <p>"ELXC STD-BY BKR CLOSED"</p>	<p>Same</p> <p>Cue: Status lights are dark</p>		
13	<p>Load 1ETA as required:</p>	<p>Note to examiner : As <u>each breaker</u> is closed, cue the operator:</p> <p>Cue:</p> <p>D/G load is less than 4000KW</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
13 *	<p>Continued</p> <p>1ELXA Fdr Breaker - CLOSED</p> <p>1A NV Pump-ON</p> <p>EVCA Batt Charger - ON</p>	<p>Same</p> <p>Cue: Pushbutton depressed, red lamp illuminated</p> <p>Same.</p> <p>Operator determines 1A NV pump is not needed and N/A's this step.</p> <p>Cue: 1A NV pump is not required to be running at this time</p> <p>EVCA Batt Charger is currently powered from U2 due to previous steps in AP/07. The operator <u>may</u> decide to N/A this step.</p> <p>Same</p> <p>Cue: Pushbutton depressed, red lamp illuminated</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
13	<p>Continued</p> <p>Close 1RN-43A (Train B to Non Ess Hdr Isol)</p>	<p>The operator <u>may</u> decide to leave 1RN-43A open to ensure B Train RN is cooling the A Train. <i>IF</i> the operator asks for SRO guidance, give the following cue:</p>		
		<p>CUE: The SRO directs you to close 1RN-43A.</p>		
*	1A RN Pump - On	<p>Same</p> <p>Cue: Pushbutton depressed, green light is illuminated</p> <p>NOTE: Starting the 1A RN pump is critical <u>ONLY</u> if the cross-tie (1RN-43A) was closed in the previous step.</p> <p>Same</p> <p>Cue: Pushbutton depressed, red lamp illuminated</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
13	<p>Continued</p> <p>Ensure the following valves full open:</p> <ul style="list-style-type: none"> * • 1RN-70A (A D/G Hx Inlet Isol) * • 1RN-73A (A D/G Hx Outlet Isol) <p>1A CA Pump - On</p>	<p>Opening 1RN-70A and 1RN-73A are critical <u>only</u> if the RN cross-tie was closed and the 1A RN Pump was started in earlier steps.</p> <p>Same</p> <p>Cue: Pushbutton depressed, red lamp illuminated</p> <p>Cue: Pushbutton depressed, red lamp illuminated</p> <p>Same.</p> <p>Operator determines 1A CA pump is not needed and N/A's this step.</p> <p>Cue: 1A CA pump is not required to be running at this time</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
13	<p>Continued</p> <p>Align RN PER Enclosure 3 (A Train Valve Alignment)</p> <p>On OAC graphic for 1ETA bus, check 1ELXC load center breaker to 1EMXG-CLOSED</p> <p>IF S/I has occurred, THEN align and start equipment PER Enclosure 5 (S/I Equipment Alignment)</p>	<p>Same</p> <hr/> <p>Cue: Another operator will perform Enclosure 3</p> <hr/> <p>Same</p> <p>Cue: Breaker indicates CLOSED on OAC</p> <p>Operator determines no S/I has occurred and proceeds to step 15.</p> <p>Cue: S/I actuated status light is dark. S/I Reset light is lit.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
14	Check 1ETB - ENERGIZED FROM OFFSITE POWER	<p>Operator checks OAC OR looks at the Control Boards to determine ETB is energized from off-site power.</p> <p>Cue:</p> <p>Red lamp illuminated on 1ETB "Normal" breaker, "B" busline is energized</p>		
15	Return to step in effect in body of this procedure	<p>RO returns to step 42 of Case II in AP07</p> <p>Cue:</p> <p>Another operator will continue with AP-07</p>		

STOP TIME _____

* DENOTES CRITICAL

INITIAL CONDITIONS

Unit 1 is operating at 100% power with "B" train equipment in service. Electrical testing of the '1A' Train Diesel Generator Sequencer requires the Control Power to be removed. While in this condition, a low voltage condition occurs on 1ETA. The Diesel Generator has been started manually from the Control Room. The crew has implemented AP/1/A/5500/07 (Loss of Electrical Power) Case II (Loss of Normal Power to either 1ETA or 1ETB) and performing the actions of step 42.

The SRO directs you to load Essential Bus 1ETA by performing AP/1/A/5500/07, Enclosure 1 (Manual Loading of Emergency Bus).

SIMULATOR OPERATIONAL GUIDELINES (DG-13)

1. Reset simulator to IC-39 (100% Power MOL.)
2. Insert **MAL-EQB002A** (Loss of A train Sequencer Control Power).
3. Insert **MAL-EP009A** (opens 1ETA normal supply breaker).
4. Perform subsequent actions of AP/1/A/5500/07 (Loss of Electrical Power), Case II (Loss of either ETA or ETB), through step 41. Check off steps as they are performed.
5. Stabilize the plant
6. Freeze the Simulator
7. Ensure "B" train is running

NOTE :

Simulator runner may be required to hold the 1A Sequencer "RESET" P.B. down during steps 6-10.

TEMPORARY SNAP IC-79 (March, 2007)

Prepared By: A.P. Gelfert
Reviewed By: Charles Sawyer
Approved By: Fred B. King

TASK: **Realign Component Cooling to the NCP's After a Spurious SI**
POSITION: **RO**

Operator's Name _____

Location: **Simulator** Method: **Perform**

Estimated JPM Completion Time: 10 Minutes
Actual JPM Completion Time: _____ Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature _____ Date / /

References: EP/1/A/5000/ES-1.1 Safety Injection Termination
EP/1/A/5000/G-1 Generic Enclosures

JPM verified current with references by _____

Date / /

INITIAL CONDITIONS

You are the Unit 1 Balance of Plant Operator (BOP).

An IAE induced Safety Injection has occurred on Unit 1. All responses have been verified and realignment is in progress per EP/1/A/5000/ES-1.1 (Safety Injection Termination). KC has been realigned to the AB Non Essential Header.

The Control Room SRO directs you to establish NC pump cooling per step 20 of EP/1/A/5000/ES-1.1 (Safety Injection Termination).

JPM OVERALL STANDARD: The Reactor Building Non-Essential Header is aligned from A Train KC and the NCP thermal barrier isolation valves are open.

NOTES: This JPM is designed to be performed as a **SIMULATION** or as a **WALKTHROUGH**. Cues found in shaded boxes should be given to the trainee for either setting.

KA 008 000 A4.01 3.3/3.1

TASK: MO-8301

START TIME _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	<p>Check NC pump cooling:</p> <p>Check KC aligned to reactor bldg non essential header from one of the following trains:</p> <p>A train:</p> <p>1KC-230A (Trn A Rx Bldg Non Ess Sup Isol) – OPEN</p> <p>1KC-3A (Trn A Rx Bldg Non Ess Ret Isol) - OPEN</p> <p>A train KC pumps - ON</p> <p><u>OR</u></p> <p>B train:</p> <p>1KC-228B (Trn B Rx Bldg Non Ess Sup Isol) - OPEN</p> <p>1KC-18B (Rx Bldg Non Ess Return Isol) - OPEN</p>	<p>Same</p> <p>Cue: GREEN light is illuminated</p> <p>Cue: GREEN light is illuminated</p> <p>Cue: Red lights are illuminated</p> <p>Cue: GREEN light is illuminated</p> <p>Cue: GREEN light is illuminated</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	<p>Continued B train KC pumps - ON</p>	<p>Same</p> <p>Cue: Red lights are illuminated</p> <p>Operator determines KC is NOT aligned to the Rx Bldg Non Ess Header and proceeds to the RNO</p>		
2	<p>Perform one of the following based on seal injection status:</p> <p>IF NC pump seal injection established, THEN:</p> <p>Align KC PER EP/1/A/5000/G-1 (Generic Enclosures), Enclosure 14 (Reestablishing KC To Thermal Barriers)</p>	<p>Same</p> <p>Cue: NCP seal injection flow indicates 8 GPM per pump</p> <p>Operator goes to Generic Enclosure 14 to reestablish thermal barrier flow</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
3	<p>(G-1, Enclosure 14)</p> <p>Check both KC trains - IN SERVICE</p>	<p>Same</p> <p>Cue:</p> <p>All four red lights are illuminated</p>		
4	<p>Open the following valves on one operating train while ensuring KC flow remains less than 4000 GPM per pump:</p> <p>A train:</p> <p>* 1KC-3A (Trn A Rx Bldg Non Ess Ret Isol)</p> <p>* 1KC-230A (Trn A Rx Bldg Non Ess Sup Isol)</p> <p style="text-align: center;">OR</p> <p>B train:</p> <p>1KC-18B (Rx Bldg Non Ess Return Isol)</p> <p>1KC-228B (Trn 1B To RB non Ess Sup Isol)</p>	<p>A Train valves are aligned and KC flow is maintained less than 4000 GPM per pump</p> <p>Cue:</p> <p>The SRO requests you to align "A" Train KC</p> <p>Cue:</p> <p>Pushbutton depressed, red light is illuminated</p> <p>Cue:</p> <p>Pushbutton depressed, red light is illuminated</p> <p>N/A</p> <p>N/A</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
5	<p>Open the following:</p> <p>* 1KC-394A (A NC Pump Therm Bar Otlt)</p> <p>* 1KC-345A (C NC Pump Therm Bar Otlt)</p> <p>1KC-425A (NC Pumps Ret Hdr Outside Isol)</p>	<p>Same</p> <p>Note: The following valves may be opened in any order. The Thermal Barrier Isol valves will open, then reclose, due to hi flow.</p> <p>When the first valve recloses, the operator may go to the RNO before attempting to open the remaining valves. Valves that are not opened at this step are not critical.</p> <p>Cue: Pushbutton depressed, red light is illuminated momentarily, then green light illuminates</p> <p>Cue: Pushbutton depressed, red light is illuminated momentarily, then green light illuminates</p> <p>Cue: Red light is illuminated</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
5	<p>Continued</p> <p>* 1KC-364B (B NC Pump Therm Bar Otl)</p> <p>* 1KC-413B (D NC Pump Therm Bar Otl)</p> <p>1KC-338B (NC Pump Sup Hdr Outside Isol)</p> <p>1KC-424B (NC Pumps Ret Hdr Inside Isol)</p>	<p>Cue:</p> <p>Pushbutton depressed, red light is illuminated momentarily, then green light illuminates</p> <p>Same</p> <p>Cue:</p> <p>Pushbutton depressed, red light is illuminated momentarily, then green light illuminates</p> <p>Cue:</p> <p>Red light is illuminated</p> <p>Cue:</p> <p>Red light is illuminated</p> <p>Note: When one or more of the Thermal Barrier Isol valves re-close, the operator should proceed to the RNO.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
6	<p>IF valve(s) will not stay open due to high KC discharge pressure, AND KC has been previously aligned to aux bldg non essential header, THEN:</p> <p>* Raise KC flow to the KF HX's</p> <p>* Re-open valves</p>	<p>Operator increases KC flow to the KF Hx's to decrease KC discharge pressure and then opens the Thermal Barrier Isolation valves</p> <p>Cue: KC pump discharge pressure is 110 PSIG</p> <p>Cue: Knob(s) rotated clockwise, KC flow indication is increasing, and discharge pressure of the KC pumps is decreasing</p> <p>Cue: Pushbuttons depressed on all closed valves, and all valves indicate open</p>		
7	<p>Monitor KC surge tank levels for signs of KC leakage.</p>	<p>Same.</p> <p>CUE: KC Surge Tank levels are stable.</p>		
8	<p>IF AT ANY TIME KC leakage suspected, THEN close the following:...</p>	<p>Operator circles step and goes back to ES-0.1.</p> <p>CUE: KC leakage is not suspected.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
9	<p>Back in ES-0.1, RNO 20.a.2.</p> <p><u>GO TO</u> step 21</p>	<p>Same</p> <p>Cue: Another RO will complete ES-1.1</p> <p>Note: N/A this step if operator terminates JPM after step 6.</p>		

STOP TIME _____

* DENOTES CRITICAL



INITIAL CONDITIONS

You are the Unit 1 Balance of Plant Operator (BOP).

An IAE induced Safety Injection has occurred on Unit 1. All responses have been verified and realignment is in progress per EP/1/A/5000/ES-1.1 (Safety Injection Termination). KC has been realigned to the AB Non Essential Header.

The Control Room SRO directs you to establish NC pump cooling per step 20 of EP/1/A/5000/ES-1.1 (Safety Injection Termination).



SIMULATOR OPERATIONAL GUIDELINES (KC-150A)

1. Reset Simulator to IC-39 100% MOL
2. Manually initiate Trn A & B SI
3. Perform the actions of EP/E-0, transition to EP/ES-1.1 and complete up through subsequent step 19.
4. Insert MAL KC008C, value = 0 and MAL KC007D, value = 0 to fail closed 1KC-228 and 1KC-18.
5. Open B train KC to KF control valve to establish 2000 gpm flow
6. Ensure "A" train KC to KF control valve to 0% open
7. Close all NCP thermal barrier isolation valves
8. Verify the plant is stable
9. Freeze the Simulator

**TEMPORARY SNAP IC-80
March, 2007**

Prepared By: L.P. Bell
Reviewed By: Charles Sawyer
Approved By: Treed B. Smith

TASK: **Respond to EMF-35 (Unit Vent Particulate) Hi Rad Alarm**

POSITION: **RO/SRO**

Operator's Name _____

Location: **Simulator** Method: **Perform**

Estimated JPM Completion Time: 10 Minutes

Actual JPM Completion Time: _____ Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature _____ Date / /

References:

JPM verified current with references by _____

Date / /

Rev. 00 / 11-13-06

INITIAL CONDITIONS

Unit 1 is at 100% power. The following alarm is received on 1RAD2-A1: 1EMF-35 Unit Vent Part Hi Rad. The RO observes 1EMF-35 to be in Trip 2 condition and determines the alarm to be valid.

The SRO directs you to respond to the 1EMF-35 Trip 2 alarm.

JPM OVERALL STANDARD: VA Filters placed in "TEST" (Filter mode). "A" Train CR Outside Air Pressure Fan placed in service.

NOTES:

KA: 073 G.2.3.10 (2.9/3.3)
061 AA1.01 (3.6/3.6)

START TIME _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
1	<p>From ARP OP/1/A/6100/010 R, A1:</p> <p>Ensure Aux Building Unfiltered Exhaust Fans trip.</p>	<p>Same.</p> <p>CUE: Green lights lit.</p>		
* 2	<p>Place Aux Building Ventilation in the FILTER MODE by selecting "TEST" with the "VA Filter Units 1A Test" AND "VA Filter Units 1B Test" switches until the cause of the Hi Rad condition can be determined.</p>	<p>Same.</p> <p>CUE: Switches rotated to the TEST position.</p>		
3	<p>IF a valid EMF-35 (Trip 2) alarm does NOT clear within 5 minutes of the alarm initiation time, do the following:</p> <p>Ensure at least one train of VC outside air pressure filtration is in service per OP/0/A/6450/011 (Control Area Ventilation / Chilled Water System) Enclosure 4.4 (Control Room Atmosphere Pressurization During Abnormal Conditions).</p>	<p>CUE: 5 minutes have elapsed.</p> <p>When Operator obtains Control Copy of OP/0/A/6450/011 or asks for a Working Copy, give him/her a copy of Enclosure 4.4.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
4	<p>From OP/0/A/6450/011, Enclosure 4.4:</p> <p>Initial Conditions</p> <ul style="list-style-type: none"> • Control Room atmosphere has been determined to be in need of pressurization to protect Control Room personnel. • VC/YC Train A OR B is selected and is in operation per this procedure. 	Operator signs off both Initial Conditions and continues to the next step.		
5	Evaluate all outstanding R&Rs that may impact performance of this procedure.	<p>Same.</p> <hr/> <p>CUE:</p> <p>No outstanding R&Rs affect performance of this procedure.</p> <hr/>		
6	<p>Pressurize Control Room using Outside Air Pressure Fans as follows:</p> <p>Ensure one of the following groups of intake valves open:</p> <ul style="list-style-type: none"> • 1VC-1A (VC Otsd Air Intake Isol from Unit 1) • 1VC-2A (VC Otsd Air Intake Isol from Unit 1) • 1VC-3B (VC Otsd Air Intake Isol from Unit 1) 	<p>Same.</p> <hr/> <p>CUE:</p> <p>Intake Isolation valves from Unit 1 are open.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
6	<p>Continued</p> <ul style="list-style-type: none"> • 1VC-4B (VC Otsd Air Intake Isol from Unit 1) <p>OR</p> <ul style="list-style-type: none"> • 1VC-9A (VC Otsd Air Intake Isol from Unit 2) • 1VC-10A (VC Otsd Air Intake Isol from Unit 2) • 1VC-11B (VC Otsd Air Intake Isol from Unit 2) • 1VC-12B (VC Otsd Air Intake Isol from Unit 2) 	N/A		
7	<p>IF A Train VC/YC operating, place "A Train CR Outside Air Press Fan" to "ON".</p>	N/A		
* 8	<p>IF B Train VC/YC operating, place "B Train CR Outside Air Press Fan" to "ON".</p>	<p>Same.</p> <p>CUE:</p> <p>Switch rotated clockwise.</p>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
9	Depress "MAN" for the following (to ensure fans off): <ul style="list-style-type: none"> • #1 CRA Otsd Air Fan • #2 CRA Otsd Air Fan 	Same. CUE: "MAN" pushbuttons depressed.		
* 10	Depress "OFF" for the following: <ul style="list-style-type: none"> • CRA-OAD-4 (CR Area Otsd Air Fans Damper) • CRA-OAD-3 (CR Area Otsd Air Fan Damper) 	Same. CUE: "OFF" pushbuttons depressed.		
11	Check the following dark: <ul style="list-style-type: none"> • CRA-OAD-4 (CR Area Otsd Air Fans Damper) "OPEN" light • CRA-OAD-3 (CR Area Otsd Air Fans Damper) "OPEN" light 	Same. CUE: "OPEN" lights are dark.		
12	WHEN desired to stop pressurization of Control Room atmosphere, perform the following:....	Operator determines pressurization of CR atmosphere should NOT be stopped, and returns to the ARP for 1RAD-2, A1.		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
13	<p>From ARP OP/1/A/6100/010 R, A1:</p> <p>WHEN the EMF-35 (Trip 2) alarm resets, do the following:</p> <ol style="list-style-type: none"> 1. 2. 	N/A		
14	Notify RP	<p>Operator simulates calling RP and informs them of the Trip 2 alarm.</p> <p>CUE: RP has been notified.</p>		
15	<p>WHEN RP has determined that filtration is no longer required AND the alarm has cleared, return Aux Building Ventilation System to normal operation per OP/0/A/6450/003 (Auxiliary Building Ventilation System).</p>	<p>N/A</p> <p>CUE: RP will notify the Control Room when filtration is no longer required.</p>		

STOP TIME _____

* DENOTES CRITICAL

INITIAL CONDITIONS

Unit 1 is at 100% power. The following alarm is received on 1RAD2-A1: 1EMF-35 Unit Vent Part Hi Rad. The RO observes 1EMF-35 to be in Trip 2 condition and determines the alarm to be valid.

The SRO directs you to respond to the 1EMF-35 Trip 2 alarm.

SIMULATOR OPERATORS GUIDELINES (EMF-257)

1. Reset to IC-39
2. Insert the following malfunctions:
MAL- EMF135L = 200 CPMM
MAL- EMF137 = 200 CPMM
3. Freeze simulator

Nomenclature: **1EMF 35 UNIT VENT
PART HI RAD**

Window: **A1**

Setpoint: Trip 2

Origin: 1EMF-35 Beta Scintillation Detector (low range)

Probable Cause: High Particulate activity from one of the combined ventilation system discharges to the atmosphere

Automatic Action: Stops Aux Building Unfiltered Exhaust Fans (ABUXF-1A, 1B, and ABUXF-2A, 2B).

Immediate Action:

1. Ensure Aux Building Unfiltered Exhaust Fans trip.
2. Place Aux Building Ventilation in the FILTER MODE by selecting "TEST" with the "VA Filter Units 1A Test" **AND** "VA Filter Units 1B Test" switches until the cause of the Hi Rad condition can be determined.

Supplementary Action:

1. **IF** a valid 1EMF-35 (Trip 2) alarm does **NOT** clear within 5 minutes of the alarm initiation time, do the following:
 - A. Ensure at least one train of VC outside air pressure filtration is in service per OP/0/A/6450/011 (Control Area Ventilation/Chilled Water System) Enclosure 4.4 (Control Room Atmosphere Pressurization During Abnormal Conditions).
 - B. **WHEN** the 1EMF-35 (Trip 2) alarm resets, do the following:
 1. Request OSM to determine final alignment of VC/YC.
 2. Align VC/YC as determined by OSM using OP/0/A/6450/011 (Control Area Ventilation/Chilled Water System).

Continue On Next Page

2. Notify RP.
3. **WHEN** RP has determined that filtration is no longer required **AND** the alarm has cleared, return Aux Building Ventilation System to normal operation per OP/0/A/6450/003 (Auxiliary Building Ventilation System).

- References:**
- MC-1577-1
 - MC-1499-MI6 (Instrument Details)
 - HP/0/B/1003/008 (Determination of Radiation Monitor Setpoints (EMFs))

End Of Response

**Control Room Atmosphere Pressurization
During Abnormal Conditions**

1. Limits and Precautions

- 1.1 Maximum Control Room Area temperature is 90°F.
- 1.2 "TRN A" or "TRN B" must always be selected by "VC/YC Trn A (B) Mode Select" switch to provide for proper operation of VC/YC System under B/O or SI conditions. Without either Train being selected, neither chiller will run during a B/O or SI event.
- 1.3 Running CR Outside Air Press Fans when both outside air pressure filter trains intake locations are isolated is prohibited.

2. Initial Conditions

- ___ 2.1 Control Room atmosphere has been determined to be in need of pressurization to protect Control Room personnel.
- ___ 2.2 VC/YC Train A **OR** B is selected and is in operation per this procedure.

3. Procedure

- 3.1 Evaluate all outstanding R&Rs that may impact performance of this procedure.

- 3.2 Pressurize Control Room using Outside Air Pressure Fans as follows:

- 3.2.1 Ensure one the following groups of intake valves open:

___ ___ • 1VC-1A (VC Otsd Air Intake Isol from Unit 1)
DV

___ ___ • 1VC-2A (VC Otsd Air Intake Isol from Unit 1)
DV

___ ___ • 1VC-3B (VC Otsd Air Intake Isol from Unit 1)
DV

___ ___ • 1VC-4B (VC Otsd Air Intake Isol from Unit 1)
DV

OR

___ ___ • 1VC-9A (VC Otsd Air Intake Isol from Unit 2)
DV

___ ___ • 1VC-10A (VC Otsd Air Intake Isol from Unit 2)
DV

___ ___ • 1VC-11B (VC Otsd Air Intake Isol from Unit 2)
DV

___ ___ • 1VC-12B (VC Otsd Air Intake Isol from Unit 2)
DV

**Control Room Atmosphere Pressurization
During Abnormal Conditions**

 DV 3.2.2 **IF** A Train VC/YC operating, place "A Train CR Outside Air Press Fan" to "ON".

 DV 3.2.3 **IF** B Train VC/YC operating, place "B Train CR Outside Air Press Fan" to "ON".

3.2.4 Depress "MAN" for the following (to ensure fans off):

 DV • #1 CRA Otsd Air Fan

 DV • #2 CRA Otsd Air Fan

3.2.5 Depress "OFF" for the following:

 • CRA-OAD-4 (CR Area Otsd Air Fans Damper)

 • CRA-OAD-3 (CR Area Otsd Air Fans Damper)

3.2.6 Check the following dark:

CRA-OAD-4 (CR Area Otsd Air Fans Damper) "OPEN" light

CRA-OAD-3 (CR Area Otsd Air Fans Damper) "OPEN" light

 3.3 **WHEN** desired to stop pressurization of Control Room atmosphere, perform the following:

3.3.1 Place operating CR Outside Air Press Fan to "OFF".

 DV • A Train CR Outside Air Press Fan

 DV • B Train CR Outside Air Press Fan

3.3.2 Depress "OPEN" for the following:

 • CRA-OAD-4 (CR Area Ostd Air Fans Damper)

 • CRA-OAD-3 (CR Area Ostd Air Fans Damper)

3.3.3 Check the following lit:

CRA-OAD-4 (CR Area Otsd Air Fans Damper) "OPEN" light

CRA-OAD-3 (CR Area Ostd Air Fans Damper) "OPEN" light

3.3.4 Ensure the following in "AUTO":

 DV • #1 CRA Otsd Air Fan

 DV • #2 CRA Otsd Air Fan

3.3.5 Check CRA Otsd Air Fan operating for VC/YC Train selected.

End of Enclosure

Prepared By: L.P. Bisset
Reviewed By: Chuck Sawyer
Approved By: Aud B. Bisset

TASK: **Perform the Main Turbine Overspeed Trip Test**

POSITION: **RO/SRO**

Operator's Name _____

Location: **Simulator** Method: **Perform**

Estimated JPM Completion Time: 15 Minutes

Actual JPM Completion Time: _____ Minutes

The JPM Operator's performance was evaluated against the standards of this JPM and is determined to be:

SATISFACTORY/UNSATISFACTORY (circle one)

Evaluator's Signature _____ Date / /

References: PT/1/A/4250/004 C Turbine OPC and Mechanical Overspeed Trip Test

JPM verified current with references by _____

Date / /

INITIAL CONDITIONS

- Unit 1 is starting up after a refueling outage.
- The Turbine/Generator is off line and rolling at 1800 RPM in preparation of performing PT/1/A/4250/004C (Turbine OPC and Mechanical Overspeed Trip Test).
- All prerequisite conditions have been met and two operators have been stationed at the Turbine as required.
- Communications have been established with all involved.

The SRO instructs you to complete PT/1/A/4250/004C, beginning with step 12.7.

JPM OVERALL STANDARD: Turbine speed is increased to OPC setpoint. Speed is then increased until the Turbine Overspeed trip should be actuated. The operator recognizes the turbine has failed to trip at the expected setpoint and then manually trips the Turbine.

NOTES: A copy of PT/1/A/4250/004C, signed up through step 12.6, shall be provided during turnover.

This JPM is designed to be performed as a **SIMULATION** or as a **WALKTHROUGH**. Cues found in shaded boxes should be given to the trainee for either setting.

Provide an operator to acknowledge unrelated alarms and control Reactor Power (since Rods are in "Manual").

Ensure "OPC" key #63 (test key) is available.

KA 045 A3.08 (3.3*/3.5*)

START TIME _____

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*1	Depress ACC RATE	Same Cue: Pushbutton depressed		
*2	Enter acceleration rate of 25 RPM/MIN in "Variable Display".	Same Cue: Data inserted		
*3	Depress REFERENCE	Same Cue: Pushbutton depressed		
*4	Enter speed of 1860 rpm in the "Variable Display" window.	Same Cue: Data inserted		
*5	Depress "GO"	Same Cue: Pushbutton depressed		
6	Check Turbine starts increasing speed at selected rate	Same Cue: Turbine speed is increasing at the selected rate		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
7	<p>IF demand speed of 1860 rpm is reached before OPC Controller actuates, reduce Turbine speed to 1800 rpm (100%)</p> <ul style="list-style-type: none"> • IF unable to reduce speed, have operator at Turbine Trip Lever trip Turbine. 	<p>Same</p> <p>NOTE:</p> <p>Operator will N/A this step if OPC controller functions properly</p> <p>Cue:</p> <p>The OPC Controller has actuated properly</p>		
*8	<p>When OPC Controller actuated, place "OPC" in "MECHANICAL OVERSPEED TEST" using "OPC" key #63.</p>	<p>Same</p> <p>Cue:</p> <p>Key in switch and rotated clockwise</p>		
9	<p>IF LH header pressure fails to recover, following an OPC controller actuation, perform the following:.....</p>	<p>Operator will N/A this step if LH header pressure is recovering as indicated on OAC or chart recorder.</p> <p>Cue:</p> <p>LH header pressure is recovering</p>		
10	<p>Record on Enclosure 13.1 (Turbine OPC Overspeed Test and Turbine Overspeed Mechanical Trip Test Data Sheet) the actual speed at which the Turbine OPC Controller actuated.</p>	<p>Same</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Cue:</p> <p>Another operator will log the data.</p> </div>		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
11	Block Overfrequency Trip Relay by simultaneously opening all knife switches on GENERATOR NO 1 OVERFREQUENCY TEST BLOCK located on 1EB8	Same Cue: The Overfrequency Trip Relay has been blocked		
*12	Depress "ACC RATE".	Same Cue: Pushbutton depressed		
*13	Enter acceleration rate of 50 rpm/min in "Variable Display".	Same Cue: Data inserted		
*14	Depress "REFERENCE".	Same Cue: Pushbutton depressed		
*15	Enter speed of 2000 rpm in "Variable Display".	Same Cue: Data inserted		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*16	Depress "GO".	Same Cue: Pushbutton depressed		
17	Check Turbine starts increasing speed to 2000 rpm at selected rate.	Same Cue: Turbine speed is increasing		

* DENOTES CRITICAL

STEPS	ELEMENTS	STANDARD	S/U	COMMENTS REQUIRED FOR UNSAT
*18	<p>CAUTION: The Mechanical Overspeed Trip must occur at or before 1998 RPM (111%)</p> <p>IF Turbine speed reaches 1998 rpm (111%) before Mechanical Overspeed Trip actuates, trip Turbine.</p>	<p>Operator determines Turbine <u>has not tripped</u> at or before 1998 RPM and manually trips the turbine after recognizing the failure. (Operator may decide to trip the turbine when annunciator 1AD-1,B-9, "TURBINE OVER SPEED (111%) TURB TRIP" comes in). Operator verifies Turbine is tripped by checking speed decreasing; Turbine graphics and/or TV closed Status lights lit.</p> <p>Cue: Turbine speed indicates 1999 RPM and is increasing (<u>After</u> Turbine is manually tripped)</p> <p>Cue: All Throttle and Governor valves indicate closed, speed is decreasing.</p>		
19	Record on Enclosure 13.1 (Turbine OPC Overspeed Test and Turbine Overspeed Mechanical Trip Test Data Sheet) the actual speed at which the Turbine trips.	<p>Cue: The SRO has directed another operator to log the test data and complete this procedure.</p>		

STOP TIME _____

* DENOTES CRITICAL

INITIAL CONDITIONS

- Unit 1 is starting up after a refueling outage.
- The Turbine/Generator is off line and rolling at 1800 RPM in preparation of performing PT/1/A/4250/004C (Turbine OPC and Mechanical Overspeed Trip Test).
- All prerequisite conditions have been met and two operators have been stationed at the Turbine as required.
- Communications have been established with all involved.

The SRO instructs you to complete PT/1/A/4250/004C, beginning with step 12.7.

SIMULATOR OPERATIONAL GUIDELINES (EHC-154A)

1. Reset to IC-30, Turbine at 1800 RPM
2. Insert malfunction: MAL-DEH003A, Failure of Auto Turbine Trip
3. Place voltage regulator switch to "MAN" position.
4. Ensure "excitation" is in "TRIP"
5. Ensure Main Gen MOD's open.
6. Freeze the Simulator

NOTES: A copy of PT/1/A/4250/004C, signed up through step 12.6 shall be provided during turnover.

Provide an operator to acknowledge unrelated alarms and control Reactor Power (since Rods are in "Manual").

Ensure test key #63 is available.

Duke Power Company
McGuire Nuclear Station

Procedure No.

PT/ 1/A/4250/004 C

Revision No.

011

**Turbine OPC and Mechanical Overspeed
Trip Test**

Electronic Reference No.

MC0047W7

Continuous Use

PERFORMANCE

***** UNCONTROLLED FOR PRINT *****

(ISSUED) - PDF Format

Revision History (significant issues, limited to one page)

Rev 011 (5/26/05)

- Added step to check Acceptance Criteria met. Procedure had no step to check Acceptance Criteria after test was complete.
- Changed Acceptance Criteria from "OPC Controller must actuate to reduce the Turbine speed at or below OPC Controller setpoint of 1854 rpm (103%)." to "OPC Controller must actuate between 1850 rpm and 1858 rpm to reduce the Turbine speed to less than OPC Controller setpoint of 1854 rpm (103%)." Step was confusing and implied that Acceptance Criteria was not met if Turbine speed increased above 1854 rpm. The 4rpm range above and below the setpoint of 1854 rpm, is within the accuracy of the Control Board meter. {PIP-M-05-1985}
- Added note to existing note before Step 2.11 that the digital Control Board meter should be used for Turbine speed. The same speed transmitter that feeds the OPC Controller also feeds the Control Board meter.

Rev 010 (8/5/04) Added new step 12.2 for Reactivity Sensitivity

Rev 009 (06/24/03)

- Added note prior to step 12.30.2 stating that based on new single valve curve governor valves are full open at 50.2%.

Rev 008 (07/24/01)

- No Technical changes made. Converted to standard template.

Turbine OPC And Mechanical Overspeed Trip Test

1. Purpose

To test Electrical Overspeed Protection Device on Main Turbine by intentionally increasing Turbine speed to OPC Controller Limit Setpoint and observing Intercept/Governor Valves closing, bringing Turbine speed below OPC Controller limit of 103%.

To test Mechanical Overspeed Trip Device on Main Turbine by intentionally increasing Turbine speed to Overspeed Trip Setpoint.

2. References

2.1 McGuire FSAR:

- 10.2.2 (Turbine Generator - Description)
- 10.2.5 (Turbine Generator - Tests and Inspections)

2.2 Selected License Commitment Manual 16.7.5

2.3 MCM-1200.00-152, Westinghouse Instruction Book 1250-C831, "Steam Turbine for Duke Power Company--McGuire Station" (Volume 1).

2.4 OP/1/A/6300/001 (Turbine-Generator Startup/Shutdown)

3. Time Required

3.1 Three operators for 45 minutes during each refueling outage.

4. Prerequisite Tests

None

5. Equipment Required

5.1 "OPC" test key #63

6. Limits and Precautions

6.1 Maximum Low Pressure Turbine steam inlet temperature is 400°F.

6.2 Maximum allowed Turbine Vibration is 14.0 mils (16.0 mils for #11 Bearing).

7. Required Unit Status

APB 7.1 Rx power 12 - 15% RTP.

8. Prerequisite System Conditions

APB 8.1 The Turbine-Generator is at 1800 rpm per OP/1/A/6300/001 (Turbine-Generator Startup/Shutdown).

APB 8.2 Generator Breakers 1A and 1B are open.

APB 8.3 Turbine Electronic Governor is operating and has control of Turbine.

APB 8.4 Turbine-Generator has been operating at greater than 112 MWe for greater than two hours.

9. Test Method

Overspeed Protection Controller (OPC) Test will be accomplished by setting a pre-determined target overspeed in Turbine Controller. One operator will be stationed at Turbine to monitor for abnormal vibration, noise, etc., during test. Another operator, in communication with Control Room, shall stand by Local Trip Lever ready to manually trip Turbine instantly in the event the Control Operator is unable to reduce Turbine speed after it reaches demand speed. Acceptance Criteria (Section 11) is satisfied when OPC Controller actuates to reduce Turbine speed less than or equal to OPC Controller setpoint (103%) by closing Intercept and Governor Valves.

Mechanical overspeed test is accomplished by setting a pre-determined target overspeed in Turbine Controller. "OPC" key-switch must be in "MECHANICAL OVERSPEED TEST" position to enable Turbine to exceed OPC Trip setpoint. An operator will be stationed at Turbine to monitor for abnormal vibration, noise, etc., during test, and another operator in communication with Control Room at all times shall stand by Local Trip Lever ready to manually trip Turbine instantly if it fails to trip automatically at target speed. Acceptance Criteria (Section 11) is satisfied if Mechanical Overspeed Trip Device actuates to trip Turbine at or prior to 1998 rpm (111%).

10. Data Required

- 10.1 Record in Enclosure 13.1 (Turbine OPC Overspeed Test and Turbine Overspeed Mechanical Trip Test Data Sheet) actual Turbine speed where OPC Controller actuates.
- 10.2 For mechanical overspeed test, record in Enclosure 13.1 (Turbine OPC Overspeed Test and Turbine Overspeed Mechanical Trip Test Data Sheet) the actual speed at which Turbine trips.
- 10.3 Record in Enclosure 13.1 (Turbine OPC Overspeed Test and Turbine Overspeed Mechanical Trip Test Data Sheet) the verification that the electrical overspeed at 1998 rpm (111%) failed to trip Turbine.

11. Acceptance Criteria

- 11.1 OPC Controller must actuate between 1850 rpm and 1858 rpm to reduce the Turbine speed to less than or equal to OPC Controller setpoint of 1854 rpm (103%).
- 11.2 Mechanical Overspeed Trip Device must actuate to trip the Turbine at or prior to reaching Turbine speed of 1998 rpm (111%).

12. Procedure

- 12.1 Evaluate all outstanding R&Rs that may impact performance of this procedure.

FBK
SRO 12.2 Ensure that a pre-job briefing has been performed that includes discussion of reactivity management concerns with this procedure.

- 12.3 Station an operator at Turbine to monitor for abnormal conditions.

- 12.4 Station an operator at Local Turbine Trip Lever.

- 12.5 Station an operator at Turbine Control Panel in Control Room.

NOTE: Operators performing test shall maintain direct communications throughout test.

- 12.6 Establish communication between operators performing test.

___ 12.7 Depress "ACC RATE".

___ 12.8 Enter acceleration rate of 25 rpm/min in "Variable Display".

___ 12.9 Depress "REFERENCE".

___ 12.10 Enter speed of 1860 rpm in "Variable Display".

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- NOTE:**
- Steps 12.11 - 12.14 should be read and understood for quick performance. Once OPC Controller actuates, going to "Mechanical Overspeed Test" on Turbine will prevent multiple actuation of OPC Controller and loss of LH header pressure.
 - The digital Control Board meter should be used in the following steps.

12.11 Depress "GO".

12.12 Check Turbine starts increasing speed at selected rate.

_____ 12.13 **IF** demand speed of 1860 rpm is reached before OPC Controller actuates, reduce Turbine speed to 1800 rpm (100%).

_____ 12.13.1 **IF** unable to reduce speed, have operator at Turbine Trip Lever trip Turbine.

_____ 12.14 **WHEN** OPC Controller actuated, place "OPC" in "MECHANICAL OVERSPEED TEST" using "OPC" key #63.

_____ 12.15 **IF** LH header pressure fails to recover following an OPC controller actuation, perform the following:

_____ 12.15.1 Trip the turbine.

_____ 12.15.2 Depress "LATCH" until lit.

_____ 12.15.3 Depress "ACC RATE".

_____ 12.15.4 Enter acceleration rate of 25 rpm/min in "Variable Display".

_____ 12.15.5 Depress "REFERENCE".

_____ 12.15.6 Enter speed of 1800 rpm in "Variable Display".

_____ 12.15.7 Depress "GO".

12.15.8 Check Turbine starts increasing speed at selected rate.

12.16 Record on Enclosure 13.1 (Turbine OPC Overspeed Test and Turbine Overspeed Mechanical Trip Test Data Sheet) actual speed at which Turbine OPC Controller actuated.

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NOTE: Steps 12.17 - 12.24 test Mechanical Overspeed Trip mechanism.

- _____ 12.17 Block Overfrequency Trip Relay by simultaneously opening all knife switches on "GENERATOR NO. 1 OVERFREQUENCY TEST BLOCK" located on 1EB8.
- _____ 12.18 Depress "ACC RATE".
- _____ 12.19 Enter acceleration rate of 50 rpm/min in "Variable Display".
- _____ 12.20 Depress "REFERENCE".
- _____ 12.21 Enter speed of 2000 rpm in "Variable Display".
- _____ 12.22 Depress "GO".
- 12.23 Check Turbine starts increasing to 2000 rpm at selected rate.

CAUTION: The Mechanical Overspeed Trip must occur at or before 1998 rpm (111%).

- _____ 12.24 **IF** Turbine speed reaches 1998 rpm (111%) before Mechanical Overspeed Trip actuates, trip Turbine.
- 12.25 Record on Enclosure 13.1 (Turbine OPC Overspeed Test and Turbine Overspeed Mechanical Trip Test Data Sheet) actual speed at which Turbine trips.
- 12.26 Record on Enclosure 13.1 (Turbine OPC Overspeed Test and Turbine Overspeed Mechanical Trip Test Data Sheet) OAC Point M1S0234 alarm status.
- _____ 12.27 Restore Overfrequency Trip Relay by closing all knife switches on "GENERATOR NO. 1 OVERFREQUENCY TEST BLOCK" located on 1EB8.
- _____ 12.28 Place "OPC" in "OFF".
- _____ 12.29 Return "OPC" key #63 to WCC SRO.
- 12.30 Check Acceptance Criteria met as follows:
 - _____ 12.30.1 OPC Controller actuated between 1850 rpm and 1858 rpm to reduce the Turbine speed to less than or equal to OPC Controller setpoint of 1854 rpm (103%).
 - AND
 - _____ 12.30.2 Mechanical Overspeed Trip Device actuated to trip the Turbine at or prior to reaching Turbine speed of 1998 rpm (111%).

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_____ 12.31 **IF** power reduction was in progress, continue turbine-generator shutdown per OP/1/A/6300/001 (Turbine-Generator Startup/Shutdown).

_____ 12.32 **IF** power increase was in progress, complete the following:

_____ 12.32.1 **WHEN** turbine speed less than 1800 rpm, depress "LATCH" until lit.

NOTE: WHEN in single valve mode, governor valve full open position is 50.2%.
--

12.32.2 Check open the following:

- Governor Valves
- Intercept Valves
- Reheat Stop Valves

_____ 12.32.3 **IF** turbine speed less than 1800 rpm, perform the following:

_____ 12.32.3.1 Depress "ACC RATE".

_____ 12.32.3.2 Enter acceleration rate of 25 rpm/min in "Variable Display".

_____ 12.32.3.3 Depress "REFERENCE".

_____ 12.32.3.4 Enter speed of 1800 rpm in "VARIABLE DISPLAY".

_____ 12.32.3.5 Depress "GO".

12.32.3.6 Check "REFERENCE" display starts counting up to 1800 rpm at selected acceleration rate.

12.32.4 **WHEN** Turbine speed is 1800 rpm, synchronize the generator to grid per OP/1/A/6300/001 (Turbine-Generator Startup/Shutdown).

13. Enclosures

13.1 Turbine OPC Overspeed Test and Turbine Overspeed Mechanical Trip Test Data Sheet.

End Of Body

Unit 1

Enclosure 13.1
Turbine OPC Overspeed Test and Turbine
Overspeed

PT/1/A/4250/004 C
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Step	rpm	Initials
Speed at which OPC Controller actuated (Step 12.16)		
Speed at which mechanical overspeed actuated to trip the turbine (Step 12.25)		
OAC Point M1S0234 out of alarm (Step 12.26)	N/A	
Remarks:		

Check One:

- No Discrepancy
- Discrepancy Sheet Attached

End Of Enclosure

Unit 1