

NINE MILE POINT NUCLEAR STATIONMAINTENANCE INSTRUCTIONPROCEDURE NO. S-MI-GEN-002MAINTENANCE INSTRUCTIONS FOR WRITING PROCEDURES

<u>APPROVALS</u>	<u>SIGNATURES</u>	<u>DATE AND INITIALS</u>		
		<u>REVISION 0</u>	<u>REVISION 1</u>	<u>REVISION 2</u>
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Summary of PagesRevision 0 Effective (4/1/86)PAGESDATE

1-14

March 1986

Supersedes MI-2.0

NIAGARA MOHAWK POWER CORPORATION

THIS PROCEDURE NOT TO BE
USED AFTER APRIL 1990
SUBJECT TO PERIODIC REVIEW.

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MAINTENANCE INSTRUCTION FOR WRITING PROCEDURES

GENERAL REQUIREMENTS

The following guidelines are given to ensure Nine Mile Point Units 1 and 2 Maintenance procedures conform to formats and procedure development as specified by NMPC. This instruction to be used for all types maintenance procedures except for surveillance procedures. This instruction enhances the administration procedure AP-2 Production and Control of Procedures.

1. Procedure titles shall describe the purpose of the procedure. If the procedure is for preventive maintenance, the title should include frequency.
2. All procedures shall have an unsigned "NMPC Title Page" to identify the type of procedure generated.
3. When information is unavailable to generate a complete procedure "rough draft", the procedure shall have a "LATERS PAGE" attached. Each identified item on the "LATERS PAGE" shall include the step number of the "LATER" and should include a description of the required information for each "LATER". Unavailable information shall be identified as (LATER) in the procedure text. All "(LATERS)" should be resolved prior to writing the "final draft."
4. Procedure cover sheets, margins and spacing, page numbers, revisions, and dates will comply with AP-2.0 Production and Control of Procedures. A table of contents may be included in the procedure.
5. All NOTES, CAUTIONS, and WARNINGS (not to be confused with Section 5.0 PRECAUTIONS AND LIMITATIONS) shall be capitalized, underlined, and placed before the applicable steps.
 - 5.1 NOTE: Refers to general information or for clarifying purposes regarding the step performance. For example:

"NOTE: In the following step, refer to Figure 4 of Attachment 10.1 for identification of parts."
 - 5.2 CAUTION: is applicable when the actions of the person(s) performing the step/task may cause possible equipment damage if the step/task is not performed properly. For example:

"CAUTION: In the following step, use care to prevent the stem/disc assembly from dropping out of the valve bonnet during valve bonnet removal."



- 5.3 WARNING: is applicable when the actions of the person(s) performing the step/task may cause possible personnel injury and/or death if the step/task is not performed properly. For example:

"WARNING: In the following step, loosen all vessel cover nuts in a star or criss-cross pattern and ensure all torque loads are removed from each stud before removing the nuts. Random removal of the vessel cover nuts will cause an increasing load on remaining fasteners which might cause the fasteners to fail and allow the cover to flip off the vessel."

- 5.4 Generally, the use of notes should be minimized. Substeps or steps are preferred.

6. If an abbreviation is used in the procedure, define it the first time used. For example: CRD (Control Rod Drive).

7. Terms Denoting Degree of Action

- 7.1 "Shall" is used to denote a requirement.
- 7.2 "Should" is used to denote a recommendation which, if not acted upon, will require an explanation justifying the action taken.
- 7.3 "May" is used to denote permission, neither a requirement nor a recommendation.
- 7.4 "Will" is simply a statement of what is to be done or what is expected. It is neither a requirement or a recommendation.
- 7.5 The terms defined in Section 1 of the Technical Specifications shall be effective for all procedures and orders generated at the site.
- 8.0 Data Sheets in the body of the procedure shall be used when the procedure is extremely short or the frequency of performance is extremely long which would not allow maintenance personnel to become intimately familiar with the procedure.
- 9.0 Ranges shall be expressed in accordance with NUREG 1369, Rev. 1. For example: 125 (119-131) gpm - acceptable (preferred).



10. Procedure Numbers

10.1 The numbering system is as follows:

Na - bbb - ccc - deee

a = Unit

- 1 - Unit 1
- 2 - Unit 2
- S - Site (Delete N for site procedures)

bbb = Procedure Type

- EMP = Electrical Maintenance Procedure
- EPM = Electrical Preventive Maintenance Procedure
- *FHP = Fuel Handling Procedure
- *MI = Maintenance Instruction
- MMP = Mechanical Maintenance Procedure
- MPM = Mechanical Preventive Maintenance Procedure
- *WPS = Welding Procedure Specification
- *NOTE: NS-MI-GEN-002 applies for procedure numbering only

ccc = system designator per AP-5.0

- GEN = general procedure or multisystem procedure
- 01 = example of Unit 1 system designator
- MSS = example of Unit 2 system designator

d = frequency designator (when applicable)

- S = At least once per 12 hours.
- D = At least once per 24 hours.
- W = At least once per 7 days.
- M = At least once per 31 days.
- Q = At least once per 92 days.
- SA = At least once per 184 days.
- A = At least once per 366 days.
- R = At least once per 24 months (Unit 1).
At least once per 18 months (550 days) (Unit 2).
- SU = Prior to each reactor startup.
- fY = At least once per "f" years where f is 2 years or greater.
- V = A variable frequency.
- RF = At least once per 24 months (Unit 1) and normally performed during refueling outage.
At least once per 18 months (Unit 2) and normally performed during refueling outage.

Where several frequencies are stated in a procedure, the most frequent designator should be selected as the frequency designator.

eee = Sequential whole number by procedure type should be used.



10.2 An example of a procedure number is as follows:

For example: N1-EMP-01-001
N2-MPM-MSS-5Y002
S-EPM-GEN-A003

11. Where technical manuals are applicable to the procedure, the information in the technical should be included in the procedure body. An exception to this practice may be where a large technical manual is involved. There, the procedure steps may refer to the sections and pages in the technical manual.
12. Meter and Test Procedures cover sheets should include the M&T Superintendent after the Maintenance Superintendent. On data sheets, the Meter and Test Supervisor should sign before the Assistant Supervisor. M&T, rather than maintenance, should be indicated on the steps requiring M&T signoff.
13. For installation procedures, the Manager of Nuclear Design should sign on the coversheet. For non-safety related procedures the General Superintendent signature should be deleted.
14. The following procedure format shall be followed. If a procedure element is not applicable, that procedure element shall be listed with a mark N/A after that element.



PROCEDURE ELEMENTS

PROCEDURE NUMBER

TITLE

1.0 PURPOSE

- 1.1 Purpose - A brief description of the purpose of the procedure which clearly specifies the function it performs. For example:

"This procedure describes the steps necessary to remove, disassemble, inspect, overhaul, reassemble, and reinstall the main electromatic relief valves and the associated pilot valves."

- 1.2 Applicability - List equipment that is applicable to the procedure using equipment I.D., building, location, and elevation.

- 1.3 Frequency - Identify all normal frequencies and/or special requirements.

- 1.4 Safety Classification - Identify the appropriate safety classification of the equipment. Where several pieces of equipment are applicable, a table may be required. For example:

If "SR", state "Safety related"

If "Q", state "Non-safety related, quality program applies."

If "NSR", state "Non-safety related."

1.5 EQ Requirements

- 1.5.1 Identify the equipment which is qualified for a harsh environment. Where several pieces of equipment are applicable, a table may be required. For example:

"Powerboard 161B and 171B are equipment qualified for a harsh environment."

- 1.5.2 If EQ requirements are stated in a EQRM (Unit 1) or EQMPS (Unit 2), reference the document. For example:

"The requirements for maintenance or EQ qualified operators are listed in EQRM No. 11 and incorporated in this procedure, as applicable"

- 1.6 Discussion - (Optional) An example is as follows:

"The general test method of this procedure is to test fire a new squib, replace the existing squibs, and test fire the old squibs"



2.0 REFERENCES

- 2.1 NMPC Radiation Protection Procedures (standard statement)
- 2.2 NMPC Accident Prevention Rules (standard statement)
- 2.3 Controlled NMPC documents and/or procedures used to prepare the procedure.
- 2.4 Controlled NMPC documents and/or procedures required to perform the procedure.
- 2.5 Controlled Vendor/Manufacturer documents, manuals, and/or drawings, including document control manual/drawing numbers.
- 2.6 Applicable regulatory requirements (NUREG, OSHA, ASME, etc.).
- 2.7 Elementary diagrams, P&ID's, etc.
- 2.8 Documents which establish equipment qualification maintenance requirements.

3.0 TECHNICAL SPECIFICATIONS

- 3.1 List the applicable technical specification or indicate N/A.
For example:

"Section 3.6.10.1, Fire Barrier Penetration Seals."

4.0 SPECIAL TOOLS, MATERIALS, AND M&TE

- 4.1 The procedure writer shall identify special tools, parts, test equipment, and approved materials/consumables (chemicals, lube oils, etc.) required to perform the procedure. The procedure writer shall verify that all items are available per site procedures and will subsequently notify applicable NMPC site personnel for those items not available on site.
- 4.2 For preventive maintenance procedures, identify parts that will be replaced during maintenance, including the symbol numbers (if available).
- 4.3 For M&TE, identify the tool and the required set-point value from the applicable step in the procedure. For example:

"Torque wrench for 30 ft. lb."
- 4.4 For approved consumables, state the name of the consumable with the additional statement "or equivalent". For example:

"Mobil EPl or equivalent."

- 4.5 For equipment qualified equipment, the parts referenced shall be equipment qualified parts or design engineering approved substitutes.
- 4.6 Recommended Additional Equipment - List any other tools or equipment that may be required to perform the procedure.
- 5.0 PRECAUTIONS AND LIMITATIONS - Should include:
- 5.1 Specific precautions to protect personnel and equipment. Each should be repeated in the procedure body after the applicable step. General precautions need not be repeated in the procedure body.
- 5.2 Guidance on actions if data does not meet acceptable limits. Generally notify your supervisor, proceed in accordance with AP-10.2.2. This may include notifying the SSS or writing an occurrence report. For example:
- "If any reportable problems are determined while performing maintenance on the equipment, notify both the Assistant Maintenance Supervisor and SSS and -determine if an Occurrence Report should be initiated."
- 5.3 Include housekeeping, cleanness considerations, when applicable.
- 5.4 Identify ALARA radiological considerations, when applicable.
- 6.0 PREREQUISITES - This section should include the following:
- 6.1 Plant Conditions - state conditions required to perform maintenance. (standard statement)
- 6.2 System Conditions - state conditions required to perform maintenance. (standard statement)
- 6.3 Include the following in maintenance procedures only: Work Request (WR) shall be obtained and used to document time, materials used, labor required, and date job is performed. (standard statement)
- 6.4 Obtain permission from SSS to start and initial on the data sheet. (standard statement). The plant impact statement should follow this step.
- 6.4.1 Plant Impact



6.4.1.1 The beginning of the procedure, near SSS permission step, should address plant impact while performing maintenance. If there is no impact, mark the statement N/A (not applicable). System description should be referenced to determine plant impact. For example:

(1) "PLANT IMPACT - Maintenance on isolation valves makes one isolation valve inoperative. The other isolation valve should be marked up accordingly."

(2) "PLANT IMPACT - The equipment marked up will not be available for service."

6.4.1.2 The plant impact should include a statement with regard to the effect of lifted leads, jumpers, or blocks and the plant impact. This should be included when the leads lifted are not addressed by a markup per AP-3.3.1. For example:

"PLANT IMPACT- A jumper is installed to block cleanup isolation when the squib valve control switch is operated."

6.5 Notify CSO and initial on data sheet (standard statement).

6.6 Markups - may be described here using a list of applicable equipment.

6.6.1 The markup section may also include any disabled annunciators or lifted leads/jumpers required to markup the equipment. For example:

"Remove the 74A relay for low care spray suction pressure."

6.6.2 The markup provided are recommendations, and thus, may change with system or plant conditions.

6.7 Radiation Work Permit (RWP) - Obtain RWP when necessary stating location and elevation of required permit. (standard statement)

6.8 Notify Q.C. and initial on the Data Sheet (if required). (standard statement)

6.9 Notify ISI Coordinator and I&C Supervisor (if applicable) of intent to perform maintenance. State reason for notification. For example:

"Notify I&C to perform "as found" leak rate test."

6.10 Ensure that the procedure covers as much of the pre-setup work as possible. On generic procedures, many of these steps will not be feasible. For example:

"Removing interference beams and grating."

6.11 If a prerequisite is only applicable to a specific portion of the procedure, so state.



- 6.12 If applicable a standard cleanliness statement should be included for maintenance. For example:

"Establish/maintain the appropriate cleanliness level for the work to be performed." (standard statement)

- 6.13 Record test equipment or calibrated tools and verify that equipment is within calibration. For example:

Record calibrated test equipment and tools. Verify equipment is calibrated and attach calibration data sheets."

- 6.14 For procedures where M&T support is required, include a notification of Meter and Test.

7.0 PROCEDURE

- 7.1 Include step by step details to perform maintenance and/or obtain data. Limits for data should be identified and the as found and as left data should be recorded.

- 7.1.1 Use of abbreviations should be minimized. Commonly used acronyms are acceptable.

- 7.1.2 Steps should be short and concise and generally contain one action per step. Where more than one action is to be incorporated into a single step, one action should be the result of the other or need to be done simultaneously with the first.

- 7.1.3 Initials, signatures, and data will normally be recorded on the Data Sheet (see Section 10). Initials, signatures, and data may be recorded in the body of the procedure for very short procedures or for those with extremely long frequencies.

- 7.1.4 Steps previously completed should generally not be referred to.

- 7.1.5 If equipment is labeled in the plant, the procedure description should match exactly the plant labeling (name and number).

- 7.1.6 Include job performance aids (sketches, graphs, etc.) when beneficial. Where possible, the sketches should be near the steps to aid the maintenance person to refer to the sketch.

- 7.1.7 Consult AP-3.3.2 (Supersedes APN-7A) and IE 84-37 when using lifted leads and jumpers. Leads lifted in a procedure should have independent verification.

- 7.2 The beginning of the procedure may include a section identifying general requirements or describing the general test method.

- 7.3 Include QC inspections, where required, in maintenance procedures. Generally, PM's are covered by QC surveillance.



7.3.1 Maintenance considers QC signoffs as hold points. QC inspection plans detail witness points and hold points. QC may waive hold points with written documentation. Maintenance may proceed past a QC hold point with other activities provided the steps don't prevent QC verification of the hold point. Hold points are signified on the data sheet as "QC ____/____."

7.4 Notify ISI Coordinator and I&C Supervisor (if applicable) that maintenance has been completed. (standard statement) This standard statement should be before maintenance testing.

7.5 The final steps at the procedure should address maintenance tests which are performed as part of maintenance testing. The post-maintenance test register should be used to determine the required tests. For example:

"Maintenance tests

Check motor rotation is correct for driven equipment."

7.6 The final steps should notify other support departments to complete any associated maintenance activities and their related tests. For example:

(1) "Notify electrical maintenance to replace the valve operator."

8.0 RETURN TO NORMAL

8.1 Return the RWP (standard statement)

8.2 Complete, sign, and return WR form (standard statement, maintenance procedures only)

8.3 Surrender Mark-Ups to operations (standard statement)

8.4 Operations notified equipment is available for post-maintenance tests (standard statement). For example:

"Operations notified equipment is available for post-maintenance tests. The following tests are recommended.

(1) For overhaul of the service water pump, the service water pump operability test, N2-OSP-SWP-Q002, should be performed."

9.0 ACCEPTANCE CRITERIA

9.1 List actions to take if allowable limits are not met and initiate occurrence report (if applicable) and corrective action for unsatisfactory results.

9.2 Acceptance criteria should be stated both in this Section and where data is recorded.



9.3 The acceptance criteria for maintenance tests should be included in this section.

9.4 Signatures for review and approval that data meets acceptance criteria are required. This review is performed by the maintenance man and assistant maintenance supervisor.

10.0 ATTACHMENTS

10.1 Each attachment (including figures and graphs) used shall be listed in this section.

10.2 Data sheet should be organized as follows:

A: Procedure Verification

1. Prerequisites
2. Procedure
3. Return to Normal
4. Acceptance Criteria (Optional)

B. Results

C. Remarks

D. Review

10.3 Data sheet sign offs should be cross-referenced to the procedure steps.

10.4 Data which is recorded and trended should be marked with an asterisk (*). This information should be taken by the clerk and entered into the WTS for trend information.

e.g. Insulation Resistance Phase B _____ Megohms*

EXAMPLE DATA SHEET

Equipment Piece No. _____

Attachment 10.1

DATA SHEET

CONTROL ROOM VENTILATION FILTER REPLACEMENT

A. VERIFICATION OF PROCEDURE STEPS

Initials / Date

Prerequisites

6.2 System out of service. Maint. _____ /

6.3 Work Request (WR) No. _____ Maint. _____ /

6.4 SSS permission. Maint. _____ /

PLANT IMPACT: CR vent filter out of service

6.5 Notify CSO. Maint. _____ /

6.6 Mark-ups hung. No. _____ Maint. _____ /

6.7 Radiation Work Permit (RWP) No. _____ Maint. _____ /
obtained.

6.8 QC notified. Maint. _____ /

6.9 ISI and I&C notified. Maint. _____ /

6.12 Maintain cleanliness level _____ Maint. _____ /
(if applicable)

6.13 Attach calibration sheets for tools. Maint. _____ /

Procedure

7.3.3 Bonnet and body gasket seating areas inspected. Maint. _____ /

7.3.4 Valve stem inspected. Maint. _____ /

7.3.5 Plug and seat inspected. Maint. _____ /

7.3.6 Plug and seat checked for 360 QC _____ /
contact with bluing.

7.4.2 New gasket installed. Maint. _____ /

7.4.3 Bonnet installed and nuts evenly tightened. Maint. _____ /



Equipment Piece No. _____

Attachment 10.1

DATA SHEET (Cont'd)

CONTROL ROOM VENTILATION FILTER REPLACEMENT

A. VERIFICATION OF PROCEDURE STEPS (Cont'd)

<u>Return To Normal</u>		<u>Initials / Date</u>
8.1 RWP returned.	Maint.	_____ / _____
8.2 Work request completed.	Maint.	_____ / _____
8.3 Mark-ups surrendered	Maint.	_____ / _____
8.4 Operations notified equipment is available for post- maintenance test.	Maint.	_____ / _____

Acceptance Criteria --

9.1 Valve stroked manually	Maint.	_____ / _____
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Signature Table

	<u>INITIALS</u>	<u>SIGNATURE</u>	<u>PRINTED NAME</u>
Performed by:	_____	_____	_____
Performed by:	_____	_____	_____
Performed by:	_____	_____	_____
Performed by:	_____	_____	_____
Performed by:	_____	_____	_____
Verifier:	_____	_____	_____
Verifier:	_____	_____	_____

B. RESULTS:

1. () Acceptable
2. () Acceptable with comments. Work Request No. _____
3. () Unsatisfactory, (Use Remarks section as necessary and initiate a Work Request). Work Request No. _____



Equipment Piece No. _____

Attachment 10.1

DATA SHEET (Cont'd)
CONTROL ROOM VENTILATION FILTER REPLACEMENT

C. REMARKS:

D. REVIEW:

_____/_____
Maintenance Man Date

_____/_____
Asst./Maintenance Supervisor Date

