



**Sargent & Lundy** LLC

**INDEPENDENT CORRECTIVE  
ACTION VERIFICATION PROGRAM  
FOR  
MILLSTONE UNIT 3**

**Project Manual**

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AUDIT PLAN  
FOR  
INDEPENDENT CORRECTIVE ACTION VERIFICATION PROGRAM  
(ICAVP)

NORTHEAST UTILITIES  
MILLSTONE UNIT 3

PROJECT NO. 9583-100

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## 1.0 OBJECTIVE

The objective of this project is to implement an Independent Corrective Action Verification Program (ICAVP) at Northeast Utilities Millstone - Unit 3 in accordance with the Nuclear Regulatory Commission's (NRC) August 14, 1996 confirmatory order. The ICAVP will be an independent verification of the adequacy of results of the Configuration Management Plan (CMP) currently being implemented by Northeast Utilities which is directed at resolving existing design and configuration management deficiencies. The ICAVP will provide independent verification that, for selected systems, Northeast Utilities' CMP has identified and resolved existing problems, documented and utilized licensing and design bases, and established programs, processes and procedures for effective configuration management in the future. The ICAVP will be comprehensive, incorporating all of the appropriate engineering disciplines, such that the NRC can be confident that Northeast Utilities has been thorough in identification and resolution of problems. The ICAVP review will be conducted independently of Northeast Utilities and its design contractors.

## 2.0 SCOPE OF WORK

The scope of work for the ICAVP as described in the NRC's August 14, 1996 confirmatory order to Northeast Utilities includes:

- a. A review of engineering and design control processes,
- b. verification of current as modified plant conditions against design bases and licensing bases documentation.
- c. verification that design and licensing bases requirements are translated into operating procedures and maintenance and testing procedures.
- d. verification of system performance through review of specific test records and/or observation of selected testing of particular systems, and
- e. review of proposed and implemented corrective actions for design deficiencies identified by Northeast Utilities.

The NRC's December 19, 1996 oversight inspection plan provides further direction on the scope of the ICAVP. In addition to the above items, the oversight inspection further requires a review of accident mitigation systems that assesses the

critical design characteristics to ensure that these systems and components can perform their specified safety functions.

S&L will implement the above scope of work as follows:

- a. The review of engineering and design control processes will consist of an assessment of Northeast Utilities change process procedures as well as a review of all plant modifications to the systems selected for a vertical slice review by the ICAVP that were prepared after issuance of the operating license. The review of the modifications will include:
  - A technical review of the changes contained in the modification packages to system specific analysis and output documents and to topical engineering programs.
  - Verification that current design output documents have incorporated the changes identified in the modification packages.
  - Verification that current system operating, maintenance, testing and training procedures adequately reflect the modifications.
  - Verification that the physical installation conforms with the modification package.
  - Verification that the post modification test procedure and test results demonstrate the system is capable of performing its function.
  - Verification that no unreviewed safety question exists for the modification as documented in the 50.59 safety evaluation.
- b. The verification of current as modified plant conditions against the design bases and licensing bases will include:
  - Review of calculations, analysis, specifications and design output documents for consistency and for conformance with the design and licensing bases.
  - A physical walkdown of the system to verify conformance with the design output documents.

- c. The verification that the design and licensing bases are translated into operating, maintenance and testing procedures will include a cross-check of functional and performance requirements identified in the licensing and design bases versus those identified in the operating, maintenance, testing and training procedures.
- d. The verification of system performance will be accomplished through a review of specific test records for recently completed surveillance and post modification functional tests.
- e. The review of proposed and implemented corrective actions for deficiencies identified by Northeast Utilities during the CMP will include a review of all corrective actions for systems selected for a vertical slice review by the ICAVP and a review of randomly selected corrective actions for systems outside the scope of the vertical slice review.
- f. The review of the accident mitigation systems will include an assessment of the critical design characteristics to ensure that the systems and components can perform their specified safety functions.

### 3.0 PROJECT ORGANIZATION

The organizational structure will facilitate both the internal and external interfaces of the Project Team. Exhibit 1 shows the project organization. This section describes how the organization will function and the expected interfaces. The roles and responsibilities of the different parts of the organization are provided.

#### 3.1 Management Team

The Sargent & Lundy management team for this project is comprised of the Project Director, Bryan Erler; the Verification Team (VT) Manager, Don Schopfer; and the Chairman of the Internal Review Committee, A. K. Singh. They are collectively responsible for ensuring that the project is properly planned and implemented, that it meets the requirements of the NRC Confirmatory Order, and that the process and the results are open and credible to the NRC and the public.

The Project Director will have the overall responsibility for Sargent & Lundy's performance for the work. He will be responsible for facilitating

the resolution of any differences between the VT Manager and the Internal Review Committee. The Project Director will be the primary external spokesman for the ICAVP Team and will meet with and report to the ICAVP Oversight Team (IOT), NRC, and Northeast Utilities as required and as allowed by the approved protocol. He will be available to the press, the media, and the public when requested by the NRC and NU. The Project Director will also be signatory to the final report produced by the ICAVP Team.

The VT Manager will be responsible for directing the development of and approving the plans and procedures for implementing the review, including recommended system selection criteria and the protocol covering communications between Sargent & Lundy project personnel and the other organizations. He will manage the work through the technical leads on the VT. He will be responsible for reviewing the findings produced by the VT, and, upon acceptance, submitting them to the Internal Review Committee. He may also return them to the VT Leads for additional information or further review. The VT Manager will be responsible for distributing the findings, including posting them on the electronic bulletin board as established in the approved protocol after acceptance of the findings by IRC. Similarly, the VT Manager will review, accept and distribute/post the VT's evaluation of the NU responses to the findings. He will be responsible for preparing the final report documenting the work of the VT. The VT Manager will also serve as the backup for the Project Director with respect to communication with the IOT, NRC, and NU when necessary.

The Chairman of the Internal Review Committee will be responsible for coordinating the activities of that group. The roles and responsibilities of the Internal Review Committee is provided later in this section of the audit plan. The IRC Chairman will also make himself available to the IOT, NRC, and NU when requested.

### 3.2 Verification Team

The VT is the core of the organization and is the group that does the actual review of the design and licensing bases and the effectiveness of the NU corrective actions. The VT is organized into four functional subgroups. Each subgroup will be headed by a Lead engineer and will be responsible for a portion of the overall verification program. There will be a System Review Group (SRG), a Programmatic Review Group (PRG), an

Operations and Maintenance and Testing Review Group (ORG), and an Accident Mitigation Systems Group (ARG).

The SRG will perform the in-depth review of the selected systems. This group will review the current system output documents and analysis to verify conformance with the design and licensing bases. The SRG will also review design modifications to the selected systems made since receipt of the OL, focusing on the validity of the design process, identification of system interface requirements, potential synergistic effects of the modifications, and appropriate design document controls.

The SRG will also be responsible for verifying that the current, as-built condition of the plant matches the current design output documents. This task includes physical and functional walkdowns of the selected systems and will be performed by the Physical Configuration Review subgroup (CRG) of the SRG.

The ORG will be responsible for reviewing system operating procedures, surveillance procedures, maintenance procedures, and training documents to confirm that the design bases and any changes made to the design bases have been translated correctly into these documents. This group will also confirm that current testing requirements and post modification testing requirements are adequate to verify system performance.

The ARG group will be responsible for reviewing the accident analysis contained in the FSAR to determine the accident mitigation systems and their critical design characteristics. The ARG will then review the accident mitigation systems and their critical characteristics to ensure the systems can perform their safety functions specified to mitigate the FSAR accident scenarios.

The PRG group will be responsible for the review of select NU processes for changing the facility design and for changing characteristics, procedures, or practices for maintaining, operating, testing, and training to ensure the adequacy of the change process. The PRG will also be responsible for the review of NU's corrective actions resulting from their configuration management plan review. This review will determine the adequacy of the corrective actions.



### 3.3 Role of the Internal Review Committee

The Internal Review Committee will provide a Sargent & Lundy management technical oversight role. It will also help to provide consistency in the review results. It will be comprised of four very senior personnel within the organization that have specialized expertise in the areas being reviewed. The IRC Chairman will be responsible for obtaining the IRC's review of the planning documents and procedures for performing the verification program. This includes the audit plan, the protocol, and the individual procedures required for the work. The IRC will review the findings of the VT for extent and for significance. They will also review the responses by NU after they have been accepted by the VT. The IRC may also make specific recommendations regarding the scope or methodology of the verification process as the work progresses. The IRC will also review the final report of the ICAVP.

### 3.4 ICAVP Oversight Team

The establishment of an executive oversight team for the ICAVP will add to the NRC's and the public's confidence that the process and the results of the verification program were in accordance with NRC's Confirmatory Order. The ICAVP Oversight Team (IOT) will oversee and monitor the project team's activities. The IOT will be provided with the key process documents such as the confirmatory order, oversight inspection plan, audit plan, the protocol, the key procedures, and the recommended system selection criteria. The members of the IOT will include a person from the local public sector with a strong technical background, a person with former experience in nuclear power reactor regulation, a current or former executive(s) from a utility with an acknowledged excellent nuclear program, and one or more executives from Sargent & Lundy who are not directly involved with the ICAVP.

The ICAVP Management Team will provide periodic technical briefings to the IOT on a monthly or more frequent bases, depending on the activities of the ICAVP project team. The purpose of these briefings will be to allow the IOT observe the process and examine the types of technical decision making by ICAVP project team. Input and guidance from the IOT will be accepted, considered, and factored into the program, as applicable. The IOT members will be permitted to attend all meetings between the ICAVP Project Team, NU, and the NRC.

The IOT will document their evaluation of the ICAVP process and results by preparing a brief report which summarizes their conclusions. This report will be included in the final overall ICAVP report. If requested, the IOT will brief the NRC on its efforts.

#### 4.0 METHODOLOGY

This section of the audit plan describes the methodology S&L will use to implement the ICAVP. Exhibit 2 depicts the review process. In general, the ICAVP will consist of the following tasks:

- Document Gathering
- System Review
- Physical Walkdowns
- Operation, Maintenance and Testing Procedure Review
- Accident Mitigation System Review
- Programmatic Reviews
- Processing VT Findings
- Review of NU Resolutions
- Issuing Final Report

##### 4.1. Document Gathering

The first step in the ICAVP review process will be to gather the licensing and design bases documents, procedures, design process documents and design output documents needed to perform the review. The following top level controlled documents have been obtained and are stored in both the S&L Chicago office and the local offsite office:

- Configuration Management Program
- Design Control Process Procedures
- Current FSAR
- FSAR at O/L
- SER and all revisions
- 10 CFR 50.59 Safety Evaluation Procedure
- Procedures for and System Specific Assessments
- Corrective Action Procedures
- List or database of licensing commitments
- Description of document system and hierarchy system

- List of all modifications designed since receipt of O/L for Maintenance Rule  
Category 1 and 2 system, sorted by primary affected system, including the organization responsible for the design
- Complete index of the Unit 3 controlled documents, including calculations and drawings
- Complete index of the procedure system for Unit 3, including corporate/administrative procedures, engineering procedures, maintenance procedures, and operating procedures including emergency operating procedures
- Complete listing of Adverse Condition Reports, sorted by system
- Documents describing specific engineering programs that may not be included in the above listing, such as MOV program, ISI/IST program etc.
- NRC inspection reports, QA audit reports and the NU responses to them

The following system specific documents for the systems chosen for review will be requested in accordance with the protocol outlined in PI-MP3-01.

- Engineering Calculations (Mech, Elect, Struct, I&C and Piping Analysis)
- Equipment Procurement Specifications
- Modification Packages
- System Descriptions
- Equipment List
- Environmental and Seismic Qualification Reports
- P&IDs
- Logic Drawings
- Electrical Schematics
- Piping Drawings
- Electrical Single Line Drawings
- Panel Wiring Drawings
- Cable Routing Drawings and Databases
- Pipe Support Drawings
- Structural Equipment Mounting Details
- General Arrangement/Equipment Location Drawings
- Instrument Location Drawings
- Zone Maps (Environment/Fire Protection, etc).
- Operating Procedures including Emergency Operating Procedures

- Maintenance Procedures
- Surveillance Test Procedures
- Vendor Manuals
- System Training Procedures

#### 4.2 System Reviews

The vertical slice system reviews will be performed by the SRG in accordance with PI-MP3-02 and 03. System reviews will focus on two objectives, 1) to verify the system design elements being reviewed are technically adequate and consistent with the licensing and design bases (PI-MP3-02) and 2) to verify the modifications implemented after receipt of the operating license are technically adequate and that configuration control of design documents was maintained (PI-MP3-03).

The first step of the process is to review the licensing and design bases documentation to identify the functional, design, performance, operational and testing requirements of the system. These requirements will be individually tabulated on a system requirements checklist. This checklist will be used by the SRG and ORG as the bases for verifying design conformance to the design and licensing bases.

Following the development of the system requirements checklists, the SRG will perform the three reviews described below. The purpose of these reviews is to determine how the design meets the functional and performance requirements of the system and to ensure consistency between the various design output documents and design process documents.

These three reviews include:

- a. A review of design process documents to verify the technical adequacy of each document and its conformance to the design and licensing bases. This review will include mechanical, electrical, I&C, and structural calculations, piping analysis and equipment EQ/SQ reports.
- b. An upper tier drawing review including P&IDs, electrical schematics and logic diagrams to verify the system design is capable of performing the functional requirements described in the design and licensing bases and to verify the drawings are consistent with the design process documents.

- c. A component review to verify consistency between the licensing and design bases documents and the design output documents such as, component specifications, system calculations, and vendor component drawings.

Once the reviews are completed, the SRG will enter on the systems requirements checklist how each of the design, functional and performance requirements is satisfied. The ORG will complete the portion of the checklist relative to operating and testing requirements.

The next step will be to review the plant modifications issued after receipt of the operating license. Each modification will first be screened to identify the lead discipline (mechanical, electrical or I&C). A lead verifier from the affected design discipline will then perform a modification screening process to identify which design elements are affected by the modification. The lead verifier will complete a checklist consisting of general questions to facilitate the determination of which design elements are affected by the modification. The design elements that will be screened include:

- a. Mechanical Design
- b. Electrical Design
- c. I&C Design
- d. Structural Design
- e. ALARA Design
- f. Security
- g. Appendix R Compliance
- h. Electrical Equipment Qualification
- i. Seismic Qualification
- j. Radiological Environment
- k. Non-Radiological Environment
- l. Station Blackout
- m. Control Panel Design
- n. Piping Design
- o. Setpoint Database
- p. Hazards/HELB Program
- q. Fire Protection
- r. Licensing Review
- s. PRA
- t. Training Procedures
- u. Plant Procedures (OPS, Maintenance, Surveillance)
- v. Configuration Change Review



w. Quality Software Design Review

For each design element that is affected, a VT member with the appropriate technical background will perform a detailed review to verify that the design element was adequately addressed in the modification. This review will verify the technical adequacy of calculations, specifications and design documents impacted by the modifications. All reviews will be performed by the SRG with the exception of Items t and u which will be performed by the ORG.

The SRG will then perform a detailed review of the changes to licensing documents that were generated for each modification to ensure the changes are adequately incorporated into the FSAR, Technical Specifications, etc. The SRG will also review the 10 CFR 50.59 safety evaluation prepared for each modification to ensure the unreviewed safety question determination was thorough and well documented.

Finally, the SRG will review the installation and testing requirements including acceptance test criteria to determine that appropriate installation and testing requirements were specified. The ORG will be responsible for verifying that satisfactory post-modification testing was implemented.

4.3 Physical Configuration Review

The physical configuration review will be performed by the CRG in accordance with PI-MP3-05. This review will focus on verifying the current as built condition of the plant matches the current design documents. This group will perform a physical and functional walkdown of the systems in the scope vertical slice review. This group will also review plant modifications implemented after issuance of the OL to verify the as built condition conforms to the modification documents and to verify the modification documents have been accurately incorporated into the affected design drawings or are posted against the affected design drawings. The walkdown of system modifications will be a more in-depth walkdown than the system functional walkdown described above. Key critical dimensions such as analysis/calculation bases and/or dimensional restrictions identified on drawings will be verified during the modification walkdowns.

After retrieving the system design drawings and outstanding changes, the CRG will create a set of walkdown documents by redlining the open

amendments onto the physical drawings. The CRG will then perform a review of the lower tier drawings such as piping drawings, wiring diagrams, etc., to verify conformance to the upper tier P&IDs and schematics. This review is required to ensure the lower tier documents being used for configuration walkdowns are functionally in agreement with the upper tier documents that are checked for technical accuracy by the SRG. The SRG as part of their calculation reviews will also verify calculations such as stress reports and lower tier drawings such as piping isometrics are in conformance. Discrepancies identified by the SRG in this area will be communicated to the CRG. This review is not intended to be a line by line review of the lower tier documents, but only a functional check.

Prior to performing the walkdowns, the CRG will identify system boundaries on the walkdown drawings. These boundaries will be reviewed with the SRG for consistency in the scope for the two groups.

The next step will be to perform physical plant walkdowns of the systems. The walkdown will check the following attributes:

- a. System component location and identification are as indicated on the P&IDs and other schematic type documents.
- b. Component nameplate data is consistent with component specifications and drawings.
- c. System components are not physically damaged.
- d. System configuration is functionally consistent with design output documents by verifying:
  - Line size
  - Configuration of piping including number and location of bends, location of valves, supports and other in-line components
  - Valve orientation and flow direction
  - Pipe support type and configuration
  - Equipment and instrumentation mounting details
  - Configuration of conduit and tray routing
  - Cable "To and From" routings
  - Conduit and cable size

- Conduit and tray support type and configuration
  - Tubing/electrical configuration to instruments
  - HVAC ductwork size and routing
- e. Divisional trains of the system are physically separated by barriers and or distance. Electrical separation will be checked by verifying cable is routed through applicable divisional raceway.
- f. Portions of the system which are not safety related have been designed to II/I seismic requirements.

As stated previously, this walkdown is not intended to check all dimensions, but is merely intended to be a functional verification.

The CRG will also perform a review of the modifications identified by the SRG as impacting system configuration drawings. The SRG will provide/identify drawing changes resulting from system modifications. Upon receipt of this data, the CRG shall first review the drawing changes to ensure they are either incorporated into the current drawings or are identified as open amendments against the drawings. The CRG will then perform a detailed walkdown of the modified area. This walkdown will include a check of critical dimensions in addition to the other walkdown attributes described above for the functional walkdown.

#### 4.4 Operation & Maintenance and Testing Review

The operating & maintenance and testing review will be performed by the ORG in accordance with PI-MP3-06. This review will focus on verifying that the system operating procedures, maintenance procedures, surveillance procedures and training documents conform to the systems design and licensing bases. This group will also review the post modification tests performed following the installation of plant modifications to the system to verify the testing was adequate to maintain the design and licensing bases.

Upon receipt of the system requirements checklists from the SRG, the ORG will perform a review to verify the following:

- a. The operating procedures are in conformance with the systems functional requirements described in the Licensing and Design Bases. This review will include all modes of system operation

including normal, abnormal and emergency system operations. This review will include:

- a.1 Review of the operating procedures against the system P&IDs.
- a.2 Verification that instrumentation and controls described in the procedure are consistent with the installed condition.
- a.3 Verification that procedures for support systems are adequate to support the operation of the system.
- a.4 Verification that manual operator actions can be performed under accident conditions.
- b. The maintenance procedures are in conformance with the maintenance requirements described in the Licensing and Design Bases. The review will:
  - b.1 Verify that maintenance procedures and vendor manuals exist for key system components.
  - b.2 Check the maintenance procedures for technical adequacy.
  - b.3 Review a sampling of vendor manuals, generic communications (i.e., Bulletin, Information Notices, Generic Letters, NSSS Technical Bulletins) and verify applicable items have been implemented into the maintenance program.
  - b.4 Review component history files to identify recurring equipment problems and determine if any trends exist.
  - b.5 Review past maintenance activities and verify technical adequacy, performance of the appropriate post maintenance testing, and satisfactory demonstration of equipment operability.
- c. The review will verify that test procedures and surveillance procedures are in conformance with the Design and Licensing Bases. The review will focus on the following:

- c.1 Review the technical adequacy of Technical Specification Surveillance Test Procedures and verification of the adequacy of a sampling of test results completed within the last two years.
- c.2 Verify the system tests adequately ensure the system will operate as intended under postulated conditions.
- c.3 Determine if surveillance test procedures comprehensively address system responses addressed in the licensing bases.

Upon completion of the above reviews, the ORG will complete the system requirements checklist to document how the Licensing and Design Bases requirements related to Operation & Maintenance and Testing are satisfied.

The ORG will also review plant modifications implemented after issuance of the Operating Licensing. As stated in Section 4.2 of this audit plan, the SRG screening process will determine if plant modifications affect the operation, maintenance or inspection requirements of a system. When affected, the ORG will evaluate the modification to identify the required changes. The ORG will then review the operating, maintenance and testing procedures to verify the changes due to the modification have been reflected in the procedures. Additionally, the ORG will review the post modification test results for each modification to verify the adequacy of the test results.

#### 4.5 Accident Mitigation Systems Review

The process discussed in this section will be used by the ARG to develop the critical parameters for the accident mitigation systems. This process shall be implemented in accordance with PI-MP3-07.

The ARG Lead and Verifiers will review the initiating events in the FSAR, as they apply to Millstone Unit 3 and identify the accident mitigating systems and components within the system. The reload analysis and the FSAR shall be used to identify the specific critical parameters which are required to mitigate the event. As a result of this review, the ARG Lead will create a database consisting of the following items: a) Analyzed Accidents, b) Mitigating Systems, c) Components, d) Critical Parameters and e) References to the accidents and associated documents contained in the SAR.



The portion of the database consisting of the accident mitigation systems in the the scope of the vertical slice system reviews (Subsection 4.2) will be given to the CRG and SRG for their review of the Critical Parameters.

The ARG Verifiers will verify the Critical Parameters using a documented System/Component test, and or Surveillance test from the Millstone Unit 3 Technical Specification or Post Maintenance Tests.

In addition, the Critical Parameters will be verified using the design calculations, specifications, and vendor documents for acceptability .

#### 4.6 Programmatic Reviews

The programmatic reviews will be conducted by the PRG on a horizontal bases (across systems) for the purpose of determining if the actions taken by Northeast Utilities (NU) to correct previously identified problems have been effective and if the NU change processes are effective. The programmatic reviews will be performed in accordance with PI-MP3-04.

#### Licensee Initiated Corrective Actions

As part of its Configuration Management Program (CMP), NU has performed a vertical slice review of safety-significant systems and has identified degraded or non-conforming conditions. For each of these degraded or non-conforming conditions NU is initiating corrective actions. The programmatic review will assess the adequacy of these corrective actions. This review will be conducted for all corrective actions associated with the systems included in the scope of the ICAVP vertical slice system reviews, and for a representative sample of corrective actions associated with the other NU completed CMP vertical slice systems.

The NU CMP findings/corrective action documents will be obtained both for the systems in the scope of the ICAVP vertical slice system review and for systems outside the ICAVP vertical slice system review.

A checklist will be prepared for the review of corrective actions. Using the checklist, the PRG Verifier will assess the corrective actions for adequacy of the following:

- a. Root cause determination - the extent to which plant processes and procedures are affected.
- b. Extent of condition determination - the extent to which other systems, structures or components are affected.
- c. Plant restart - is the corrective action required prior to restart?
- d. Content - is the corrective action adequate in resolving the issue?

#### Change Processes

NU's current plant change processes will be reviewed for both their adequacy with respect to industry standards and for the effectiveness by which they are being implemented. Both design change processes and procedure change processes will be included in this review.

As part of the ICAVP system reviews, the SRG and the ORG will assess the plant modifications made on the sample systems. This review will evaluate the effectiveness of the change processes involved in these modifications (i.e. if the resulting modification is found to be acceptable, it can be inferred that the process used in performing the modification is acceptable). In addition to this system review, specific process related reviews will also be performed by the PRG. The various change processes reviewed will include the following:

<u>Process</u>	<u>Corresponding MP3 Procedure</u>
drawings	NUC DCM Chapter 7
specifications	NUC DCM Chapter 6
calculations	NUC DCM Chapter 5
procedures	DC1, DC2, DC3, DC4
temporary alterations	(if applicable)
minor modifications	NUC DCM Chapter 3
modifications	NUC DCM Chapter 3

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licensing documents	NGP-4.03
vendor manuals	NUC DCM Chapter 8
like for like replacements	NUC DCM Chapter 1

The current MP3 procedure for the processes listed above will be evaluated for its content and completeness. This evaluation will determine if the procedure exercises adequate controls on the change process and invokes appropriate interface reviews to assure the plant design bases and configuration is maintained consistent with the licensing bases. The evaluation will be based on guidance provided in the following:

Reg Guide 1.33, Quality Assurance Program Requirements (Operation)  
NRC Inspection Manual  
INPO guidelines  
INPO 87-006, Report on Configuration Management in the Nuclear Industry  
NEI guidelines

The adequacy of NU's implementation of the change process procedure will also be evaluated. Since the system review will assess the technical adequacy of the change, the programmatic review is intended to evaluate only the procedural adequacy of the change. The evaluation will determine if the procedure is being followed, that the required checklists are being accurately and completely filled in, and that all other documentation is complete and accurate. This evaluation shall be performed for the changes captured in the ICAVP system reviews. If any of the processes noted above are not included in the system reviews, an example outside the ICAVP will be selected for review.

#### 4.7 Processing Verification Team Findings

When a member of the VT identifies a discrepant condition which does not appear to meet the requirements, he shall initiate a discrepancy report (DR) per PI-MP3-11. Exhibit 3 of this Audit Plan depicts the DR process. Examples of discrepant conditions are a disagreement between the system design bases and the FSAR, the as-built configuration of a piping system and the piping analysis, or a change to maintenance procedures, which should have been made due to a plant modification, but was not. The DR will document the discrepant condition and the documents or walkdown

reports that were reviewed to arrive at that conclusion. Other technical and administrative items will be included on the DR form to help track, trend and analyze the results of the verification program. The DR will be signed by the VT member and forwarded to the VT Group Lead.

The VT Group Lead will review each DR with the VT member for technical adequacy, completeness, and whether that specific issue has already been addressed by another DR or by an existing NU corrective action document. The DR could be returned to the VT member for additional information or investigation; or it could be accepted and signed by the VT Group Lead; or it could be determined to be not valid. For any DRs determined to be not valid, the justification for this decision will be documented on the DR and the DR will be signed by the VT member and the VT Group Lead. If valid the VT Group Lead will assign a DR number and forward the DR to the VT Manager.

The VT Manager will review each DR with the Group Leads for technical adequacy, completeness, and whether that specific issue has already been addressed by another DR or by an existing NU corrective action document. The DR could be returned to the VT member for additional information or investigation; or it could be accepted and signed by the VT Manager; or it could be determined to be not valid. For any DRs determined to be not valid, the justification for this decision will be documented on the DR and the DR will be signed by the VT member, VT Group Lead and VT Manager.

The VT Manager will submit accepted DRs to the IRC for their review. They will review the DRs for extent of the condition to confirm that the VT looked deep enough into the issue to ensure that the problem is fully scoped; they may make recommendations to the VT to look for similar conditions in other areas or systems. The IRC may request that the VT member obtain additional information; they could accept the DR as written, whereupon the IRC Chairman would sign the DR and return it to the VT Manager, or the IRC may conclude the DR is not valid. If the VT member, VT Group Lead, and the VT Manager agree with the conclusion that the DR is not valid based on additional information, those justifications shall be documented on the DR and signed by the VT member, VT Group Lead, and the VT Manager.

All valid and accepted DRs will be transmitted to both NRC and NU when the above process is completed. The DRs will be transmitted in accordance

with the approved protocol. Since an important part of this project is to keep the public informed of the status and results, in addition to expected monthly meetings with the public, all DRs which are sent to NU and the NRC will be posted on the Internet World Wide Web.

#### 4.8 Review NU Resolution to Verification Team Findings

As shown in Exhibit 3 the handling of NU's proposed resolution of the VT findings will follow a similar process as the generation of the findings. The resolution will be submitted to the VT member who initiated the DR the VT Group Lead and the VT Manager. If the proposed resolution is determined acceptable, it is forwarded to the IRC for their review. If both the VT Team and the IRC find the NU resolution of the DR to be adequate, NU and the NRC will be notified by the method established in the protocol. At this point we will post the accepted resolutions to the findings on the Internet bulletin board established for public access. If NU's resolution to the finding is not considered adequate by the VT member, VT management, or the IRC, it will be returned to NU and sent in parallel to the NRC with a written explanation and bases for why the team did not consider it to be adequate. It is expected that NU would reconsider the information and resubmit it to the VT. Meetings between NU and the VT may be required to reach an understanding and resolution of particular issues. These meetings would be requested and held in accordance with the established protocol.

### 5.0 SYSTEM SELECTION CRITERIA

At the public meetings on September 24, 1996, the NRC indicated that they would select the systems for review rather than S&L. They also stated at those meetings that the NRC would decide on the number of systems to be selected for review. As input to the NRC staff, S&L recommendations on the number and selection of the systems for review are provided below.

Sargent & Lundy's system selection criteria are based on NRC Inspection Manual Chapter 2535, Design Verification Program, modified to be appropriate to this situation of an operating unit. These criteria would be applied to the list of approximately 20 systems for which the NU line organization and the NU oversight organization will have completed their review also.



- 1) The systems should be in the top quartile of risk significant or safety related systems.
- 2) The systems should involve a full cross section of engineering disciplines with internal and external organizational interfaces, such as NSSS supplier, component vendor, and engineering service organization.
- 3) The concept and implementation of the design should not be limited to the NSSS supplier or another single component supplier.
- 4) The systems should be generally representative of the safety related features of other systems.
- 5) The systems should be reasonably complex, requiring multiple operating modes.
- 6) The systems should have multiple, non-trivial modifications performed on it since initial licensing, preferable by different design organizations.

With the likely selection of four systems, it is not necessary that every system meet all of the above criteria. However, each system should meet as many of the criteria as possible and each of the criteria should be met by at least two of the selected systems. The system selection may of course also be weighed more heavily to concentrate on specific known problem issues at Millstone Unit 3.

## **6.0 PROJECT DELIVERABLES**

Deliverables for this project will include a final report which describes the scope of the ICAVP, the methodology used, the results of the review and the conclusions regarding the adequacy of the configuration management program and the corrective action program at Millstone Unit 3. Exhibit 4 of this audit plan presents an outline of the final report.

## **7.0 PROJECT TEAM**

The project team members are identified on the project roster included herein as Exhibit 5. The project organization chart is included herein as Exhibit 1.

The selection of personnel for the ICAVP was based on their qualifications to perform the assigned reviews, their financial and technical independence from the Unit being reviewed, and NRC acceptance of the personnel. Substitution of

existing personnel on the team may be required to add expertise or manpower to fully investigate issues which are identified during the course of the program. A specific procedure (PI-MP3-08) has been written to govern the substitution and addition of personnel to the project team. NRC notification and approval is required.

## 8.0 GOVERNING PROCEDURES

The work for this project is classified as Nuclear Safety Related and shall be performed in accordance with this audit plan, S&L's Quality Assurance Program and the following project instructions:

<u>Project Instruction No.</u>	<u>Title</u>
PI-MP3-01	ICAVP Communications Protocol
PI-MP3-02	Review of System Design for Compliance with Design and Licensing Bases
PI-MP3-03	Review of Plant Modifications Prepared After Receipt of Operating License for Technical Adequacy and for Configuration Control
PI-MP3-04	Programmatic Reviews
PI-MP3-05	Physical Plant Configuration Walkdowns
PI-MP3-06	Operations and Maintenance and Testing Procedures and Training Documentation Reviews
PI-MP3-07	Review of Accident Mitigation Systems
PI-MP3-08	ICAVP Team Personnel Substitution and/or Addition
PI-MP3-09	Preparation and Approval of Checklists
PI-MP3-10	Differing Professional Opinions
PI-MP3-11	Discrepancy Report Submittal and Closure
PI-MP3-12	Project File Index

The project team members will be trained to the applicable project instructions. Training records will be maintained in accordance with S&L QA procedures. The Manager of the S&L Quality Assurance Division will select an audit team to monitor the activities of the project as it progresses. Their review will be to ensure that the process used by the project team is in accordance with the NRC Confirmatory Order and the procedures developed to implement those requirements. The QA auditors will review selected DRs identified by the VT and

will pay particular attention to any DRs that are determined to be not valid. A summary of the QA activities related to the ICAVP and their conclusions will be included as part of the ICAVP final report.

## **9.0 PROJECT INTERFACES**

The purpose of this project is to obtain an unbiased assessment of the Millstone - Unit 3 configuration management and corrective action programs. Therefore, every reasonable effort must be made to assure that the observations and conclusions made are the result of our Project Team's own independent assessment and not influenced or biased by outside organizations. To maintain this assurance of independence, communications with outside organizations will be in accordance with PI-MP3-01, "ICAVP Communication Protocol".

## **10.0 LOCATION OF WORK**

The S&L VT with the exception of the CRG subgroup of the SRG will be stationed in S&L's Chicago offices. The CRG will be stationed at an offsite office located near the Millstone station.

The project team members stationed in the Chicago offices may make periodic trips to the S&L offsite office and to the station as needed to gather documentation, interview NU personnel, or to attend meetings to discuss NU proposed resolutions to S&L discrepancy reports.

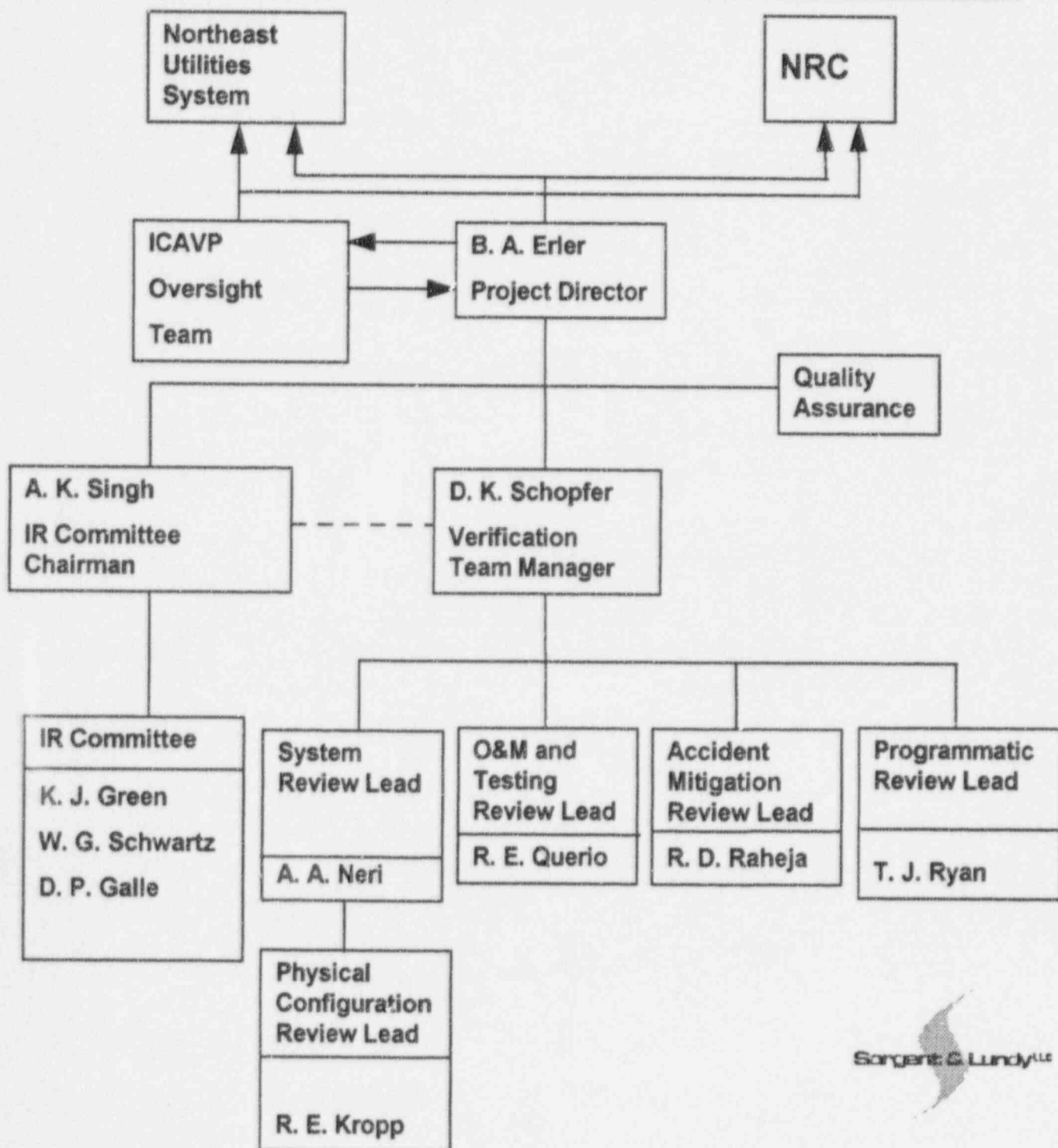
## **11.0 PROJECT SCHEDULE**

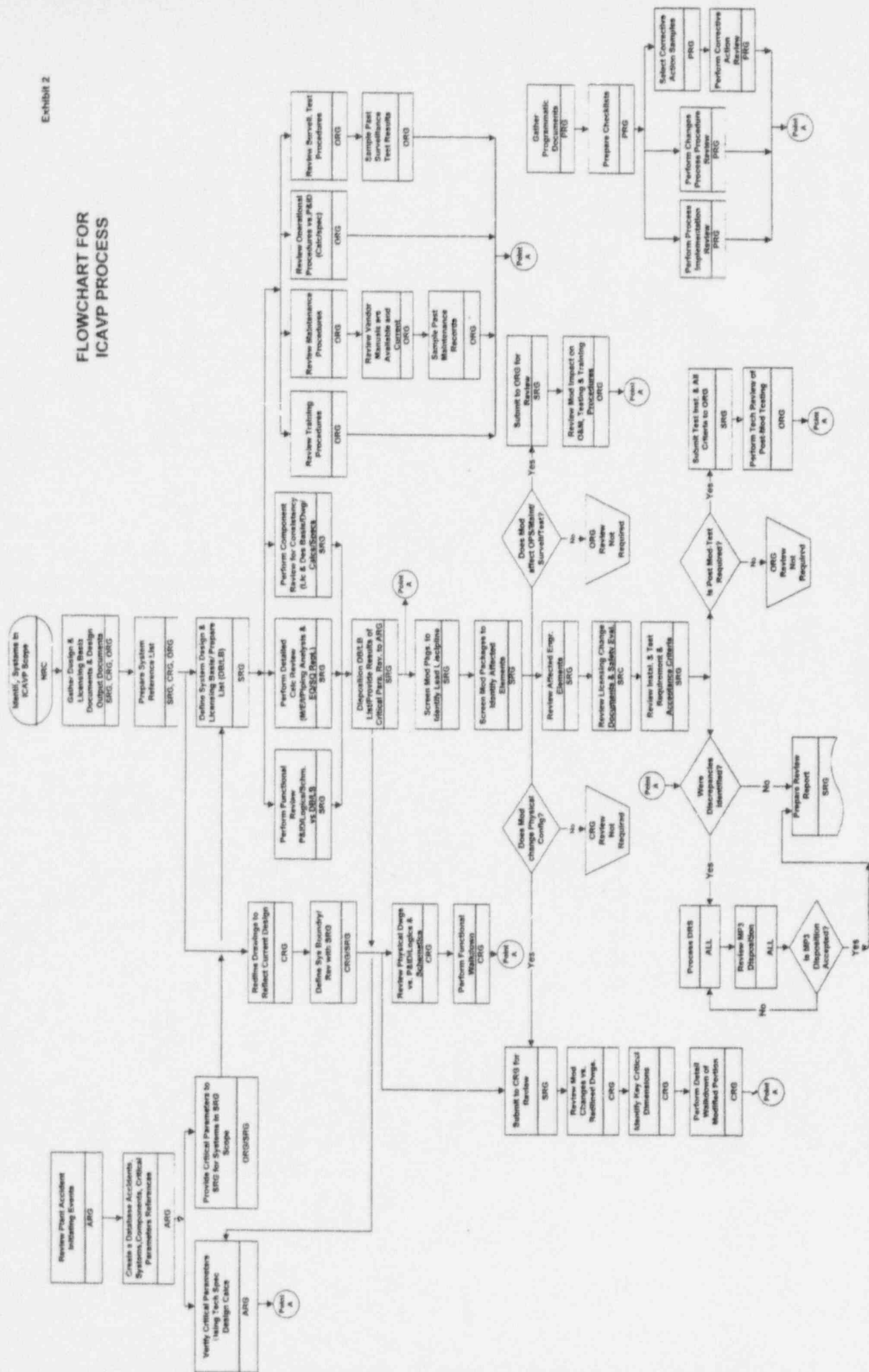
The project schedule is illustrated in the bar chart included herein as Exhibit 6.

## **12.0 BUDGET DATA**

Applicable project number and task codes for this project are listed in Exhibit 7.

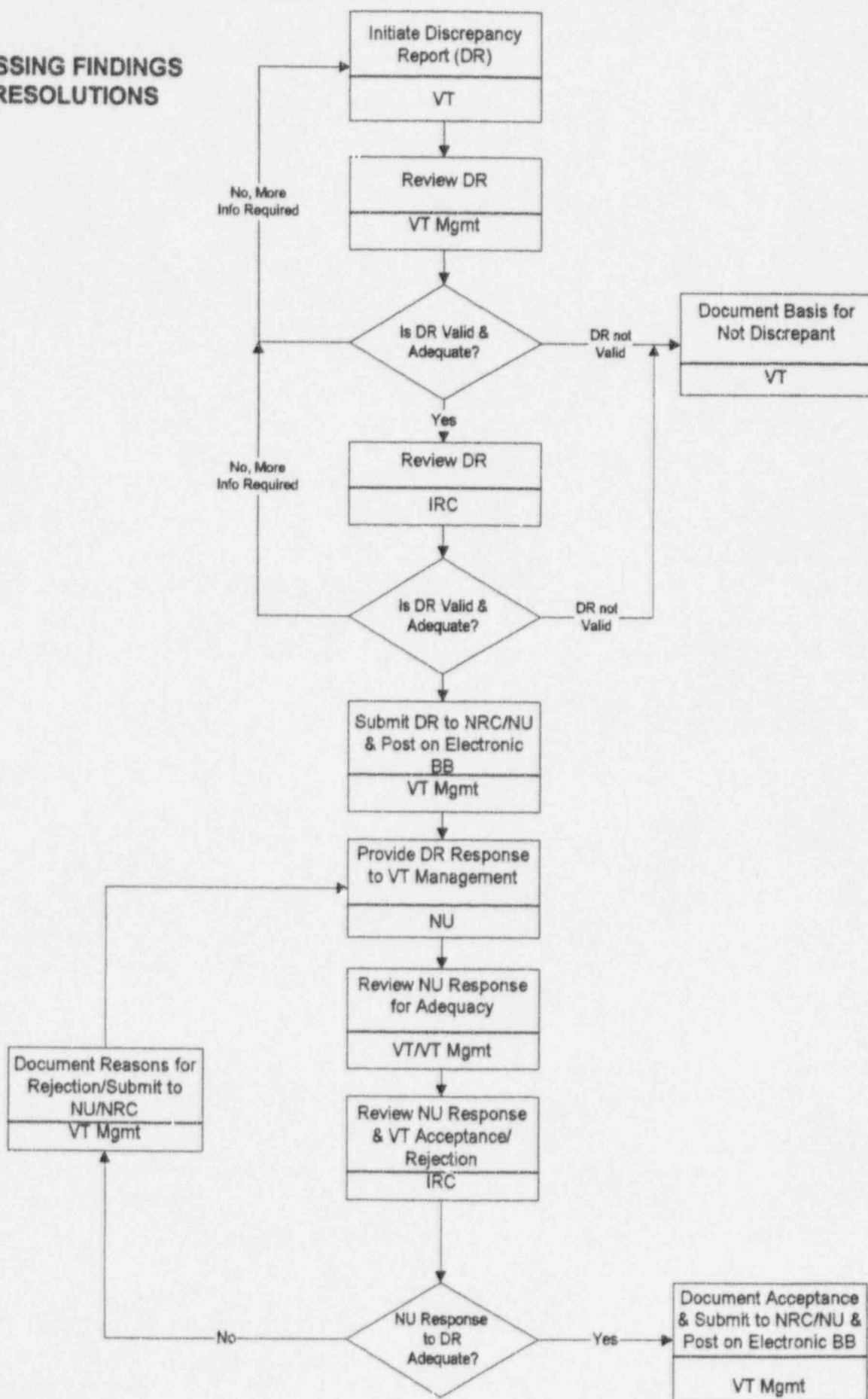
# ICAVP Project Organization Chart







# PROCESSING FINDINGS AND RESOLUTIONS



## Outline ICAVP Final Report

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### Executive Summary

### ICAVP Oversight Team Report

### Sargent & Lundy Quality Assurance Division Report

#### I. Introduction

- A. Background
- B. Objective
- C. Scope
- D. Methodology
- E. Project Organization

#### II. Conclusions

- A. Overall Conclusion
- B. Design Control Process
- C. Design Basis/Licensing Basis Consistency
- D. Design Adequacy
- E. As-built Plant Configuration
- F. Translation of design into plant maintenance and operation
- G. Adequacy of Testing Programs
- H. Applicability of selected sample to all Millstone 3 systems
- I. Corrective Action Program

#### III. Review Results

- A. System 1
- B. System 2
- C. System 3
- D. System 4
- E. Accident Mitigation Systems
- F. Corrective Action Program
- G. Change Processes

### Appendices

- 1. Project Team
- 2. Objectivity Questionnaires
- 3. Review Records
- 4. Discrepancy Reports
- 5. NU Resolutions
- 6. Project Manual
- 7. List of Checklists

# Millstone ICAVP Personnel Roster

Exhibit 5  
Page 1 of 2

<b>ICAVP Project Team</b>		<b>Unit 3</b>	
<b>Project Director/Project Manager</b>			
	B. A. Erler	X	PSD
	D. K. Schopfer	X	PSD
<b>Internal Review Committee</b>			
	A. K. Singh	X	F&A
	D. P. Galle	X	279/OMSS
	K. J. Green	X	MDM
	W. G. Schwartz	X	PSD
<b>Verification Team</b>			
<b>SRG</b>	A. A. Neri	X	PSM
	J. L. Tenwinkel	X	PSM
	K. R. Novatny		MPED
	J. DeMarco	X	I&CPE
	I. Warner	X	EPED
	T. L. Garver	X	ERIN
	R. Hindia	X	I&CPE
	C. M. Launi	X	NT&R
	J. M. Rich	X	NT&R
	N. Klaib	X	NPD
	J. W. Johnson	X	CMED
	P. R. Olson	X	NPD
	M. D. Stout	X	HVAC
**	CMED EQ Specialist	X	ERR # 351
**	NPD Piping specialist	X	ERR # 352
**	NPD C/S Engineer	X	ERR # 353
**	PSD ME 3	X	ERR # 354
**	PSD ME 3	X	ERR # 355
**	EPED Sr. Engr	X	ERR # 356
**	EPED Sr. Engr	X	ERR # 357
<b>C&amp;C</b>	R. E. Kropp	X	279/MPED
**	CMED Sr. Engr	X	ERR # 358
	G. E. Bitar	X	ERIN
	Mechanical Designer A	X	ERR # 387
	Mechanical Designer B	X	ERR # 388
	Electrical Designer A	X	ERR # 389
	Electrical Designer B	X	ERR # 390
<b>ARG</b>	R. D. Raheja	X	PSM
**	T. J. Kane	X	PSD
	L. A. Bennett	X	ERIN
**	W. R. Peebles	X	PSD
**	W. J. Johnson	X	NTRD
**	I&C Engr - Offer to TU	X	ERR #325
**	EPED Project Engr	X	ERR #326
**	Nitin Patel	X	279/I&C/EI.

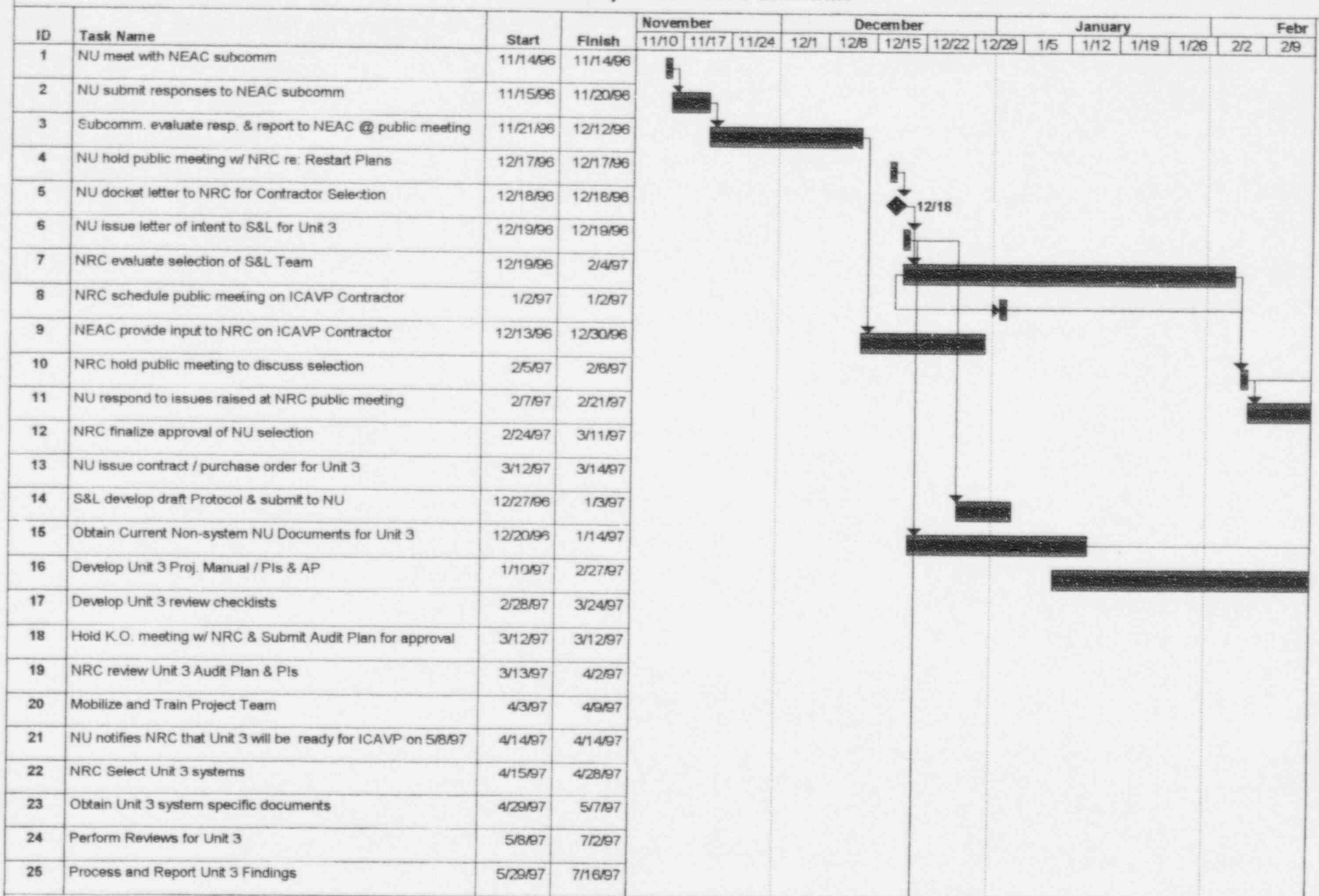
# Millstone ICAVP Personnel Roster

Exhibit 5  
Page 2 of 2

ICAVP Project Team		Unit 3	
<b>PRG</b>	T. J. Ryan	X	SCD
	D. A. Schroeder	X	EPED
	R. P. Sheppard	X	QAD
**	S.P. Wrona	X	ERIN
**	I&CPED Sr. Proj. Engr	X	ERR # 359
<b>ORG</b>	R. E. Querio	X	279/OMSS
	B. A. Childers	X	279/OMSS
	J. A. Klearn	X	279/OMSS
	R. L. Marsh	X	279/OMSS
	J. P. O'Brien	X	279/OMSS
	R. Bax		289
	T. Tamlyn		279/OMSS
	R. Spear		279/OMSS
**	J. E. Rushwick		ERIN

# Northeast Utilities - Millstone Units 1 & 3 ICAVP Implementation Schedule

Sargent & Lundy  
3/06/97





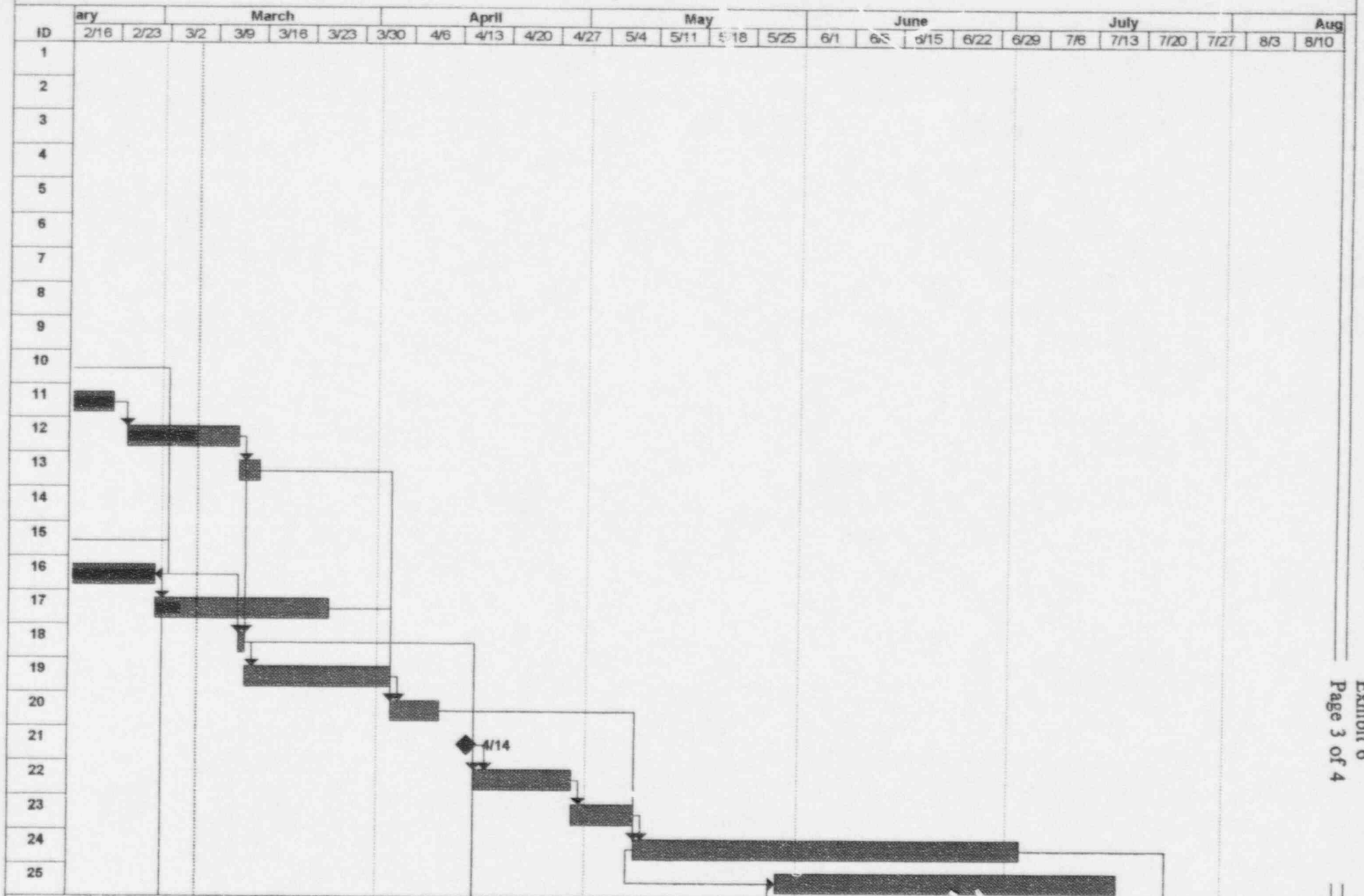
# **Northeast Utilities - Millstone Units 1 & 3 ICAVP Implementation Schedule**

Sargent & Lundy  
3/06/97

ID	Task Name	Start	Finish	November			December					January				Febr	
				11/10	11/17	11/24	12/1	12/8	12/15	12/22	12/29	1/5	1/12	1/19	1/26	2/2	2/9
26	NU Provide Proposed Resolution	6/12/97	7/30/97														
27	Review NU Proposed Resolution	6/26/97	7/30/97														
28	Prepare Unit 3 Final Report	7/24/97	8/13/97														
29	NU request S&L proposal for Unit 1	12/20/96	12/20/96														
30	S&L submit proposal supplement for Unit 1	1/3/97	1/13/97														
31	NU issue Letter of Intent for Unit 1	1/14/97	1/17/97														
32	Obtain Current Non-system NU Documents for Unit 1	1/27/97	2/14/97														
33	Develop Unit 1 Pis / AP & Submit to NRC	2/26/97	3/17/97														
34	Develop Unit 1 review checklists	3/18/97	3/24/97														
35	NRC review Unit 1 Audit Plan & Pis	3/18/97	4/7/97														
36	NU notifies NRC that Unit 1 is ready for ICAVP	3/17/97	3/17/97														
37	NRC Select Unit 1 systems	3/25/97	4/7/97														
38	Obtain Unit 1 system specific documents	4/8/97	4/14/97														
39	Perform Reviews for Unit 1	4/15/97	6/9/97														
40	Process and Report Unit 1 Findings	5/6/97	6/23/97														
41	NU Provide Proposed Resolution	5/20/97	7/7/97														
42	Review NU Proposed Resolution	6/3/97	7/7/97														
43	Prepare Unit 1 Final Report	7/1/97	7/21/97														

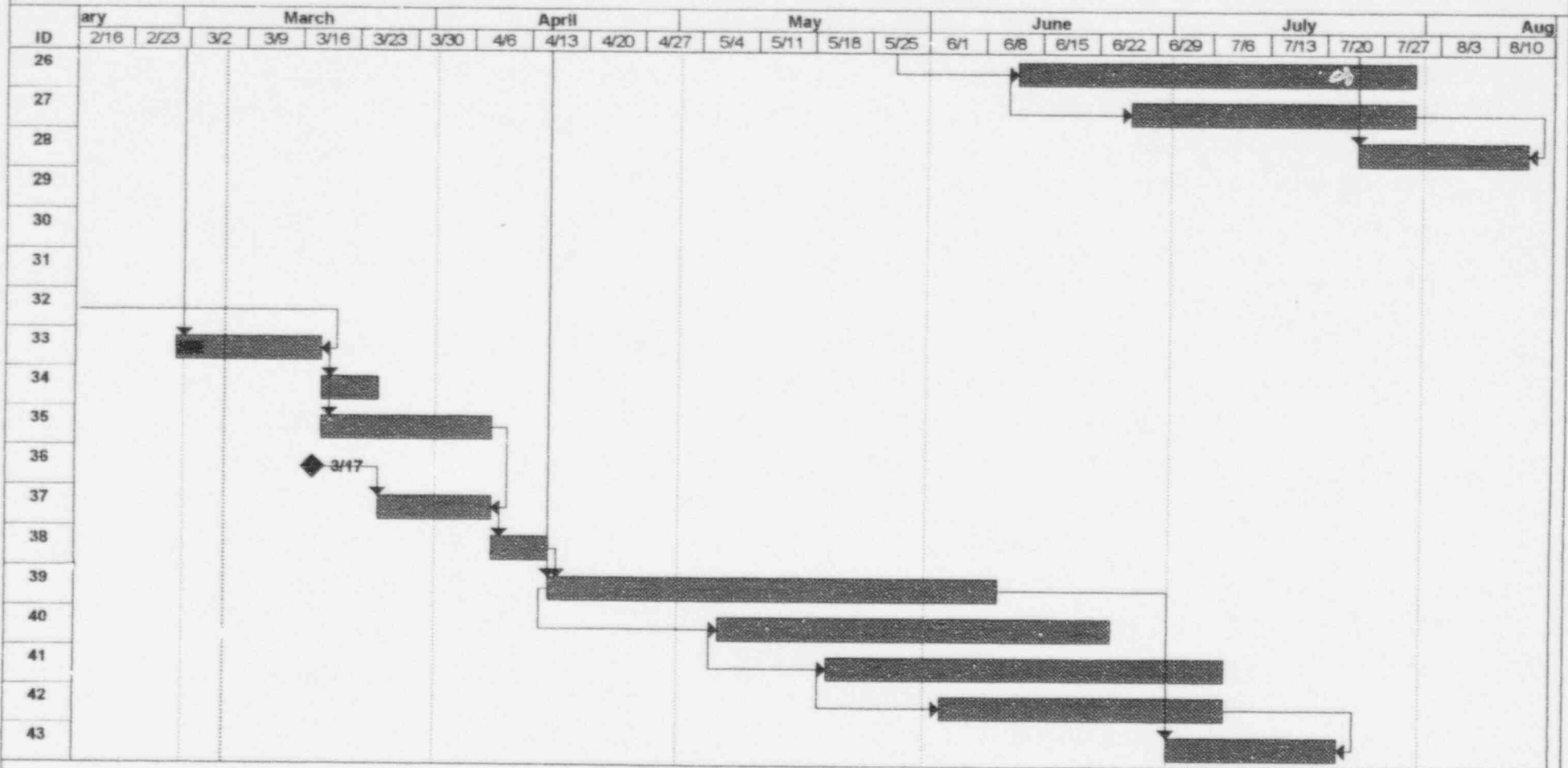
# Northeast Utilities - Milestone Units 1 & 3 ICAVP Implementation Schedule

Sargent & Lundy  
3/06/97



# Northeast Utilities - Millstone Units 1 & 3 ICAVP Implementation Schedule

Sargent & Lundy  
3/06/97



**ICAVP Budget Data**

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Project No.: 9583-100  
Task Codes: As follows:

<u>Task Code</u>	<u>Description</u>
A00311	Development of Project Manual
A30020	Project Administration
A30022	IRC Review of DRs and Disposition
A30027	Development of Communications
A30028	Development of Web Site
A30055	Training & Mobilization
A30056ARG	ARG - Perform Reviews/Report Findings
A30056CRG	CRG - Perform Reviews/Report Findings
A30056ORG	ORG - Perform Reviews/Report Findings
A30056PRG	PRG - Perform Reviews/Report Findings
A30056SRG	SRG - Perform Reviews/Report Findings
A30057	Evaluate Resolution of Findings
A30058	Final Report
A30090	Independent Oversight Team

PROJECT  
INSTRUCTION

Sargent & Lundy

INSTRUCTION PI-MP3-01  
REV. 0

Client: Northeast Utilities

Station: Millstone Unit 3

Title: INDEPENDENT CORRECTIVE ACTION VERIFICATION PROGRAM  
COMMUNICATIONS PROTOCOL



Safety-Related



Non-Safety-Related

Reviewed By:

Approved By:

System Lead

Programmatic  
Lead

O&M Lead

Accident  
Mitigation  
Lead

QA Engineer

Internal Review  
Committee  
Chairman

Verification Team  
Manager

Date: 3-6-97

*Alt. New*

*[Signature]*

*[Signature]*

*[Signature]*

*[Signature]*

*AK Singh*

*[Signature]*

Description

Initial Issue



PROJECT INSTRUCTION		INSTRUCTION PI-MP3-01 REV. 0
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## 1.0 PURPOSE

The purpose of employing an independent reviewer for the Independent Corrective Action Program (ICAVP) is to obtain an unbiased assessment of the Millstone Unit 3 configuration management and corrective action programs. Therefore, every reasonable effort will be made to assure that the observations and conclusions made are the result of the Project Team's own independent assessment and not influenced or biased by representations of other parties such as the NU line organization or their contractors responsible for subjects under review. To maintain this assurance of independence, this formal protocol has been established and will be implemented to control the communications between S&L, NU, and the NRC. This protocol has been written so that the Project Team reviewers remain objective and unbiased, yet will permit the legitimate need for the Project Team to communicate with the NU organization to obtain information including any necessary verbal clarification to maintain an efficient process. It is, however, the responsibility of the independent reviewers to assure that these guidelines are implemented in a manner which assures the objectivity and independence of the review.

Sargent & Lundy Project Team internal communications are unaffected by the requirements of this protocol, including those between or among the Verification Team, the Internal Review Committee and the Independent Oversight Team (IOT).

## 2.0 ORGANIZATIONAL-POINTS OF CONTACT

Each of the organizations involved in the ICAVP (NRC, NU, and S&L) has provided a primary and backup point of contact. These points of contact are the personnel through which inter-organizational communications will occur or be arranged. This includes both verbal and written communications, including electronic mail.

[REDACTED]

## 2.1 Northeast Utilities

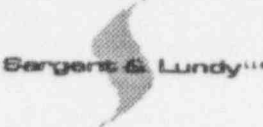
Primary Contact: Bob Grazio, ICAVP Project Manager  
Phone - 860-440-0459  
Fax - 860-444-5520  
e-mail - grazire@gwsmtpl.nu.com  
Overnight mail - Northeast Utilities  
Millstone Nuclear Power Station  
Rope Ferry Road  
Waterford, CT 06385

Backup Contact: Richard Laudenat  
Phone - 860-440-5248  
Fax - 860-440-2091  
Overnight mail - Northeast Utilities  
Millstone Nuclear Power Station  
Rope Ferry Road  
Waterford, CT 06385

## 2.2 Nuclear Regulatory Commission

Primary Contact: Gene Imbro, ICAVP Manager  
Phone - 301-415-1490  
Fax - 301-415-2260  
e-mail - evi@nrc.gov  
Overnight mail - Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD 20852-2738

Backup Contact: Loren Plisko, ICAVP Team Leader  
Phone - 301-415-1231  
Fax - 301-415-2260  
e-mail - lrp@nrc.gov  
Overnight mail - Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD 20852-2738

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-01 REV. 0
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### 2.3 Sargent & Lundy

Primary Contact: Don Schopfer, Verification Team Manager  
Phone - 312-269-6078  
Fax - 312-269-2049  
e-mail - don.k.schopfer@slchicago.infonet.com  
Overnight mail - Sargent & Lundy  
55 E. Monroe Street  
Chicago, IL 60603

Backup Contact: Bryan Erler, ICAVP Project Director  
Phone - 312-269-7132  
Fax - 312-269-2049  
e-mail - bryan.a.erler@slchicago.infonet.com  
Overnight mail - Sargent & Lundy  
55 E. Monroe Street  
Chicago, IL 60603

### 3.0 RULES FOR VARIOUS TYPES OF COMMUNICATIONS

There are a variety of types of communications necessary to effectively implement the ICAVP. The following identifies the various types of inter-organizational communications required and defines the rules governing those types of communications. These rules address aspects such as who initiates the communication, whether notification of other parties is given, who may participate in the communication, whether public access is to be given, and the documentation requirements for the communication and to whom it is provided. Other communication between personnel in these project organizations or their contractors should be avoided during the performance of the ICAVP.

**3.1 Request for information** - S&L will need significant amounts of documents and drawings from NU to commence and proceed with the review. The information request process from S&L to the NU organization will be a frequent occurrence during the ICAVP.

- The S&L Verification Team Manager, or one of the Review Leads, will submit all requests for information to the NU primary contact in writing. This may be via fax, e-mail or overnight mail. Each request shall be

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\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

PROJECT INSTRUCTION	Sargent & Lundy	INSTRUCTION PI-MP3-01 REV. 0
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on a standard form developed for this purpose and shall be provided with a sequential number for tracking (See Attachment 5.1). A copy of each request for information shall be provided to the NRC's primary contact. NU's response to the requests shall be submitted in duplicate to the S&L primary contact, one copy to Chicago and one copy the office space provided by NU to S&L near the Millstone station. NU shall provide an index of all documents submitted, including a revision number or identifying date.

- \* In order to ascertain the availability of information or to identify the appropriate documents containing required information, the S&L Verification Team Manager or one of the Review Leads may contact the NU primary contact or a designated Document Control personnel via phone. This type of informal contact shall only be made in the process of preparing and submitting a request for information.

**3.2 Request for informal conference** - S&L may on occasion request a conference with NU line organization personnel to obtain clarification or further understanding of particular issues. Alternately, NU may request a conference to discuss or clarify findings issued by S&L. This conference can be by telephone, by videoconference, or in person.


- \* The primary contact for the organization initiating the informal conference shall contact the primary contact of the other organization (via phone, fax, or e-mail) and identify the reason for the conference and the participants needed. The NRC primary contact will be notified of the conference and given the opportunity to participate. A minimum of a half day advanced notice shall be provided to the participating organization and to the NRC. Notes of the conference shall be written by the initiating organization and distributed to the primary contacts of the participating organizations and the NRC.

**3.3 Issuance of Findings** - The findings identified by S&L will be distributed to NU and the NRC, including their posting on an Internet Web Site.

- \* The S&L primary contact, or designee, will distribute the findings (discrepancy reports) from the ICAVP to the NU and the NRC primary contacts by fax and overnight mail. In addition, S&L will post the findings on a uniquely identified Internet page. This will allow public

[REDACTED]



PROJECT INSTRUCTION	 Sargent & Lundy	INSTRUCTION PI-MP3-01 REV. 0
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access to this information. More information about accessing the ICAVP information on the Internet is included in Section 4.0 of this protocol. The S&L instructions for the processing of the discrepancy reports and their proposed resolutions is provided in project instruction PI-MP3-11.

**3.4 Submittal of proposed resolutions** - NU will evaluate the findings submitted by the S&L Project Team and develop proposed resolutions and submit these proposed resolutions to S&L for review.

- \* The NU primary contact will submit the proposed resolutions to the ICAVP findings to both the S&L and the NRC primary contacts. Following acceptance of the resolution in accordance with PI-MP3-11 S&L will post the NU resolution on the ICAVP Web Site.

**3.5 Formal Meetings or Briefings** - It is expected that there will be formal meetings with the various participants and the public to discuss the results of the program.

- \* Formal meetings to discuss the results of the ICAVP and periodic briefings for the public will normally be scheduled in advance or initiated by the NRC. The NRC will notify the NU and S&L primary contacts at least one week in advance of the meetings. For meetings open to the public, the NRC normally provides a two week notification. S&L will also post meeting notification on the Web Site for meetings open to the public after the NRC has issued notification. S&L participation at this type of meeting will normally be the Project Director, the Verification Team Manager, and others as may be determined by S&L. Participation other than S&L will be determined by the NRC. If the NRC has the meeting transcribed, no other notes of meeting are required. Otherwise, S&L will publish notes from the meeting and distribute them to the participants. Copies of all presentation material will be available at the public meetings and will be posted to the Web Site.

**3.6 Meetings between S&L and IOT** - The S&L Project Team will have periodic meetings to brief the Independent Oversight Team on the progress of the ICAVP. The IOT is considered part of the S&L review process.

[REDACTED]



- \* Periodic meetings between S&L and the IOT will normally be scheduled well in advance. A minimum two week advanced notice will be provided for non-routine meetings. S&L will contact each member of the IOT by fax, e-mail, or overnight mail, as appropriate, with the meeting logistics and an agenda for the meeting. This meeting will not be open to the public, but the NRC will be given an opportunity to attend. Notes of the meeting will be prepared by S&L and distributed to all IOT members and the NRC primary contact.

**3.7 Press and/or Media Communications** - Based on the current level of public interest in the ICAVP and Millstone in general, there is expected to be press and media interest in the work of the ICAVP Contractor. Communications with the press and media and notification of the NRC and NU of such interest are included in this protocol.

- \* Requests for interviews with the press or media shall be referred to the Project Director or the Verification Team Manager. One of them shall notify the NU and the NRC primary contact of the request. The Director or Manager shall respond appropriately to the press or media requests.

**3.8 Communications related to NRC oversight of S&L** - S&L's activities in the ICAVP are considered an extension of the NRC. As such, communication between S&L and the NRC will be required, both related to the execution of the review and to the NRC's oversight of S&L's performance.

- \* From time to time S&L may have specific questions or need direction from the NRC. When necessary the S&L primary contact may call or meet with the NRC primary contact, or his designee, to discuss these issues. Notes of conference shall be prepared by S&L to reflect specific decisions, actions or direction provided, and these notes shall be distributed to the NRC primary contact. No other participants are required for a conference of this type between S&L and the NRC nor will the notes be distributed to any other party.

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-01 REV. 0
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**3.9 Financial / Contractual issues between S&L and NU** - As with any contractual relationship between two organizations, periodic discussions and / or written communications will be required between S&L and NU. These discussions will be outside the scope of this protocol. This type of communication will be primarily between the S&L Verification Team Manager and the NU Director - Contracts & Purchasing and/or the NU ICAVP Project Manager, and will be limited to purchasing and contract related issues.

#### **4.0 PUBLIC ACCESS TO ICAVP INFORMATION ON THE INTERNET**

As discussed in earlier sections of this protocol, discrepancy reports identified during the course of the ICAVP and their accepted resolution will be posted on the Internet Web Site to allow public access. In addition, certain other documents will be posted on the Web Site, including portions of the Project Manual, periodic status report information, and the final report. The address for the Web Site is [http://www.mp\\_icavp.com](http://www.mp_icavp.com).

Sargent & Lundy will add a hyperlink on its Internet home page entitled Millstone ICAVP that will send the viewer to that page with a menu showing the available documents posted. The S&L home page may be accessed on the Internet World Wide Web at <http://www.slchicago.com>.

#### **5.0 ATTACHMENTS**

**5.1 ICAVP Request for Information (1 page)**

[REDACTED]

Northeast Utilities  
Millstone Unit 3

RFI No. \_\_\_\_\_

**REQUEST FOR INFORMATION  
INDEPENDENT CORRECTIVE ACTION VERIFICATION PROGRAM**

To: Mr. Bob Grazio, ICAVP Project Manager

From: \_\_\_\_\_

Date of Request: \_\_\_\_\_ / Date Needed by: \_\_\_\_\_

**Document Title or Description**


**Document Title or Description**


cc: Mr. D. K. Schopfer

PROJECT  
INSTRUCTION

Sargent & Lundy

INSTRUCTION PI-MP3-02  
REV. 0

Client: Northeast Utilities

Station: Millstone Unit 3

Title: **REVIEW OF SYSTEM DESIGN FOR COMPLIANCE WITH THE DESIGN AND LICENSING BASIS**



**Safety-Related**



**Non-Safety-Related**

Reviewed By:

Approved By:

System Lead

Programmatic  
Lead

O&M Lead

Accident  
Mitigation  
Lead

QA Engineer

Internal Review  
Committee  
Chairman

Verification Team  
Manager

Date: 3-6-97

*AKM*

*[Signature]*

*[Signature]*

*[Signature]*

*[Signature]*

*AKS*

*[Signature]*

Description

Initial Issue

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-02 REV. 0
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## 1.0 PURPOSE

This instruction establishes the requirements for the design review of systems included in the scope of the Independent Corrective Action Verification Program (ICAVP). The purpose of the design review is to verify the system design as reflected on design output documents and design process documents is consistent with the plant's Design and Licensing Basis. Additionally, the design review will verify technical adequacy of design process documents.

## 2.0 REFERENCE

- 2.1 NRC Inspection Manual Procedure 93801, Safety System Functional Inspection
- 2.2 NRC Inspection Manual, Chapter 2535, Design Verification Programs
- 2.3 10CFR50.2, Definitions
- 2.4 NRC Confirmatory Order Establishing Independent Correction Action Verification Program - Millstone Nuclear Power Station, Units 1, 2, and 3
- 2.5 NUMARC 90-12, Design Basis Program Guidelines
- 2.6 PI-MP3-06, Operations and Maintenance and Testing Procedures and Training Documentation Reviews
- 2.7 PI-MP3-07, Review of System Design for Compliance with the Design and Licensing Basis
- 2.8 PI-MP3-09, Preparation and Approval of Checklists
- 2.9 PI-MP3-11, Discrepancy Report Submittal and Closure
- 2.10 PI-MP3-12, Project File Index

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2.11 CK-MP3-02 Series Checklists as follows:

CK-MP3-02-01	System Reference List
CK-MP3-02-02	System Requirements List
CK-MP3-02-03	Design Process Document Review Checklist
CK-MP3-02-04.1	P&ID Review Checklist
CK-MP3-02-04.2	Logic Diagram Review Checklist
CK-MP3-02-04.3	Electrical Schematic Review Checklist
CK-MP3-02-05.1	Mechanical Component Review
CK-MP3-02-05.2	Electrical Component Review
CK-MP3-02-05.3	I&C Component Review


Note: Checklists used in the performance of this PI are not included as attachments to the PI. Checklists are prepared and controlled as separate documents per PI-MP3-09.

### 3.0 DEFINITIONS

- 3.1 **Accident Mitigation Systems Review Group (ARG)** - The subgroup of the ICAVP Verification Team responsible for review of critical characteristics of accident mitigation systems to ensure those systems can perform their required safety functions.
- 3.2 **Operations & Maintenance and Testing Review Group (OMTG)** - The subgroup of the ICAVP Verification Team responsible for the review of the operating, maintenance and testing procedures, and training materials for the systems within the scope of the ICAVP.
- 3.3 **System Review Group (SRG)** - The subgroup of the ICAVP Verification Team responsible for performing an in-depth review of the design of the systems in the scope of the ICAVP.
- 3.4 **Configuration Review Group (CRG)** - The subgroup of the SRG Verification Team responsible for walkdowns to verify the current as-built conditions are in conformance with the design output documents.





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- 3.5 **Design Bases** - The information which identifies the specific functions to be performed by a structure, system or component of a facility, and the specific values or ranges of values chosen for controlling parameters as reference bounds for design. These values may be (1) restraints derived from generally accepted "state of the art" practices for achieving functional goals or (2) requirements derived from analysis of the effects of a postulated accident for which a structure, system or component must meet its functional goals (Reference 2.3).
- 3.6 **Design Output Documents** - Controlled plant documents such as specifications, drawings, vendor drawings, datasheets, lists and databases (Reference 2.5).
- 3.7 **Design Process Documents** - Documents such as calculations, analysis, evaluations or other documented engineering activities that substantiate the final design (Reference 2.5).
- 3.8 **Current Licensing Basis (CLB)** - The set of NRC requirements applicable to a specific plant, and a licensee's written commitments for assuring compliance with and operation within applicable NRC requirements and the plant-specific design basis (including all modifications and additions to such commitments over the life of the license) that are docketed and are in effect. The CLB includes the NRC regulations contained in 10 CFR Parts 2, 19, 20, 21, 30, 40, 50, 51, 55, 72, 73, 100 and appendices thereto; orders; license conditions; exemptions, and Technical Specifications (TS). It also includes the plant-specific design basis information defined in 10 CFR 50.2 as documented in the most recent Final Safety Analysis Report (FSAR) as required by 10 CFR 50.71 and the licensee's commitments remaining in effect that were made in docketed licensing correspondence such as licensee responses to NRC bulletins, generic letters, and enforcement actions, as well as licensee commitments documented in NRC safety evaluations or licensee event reports. (Reference 2.7)
- 3.9 **Verifier** - The individual assigned to review engineering attributes within his area of responsibility.



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#### **4.0 RESPONSIBILITIES**

- 4.1 The Verification Team Manager shall be responsible for overall management of the Verification Team.
- 4.2 The SRG Lead shall be responsible for assigning the Lead Verifier for each system in the ICAVP scope and for overall coordination of the SRG effort.
- 4.3 The Lead Verifier shall be responsible for performing system reviews for the attributes within his area of expertise and for assigning verifiers with appropriate background for review of remaining attributes.
- 4.4 The Verifiers shall be responsible for performing reviews of engineering attributes within their area of expertise in accordance with this instruction.

#### **5.0 PROCEDURE**

##### **5.1 General**

The Nuclear Regulatory Commission (NRC) Confirmatory Order referenced in Section 2.0 of this PI requires Northeast Utilities (NU) to implement the ICAVP. The confirmatory order also defines the scope of the ICAVP. Item 2 of the scope of the ICAVP described on page 13 of the confirmatory order requires the Licensee to verify the current as-modified plant conditions against design basis and licensing basis documentation. This procedure describes one aspect of the process needed to perform the verification described above. Specifically, this procedure will determine if the current system design as reflected on design output documents and design process documents is consistent with the system design basis and licensing basis documentation. This review is not intended to verify the design basis as stated in the Licensing Basis Documentation is consistent with the Licensing Basis. For example, a design basis consideration that may be described in the FSAR is that the system is designated a Quality Class 1 system in accordance with RG1.26. This review will verify the design of the system was performed to Quality Class 1 standards. This review will not verify that the Quality Class 1 designation was applied correctly per the guidelines of RG1.26. In other words, this procedure verifies the design basis requirement is



properly incorporated in the design and does not verify the design basis is in conformance with the licensing basis. Verification of conformance between licensing basis and design basis was performed by NRC prior to issuance of the operating license. Changes subsequently issued will be reviewed in detail as part of the modification review process (PI-MP3-03). The systems to be included in the scope of the ICAVP program will be defined by the Nuclear Regulatory Commission. Once the systems have been identified, the following tasks shall be performed in order to determine if the system's design is consistent with the plant's design and licensing basis:

- a. Document Retrieval & Review
- b. Identification of System Requirements
- c. Technical Review of Design Process Documents
- d. Upper Tier Drawing Review
- e. Component Review
- f. Reconciliation of Design vs. Design & Licensing Basis
- g. Discrepancy Report Preparation and Closure
- h. Final Report Preparation


The detailed instructions for performing these tasks are provided in the subsections 5.2 through 5.9 below. References 2.1, 2.2 and 2.4 were used to develop these instructions. Attachment 6.1 is a flow chart illustrating the system review process.

## 5.2 Document Retrieval & Review

5.2.1 Since there may be duplication between documents required by the various review groups, the following division of responsibility has been established:

5.2.1.1 The SRG shall gather, as a minimum, the following licensing and design bases documents and system specific documents:

- a. Design & Licensing Basis Documents (Applicable Sections Only)
  - a.1 NRC Regulations
  - a.2 Technical Specifications
  - a.3 Updated Safety Analysis Report

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- a.4 NRC Safety Evaluation Report
- a.5 MP3 Commitments to NRC
- a.6 Design Basis Documentation Package (DBDP)
- b. System Specific Documents
  - b.1 Engineering Calculations (Mech, Elect, Struct, I&C and Piping Analysis)
  - b.2 Equipment Procurement Specifications
  - b.3 Modification Packages
  - b.4 System Descriptions
  - b.5 Equipment List
  - b.6 Environmental and Seismic Qualification Reports\
  - b.7 Findings and corrective actions identified by NU during the implementation of their Configuration Management Plan (CMP)

5.2.1.2 The ORG Shall gather, as a minimum, the documents listed below:

- a. Operating Procedures including Emergency Operating Procedures
- b. Maintenance Procedures
- c. Surveillance Test Procedures
- d. Vendor Manuals
- e. System Training Procedures
- f. Necessary Support and/or Related Procedures

5.2.1.3 The CRG shall gather, as a minimum, the following system specific drawings:

- a. P&IDs
- b. Logic Drawings
- c. Electrical Schematics
- d. Piping Drawings
- e. Electrical Single Line Drawings
- f. Panel Wiring Drawings
- g. Cable Routing Drawings and Databases
- h. Pipe Support Drawings
- i. Structural Equipment Mounting Details
- j. General Arrangement/Equipment Location Drawings

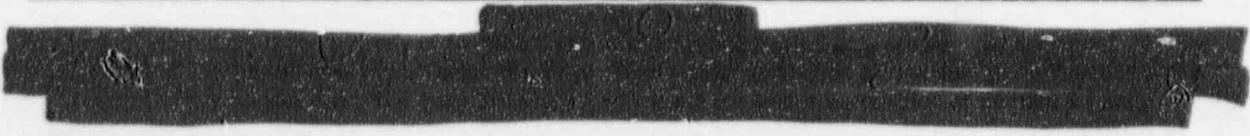





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- k. Instrument Location Drawings
- l. Zone Maps (Environment/Fire Protection, etc).

- 5.2.2 Design and Licensing Basis documents are available in the S&L ICAVP Library. System specific documents shall be obtained from NU. Requests for documentation from NU shall be submitted in accordance with subsection 3.1 of PI-MP3-01.
- 5.2.3 Once the documents have been gathered, each group shall complete the applicable section of the System Reference List (SRL) and forward the completed SRL to the SRG Lead. Checklist CK-MP3-02-01 shall be used for the SRL.
- 5.2.4 The SRG Lead shall combine the SRL input from each review group, and issue the combined list for use to the ORG, SRG and CRG.
- 5.2.5 Each member of the ORG, SRG and CRG assigned to review the system shall study the documentation to become as familiar as possible and achieve an in-depth understanding of the system as it relates to their area of expertise. Each member shall also review the findings and corrective actions that resulted from NU's CMP. S&L shall not duplicate findings identified by the NU CMP.
- 5.2.6 If the need for additional documents is identified during the review process, these documents shall be requested in accordance with subsection 5.2.2 of this PI.
- 5.2.7 Requests for updates to the SRL shall be forwarded to the SRG Lead. The SRG Lead shall issue formal revisions to the SRL as needed.
- 5.2.8 The SRG Lead shall file the SRL in accordance with PI-MP3-12.
- 5.3 Identification of System Requirements
- 5.3.1 The SRG shall review the licensing and design basis documents to identify the functional, performance, and other design requirements for the system being reviewed. Identification of operating, testing and maintenance requirements shall be performed by the ORG in accordance with PI-MP3-06.



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- 5.3.2 The SRG Lead shall assign a Lead Verifier for each of the systems being reviewed. The Lead Verifier shall be from the related discipline (Mechanical for Mechanical System, Electrical for Electrical System, etc). The SRG Lead shall also assign verifiers from other disciplines as needed to support the system review process.
- 5.3.3 The Verifier(s) shall review the Licensing and Design Basis Documents for the system being reviewed to identify design, performance and functional requirements. Each requirement shall be tabulated along with a reference on the Systems Requirements Checklist (Checklist CK-MP3-02-02).
- 5.3.4 The system requirements review for functional, performance and design requirements shall be limited to the following design aspects:
- a. Mechanical Design
  - b. Electrical Design
  - c. I&C Design
  - d. Structural Design
  - e. Piping Design
  - f. Equipment Qualification (environmental and seismic)
- 5.3.5 The Lead Verifier shall incorporate input received from the ORG (per PI-MP3-06) into the System Requirements Checklist. The Lead Verifier shall also incorporate the characteristics identified by the ARG (per PI-MP3-07) for the system if the ARG determines the system is an accident mitigation system. Upon completion, the Lead Verifier shall obtain signatures from the verifiers providing input and shall sign the "Input Approval" block of the checklist.
- 5.3.6 The SRG Lead will review the Systems Requirements Checklist for completeness and shall indicate his concurrence by signature and date in the appropriate block on Checklist CK-MP3-02-02.
- 5.3.7 The SRG Lead shall distribute the checklist to the ORG Lead and to applicable SRG verifiers for use and to the project file in accordance with PI-MP3-12.





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#### 5.4 Technical Review of Design Process Documents

5.4.1 The SRG shall perform a detailed review of applicable design process documents to verify technical adequacy.

5.4.2 Applicable design process documents shall include:

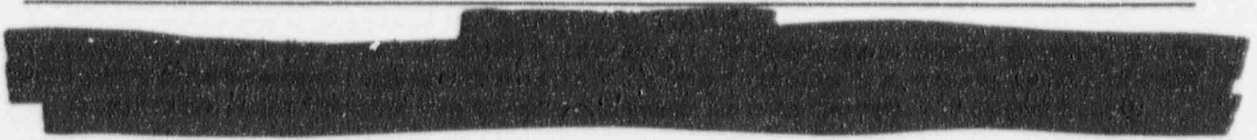
- a. Mechanical calculations (hydraulic calculations, component sizing calculations, design pressure and temperature calculations, NPSH calculations, etc.)
- b. Electrical calculations (load calculations, voltage drop, etc.)
- c. I&C calculations (setpoint calculations)
- d. Structural calculations (equipment mounting, pipe supports, cable tray supports, conduit supports, etc.)
- e. Piping Analysis
- f. EQ/SQ Reports


Note: The review process is not intended to include the entire population of repetitive component calculations such as pipe support calculations. The SRG shall review an adequate sample of repetitive type calculations.

5.4.3 Checklist CK-MP3-02-03 shall be used to document the design process document review. The applicable subject specific checklists from PI-MP3-03 shall also be used.

5.4.4 The Verifier(s) shall review the adequacy of the following attributes:

- a. Numerical Accuracy - The numerical aspects and mathematical operations shall be error free. The number of significant figures shall be consistent with the input data, assumptions and design methodology. Transposed or transferred numbers are correct.
- b. Modeling Accuracy - Analytical models shall be consistent with the degree of accuracy of the input data, assumptions and design methodology.
- c. Assumptions and Engineering Judgment - Assumptions and engineering judgment shall be consistent with the design approach and methodology.



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- d. Design Inputs - Design inputs shall be based on the latest controlled design documents.
- e. Methodology - The method shall be appropriate for the purpose and scope of the calculation.

5.4.5 The Verifier(s) shall note any comments identified during the review on the Design Process Document Review Checklist (CK-MP3-02-03).

5.4.6 The Verifier(s) shall evaluate the comments to determine if they affect the conclusion of the Design Process Document. The evaluation shall be documented on the Design Process Document Review Checklist (CK-MP3-02-03).

5.4.7 The Verifier(s) shall indicate on the checklist coversheet (CK-MP3-02-03) whether the conclusions are acceptable with comments or unacceptable, and shall sign and date the coversheet.

5.4.8 For acceptable with comments or unacceptable dispositions, the Verifier shall generate a Discrepancy Report per subsection 5.8 of this PI. The Verifier(s) shall also evaluate the unacceptable disposition for impact on other documents that may use the conclusion as input. The Verifier(s) shall consult other SRG members while evaluating the impact.

Note: Calculation results are typically used as input in other documents. If a Discrepancy is identified which affects the result of the calculation, it is important to define where those results were used and evaluate those documents for impact. The review should be done prior to generating a Discrepancy Report so that the Discrepancy Report describes the full extent of the condition.

5.4.9 The Lead Verifier shall verify the checklists have been properly completed, indicate his concurrence with signature and date, and shall compile and file the design process document review checklists prepared by the Verifier(s) to the project file in accordance with PI-MP3-12.



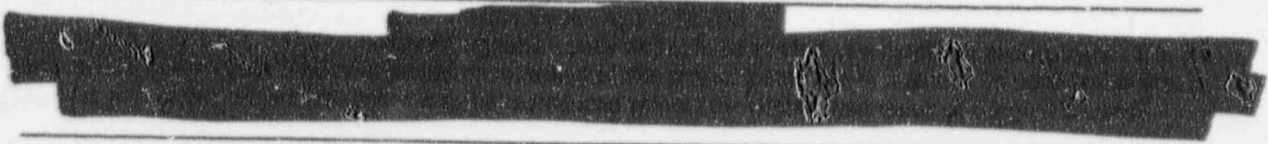
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## 5.5 Upper Tier Document Review

- 5.5.1 The SRG shall perform a functional review of the upper tier drawings to verify the system is capable of performing its functions as described in the design and licensing basis. The SRG shall also perform a technical review of the drawings to verify conformance to design calculations and classification criteria.
- 5.5.2 The Verifier(s) shall utilize drawing review checklists CK-MP3-02-4.1, -4.2, -4.3 for the review of the P&IDs, logic diagrams and electrical schematics, respectively. These checklists define the attributes to be reviewed. In general, review attributes will include flow paths, interlocks, automatic actuations, permissives, redundancy and separation, safety classification, component sizes, pressure class, overpressure protection, etc. The review is not intended to identify drafting or style errors.
- 5.5.3 The Verifier(s) shall note any comments on the applicable checklists (CK-MP3-02-4.1, -4.2, -4.3).
- 5.5.4 Upon completion of the review, the Verifier(s) shall sign and date the coversheet of the applicable checklists.
- 5.5.5 The Verifier(s) shall generate a Discrepancy Report per Subsection 5.8 of this PI for any discrepancies not previously identified by the NU CMP.
- 5.5.6 The Lead Verifier shall verify the checklists have been properly completed, indicate his concurrence with signature and date, and shall compile and file all drawing review checklists prepared by the Verifier(s) in the project file per PI-MP3-12.

## 5.6 Component Review

- 5.6.1 The SRG shall perform a detailed review of system components. This review shall verify the design data included in the design and licensing basis, the vendor drawings, the procurement specifications, equipment list and calculations are consistent.




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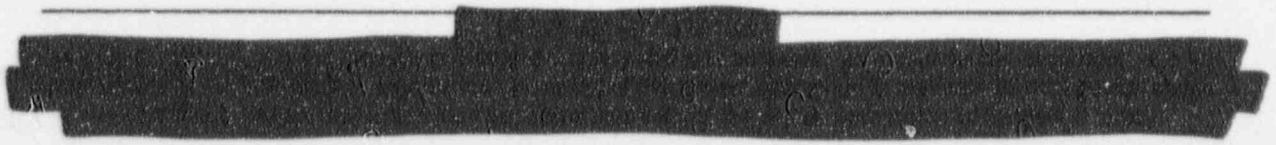
- 5.6.2 The scope of this review shall include all major mechanical, electrical and I&C components.
- 5.6.3 Detailed component checklists are included in the CK-MP3-02-05 series checklists. These checklists verify attributes such as classification, design conditions, operating conditions, functional requirements, applicable codes and standards, performance requirements, and qualification requirements, etc.
- 5.6.4 The Verifier(s) shall complete individual Component Review Checklists (CK-MP3-02-05 series) for each component within the scope of review. Discrepancies noted shall be indicated in the appropriate blocks on the checklists.
- 5.6.5 Upon completion of the review, the Verifier(s) shall sign and date the checklists.
- 5.6.6 The Verifier(s) shall generate a Discrepancy Report in accordance with Subsection 5.8 of this PI for any discrepancies not previously identified by the NU CMP.
- 5.6.7 The Lead Verifier shall verify the checklists have been properly completed, indicate his concurrence with signature and date, and shall file all completed checklists in the project file per PI-MP3-12.
- 5.7 Reconciliation of Design vs. Design and Licensing Basis
  - 5.7.1 The SRG will complete the verification of the system design versus the design and licensing basis documentation. The verification shall be completed by dispositioning each requirement on the System Requirements Checklist (Checklist CK-MP3-02-02).
  - 5.7.2 Where applicable, the Verifier(s) shall identify on the System Requirements Checklist, the design process documents which verify the restraints imposed by the system requirement are not exceeded. The Verifier(s) shall either indicate the design process document is technically adequate or describe any deficiencies. The Verifier shall also identify missing design process documents, if applicable.






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- 5.7.3 The Verifier(s) shall identify on the System Requirements Checklist, the design output documents related to the system requirement. The Verifier shall indicate whether the technical requirements contained in the design output documents are consistent with the system requirements or shall identify the discrepancy.
- 5.7.4 The Verifier(s) shall initial and date all entries in the System Requirements Checklist, and shall sign the System Requirements Checklist when completed.
- 5.7.5 The Verifier(s) shall generate a Discrepancy Report in accordance with Subsection 5.8 of this PI for any discrepancies not previously identified in Subsection 5.4, 5.5, and 5.6 of this procedure.
- 5.7.6 The SRG Lead shall review the disposition in the system requirements Checklist (CK-MP3-02-02) for completeness and technical accuracy. The SRG Lead shall indicate his concurrence with signature and date in the appropriate column. The SRG Lead shall notify the ARG Lead that either all critical characteristics for accident mitigation systems have been satisfied or he shall identify which have not been.
- 5.7.7 The Lead Verifier shall file the completed checklists in the project file per PI-MP3-12.
- 5.8 Discrepancy Report Preparation and Closure
- 5.8.1 Discrepancy Reports for discrepant conditions identified during the system review process shall be prepared and processed in accordance with PI-MP3-11. Discrepancy reports shall not be initiated for findings already identified by NU during implementation of the CMP.
- 5.8.2 Review of NU dispositions for the Discrepancy Reports generated during the review cycle shall be in accordance with PI-MP3-11.
- 5.9 Final Report
- 5.9.1 The Lead Verifier shall draft a final report summarizing the results of the system review.



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5.9.2 The report format shall be determined by the Verification Team Manager.

5.9.3 The report shall be reviewed and approved by the VT Lead, VT Manager and IRC prior to external distribution.

## 6.0 ATTACHMENTS

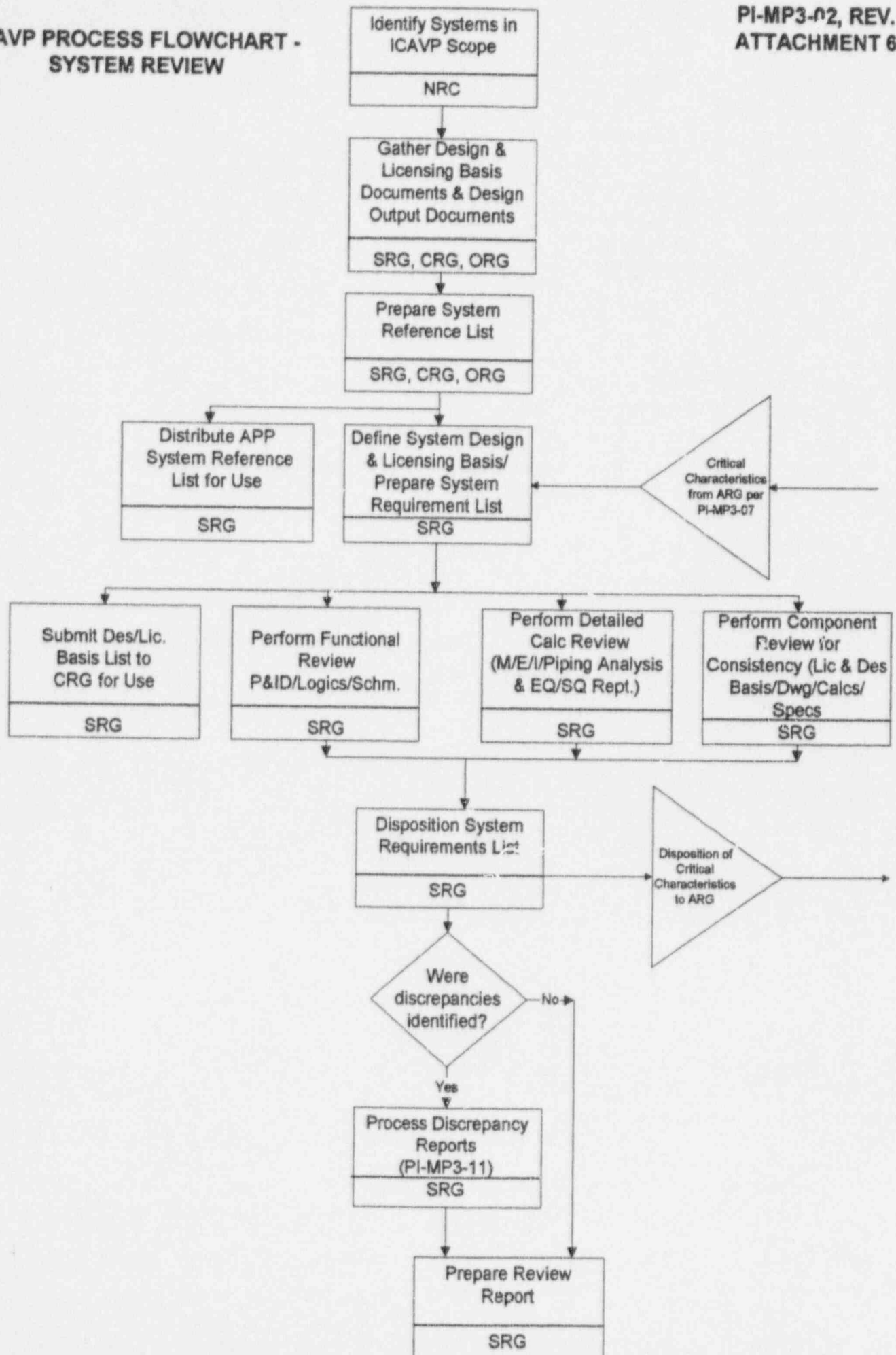
6.1 ICAVP Process Flowchart, "System Review". ( 1 page)





ICAVP PROCESS FLOWCHART -  
SYSTEM REVIEW

PI-MP3-02, REV. 0  
ATTACHMENT 6.1



PROJECT  
INSTRUCTION

Sargent & Lundy

INSTRUCTION PI-MP3-03  
REV. 0

Client: Northeast Utilities

Station: Millstone Unit 3

Title: **REVIEW OF PLANT MODIFICATIONS PREPARED AFTER RECEIPT OF OPERATING LICENSE FOR  
TECHNICAL ADEQUACY AND FOR CONFIGURATION CONTROL**

☒ **Safety-Related**

☐ **Non-Safety-Related**

Reviewed By:

Approved By:

System Lead

Programmatic  
Lead

O&M Lead

Accident  
Mitigation  
Lead

QA Engineer

Internal Review  
Committee  
Chairman

Verification Team  
Manager

Date: 3-6-97

*AD New*

*John Blum*

*Blum*

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Description

Initial Issue

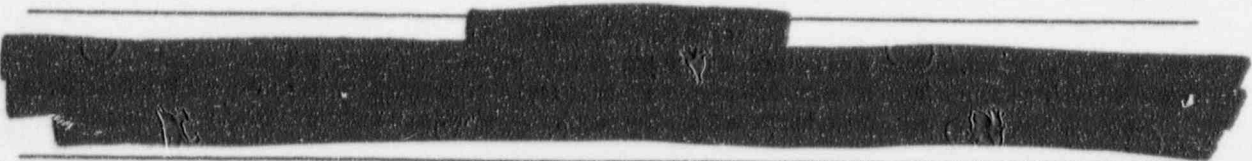
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## 1.0 PURPOSE

This instruction establishes the requirements for the review of modifications to systems included in the scope of the Independent Corrective Action Verification Program (ICAVP). The purpose of the modification review is to verify the adequacy of the engineering design and configuration control processes.

## 2.0 REFERENCES

- 2.1 NRC Inspection Manual Procedure 93801, Safety System Functional Inspection
- 2.2 10CFR50.2, Definitions
- 2.3 NRC Confirmatory Order Establishing Independent Correction Action Verification Program - Millstone Nuclear Power Station, Units 1,2, and 3
- 2.4 NUMARC 90-12, Design Basis Program Guidelines
- 2.5 PI-MP3-02, Review of System Design for Compliance with Design & Licensing Basis
- 2.6 PI-MP3-04, Programmatic Reviews
- 2.7 PI-MP3-05, Physical Plant Configuration Walkdowns
- 2.8 PI-MP3-06, Operations and Maintenance and Testing Procedures and Training Documentation Reviews
- 2.9 PI-MP3-09, Preparation and Approval of Checklists
- 2.10 PI-MP3-11, Discrepancy Report Submittal and Closure
- 2.11 PI-MP3-12, Project File Index



PROJECT INSTRUCTION		INSTRUCTION PI-MP3-03 REV. 0
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2.12 CK-MP3-03, Series Checklists as follows:

CK-MP3-03-01 Modification Review Administrative Checklist  
 CK-MP3-03-02 Modification Screening Checklist  
 CK-MP3-03-03 Mechanical Systems Design Review  
 CK-MP3-03-04 Electrical Design Review  
 CK-MP3-03-05 I&C Design Review  
 CK-MP3-03-06 Structural Design Review  
 CK-MP3-03-07 ALARA Design Review  
 CK-MP3-03-08 Security Review  
 CK-MP3-03-09 Appendix R Compliance Review  
 CK-MP3-03-10 Electrical Equipment Qualification Review  
 CK-MP3-03-11 Seismic Qualification Review  
 CK-MP3-03-12 Radiological Environmental Review  
 CK-MP3-03-13 Non-Radiological Environmental Review  
 CK-MP3-03-14 Station Blackout Review  
 CK-MP3-03-15 Control Panel Design Review  
 CK-MP3-03-16 Piping Design Review  
 CK-MP3-03-17 Setpoint Database Design Review  
 CK-MP3-03-18 Hazards/HELB Program Review  
 CK-MP3-03-19 Fire Protection Review  
 CK-MP3-03-20 Licensing Review  
 CK-MP3-03-21 PRA Review  
 CK-MP3-03-22 Quality Software Design Review  
 CK-MP3-03-23 Installation Plan Review  
 CK-MP3-03-24 Test Plan Review  
 CK-MP3-03-25 Project Closeout Review

Note: Checklists used in the performance of this PI are not included as attachments to the PI. Checklists are prepared and controlled as separate documents per PI-MP3-09.

### 3.0 DEFINITIONS

- 3.1 **Operations & Maintenance and Testing Review Group (ORG)** - The subgroup of the ICAVP Verification Team responsible for the review of the operating, maintenance and testing procedures, and training materials for the systems within the scope of the ICAVP.

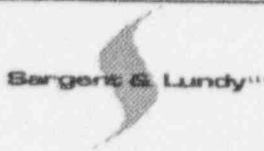


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- 3.2 **System Review Group (SRG)** - The subgroup of the ICAVP Verification Team responsible for performing an in-depth review of the design of the systems in the scope of the ICAVP.
- 3.3 **Configuration Review Group (CRG)** - The subgroup of the SRG responsible for walkdowns to verify the current as built conditions are in conformance with the design output documents.
- 3.4 **Design Bases** - The information which identifies the specific functions to be performed by a structure, system or component of a facility, and the specific values or ranges of values chosen for controlling parameters as reference bounds for design. These values may be (1) restraints derived from generally accepted "state of the art" practices for achieving functional goals or (2) requirements derived from analysis of the effects of a postulated accident for which a structure, system or component must meet its functional goals (Reference 2.2).
- 3.5 **Design Output Documents** - Controlled plant documents such as specifications, drawings, vendor drawings, datasheets, lists and databases (Reference 2.4).
- 3.6 **Design Process Documents** - Documents such as calculations, analysis, evaluations or other documented engineering activities that substantiate the final design (Reference 2.4).
- 3.7 **Current Licensing Basis (CLB)** - The set of NRC requirements applicable to a specific plant, and a licensee's written commitments for assuring compliance with and operation within applicable NRC requirements and the plant-specific design basis (including all modifications and additions to such commitments over the life of the license) that are docketed and are in effect. The CLB includes the NRC regulations contained in 10 CFR Parts 2, 19, 20, 21, 30, 40, 50, 51, 55, 72, 73, 100 and appendices thereto; orders; license conditions; exemptions, and Technical Specifications (TS). It also includes the plant-specific design basis information defined in 10 CFR 50.2 as documented in the most recent Final Safety Analysis Report (FSAR) as required by 10 CFR 50.71 and the licensee's commitments remaining in effect that were made in docketed licensing correspondence such as licensee responses to NRC bulletins, generic letters, and enforcement actions, as well as

[REDACTED]



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licensee commitments documented in NRC safety evaluations or licensee event reports. (Reference 2.7)

- 3.8 **Verifier** - The individual assigned to review engineering attributes within his area of responsibility.

#### 4.0 RESPONSIBILITIES

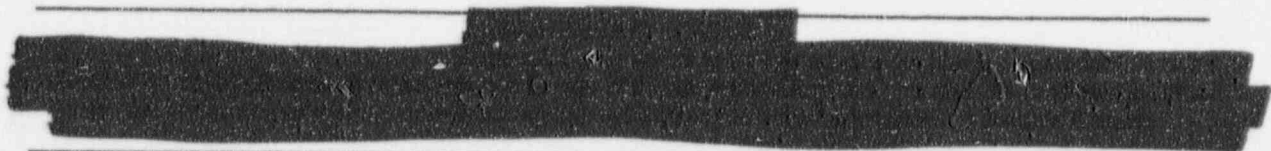
- 4.1 The Verification Team Manager shall be responsible for defining final report format and for overall management of the Verification Team.
- 4.2 The SRG Lead shall be responsible for assigning the Lead Verifier for each system in the ICAVP scope and for overall coordination of the SRG effort.
- 4.3 The Lead Verifier shall be responsible for reviewing modification elements within his area of expertise and for assigning verifiers with appropriate background for review of remaining elements.
- 4.4 The Verifiers shall be responsible for performing reviews of modification elements within their area of expertise in accordance with this instruction.

#### 5.0 PROCEDURE

##### 5.1 General

The Nuclear Regulatory Commission (NRC) Confirmatory Order referenced in Section 2.0 of this PI requires Northeast Utilities (NU) to implement the ICAVP. The confirmatory order also defines the scope of the ICAVP. Item 1 of the scope of the ICAVP described on page 13 of the confirmatory order requires the Licensee to perform a review of the engineering design and configuration control processes. The scope of the review encompasses the modifications to the selected systems since initial licensing.

This procedure provides the instructions for performing an orderly review of the modifications to the selected systems in order to comply with the confirmatory order and applies to both major modifications and minor modifications. Like for like replacements are not included in the scope of






this review. Adequacy of the engineering design process will be determined by performing detailed technical reviews of the modification design elements including changes to design process documents and design output documents. Adequacy of the configuration control process will be determined by verifying that changes resulting from the modification have been reflected in design output documents, licensing documents such as the Technical Specifications and FSAR, plant procedures such as operating procedures, maintenance procedures and surveillance procedures, physical configuration and engineering programs. This project instruction only verifies the adequacy of the configuration control process as it relates to design output documents, engineering programs and licensing documents. Configuration control as it relates to plant physical configuration and plant procedures is covered by PI-MP3-05 and -06, respectively. Review of NU's design change process procedures is covered by PI-MP3-04.

The review of the system modifications shall be performed in chronological order because of the impact subsequent modifications can have on previous modifications. The SRG shall also be responsible for clearly identifying prior to the CRG and ORG review of the system modification, which portions of modification packages were subsequently revised by later modification. The SRG shall also clearly identify which modifications have not yet been installed. These measures are needed to prevent generation of erroneous discrepancy reports during the CRG system walkdowns and the ORG review of plant procedures.

The systems included in the scope of this review and the applicable modification packages were identified and retrieved as part of the system review process described in PI-MP3-02. The specific tasks associated with the review of modifications include:


- a. Screening of affected modification elements.
- b. Review of affected modification design elements.
- c. Review of Installation and Test Plans.
- d. Review of Changes to Licensing Documents.
- e. Review of Modification Close-out.
- f. Discrepancy Report Preparation and Closure.
- g. Final Report Preparation.

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The detailed instructions for performing these tasks are described in Subsection 5.2 through 5.8 below. Attachment 6.1 is a flow chart illustrating the modification review process.

## 5.2 Screening for Affected Modification Elements

- 5.2.1 The SRG Lead shall screen the system modifications to identify whether the modification is a Mechanical, Electrical, I&C or Structural modification. The SRG Lead shall then assign a Lead Verifier from the applicable discipline to perform the modification review. The SRG Lead shall document this assignment on the Modification Review Administrative Checklist (Checklist CK-MP3-03-01).
- 5.2.2 The Lead Verifier shall screen the modifications for impact on modification elements by completing the Modification Screening Checklists (CK-MP3-03-02 Checklists). This task involves responding to a series of questions intended to minimize unnecessary discipline/program personnel review. The Lead Verifier may seek assistance as needed from other members within the SRG to respond to questions outside his area of expertise.
- 5.2.3 The Lead Verifier and Verifier(s) shall respond "yes" or "no" to each question on the checklists and shall initial each response. The topics addressed in the screening checklist include:
- MODIFICATION SCREENING SUMMARY
  - MECHANICAL SYSTEMS DESIGN REVIEW
  - ELECTRICAL DESIGN REVIEW
  - I&C DESIGN REVIEW
  - STRUCTURAL DESIGN REVIEW
  - ALARA DESIGN REVIEW
  - SECURITY REVIEW
  - APPENDIX R COMPLIANCE REVIEW
  - ELECTRICAL EQUIPMENT QUALIFICATION REVIEW
  - SEISMIC QUALIFICATION REVIEW
  - RADIOLOGICAL ENVIRONMENTAL REVIEW
  - NON-RADIOLOGICAL ENVIRONMENTAL REVIEW
  - STATION BLACKOUT REVIEW
  - CONTROL PANEL DESIGN REVIEW

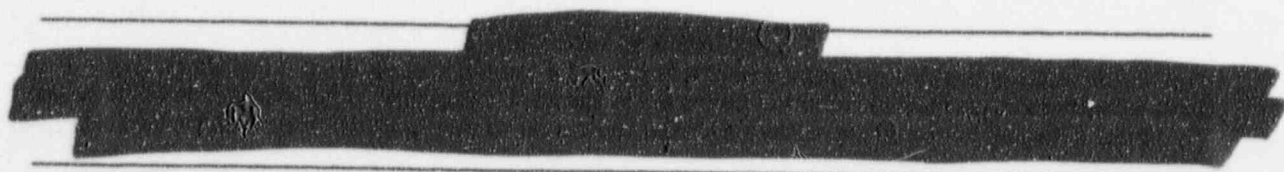
PROJECT INSTRUCTION	 Sargent & Lundy	INSTRUCTION PI-MP3-03 REV. 0
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- PIPING DESIGN REVIEW
- SETPOINT DATABASE DESIGN REVIEW
- HAZARDS/HELB PROGRAM REVIEW
- FIRE PROTECTION REVIEW
- LICENSING REVIEW
- PRA REVIEW
- TRAINING PROCEDURES REVIEW
- EMERGENCY PREPAREDNESS PROGRAM REVIEW
- PLANT PROCEDURES REVIEW  
(OPS, MAINTENANCE, SURVEILLANCE, TESTING)
- CONFIGURATION CHANGE REVIEW
- QUALITY SOFTWARE DESIGN REVIEW

5.2.4 When the screening process has been completed, the Lead Verifier shall indicate on the Modification Screening Checklist Summary Sheet (CK-MP3-03-02) which modification elements are affected.

5.2.5 The Lead Verifier shall then assign Verifiers from the applicable discipline to perform a detailed review of the affected modification elements in accordance with Subsection 5.3 of the project instruction. If the screening process identifies that physical plant configuration or plant procedures may be affected by the modification, the Lead Verifier shall forward the completed Modification Screening Checklist (CK-MP3-03-02) and a copy of the modification package to the CRG and ORG for their review. This step shall not be performed until after all modifications to the system have been screened, the impact of subsequent modifications to previous modifications has been assessed, and the identification of modifications not yet installed has been completed. Note: CRG and ORG modification reviews are covered by PI-MP3-05 and 06, respectively.

5.2.6 The Lead Verifier shall document on the Modification Review Administrative Checklist (CK-MP3-03-01) that the affected modification element screening process has been completed and shall file the Modification Screening Checklist in the project file per PI-MP3-12.



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### 5.3 Review of Affected Modification Elements

- 5.3.1 The Verifier(s) assigned by the Lead Verifier shall perform a detailed review of the affected modification design elements within his area of responsibility. The detailed review shall include a verification of the technical adequacy of changes to, or new, design process documents and design output documents prepared for the modification.
- 5.3.2 The Verifier(s) shall review the modifications utilizing the applicable element review checklist. The element review checklists include:

<u>Checklist No.</u>	<u>Description</u>
CK-MP3-03-03	MECHANICAL SYSTEMS DESIGN REVIEW
CK-MP3-03-04	ELECTRICAL DESIGN REVIEW
CK-MP3-03-05	I&C DESIGN REVIEW
CK-MP3-03-06	STRUCTURAL DESIGN REVIEW
CK-MP3-03-07	ALARA DESIGN REVIEW
CK-MP3-03-08	SECURITY REVIEW
CK-MP3-03-09	APPENDIX R COMPLIANCE REVIEW
CK-MP3-03-10	ELECTRICAL EQUIPMENT QUALIFICATION REVIEW
CK-MP3-03-11	SEISMIC QUALIFICATION REVIEW
CK-MP3-03-12	RADIOLOGICAL ENVIRONMENTAL REVIEW
CK-MP3-03-13	NON-RADIOLOGICAL ENVIRONMENTAL REVIEW
CK-MP3-03-14	STATION BLACKOUT REVIEW
CK-MP3-03-15	CONTROL PANEL DESIGN REVIEW
CK-MP3-03-16	PIPING DESIGN REVIEW
CK-MP3-03-17	SETPOINT DATABASE DESIGN REVIEW
CK-MP3-03-18	HAZARDS/HELB PROGRAM REVIEW
CK-MP3-03-19	FIRE PROTECTION REVIEW
CK-MP3-03-21	PRA REVIEW
CK-MP3-03-22	QUALITY SOFTWARE DESIGN REVIEW

These checklists are intended to identify topics which should be reviewed for each element. The Verifier shall indicate on the checklist whether the topic has been addressed satisfactorily, was not addressed satisfactorily or is not applicable to the modification.




PROJECT INSTRUCTION		INSTRUCTION PI-MP3-03 REV. 0
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comments needed to substantiate the Verifier(s) response shall be entered on the comment sheets included with each checklist.

- 5.3.3 The Verifier(s) shall perform a technical review of the new or revised design process documents in accordance with Section 5.4 of PI-MP3-02.
- 5.3.4 The Verifiers shall perform a technical review of new or revised design output documents including drawings, specifications and or lists. The review is a line by line review to verify the changes made to the design output documents are technically correct and consistent with the level of detail previously shown on the drawings.
- 5.3.5 When the review is completed, the Verifier shall sign and date the applicable element review checklist and forward the completed checklist to the Lead Verifier.
- 5.3.6 The Verifier shall generate a discrepancy report for any discrepancies identified during the review in accordance with Subsection 5.7 of this project instruction.
- 5.3.7 The Lead Verifier shall indicate on the Modification Screening Summary Checklist (CK-MP3-03-02) that the affected element has been reviewed and shall indicate whether any discrepancies were identified. When all affected elements have been reviewed, the Lead Verifier shall sign and date the Modification Screening Summary Checklist (CK-MP3-03-02), assemble and file the CK-MP3-03-03 series detailed element review checklists in the project file per PI-MP3-12.
- 5.3.8 The Lead Verifier shall indicate on the Modification Review Administration Checklist (CK-MP3-03-01) that the affected modification element detailed review process has been completed.
- 5.4 Review of Installation & Test Plans
  - 5.4.1 The Lead Verifier shall review the modification scope and confer with other modification verifiers to determine installation and test(s) requirements. The Installation Plan Checklist (CK-MP3-03-23) and

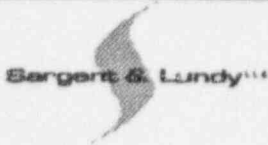


PROJECT INSTRUCTION		INSTRUCTION PI-MP3-03 REV. 0
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the Test Plan Checklist (CK-MP3-03-24) shall be used as the basis for identifying these requirements.

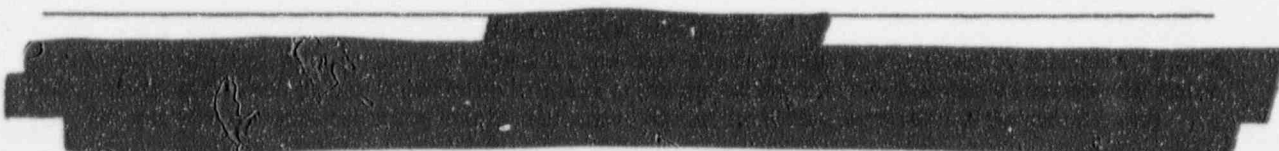
- 5.4.2 Once installation and testing requirements have been identified, the Lead Verifier shall assign verifiers to review the installation plan and test plans contained in the modification package.
- 5.4.3 The Verifier(s) shall review the installation plans utilizing Checklist CK-MP3-03-23. This review is intended to verify that appropriate installation requirements including welding procedures, ASME Section XI, NDE requirements, etc., are specified. Upon completion of their reviews, the Verifiers shall sign and date the checklists. Justification for responses entered on the checklists may be entered on the checklists comment sheet.
- 5.4.4 The Verifier(s) shall review the test plans utilizing Checklist CK-MP3-03-24. The review is intended to verify that adequate test requirements including code required preservice tests and inspections, component level tests, system level tests and integrated tests are specified. Upon completion of the reviews, the Verifier(s) shall sign and date the checklists. Justification for responses entered on the checklists may be entered on the checklist summary sheet. If post modification tests are required, the SRG Lead Verifier shall submit the test requirements and acceptance criteria and Checklist CK-MP3-03-24 to the ORG for review.
- 5.4.5 Discrepancies identified during the installation and test plan review shall be processed in accordance with Subsection 5.7 of this project instruction. DRs regarding post-modification tests shall be reviewed with the ORG to determine whether the test that was performed was inadequate.
- 5.4.6 The Verifier(s) shall forward the completed checklists to the Lead Verifier.
- 5.4.7 The Lead Verifier shall indicate on the Modification Review Administrative Checklist (CK-MP3-03-01) that the installation and test plan review process has been completed and shall file the applicable checklists in the project file in accordance with PI-MP3-12.




PROJECT INSTRUCTION		INSTRUCTION PI-MP3-03 REV. 0
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## 5.5 Review of Changes to Licensing Documents

- 5.5.1 The Lead Verifier shall perform a review of changes to licensing documentation including FSAR changes and Technical Specification changes to ensure accuracy and completeness. The Lead Verifier shall perform a review of the 10CFR50.59 safety evaluation or safety evaluation screening to verify completeness and accuracy.
- 5.5.2 The Lead Verifier shall review the Licensing Document changes using Checklists CK-MP3-03-20. The intent of this review is to verify that changes due to modifications have been reviewed for impact on the FSAR and Technical Specifications. If it is determined that a change is required, the Lead Verifier shall verify changes were processed and shall review these changes for consistency with the modification. Upon completion of the review, the Lead Verifier shall complete Checklist CK-MP3-03-20, enter any comments on the checklist comment sheet and sign and date the completed checklist.
- 5.5.3 The Lead Verifier shall review the safety evaluation prepared for the modification using Checklist CK-MP3-03-20. The intent of this review is to verify the modification is safe and satisfies the requirements of 10CFR50.59. Upon the completion of the review, the Lead Verifier shall complete Checklist CK-MP3-03-20, enter any comments on the checklist comment sheet and sign and date the completed checklist.
- 5.5.4 The Lead Verifier shall generate a Discrepancy Report in accordance with Subsection 5.7 of this PI for any discrepancy identified while performing Subsection 5.5.2 and 5.5.3.
- 5.5.5 The Lead Verifier shall indicate on the Modification Review Administrative Checklist (CK-MP3-03-01) that review of licensing document changes and the safety evaluation has been completed and shall file the applicable checklists in the project file per PI-MP3-12.
- 5.6 Review of Modification Close-out Activities
- 5.6.1 The Lead Verifier shall perform a review to verify adequate modification close-out. The intent of this review is to verify that changes identified in the modification package have been processed

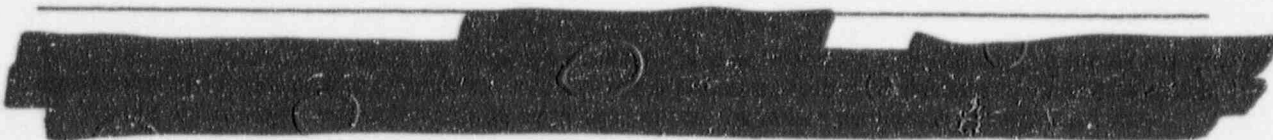



PROJECT INSTRUCTION		INSTRUCTION PI-MP3-03 REV. 0
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to incorporation or are identified as open changes. The scope of this review includes those design output documents, design process documents and licensing documents within the SRG scope. These documents as a minimum include:

- a. Calculations
- b. Specifications
- c. Drawings
- d. Lists and Databases
- e. Engineering Program Documents
- f. FSAR
- g. Technical Specifications

- 5.6.2 The Lead Verifier shall review modification close-out activities using Checklist CK-MP3-03-25.
- 5.6.3 The Lead Verifier shall complete Checklist CK-MP3-03-25, note any comments on the checklist comment form, and sign and date the checklist.
- 5.6.4 The Lead Verifier shall generate a Discrepancy Report in accordance with Subsection 5.7 of this project instruction for any discrepancies identified during the review.
- 5.6.5 The Lead Verifier shall indicate on the Modification Review Administrative Checklist (CK-MP3-03-01) that the review of modification close-out activities has been completed and shall file the applicable checklists in the project file per PI-MP3-12.
- 5.7 Discrepancy Report Preparation and Closure
  - 5.7.1 Discrepancy Reports for discrepancies identified during the system modification review process shall be prepared and processed in accordance with PI-MP3-11.
  - 5.7.2 Review of NU dispositions for the Discrepancy Reports generated during the review cycle shall be in accordance with PI-MP3-11.



PROJECT INSTRUCTION		INSTRUCTION PI-MP3-03 REV. 0
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5.8 Final Report

- 5.8.1 The Lead Verifier shall draft a final report summarizing the results of the system modification review. The results of the review tasks described above shall be used to determine that adequacy of both design and configuration control processes for the development of modifications after receipt of the operating license.
- 5.8.2 The report format shall be determined by the Verification Team Manager.
- 5.8.3 The report shall be reviewed and approved by the VT Leads, VT Manager and IRC prior to external distribution.

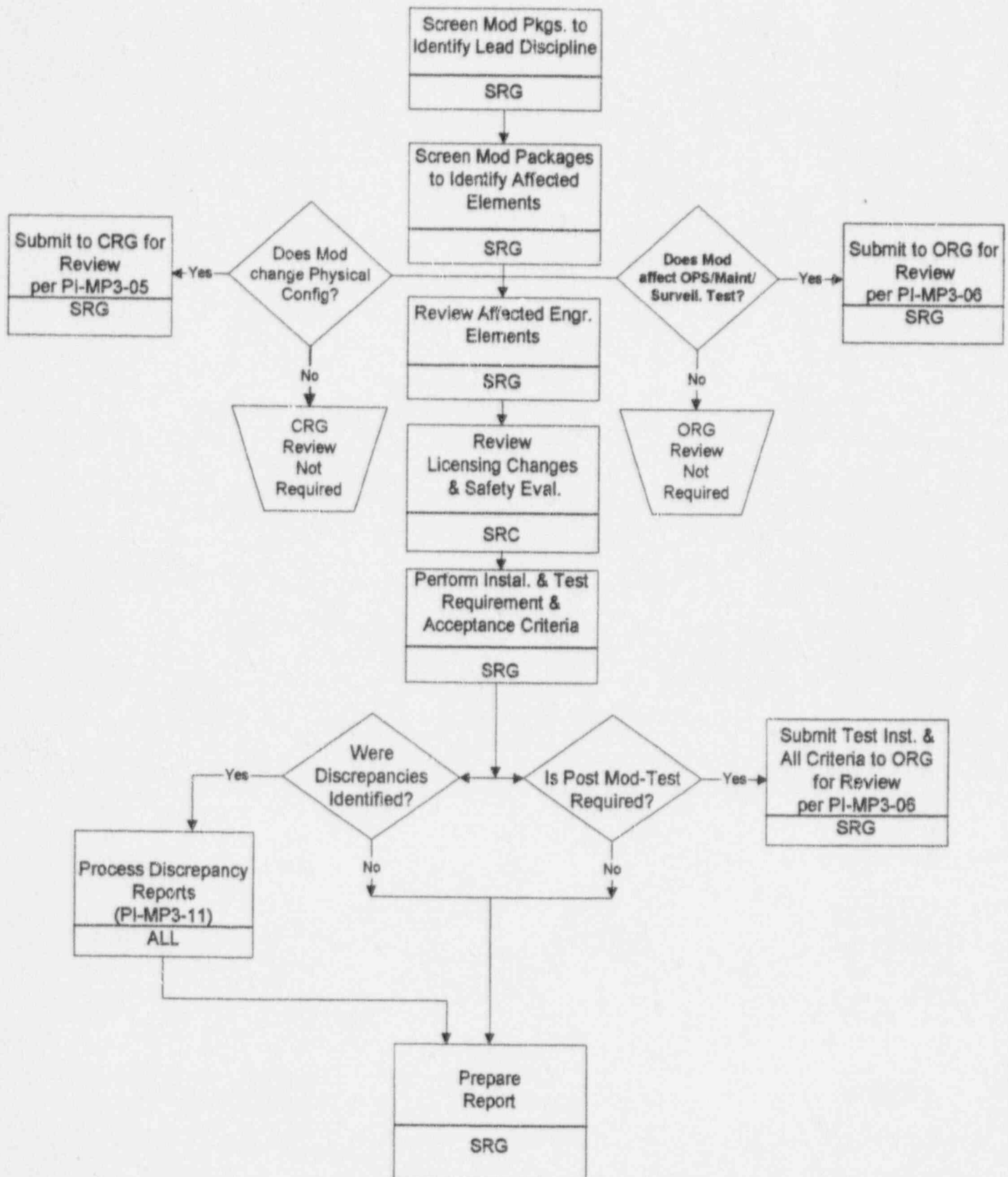
6.0 ATTACHMENTS

- 6.1 ICAVP Process Flowchart, "Review of Modifications". ( 1 page)



ICAVP PROCESS FLOWCHART -  
REVIEW OF MODIFICATIONS

PI-MP3-03, REV. 0  
ATTACHMENT 6.1





PROJECT  
INSTRUCTION

Sargent & Lundy

INSTRUCTION PI-MP3-04  
REV. 0

Client: Northeast Utilities

Station: Millstone Unit 3

Title: PROGRAMMATIC REVIEWS

☒ Safety-Related

☐ Non-Safety-Related

Reviewed By:

Approved By:

System Lead

Programmatic  
Lead

O&M Lead

Accident  
Mitigation  
Lead

QA Engineer

Internal Review  
Committee  
Chairman

Verification Team  
Manager

Date: 3-6-97

*AK*

*J. Ryan*

*R. Elmer*

*AK*


*R. G. Lundy*

*AK*

*AK*

Description

Initial Issue

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-04 REV. 0
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## 1.0 Purpose

This project instruction (PI) establishes the Sargent & Lundy procedure for performing programmatic reviews as a part of the ICAVP. These programmatic reviews are performed in addition to the ICAVP system design and licensing basis, O&M and testing, accident mitigation system reviews, and physical configuration reviews. The programmatic reviews are conducted on a horizontal basis (across systems) for the purpose of determining if the actions taken by Northeast Utilities (NU) to correct previously identified problems have been effective and if the NU change processes are effective.

The scope of the programmatic reviews will include:

### Licensee Initiated Corrective Actions

As part of its Configuration Management Program (CMP), NU has performed a vertical slice review of safety-significant and risk significant systems and has identified degraded or non-conforming conditions. For the degraded or non-conforming conditions NU is initiating corrective actions. The programmatic review will assess the adequacy of these corrective actions. This review will be conducted for all corrective actions associated with the ICAVP sample systems, and for a representative sample of corrective actions associated with the other NU completed CMP vertical slice systems.


### Change Processes

NU's current plant change processes will be reviewed for both their adequacy with respect to industry standards and for the effectiveness by which they are being implemented. Both design change processes and procedure change processes will be included in this review.

## 2.0 References

- 2.1 NRC Confirmatory Order Establishing Independent Corrective Action Verification Program - Millstone Nuclear Power Station, Units 1, 2 and 3
- 2.2 Millstone ICAVP Oversight Inspection Plan, approved 12/19/96
- 2.3 PI-MP3-09, Preparation and Approval of Checklists
- 2.4 PI-MP3-11, Discrepancy Report Submittal and Closure
- 2.5 NUMARC 90-12, Design Basis Program Guidelines



PROJECT INSTRUCTION		INSTRUCTION PI-MP3-04 REV. 0
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2.6 PI-MP3-12, Project File Index

2.7 CK-MP3-04, Series checklists as follows:

CK-MP3-04-01 Corrective Actions

CK-MP3-04-02 Change Process Review

CK-MP3-04-03 Change Procedure Implementation

Note: Checklists used in the performance of this PI are not included as attachments to the PI. Checklists are prepared and controlled as separate documents per PI-MP3-09.

### 3.0 Definitions

- 3.1 **Programmatic Review Group (PRG)** - The subgroup of the ICAVP Verification Team responsible for performing the reviews of corrective actions and change processes.
- 3.2 **Current Licensing Basis (CLB)** - The set of NRC requirements applicable to a specific plant, and a licensee's written commitments for assuring compliance with and operation within applicable NRC requirements and the plant-specific design basis (including all modifications and additions to such commitments over the life of the license) that are docketed and are in effect. The CLB includes the NRC regulations contained in 10 CFR Parts 2, 19, 20, 21, 30, 40, 50, 51, 55, 72, 73, 100 and appendices thereto; orders; license conditions; exemptions, and Technical Specifications (TS). It also includes the plant-specific design basis information defined in 10 CFR 50.2 as documented in the most recent Final Safety Analysis Report (FSAR) as required by 10 CFR 50.71 and the licensee's commitments remaining in effect that were made in docketed licensing correspondence such as licensee responses to NRC bulletins, generic letters, and enforcement actions, as well as licensee commitments documented in NRC safety evaluations or licensee event reports.
- 3.3 **System Review Group (SRG)** - The subgroup of the ICAVP Verification Team responsible for performing an in-depth review of the design of the systems in the scope of the ICAVP.
- 3.4 **Operations & Maintenance and Testing Review Group (ORG)** - The subgroup of the ICAVP Verification Team responsible for the review of the operating, maintenance and testing procedures, and training manuals for the systems within the scope of the ICAVP.

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-04 REV. 0
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- 3.5 **Design Bases** - The information which identifies the specific functions to be performed by a structure, system or component of a facility, and the specific values or ranges of values chosen for controlling parameters as reference bounds for design. These values may be (1) restraints derived from generally accepted "state of the art" practices for achieving functional goals or (2) requirements derived from analysis of the effects of a postulated accident for which a structure, system or component must meet its functional goals.
- 3.6 **Verifier** - The individual assigned to review engineering attributes within his area of responsibility.
- 3.7 **Discrepancy Report (DR)** - The mechanism for documenting the discrepant conditions identified by the ICAVP and reporting an apparent error, inconsistency, or procedural violation with regard to licensing commitments, specifications, procedures, codes or regulations.

#### 4.0 Responsibilities

- 4.1 The Programmatic Review Group Lead shall be responsible for assigning the verifier for each programmatic review and for overall coordination of the Programmatic Review effort. He shall also approve checklists that are prepared for each program review, and he shall provide concurrence after the review is performed that the checklist is complete.
- 4.2 The Verifier shall be responsible for performing the programmatic review and completing the appropriate checklist. The Verifier or any other appropriate PRG Member shall prepare checklists prior to a program review.

#### 5.0 Procedure

##### 5.1 Corrective Actions

##### 5.1.1 General

All NU identified corrective actions for the ICAVP sample systems shall be included in the programmatic review. For the remaining systems in the CMP vertical slice which have been completed by NU, a statistically significant (95/95 confidence/reliability) random sample of NU corrective actions shall be reviewed. It is not the intent of the ICAVP to verify completion of the corrective action, but only to assess the acceptability of the proposed corrective action. Therefore, it is only necessary that the corrective action determination be completed by NU to be included in this sample.

PROJECT INSTRUCTION	 Sargent & Lundy	INSTRUCTION PI-MP3-04 REV. 0
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### 5.1.2 Review Process

The NU CMP findings/corrective action documents shall be obtained from the SRG for the ICAVP sampled systems. The other CMP completed findings/corrective action documents (for systems outside the ICAVP) shall be obtained from NU.

Checklist CK-MP3-04-01, "Corrective Actions" shall be prepared by an appropriate team member for the review of corrective actions. Using the checklist, the PRG Verifier shall assess the corrective actions for adequacy of the following:

- a. Root cause determination - what is the fundamental cause, which, if corrected, will prevent recurrence of the condition? Are plant processes or procedures affected?
- b. Extent of condition determination - the extent to which other systems, structures, components, or activities are affected.
- c. Plant restart - is the corrective action required prior to restart?
- d. Content - is the corrective action adequate in resolving the issue?

After reviewing the checklist for completeness, the PRG Lead shall file the checklist in accordance with PI-MP3-12.

### 5.1.3 Discrepancies

The Verifier shall prepare a Discrepancy Report in accordance with PI-MP3-11 for any discrepancies identified during the corrective action review.


## 5.2 Change Processes

### 5.2.1 General

As part of the ICAVP system reviews, the SRG and the ORG will assess the plant modifications made on the systems sampled in the ICAVP. This review will evaluate the effectiveness of the change processes involved in these modifications (i.e. if the resulting modification is found to be acceptable, it can be inferred that the process used in performing the modification is acceptable). In addition to this system review, specific process related reviews will also be performed as controlled by this PI. The various change processes reviewed shall include the following:





PROJECT INSTRUCTION		INSTRUCTION PI-MP3-04 REV. 0
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<u>Process</u>	<u>Corresponding MP3 Procedure</u>
drawings	NUC DCM Chapter 7
specifications	NUC DCM Chapter 6
calculations	NUC DCM Chapter 5
procedures	DC1, DC2, DC3, DC4
temporary alterations	(if applicable)
minor modifications	NUC DCM Chapter 3
modifications	NUC DCM Chapter 3
licensing documents	NGP-4.03
vendor manuals	NUC DCM Chapter 8
like for like replacements	NUC DCM Chapter 1

## 5.2.2 Review Process

### A. Assess Adequacy of Process

The current MP3 procedure for the process listed in Section 5.2.1 will be evaluated for its content and completeness. This evaluation will determine if the procedure exercises adequate controls on the change process and invokes appropriate interface reviews to assure the plant design basis and configuration is maintained consistent with the licensing basis. The evaluation will be based on guidance provided in the following:

Reg. Guide 1.33 Quality Assurance Program Requirements (Operation)  
 NRC Inspection Manual  
 INPO guidelines  
 INPO 87-006 Report on Configuration Management in the Nuclear  
 Industry  
 NEI guidelines

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-04 REV. 0
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Checklist CK-MP3-02, "Change Process Review" shall be prepared by an appropriate team member for the evaluation of the current MP3 procedures according to the above. Using the checklist, the PRG Verifier shall assess the adequacy of each procedure. After reviewing the checklist for completeness, the PRG Lead shall file the checklist in accordance with PI-MP3-12.

**B. Assess Implementation of Procedures**

The adequacy of NU's implementation of the change process procedure will be evaluated by reviewing actual plant change documentation. The evaluation will determine if the procedure is being followed, that the required checklists are being accurately and completely filled in, and that all other documentation is complete and procedurally adequate. This evaluation shall be performed for the plant changes captured in the ICAVP system reviews. If any of the processes noted in Section 5.2.1 are not included in the system reviews, an example outside the ICAVP will be selected for review. Since the system review will assess the technical adequacy of the change, the programmatic review will evaluate only the procedural adequacy of the change.

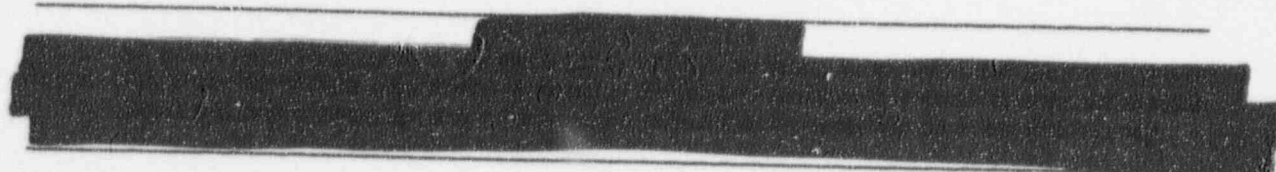
Checklist CK-MP3-04-03, "Change Procedure Implementation" shall be prepared by a qualified team member for the evaluation of the implementation of MP3 procedures on current changes according to the above. Using the checklist, the PRG Verifier shall assess the adequacy of each change. After reviewing the checklist for completeness, the PRG Lead shall file the checklist in accordance with PI-MP3-12.

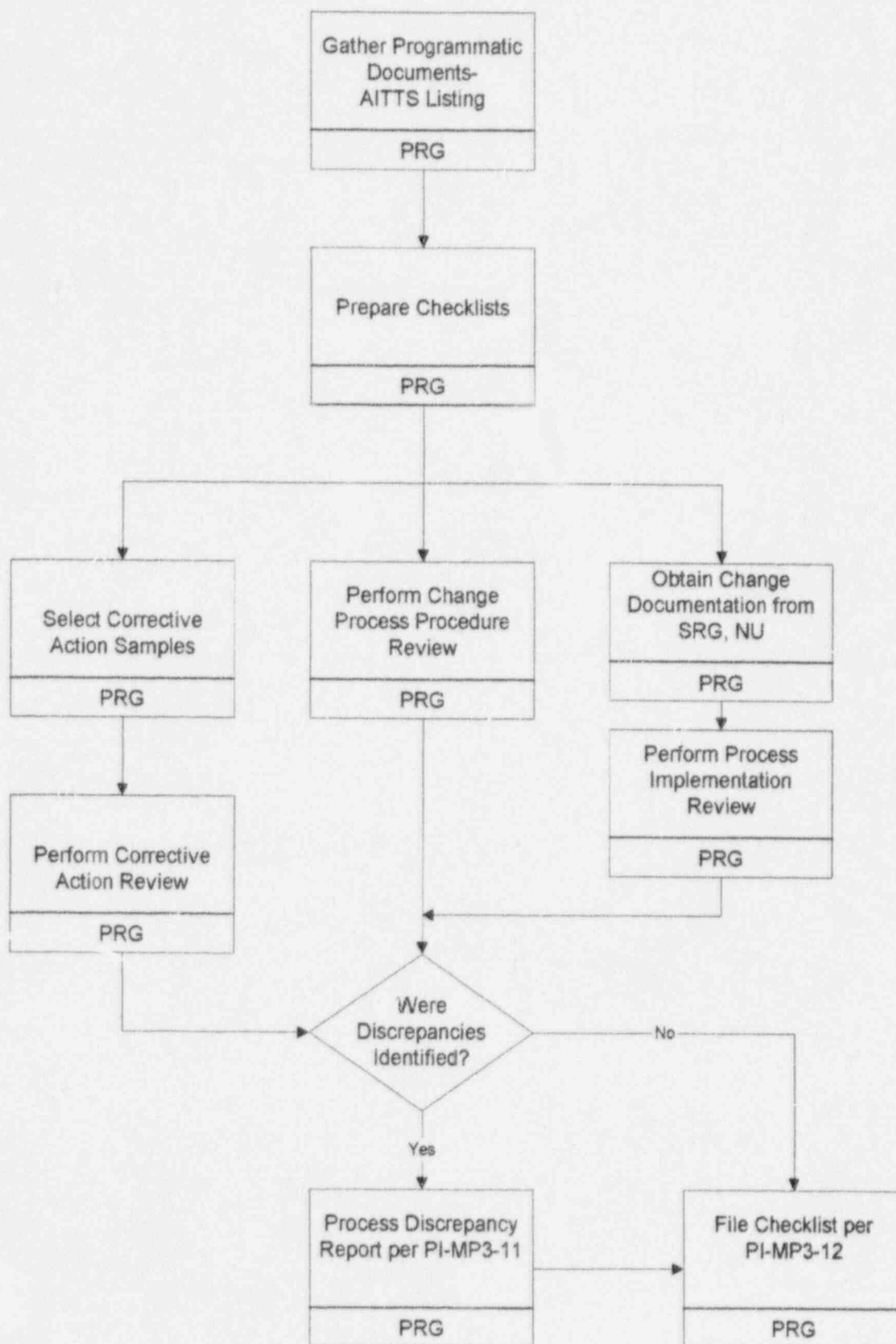
**5.2.3 Discrepancies**

The Verifier shall prepare a Discrepancy Report in accordance with PI-MP3-11 for any discrepancies identified during the change process reviews

**6.0 Attachments**

**6.1 ICAVP Process Flowchart, "Programmatic Reviews" (1 page)**





ICAVP PROCESS FLOWCHART  
Programmatic Reviews

PROJECT  
INSTRUCTION

Sargent & Lundy

INSTRUCTION PI-MP3-05  
REV. 0

Client: Northeast Utilities

Station: Millstone Unit 3

Title: **PHYSICAL PLANT CONFIGURATION WALKDOWNS**

☒ Safety-Related

☐ Non-Safety-Related

Reviewed By:

Approved By:

System Lead

Programmatic  
Lead

O&M Lead

Accident  
Mitigation  
Lead

QA Engineer

Internal Review  
Committee  
Chairman

Verification Team  
Manager

Date: 3-6-97

*ADH* *[Signature]* *[Signature]* *[Signature]* *[Signature]* *[Signature]* *[Signature]*

Description

Initial Issue

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-05 REV. 0
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## 1.0 PURPOSE

This instruction establishes the requirements for conducting physical walkdowns of the systems included in the scope of the Independent Corrective Action Verification Program. The scope includes Phase 1 - System Functional Walkdowns and Phase 2 - Detailed Walkdowns of Modification Implemented After Receipt of Operating License.

## 2.0 REFERENCE

- 2.1 NRC Inspection Manual Procedure 93801, Safety System Functional Inspection
- 2.2 NRC Oversight Inspection Plan for the Millstone Independent Corrective Action Verification Program dated 12/19/96.
- 2.3 NRC Confirmatory Order Establishing Independent Correction Action Verification Program - Millstone Nuclear Power Station, Units 1, 2, and 3
- 2.4 PI-MP3-01, ICAVP Communications Protocol
- 2.5 PI-MP3-02, Review of System Design for Compliance with the Design and Licensing Basis
- 2.6 PI-MP3-03, Review of Plant Modifications Prepared After Receipt of Operating License for Technical Adequacy and for Configuration Control
- 2.7 PI-MP3-09, Preparation and Approval of Checklists
- 2.8 PI-MP3-11, Discrepancy Report Submittal and Closure
- 2.9 PI-MP3-12, Project File Index



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2.10 CK-MP3-05, Series Checklists as follows:

- CK-MP3-05-01 Walkdown Control Checklist
- CK-MP3-05-02 Physical Drawing Review Attributes Checklist
- CK-MP3-05-03 Functional Walkdown Checklist
- CK-MP3-05-04 Modification Walkdown Checklist

Note: Checklists used in the performance of this PI are not included as attachments to the PI. Checklists are prepared and controlled as separate documents per PI-MP3-09.

### 3.0 DEFINITIONS

- 3.1 **System Review Group (SRG)** - The subgroup of the ICAVP Verification Team responsible for performing an in-depth review of the design of the systems in the scope of the ICAVP.
- 3.2 **Configuration Review Group (CRG)** - The subgroup of the SRG Verification Team responsible for walkdowns to verify the current as-built conditions are in conformance with the design output documents.
- 3.3 **Design Output Documents** - Controlled plant documents such as specifications, drawings, vendor drawings, datasheets lists and databases (Reference 2.4).
- 3.4 **Walkdown Team** - The team from within the CRG responsible for performing walkdowns in accordance with the instructions. The team shall consist of, as a minimum, an engineer (Lead Verifier) and one mechanical and one electrical designer (Verifier).

### 4.0 RESPONSIBILITIES

- 4.1 The SRG Lead shall have overall responsibility for the implementation of the physical configuration walkdowns.
- 4.2 The CRG Lead shall be responsible for providing overall direction to the CRG at S&L's offsite office and shall be responsible for interfacing with the SRG Lead.

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4.3 The Lead Verifier shall be responsible for:

- Coordination of system walkdowns
- Reviewing checklists, system boundary drawings and redline drawings prepared by the walkdown team verifiers

4.4 The Verifier(s) shall be responsible for:

- Performing system and modification walkdowns & completing applicable checklists
- Preparing redline drawings
- Preparing system boundary drawings
- Verifying that modification packages agree with current design drawings

## 5.0 PROCEDURE

### 5.1 General

The Nuclear Regulatory Commission (NRC) Confirmatory Order (Reference 2.3) requires Northeast Utilities (NU) to implement the ICAVP. The confirmatory order also defines the scope of the ICAVP. Item 2 of the scope of the ICAVP described on page 13 of the confirmatory order requires the Licensee to verify the current as-modified plant conditions against design basis and licensing basis documentation for the specific systems selected by the NRC. This procedure describes one aspect of the process needed to perform the verification described above. Specifically, this procedure shall determine if the current system design as reflected on design output documents is consistent with the physical installed condition of the plant. This determination shall be made by performing physical walkdowns of the plant systems. The walkdowns shall be performed in two phases. Phase 1 shall perform functional walkdowns of the entire system to verify the current configuration is consistent with the current design output documents. Phase 2 shall perform a detailed walkdown of the portions of the system modified after receipt of operating license to verify the modified installation is consistent with the modification package. The Phase 2 walkdown shall include more extensive

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dimensional checks, such as spool end to end dimensions, hanger locations, etc., which are not required for the Phase 1 walkdown.

The decision to exclude dimensional checks for the Phase 1 walkdown was based on the guidance provided in References 2.1 and 2.2 and the fact that various inspection programs were typically implemented during initial plant construction and startup prior to receipt of an operating license.

The systems to be included in the scope of the ICAVP will be defined by the Nuclear Regulatory Commission. Once the systems have been identified, the first step is to gather the applicable system documents. This activity shall be performed in conjunction with the SRG as outlined in PI-MP3-02. Once the documents have been gathered, the following tasks shall be implemented per this procedure:

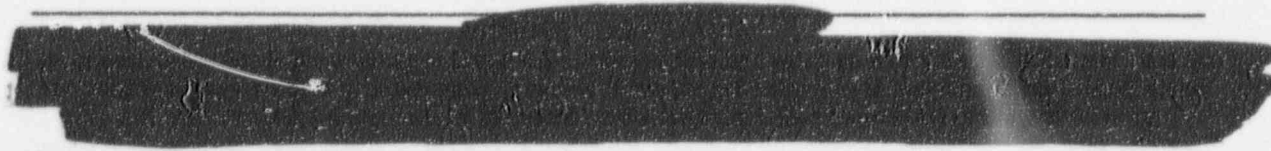
- a. General Walkdown Preparation
- b. Phase 1 Walkdown and Planning
- c. Phase 2 Walkdown and Planning
- d. Walkdown Documentation Package Assembly
- e. Discrepancy Report Preparation and Closure
- f. Final Report Preparation

Attachment 6.1 is a process flowchart illustrating the Physical Configuration Walkdown process.

## 5.2 General Walkdown Preparation Requirements

- 5.2.1 The CRG Lead shall be responsible for assigning a walkdown team for each system in the scope of the ICAVP. The CRG Lead shall document the walkdown team assignment in the appropriate blocks of the Walkdown Control Checklist (CK-MP3-05-01). The Walkdown Team shall consist as a minimum of an engineer (Lead Verifier), and one electrical and one mechanical designer (Verifier(s)).

Note: The assigned walkdown team is responsible for implementing both phases of the walkdown for that system.



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5.2.2 The Lead Verifier shall obtain a copy of all applicable design output documents for the system and all plant modification packages for that system (Refer to Section 5.2 of PI-MP3-02).

5.2.3 The Lead Verifier shall identify the plant areas which contain the system from general arrangement drawings. The Lead Verifier shall schedule the walkdown, notify the appropriate plant personnel and obtain all necessary clearances. Discussions and/or contacts with NU personnel shall be in accordance with the protocol outlined in PI-MP3-01.

### 5.3 Phase 1 Walkdown & Planning

5.3.1 The Walkdown Team shall highlight the system boundaries on the following drawings, as applicable:

- a. P&IDs
- b. Piping Isometrics
- c. Electrical Schematics and Single Line Drawings
- d. Electrical Physical Conduit and Tray Routing Drawings
- e. Vendor Skid Drawings

5.3.2 The Walkdown Team shall identify all support drawings (pipe and electrical), equipment mounting details, component vendor drawings and instrument details for components to be verified in the walkdown.

5.3.3 The Lead Verifier shall review the boundary drawings and commodity drawings with the applicable Lead Verifier from the SRG. The respective Lead Verifiers shall resolve any comments and denote their concurrence by signing and dating the applicable blocks on the Walkdown Control Checklists. The CRG Lead Verifier shall list all applicable documents including revision number or date on the Walkdown Control Checklist (CK-MP3-05-01).

5.3.4 The Walkdown Team shall incorporate all open change documents (redline) into the parent document. Redlining shall be limited to incorporation of only those details which will be verified during the walkdown (i.e., since Phase 1 walkdowns do not verify dimensions,



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dimensional data need not be shown). The Lead Verifier shall list all the incorporated change documents on the redlined documents.

Note: Only those change documents which have been completely installed shall be included in the redline scope. These will be identified by the SRG.

5.3.5 The Lead Verifier shall note completion of the redline step on the Walkdown Control Checklist (CK-MP3-05-01) and shall initial and date the entry.

5.3.6 The Walkdown Team shall perform a review of the lower tier drawings versus the upper tier drawings as follows:

Note: Upper tier drawings will be reviewed against calculations, specifications and design and licensing bases by the SRG per PI-MP3-02. The intent of this review is to verify the consistency of the piping isometrics and electrical physical drawings and electrical single lines to the upper tier documents.

5.3.6.1 The Walkdown Team shall review the following drawings:

- a. P&IDs versus Piping Isometrics
- b. Electrical schematics versus electrical single lines and electrical physical drawings.

The review attributes shall be in accordance with the Physical Drawing Review Attributes Checklist (CK-MP3-05-02).

5.3.6.2 The Walkdown Team shall prepare an individual CK-MP3-05-02 Checklist for each type of drawing reviewed and shall sign and date each checklist.

5.3.6.3 Discrepant conditions identified during this review shall be processed in accordance with Subsection 5.6 of this project instruction.





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5.3.6.4 The Lead Verifier shall indicate completion of the physical drawing review step on the Walkdown Control Checklist (CK-MP3-05-01) and shall initial and date the entry.

5.3.7 The Walkdown Team shall perform the Phase 1 system functional walkdowns as follows:

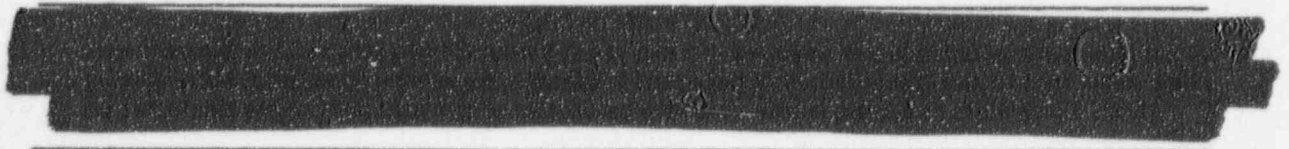
5.3.7.1 Phase 1 system functional walkdowns shall be performed using the Functional Walkdown Checklist (CK-MP3-05-03). Each attribute verified during the walkdown shall be verified by two walkdown team members.

5.3.7.2 The Phase 1 functional walkdown shall in general verify the nameplate data of the system components, check for physical damage and functionally check system installation by checking the following items for proper configuration (not dimensions):

- a. Equipment Nos. and Equipment Location
- b. Piping Line Size (Diameter)
- c. Pipe configuration functional location of bends, valves, supports, and other in line components
- d. Valve orientation and flow direction
- e. Insulation and/or heat tracing
- f. Support type
- g. Equipment and support mounting type and anchorage details (No. of bolts, weld pattern, etc.)
- h. Cables are functionally routed to appropriate "To" and "From" equipment.
- i. Conduit size, cable size where practical
- j. Conduit support and cable tray support type
- k. Configuration of tubing and electrical for instrumentation

Note: If pipelines are insulated, verification shall be accomplished by adding insulation thickness to line size and measuring outside diameter of insulation.

Refer to checklists CK-MP3-05-03 for further details and attributes.



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The walkdown shall also review divisional separation and seismic I/I attributes. Specifics are provided on the functional walkdown checklist (CK-MP3-05-03)

- 5.3.7.3 The Walkdown Team shall enter the nameplate data found on the components in the applicable section of the Functional Walkdown Checklist (CK-MP3-05-03).
- 5.3.7.4 The Walkdown Team shall note visible physical damage, such as separated supports, in the applicable section of the Functional Walkdown Checklists (CK-MP3-05-03).
- 5.3.7.5 The Walkdown Team shall mark any configuration discrepancies identified during the walkdown directly on the redline drawings developed in step 5.3.4.
- 5.3.7.6 The Walkdown Team shall initial and date any entries made on the Functional Walkdown Checklists (CK-MP3-05-03) or Redline drawings.
- 5.3.7.7 Following completion of the walkdown, the Walkdown Team will verify nameplate data recorded in the field with the vendor drawings and indicate any discrepancies on the Functional Walkdown Checklist (CK-MP3-05-03).
- 5.3.7.8 The Lead Verifier shall review the completed Functional Walkdown Checklist (CK-MP3-05-03) to ensure it has been properly completed and shall note his concurrence by signature and date.
- 5.3.7.9 Discrepant conditions identified during this review shall be processed in accordance with Subsection 5.6 of the project instruction.
- 5.3.7.10 The Lead Verifier shall indicate completion of the functional walkdown step on the Walkdown Control Checklist (CK-MP3-05-01) and shall initial and date the entry.



5.4 Phase 2 Walkdown & Planning

- 5.4.1 During the system modification review, the SRG shall per PI-MP3-03, identify any modifications to the system being reviewed which resulted in plant configuration changes. The SRG will also identify which portions of a previous modification were revised by a subsequent modification.
- 5.4.2 Upon receipt of the modification data from the SRG, the Lead Verifier shall initiate a physical walkdown of the modified portion of the system by initiating a Modification Walkdown Checklist (CK-MP3-05-04). A separate modification walkdown checklist shall be prepared for each system modification being reviewed. The Lead Verifier will enter the modification number and description on the checklist (CK-MP3-05-04).
- 5.4.3 The Walkdown Team shall review the document changes contained in the modification package versus the redline drawings prepared as part of the system walkdown (Subsection 5.3 of this project instruction). Discrepancies shall be noted on the Modification Walkdown Checklist (CK-MP3-05-04).
- 5.4.4 The Lead Verifier shall identify key critical dimensions that will be checked by the Walkdown Team. The Lead Verifier shall note these key critical dimensions on the Modification Walkdown Checklist (CK-MP3-05-04). Key critical dimensions may include analytical/calculation bases, specific dimensional limits and requirements stated on the drawings which deviate from the standard installation tolerances, etc.
- 5.4.5 The Walkdown Team shall perform a walkdown of the modified area to verify installation is in accordance with the modification package. This step includes checking critical dimensional data included in the modification package. Any discrepancies shall be noted on the Modification Walkdown Checklist (CK-MP3-05-04).

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5.4.6 Upon completion of the walkdown, the Walkdown Team shall sign and date the completed Modification Walkdown Checklists (CK-MP3-05-04) and shall generate a Discrepancy Report per Subsection 5.6 for any discrepant conditions identified during the walkdown.

5.4.7 The Lead Verifier shall review the completed Modification Walkdown Checklists (CK-MP3-05-04) for completeness and shall signify his concurrence by signing and dating the checklist.

5.4.8 The Lead Verifier shall indicate completion of the modification walkdown on the Walkdown Control Checklist (CK-MP3-05-01) and shall initial and date the entry.

#### 5.5 Walkdown Documentation Package Assembly

5.5.1 The Lead Verifier shall assemble a documentation package consisting of the following:

- Reference Drawings
- Redline Drawings
- CK-MP3-05 Series Checklists


5.5.2 The Lead Verifier shall distribute the package to the project file in accordance with PI-MP3-12.

5.5.3 The Lead Verifier shall indicate completion of this step by signing and dating the Walkdown Control Checklist (CK-MP3-05-01).

#### 5.6 Discrepancy Report Preparation and Closure

5.6.1 Discrepancy Reports for discrepant items identified during the system and modification walkdowns shall be prepared and processed in accordance with PI-MP3-11. Discrepancy reports shall not be initiated for findings already identified by NU during implementation of the CMP.

5.6.2 Review of NU dispositions for the Discrepancy Reports generated during the review cycle shall be in accordance with PI-MP3-11.

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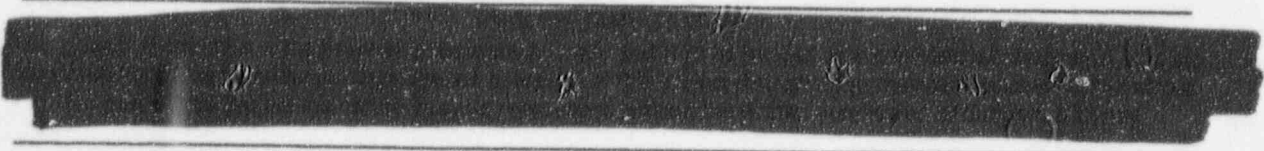
5.7 Final Report

5.7.1 The Lead Verifier shall draft a final report summarizing the results of the system and modification walkdowns.

5.7.2 The report format shall be determined by the Verification Team Manager.

6.0 ATTACHMENTS

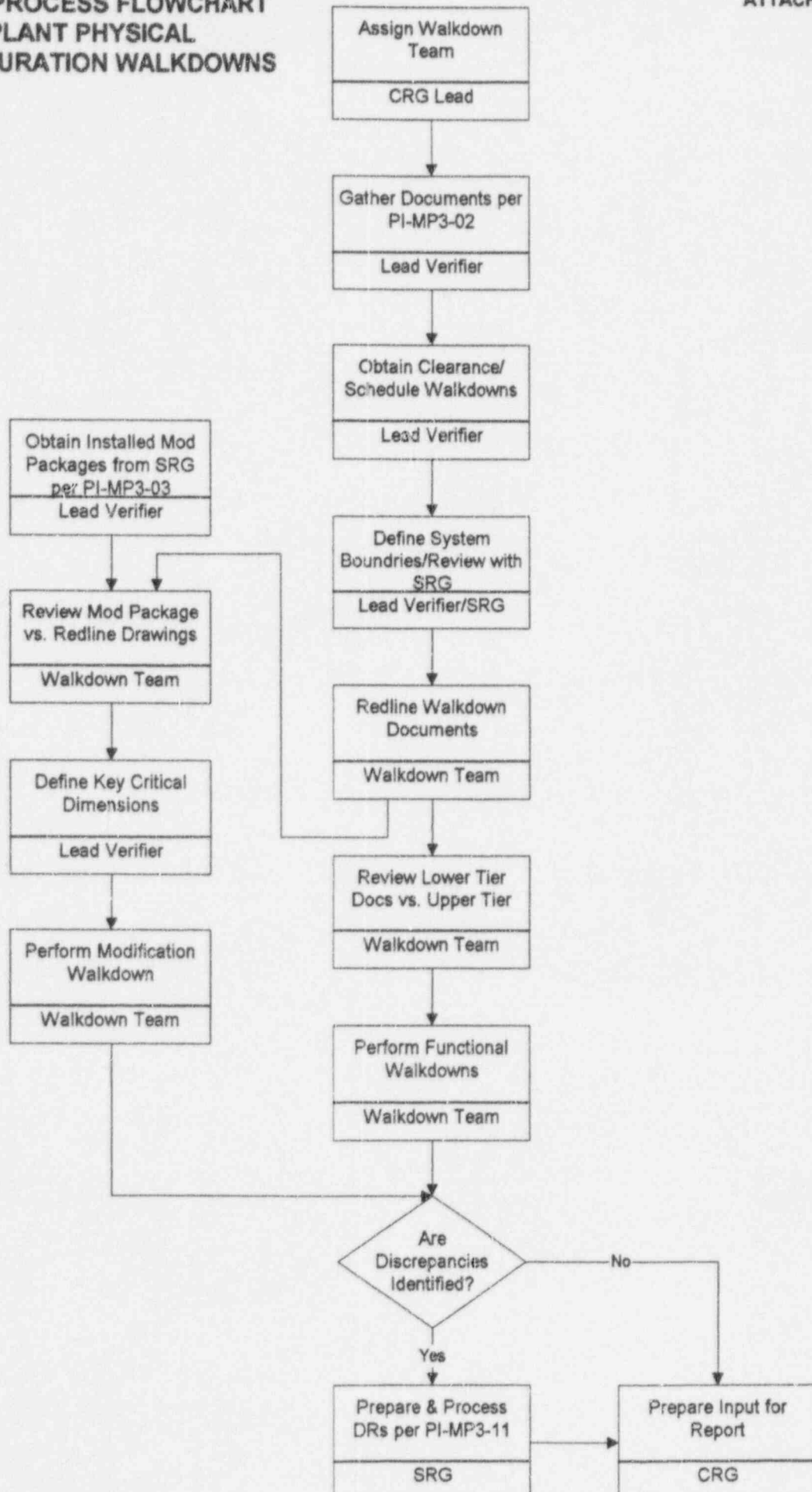
6.1 ICAVP Process Flowchart, "Physical Plant Configuration Walkdowns". (1 page)





# ICAVP PROCESS FLOWCHART PLANT PHYSICAL CONFIGURATION WALKDOWNS

PI-MP3-05, REV. 0  
ATTACHMENT 6.1



PROJECT  
INSTRUCTION

Sargent & Lundy

INSTRUCTION PI-MP3-06  
REV. 0

Client: Northeast Utilities

Station: Millstone Unit 3

Title: **OPERATIONS AND MAINTENANCE AND TESTING PROCEDURES AND TRAINING  
DOCUMENTATION REVIEWS**

☒ **Safety-Related**

☐ **Non-Safety-Related**

Reviewed By:

Approved By:

System Lead

Programmatic  
Lead

O&M Lead

Accident  
Mitigation  
Lead

QA Engineer

Internal Review  
Committee  
Chairman

Verification Team  
Manager

Date: 3-6-97

*[Signatures]*

Description

Initial Issue

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## 1 PURPOSE

The purpose of the Operations, Maintenance and Testing (O&M&T) portion of the Independent Corrective Action Verification Program (ICAVP) is to determine whether the design and licensing bases for Millstone, Unit 3, have been adequately translated into operating, maintenance and test procedures for the selected systems. The O&M&T portion of the ICAVP will also verify that changes made to Unit 3 since issuance of the operating license were implemented by appropriate procedure changes and testing. Training program procedures and other Significant Support/Interacting Systems and Related Activities required for proper implementation of these procedures and testing will also be evaluated. The O&M&T will also confirm that current testing requirements, maintenance, and post modification testing are adequate to verify system performance.

## 2 REFERENCES

- 2.1 NRC Inspection Manual Procedure 93801, Safety System Functional Inspection.
- 2.2 10 CFR 50.2, Definitions.
- 2.3 NRC Confirmatory Order Establishing Independent Corrective Action Verification Program - Millstone Nuclear Power Station, Units 1, 2, and 3.
- 2.4 NRC ICAVP Oversight and Inspection Plan, dated December 19, 1996.
- 2.5 Regulatory Guide 1.33, Revision 2, Quality Assurance Program Requirements (Operations)
- 2.6 NUMARC 90-12, Design Basis Program Guidelines.
- 2.7 NRC Generic Letter 90-03, Relaxation of Staff Position in Generic Letter 83-28, Item 2.2, Part 2, Vendor Interface for Safety-Related Components.
- 2.8 NRC Generic Letter 91-18, Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability.
- 2.9 PI-MP3-01, Independent Corrective Action Verification Program Communications Protocol.
- 2.10 PI-MP3-02, Review of System Design for Compliance with the Design and Licensing Basis.

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- 2.11 PI-MP3-03, Review of Plant Modifications Prepared After Receipt of Operating License for Technical Adequacy and for Configuration Control.
- 2.12 PI-MP3-04 Programmatic Reviews
- 2.13 PI-MP3-05, Physical Plant Configuration Walkdowns.
- 2.14 PI-MP3-07 Review of Accident Mitigation Systems
- 2.15 PI-MP3-09, Preparation and Approval of Checklists.
- 2.16 PI-MP3-11, Discrepancy Report Submittal and Closure.
- 2.17 PI-MP3-12, Project File Index.
- 2.18 CK-MP3-06 Series Checklists as follows:

- CK-MP3-06-01 Accident Mitigating Systems-Critical Parameters Checklist
- CK-MP3-06-02 Bases/Change Features Checklist
- CK-MP3-06-03 System Modes/Phases Checklist
- CK-MP3-06-04 P&ID Checklist
- CK-MP3-06-05 Significant Support/Interacting Systems and Related Activities Checklist.
- CK-MP3-06-06 Supplemental Documents Checklist
- CK-MP3-06-07 Process Indications Checklist
- CK-MP3-06-08 Vendor Manuals/Files Checklist
- CK-MP3-06-09 Performance History Files Checklist
- CK-MP3-06-11 Mod Procedures Checklist
- CK-MP3-06-12 PRG Change Process Procedures Checklist
- CK-MP3-06-13 Training Materials Checklist
- CK-MP3-06-14 Testing Requirements Checklist
- CK-MP3-06-15 Testing Requirements Review Checklist
- CK-MP3-06-16 Test Procedure Adequacy Checklist
- CK-MP3-06-17 Testing Records Review Checklist
- CK-MP3-06-18 Procedures Observed In The Field Checklist

Note: Checklists used in the performance of this PI are not included as attachments to the PI. Checklists are prepared and controlled as separate documents per PI-MP3-09.



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### 3 DEFINITIONS

- 3.1 **Operations & Maintenance and Testing Review Group (ORG)** - The subgroup of the ICAVP Verification Team responsible for review of the operating, maintenance and testing procedures, and training materials for the systems within the scope of the ICAVP.
- 3.2 **System Review Group (SRG)** - The subgroup of the ICAVP Verification Team responsible for performing an in-depth review of the design of the systems in the scope of the ICAVP.
- 3.3 **Configuration Review Group (CRG)** - The subgroup of the SRG Verification Team responsible for walkdowns to verify that the current as-built conditions are in conformance with the design output documents.
- 3.4 **Accident Mitigation Review Group (ARG)** - The subgroup of the ICAVP Verification Team responsible for the review of the critical system attributes of the systems used to mitigate the consequences of an accident.
- 3.5 **Programmatic Review Group (PRG)** - The subgroup of the ICAVP Verification Team responsible for performing a review of the design control and corrective action processes in the scope of the ICAVP.
- 3.6 **Current Licensing Basis (CLB)** - The set of NRC requirements applicable to a specific plant, and a licensee's written commitments for assuring compliance with and operation within applicable NRC requirements and the plant-specific design basis (including all modifications and additions to such commitments over the life of the license) that are docketed and are in effect. The CLB includes the NRC regulations contained in 10 CFR Parts 2, 19, 20, 21, 30, 40, 50, 51, 55, 72, 73, 100 and appendices thereto; orders; license conditions; exemptions, and Technical Specifications (TS). It also includes the plant-specific design basis information defined in 10 CFR 50.2 as documented in the most recent Final Safety Analysis Report (FSAR) as required by 10 CFR 50.71 and the licensee's commitments remaining in effect that were made in docketed licensing correspondence such as licensee responses to NRC bulletins, generic letters, and enforcement actions, as well as licensee commitments documented in NRC safety evaluations or licensee event reports. (Reference 2.7)
- 3.7 **Design Bases** - The information which identifies the specific functions to be performed by a structure, system or component of a facility, and the specific values or ranges of values chosen for controlling parameters as reference bounds for design. These values may be (1) restraints derived from generally



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accepted "state of the art" practices for achieving functional goals or (2) requirements derived from analysis of the effects of a postulated accident for which a structure, system or component must meet its function goals. (Reference 2.2)

- 3.8 **Design Output Documents** - Controlled plant documents such as specifications, drawings, vendor drawings, datasheets, lists and databases. (Reference 2.5)
- 3.9 **Design Process Documents** - Documents such as calculations, analyses, evaluations or other documented engineering activities that substantiate the final design. (Reference 2.5)
- 3.10 **Verifier** - The individual assigned to review engineering attributes within his area of responsibility.
- 3.11 **Significant Support/Interacting Systems and Related Activities** - As used in this PI Significant Support/Interacting Systems and Related Activities refers to those process systems, activities, or procedures that are considered essential and significant by the ORG Verifiers in accomplishing the Design or License Basis item that is being evaluated. It is not intended that this consideration of Significant Support/Interacting Systems and Related Activities be viewed as an all encompassing chain of all possible support and related activities. As an example, if an operator or maintenance worker must be trained with specific skills to perform particular procedures, then the existence of approved training procedures will be verified to accomplish that specific skill training. Neither the entire training program nor the skills nor qualifications of the trainers will be evaluated as part of meeting the subject design basis item being evaluated.

#### 4 RESPONSIBILITIES

- 4.1 The Verification Team Manager shall be responsible for overall management of the Verification Team.
- 4.2 The ORG Lead shall be responsible for assigning a Lead Verifier for each system in the ICAVP scope, for assigning other verifiers as necessary to support the Lead Verifier, and for overall coordination of the ORG effort.
- 4.3 The ORG Lead Verifier shall be responsible for performing a review of procedures, vendor manuals, training materials and plant simulator configuration as described in this instruction.



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- 4.4 The ORG Verifiers shall be responsible for performing reviews within their area of expertise in accordance with this instruction.

## 5 INSTRUCTIONS

### 5.1 General

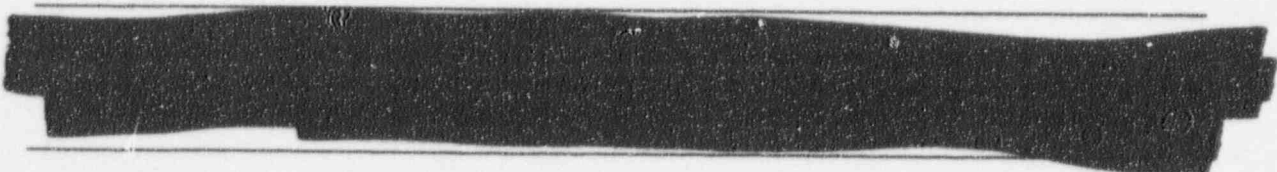
The Nuclear Regulatory Commission (NRC) Confirmatory Order referenced in Section 2.0 of this PI requires Northeast Utilities (NU) to implement the ICAVP. The Confirmatory Order also defines the scope of the ICAVP. This scope includes verification that design and licensing bases requirements are translated into operating, maintenance and testing procedures. The ORG includes as part of this verification a check that functional and performance requirements, identified by the SRG in the licensing and design bases of the selected systems, are implemented in the operating, maintenance and testing procedures and training material. The ORG will also review modifications to the system to verify that the appropriate procedures correctly reflect the changes made. The ORG will also verify system performance through review of test records, maintenance history, and observation of selected testing. Walkdowns will be used as appropriate to verify adequate control of operational, maintenance, test and surveillance procedures, operator training, and control of the plant simulator configuration.


- 5.1.1 Additional Significant Support/Interacting Systems and Related Activities may be identified during reviews in order that procedures governing such activities can be evaluated for adequate implementation of Design Bases items. Refer to Definition 3.11 of this PI for clear understanding of this action.

### 5.2 Document Retrieval and Review

- 5.2.1 Refer to Project Instruction PI-MP3-02 for a detailed breakdown in the division of responsibility within the ICAVP Verification Team for gathering documents. The ORG shall gather, for the selected system, the following minimum list of documents:

- a. Operating Procedures including Emergency Operating Procedures
- b. Maintenance Procedures
- c. Surveillance Test Procedures
- d. Vendor Manuals
- e. System Training Procedures
- f. Other Significant Support and/or Related Procedures



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- 5.2.2 The ORG shall use the station document index to determine the types of documents or records to be gathered and to identify specific procedures and tests applicable to the system being reviewed.
- 5.2.3 The ORG shall request relevant documents which are not in the ICAVP Library, from NU in accordance with subsection 3.1 of PI-MP3-01.
- 5.2.4 The ORG shall complete the applicable section of the System Reference List (SRL) with the documents identified in 5.2.2 and forward the completed checklist to the SRG Lead. Checklist CK-MP3-02-01 shall be used for the SRL.
- 5.2.5 Once the ORG Lead has received the combined SRL from the SRG Lead, the ORG Lead Verifier and the other ORG Verifiers assigned to review the system shall review the appropriate documentation in order to achieve an in-depth understanding of the system as it relates to their area of expertise.
- 5.2.6 Prior to the ORG review of system modifications which have occurred since the issuance of the operating license, the SRG shall provide the ORG a clear description of portions of modification packages which were subsequently revised by later modifications. The SRG shall also clearly describe for the ORG the modifications which are complete and implemented, and those that have not yet been installed. These measures are required, in part, to prevent generation of erroneous discrepancy reports during the ORG review of procedures and other supporting material.
- 5.2.7 The SRG screens the modifications using a Modification Screening Checklist (CK-MP3-03-02 ). Among the topics addressed by the checklist is a screening of the modification for impact on training procedures and plant procedures (operations, maintenance and surveillance). If the screening process determines that plant procedures may be affected by the modification, the SRG Lead Verifier shall forward a copy of the checklist and the modification package to the ORG for review. This step shall not be performed until all modifications to the system have been screened.
- 5.2.8 If the system being reviewed is an Accident Mitigating System, critical parameters will be provided by the ARG to the ORG. The ORG Verifier shall list the critical parameters on Checklist CK-MP3-06-01. The ORG verifier shall verify that the procedures to be reviewed for implementation



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of these parameters are listed on the checklist. The ORG Verifier shall verify that the appropriate surveillance test procedures adequately implement these critical parameters and document the results on Checklist CK-MP3-06-01.

### 5.3 Identification of System Requirements

- 5.3.1 As described in PI-MP3-02, the SRG shall use a Systems Requirements Checklist (SRC), Checklist CK-MP3-02-02, to identify the functional, performance and other design requirements for the system being reviewed.
- 5.3.2 The ORG shall use the Systems Requirements Checklist (SRC), Checklist CK-MP3-02-02, to review the licensing and design bases documents to identify operating, maintenance, and testing requirements.
- 5.3.3 The ORG Lead will assign a Lead Verifier for each of the systems being reviewed.
- 5.3.4 The Lead Verifier shall tabulate the requirements along with a reference on the System Requirements Checklist (CK-MP3-02-02).
- 5.3.5 The ORG Lead shall approve the ORG input on the SRC and forward it to the SRG Lead for combination with the other ICAVP inputs.
- 5.3.6 The SRG Lead shall provide the ORG Lead a signed copy of the combined SRC for use.
- 5.3.7 The ORG Verifier shall plan and schedule plant walkdowns for the purpose of verifying system performance and to verify adequate control of procedures through observation of selected activities and testing, as described in Section 5.6.9 of this PI. The ORG Verifier shall refer to PI-MP3-05 for guidance in planning walkdowns, and coordinate the walkdown plan with the CRG Lead.

### 5.4 Bases Requirements Review

- 5.4.1 The ORG Verifier shall perform a detailed review of the appropriate procedures listed on the SRL to evaluate them for implementation of the bases requirements as listed on the SRC. During the detailed review, the ORG Verifier should consider the need to identify specific Significant Support/Interacting Systems and Related Activities to be reviewed for implementation of the bases requirement being evaluated based on





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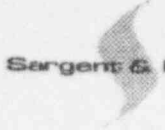
initial reviews or results of questions considered as described in Section 5.4.3.d of this PI. The Verifier shall refer to Definition 3.11 of this PI for clarification.

5.4.2 The ORG Verifier shall list each SRC requirement to be evaluated, or each modification or process change item, on each checklist used below or in Section 5.5 of this PI. The ORG Verifier shall list the procedures to be reviewed for each requirement on this same checklist. The ORG Verifier shall list the specific section of each procedure as a reference for each requirement being evaluated on this same checklist.

5.4.3 The ORG Verifier shall review relevant procedures to:

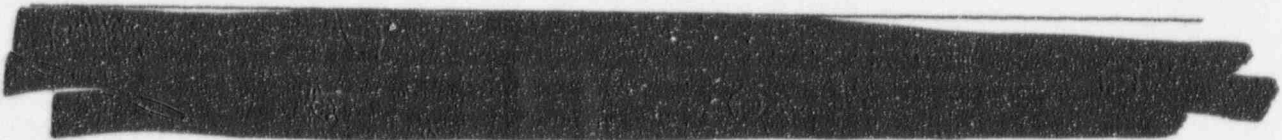
- a. Verify that the design bases features and the current licensing basis features are adequately translated into the referenced procedures. The Verifier shall list the features and document the results of his review on Checklist CK-MP3-06-02.
- b. Verify by reviewing the procedures that all modes and phases of the selected system are adequately operated, maintained, and tested. Where appropriate, the review shall verify that any required manual operator actions can be performed under accident conditions. The Verifier shall list the appropriate modes and phases and any required accident conditions and document the results of his review on Checklist CK-MP3-06-03.
- c. Verify that the various system configurations described in the procedures will perform their intended functions by reviewing the appropriate P&ID's. The ORG Verifier shall list the appropriate P&ID's and document the results of his review on Checklist CK-MP3-06-04.
- d. Verify that any required Significant Support/Interacting Systems and Related Activities(refer to Definition 3.11 of this PI for clarification) adequately provide for proper performance of the system being reviewed to accomplish its bases requirements.. The ORG Verifier shall complete Checklist CK-MP3-06-05 to evaluate the need for further items to be reviewed. The Verifier shall add any requirements to the SRC in accordance with Section 5.3 of this PI. The Verifier shall add any necessary references to the SRL in accordance with Section 5.2.4 of this PI. The Verifier shall document the results of his review on Checklist CK-MP3-06-05




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NOTE: This step is not intended to verify the adequacy of supporting systems and functions, but is merely intended to verify that procedures for supporting systems and functions reflect the ICAVP systems' requirements.

- e. Verify that sections of vendor manuals, equipment operating instructions, drawings, or other supplemental documents that are referenced, or used directly as operating or maintenance procedures receive the same level of MP3 review and approval as the initial procedures. This is not a review of the technical adequacy of the documents. The Verifier shall list any such documents and document the results of his review on Checklist CK-MP3-06-06.
- f. Verify that the instruments and controls identified in the procedures to be used for remote and local operation are consistent with the installed configuration. The Verifier shall list any such instruments and controls, identify whether they are local or remote, and document the results of his review on Checklist CK-MP3-06-07.
- g. Verify that vendor manuals/files adequately support the bases requirements for the system being reviewed. The Verifier shall list the appropriate vendor manuals and files, and document the results of his review on Checklist CK-MP3-06-08.
- h. Verify that performance history files adequately support the bases requirements for the system being reviewed. This verification shall include reviews to identify recurring equipment problems, and determination of any trends. Additionally, the verification shall include review of the technical adequacy of maintenance activities, performance of appropriate post-maintenance tests, and satisfactory demonstration of equipment operability. The verifier shall list the files and specific items reviewed. Specific references shall be indicated on the checklist. The Verifier shall document the results of his review on Checklist CK-MP3-06-09.
- i. It may be appropriate to walkdown some samples of procedure usage in the field to observe for procedure control, and to witness samples of the review items from the above sections. Refer to Section 5.6.9 of this PI for a description of the walkdown arrangements. The Verifier shall clearly identify any items verified by walkdown on the appropriate Checklist, and document the results of his review with comments on the appropriate checklist.



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- 5.4.4 The verifier shall note any comments identified during the review on the comment section of each checklist used in the above reviews. Additional copies of the checklists and comment sections shall be used as required to thoroughly document the results of the reviews.
- 5.4.5 The ORG Lead Verifier and the other Verifiers shall also review the findings and corrective actions that resulted from NU's Configuration Management Plan (CMP). S&L shall not duplicate findings identified by the NU CMP.
- 5.4.6 The ORG Verifier will complete the verification of the procedures versus the system requirements by dispositioning each requirement on the System Requirements Checklist (Checklist CK-MP3-02-02).
- 5.4.7 The Verifier(s) shall identify on the System Requirements Checklist, the procedures that verify the system requirements are satisfied. The Verifier(s) shall indicate that the procedure is technically adequate or describe any deficiencies. The Verifier shall also identify missing procedures, if applicable.
- 5.4.8 The Verifier(s) shall initial and date all entries in the System Requirements Checklist, and shall sign the System Requirements Checklist when completed.
- 5.4.9 The ORG Lead shall review the disposition in the system requirements Checklist (CK-MP3-02-02) for completeness and technical accuracy. The ORG Lead shall indicate his concurrence with signature and date in the appropriate column. The ORG Lead shall notify the ARG Lead that either all critical characteristics for accident mitigation systems have been satisfied or he shall identify which have not been.
- 5.4.10 The Verifier(s) shall generate a Discrepancy Report per Subsection 5.7 of this PI for any discrepancies not previously identified by the NU CMP.
- 5.4.11 The ORG Lead shall verify the checklists have been properly completed and shall indicate concurrence by signing and dating the checklists. The ORG Lead will file the checklists in the project file in accordance with PI-MP3-12.

## 5.5 Review of Changes

- 5.5.1 The ORG Verifier shall independently review the Modification Packages and appropriate Modification Screening Checklists (CK-MP3-03-02) that



have been forwarded from the SRG. The intent of this review is to identify the specific procedures to be reviewed by the SRG for those modifications that were determined to either have procedure impact, or may have procedure impact, by the SRG.

- 5.5.2 The ORG Verifier shall list the Modification Package Identification and the appropriate Modification Screening Checklist identification on any checklists used in the steps of this section of the PI. The ORG Verifier shall also list the appropriate procedures for the modification being evaluated on each checklist used in this PI.
- 5.5.3 Based on a technical review of the modification packages forwarded to the ORG from the SRG, the ORG Verifier shall confirm that the appropriate procedures for the modification being evaluated are listed on the SRL obtained from the SRG lead as described in PI Section 5.2.5. Any additional procedures that are identified during the modification review that are not on the SRL should be listed on a copy of the SRL, and forwarded to the SRG Lead for updating the SRL. The ORG Verifier shall use Checklist CK-MP3-06-11 to list all procedures for the modification being evaluated.
- 5.5.4 The ORG Verifier shall list the change processes that the PRG is reviewing according to PI-MP3-04 on Checklist CK-MP3-06-12. The ORG Verifier shall select 1 or 2 procedure change items for each of the change processes that the PRG is reviewing and list these procedures also on Checklist CK-MP3-06-12, and provide a detailed review of those changes to verify the technical adequacy of the changed procedures to reflect the initiating change. These procedures shall be reviewed as described below in Section 5.5.8 of this PI. The results of the review of these PRG Change Process procedures shall be evaluated for discrepancies and reported as described in Section 5.5.15 of this PI.
- 5.5.5 Any newly identified procedures that are not in the ICAVP Library should be requested from MP3 in accordance with section 3.1 of PI-MP3-01.
- 5.5.6 The ORG Verifier shall perform a detailed review of the appropriate procedures for each modification or change process to evaluate them for implementation of the changes identified. During the detailed review, the ORG Verifier should consider the need to identify specific Significant Support/Interacting Systems and Related Activities to also be reviewed for implementation of the above identified changes, based on initial reviews or results of questions considered as described in Section

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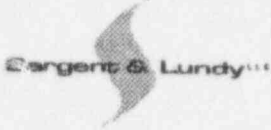
5.5.9.d of this PI. The Verifier shall refer to Definition 3.11 of this PI for clarification

5.5.7 The ORG Verifier shall verify that the design and operation changes identified by the SRG in Section 5.2.7 above, or identified by the reviews of this section of the PI, or the changes identified by the PRG as described in Section 5.5.4 above, are adequately reflected in operating, maintenance, and testing procedures, in training materials, and in the simulator configuration as appropriate. The ORG Verifier shall list each modification or change process to be evaluated on each checklist used in Section 5.5.9 below. The Verifier shall list each procedure that is being evaluated for implementation of the changes also on each checklist used in Section 5.5.9. The ORG Verifier shall also list the specific procedure section as a reference for each item that is being evaluated.

5.5.8 The ORG Verifier will review the relevant procedures to:

- a. Verify that operation and maintenance of the system is consistent with any modifications to the design bases and current licensing basis features for the system being reviewed. The Verifier shall list the features and document the results of his review on Checklist CK-MP3-06-02.
- b. Verify by reviewing the procedures that all modes and phases of the selected system are adequately operated, maintained, and tested to reflect the changes. The Verifier shall list the appropriate modes and phases and document the results of his review on Checklist CK-MP3-06-03.
- c. Verify that the various system configurations described in the procedures will perform their intended functions to reflect the changes by reviewing the appropriate P&ID's. The ORG Verifier shall list the appropriate P&ID's and document the results of his review on Checklist CK-MP3-06-04.
- d. Verify that any required Significant Support/Interacting Systems and Related Activities (refer to Definition 3.11 of this PI for clarification) adequately provide for proper performance of the system being reviewed to accomplish the changes. The ORG Verifier shall complete Checklist CK-MP3-06-05 to evaluate the need for further items to be reviewed. The Verifier shall add any requirements to the SRC in accordance with Section 5.3 of this PI. The Verifier shall add

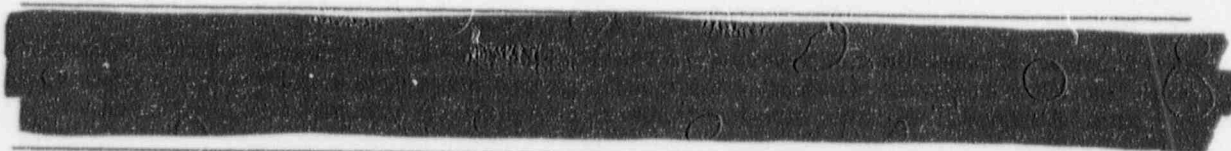


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any necessary references to the SRL in accordance with Section 5.2.4 of this PI. The Verifier shall document the results of his review on Checklist CK-MP3-06-05

NOTE: This step is not intended to verify the adequacy of supporting systems and functions, but is merely intended to verify that procedures for supporting systems and functions reflect the ICAVP systems' requirements.

- e. Verify that sections of vendor manuals, equipment operating instructions, drawings, or other supplemental documents that are referenced, or used directly as operating or maintenance procedures receive the same level of MP3 review and approval as the initial procedures. This is not a review of the technical adequacy of the documents. The Verifier shall list any such documents and document the results of his review on Checklist CK-MP3-06-06.
- f. Verify that the instruments and controls identified in the procedures to be used for remote and local operation are consistent with the installed configuration. The Verifier shall list any such instruments and controls, identify whether they are local or remote, and document the results of his review on Checklist CK-MP3-06-07.
- g. Verify that vendor manuals/files adequately support the requirements for the change. The Verifier shall list the manuals/files reviewed, and document the results of his review on Checklist CK-MP3-06-08.
- h. Verify that performance history files adequately support the change requirements for the system being reviewed. This verification shall include reviews to identify recurring equipment problems, and determination of any trends. Additionally, the verification shall include review of the technical adequacy of maintenance activities, performance of appropriate post-maintenance tests, and satisfactory demonstration of equipment operability. The verifier shall list the files and specific items reviewed. Specific references shall be indicated on the checklist. The Verifier shall document the results of his review on Checklist CK-MP3-06-09.
- i. Verify that training materials, especially operator training materials, have been appropriately updated to reflect the change. The Verifier shall also identify any required simulator configuration changes to evaluate. The Verifier shall list the training materials reviewed, and



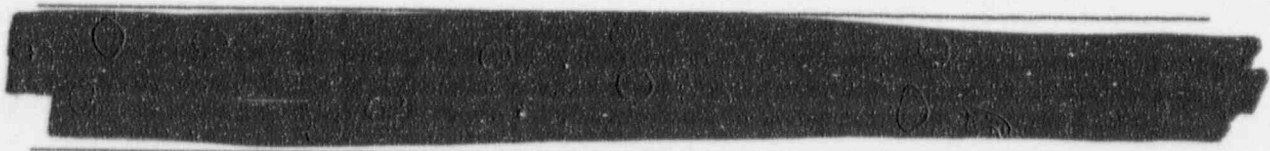


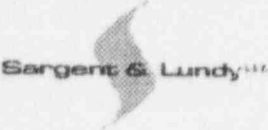
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any simulator changes evaluated, and document the results of his review on Checklist CK-MP3-06-13.

- j. It may be appropriate to walkdown some of the changes in the field to observe for procedure control, and to witness samples of the review items from the above sections. Refer to Section 5.6.9 of this PI for a description of the walkdown arrangements. The Verifier shall clearly identify any items verified by walkdown on the appropriate Checklist, and document the results of his review with comments on the appropriate checklist.

- 5.5.9 The verifier shall note any comments identified during the review on the comment section of each checklist used in the above reviews. Additional copies of the checklists and comment sections shall be used as required to thoroughly document the results of the reviews
- 5.5.10 The ORG Lead Verifier and the other Verifiers shall also review the findings and corrective actions that resulted from NU's Configuration Management Plan (CMP). S&L shall not duplicate findings identified by the NU CMP.
- 5.5.11 The ORG Verifier will complete the verification of the procedures versus the change requirements by dispositioning each requirement on the System Requirements Checklist (Checklist CK-MP3-02-02).
- 5.5.12 The Verifier(s) shall identify on the System Requirements Checklist, the procedures that verify the change requirements are satisfied. The Verifier(s) shall indicate that the procedure is technically adequate or describe any deficiencies. The Verifier shall also identify missing procedures, if applicable.
- 5.5.13 The Verifier(s) shall initial and date all entries in the System Requirements Checklist, and shall sign the System Requirements Checklist when completed.
- 5.5.14 The ORG Lead shall review the disposition in the system requirements Checklist (CK-MP3-02-02) for completeness and technical accuracy. The ORG Lead shall indicate his concurrence with signature and date in the appropriate column. The ORG Lead shall notify the ARG Lead that either all critical characteristics for accident mitigation systems have been satisfied or he shall identify which have not been.



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5.5.15 The Verifier(s) shall generate a Discrepancy Report per Subsection 5.7 of this PI for any discrepancies not previously identified by the NU CMP.

5.5.16 The ORG Lead will verify the checklists have been properly completed and will indicate concurrence by signing and dating the checklists. The ORG Lead will file the checklists to the project file in accordance with PI-MP3-12.

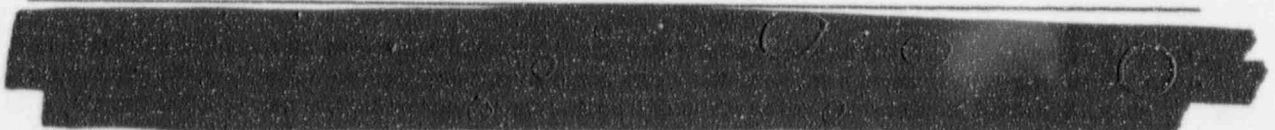
## 5.6 Review of Testing

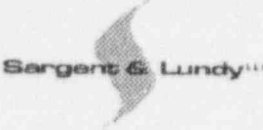
5.6.1 The ORG Verifier shall list the test requirements from the SRC, the modification tests forwarded by the SRG, and the Surveillance tests required to verify the critical parameters for the Accident Mitigation Systems forwarded by the ARG on Testing Requirements Review Checklist CK-MP3-06-15. The ORG Verifier shall also identify other testing requirements for the system being reviewed by using Testing Requirements Checklist CK-MP3-06-14. The Verifier shall review the resource material for each category on the CK-MP3-06-14 to identify required testing for the system being reviewed. Modification functional test requirements and acceptance criteria are contained in the modification packages and are being reviewed by the SRG per PI-MP3-03. The ORG shall use input from the SRG to assist in the identification of required testing for the system. The ORG Verifier shall list the specific test requirements for each category on Checklist CK-MP3-06-14 and the specific procedures that implement each required test as a reference on CK-MP3-06-14.

5.6.2 The ORG verifier shall use the station document index to identify the specific testing procedures and the data/calculation/review sheets for each category on the list.


5.6.3 The ORG Verifier shall request relevant documents, which are not in the ICAVP Library, from NU in accordance with subsection 3.1 of PI-MP3-01.

5.6.4 The ORG Verifier shall provide a list of required procedures that were not on the SRL to the SRG Lead so that an update to the SRL can be prepared and issued. Additionally, any requirements that were identified in Section 5.6.1, above, that were not on the System Requirements Checklist, CK-MP1-02-02, shall be listed on a copy of CK-MP1-02-02, and forwarded to the SRG Lead for updating the System Requirements Checklist.

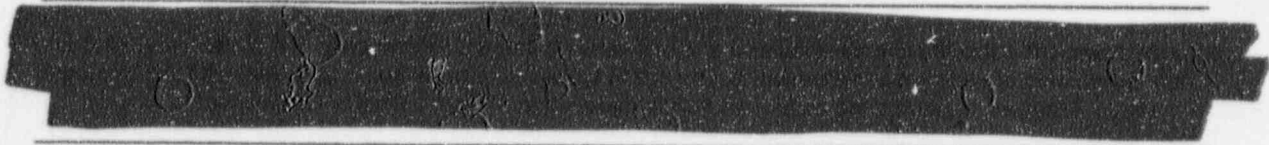


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- 5.6.5 The ORG Verifier shall list each test requirement item from Section 5.6.1 above on a copy of Checklist CK-MP3-06-15, along with the specific procedure or procedure sections as references. The Verifier shall use CK-MP3-06-15 to complete the reviews described in Section 5.6.7 of this PI.
- 5.6.6 The ORG Verifier shall select a sample of the on-going periodic tests to review based on the required frequency of the specific test item. For test items with a frequency of regular intervals within each refuel cycle, the sample shall include the most current three performances of the specific test. For test frequencies that are once per refuel cycle, the sample shall be the last time the test was performed. The verifier shall identify the test frequency on the appropriate checklist for each item. For tests that are one-time performance, such as post maintenance tests or special tests, the Verifier shall select a sample of three items to review for each test category as described in Section 5.6.1 above of this PI.
- 5.6.7 The ORG Verifier will review each test item to:
- a. Verify that test data and results have been appropriately reviewed and approved. Specific data and results identifications shall be listed for each item on CK-MP3-06-15. The Verifier shall document the results of his review on the Checklist. It may be appropriate to conduct field walkdowns to verify the results for some of the tests to be reviewed. The process for the walkdowns is described in Section 5.6.9 of this PI below.
  - b. Verify that acceptance criteria have been met. The Verifier shall list the specific acceptance criteria, and document the results of his review on Checklist CK-MP3-06-15.
  - c. Verify that each test appropriately tests for the requirements identified in Section 5.6.1 and listed on CK-MP3-06-15. The Verifier shall list the bases requirements, and document the results of his review on Checklist CK-MP3-06-15.
  - d. Assess the adequacy of the test procedure and of the actions taken as a result of the tests, ( e.g., test "trend" information and root cause analyses for test failures; where appropriate, retesting; compliance with Limiting Conditions for Operations; condition reports). The Verifier shall list the items to be reviewed on Checklist CK-MP3-06-16, and document the results on the Checklist.

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- e. Verify that testing records are appropriately maintained, and are retrievable. The verifier shall identify the specific records reviewed, and document the results on Checklist CK-MP3-06-17.
- 5.6.8 The verifier shall note any comments identified during the review on the comment section of each checklist used in the above reviews. Additional copies of the checklists and comment sections shall be used as required to thoroughly document the results of the reviews
- 5.6.9 The ORG Verifier may identify a sample of activities to walkdown and observe for actual performance in the field. The walkdown may be used to aid in verifying system performance, and to aid in verifying adequate control of the appropriate procedures, and to observe for proper conduct of the activity according to the approved procedures. This walkdown can be used for witnessing conduct of any of the procedures subject to review by this PI. This includes; operating procedures, maintenance procedures, surveillance procedures, and simulator training performance. The verifier shall identify any activities to be observed on Checklist CK-MP3-06-18. The ORG Verifier shall refer to PI-MP3-05 for guidance in walkdown planning, or discuss the walkdown plan with the ORG Lead.
- 5.6.10 The ORG Verifiers shall also review the findings and corrective actions that resulted from NU's Configuration Management Plan (CMP). S&L shall not duplicate findings identified by the NU CMP.
- 5.6.11 The ORG Verifier will complete the verification of the testing procedures versus the system testing requirements by dispositioning each requirement on the System Requirements Checklist (Checklist CK-MP3-02-02).
- 5.6.12 The Verifier(s) shall identify on the System Requirements Checklist, the testing procedures that verify the system testing requirements are satisfied. The Verifier(s) shall indicate that the procedure is technically adequate or describe any deficiencies. The Verifier shall also identify missing procedures, if applicable.
- 5.6.13 The Verifier(s) shall initial and date all entries in the System Requirements Checklist, and shall sign the System Requirements Checklist when completed.
- 5.6.14 The ORG Lead shall review the disposition in the system requirements Checklist (CK-MP3-02-02) for completeness and technical accuracy. The ORG Lead shall indicate his concurrence with signature and date in the





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appropriate column. The ORG Lead shall notify the ARG Lead that either all critical characteristics for accident mitigation systems have been satisfied or he shall identify which have not been.

5.6.15 The Verifier(s) shall generate a Discrepancy Report per Subsection 5.7 of this PI for any discrepancies not previously identified by the NU CMP.

5.6.16 The ORG Lead shall verify the checklists have been properly completed and shall indicate concurrence by signing and dating the checklists. The ORG Lead shall file the checklists to the project file in accordance with PI-MP3-12.

#### 5.7 Discrepancy Report Preparation and Closure

5.7.1 Discrepancy Reports for discrepancies identified during the review process shall be prepared and processed in accordance with PI-MP3-11. Discrepancy Reports shall not be initiated for findings already identified by NU during implementation of the CMP.

5.7.2 Review of NU dispositions for the Discrepancy Reports generated during the review cycle shall be in accordance with PI-MP3-11.

#### 5.8 Final Report

5.8.1 The ORG Lead Verifier shall draft the section of the final report summarizing the results of the ORG system reviews.

5.8.2 The report format shall be determined by the Verification Team Manager.

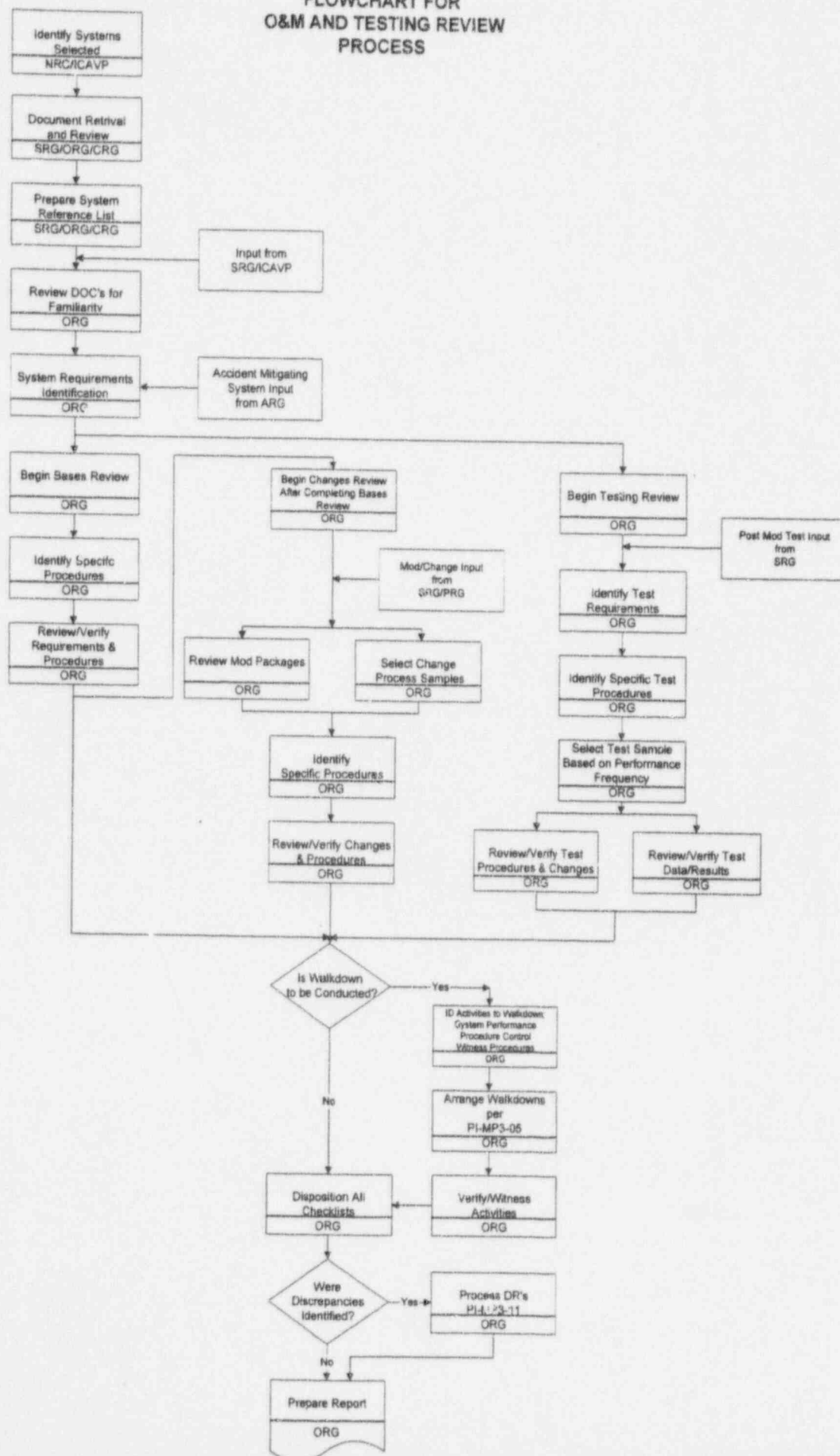
### 6 ATTACHMENTS

6.1 O&M&T Process Flow Chart page(1 page)





# ICAVP FLOWCHART FOR O&M AND TESTING REVIEW PROCESS



PROJECT  
INSTRUCTION

Sargent & Lundy

INSTRUCTION PI-MP3-07  
REV. 0

Client: Northeast Utilities

Station: Millstone Unit 3

Title: **REVIEW OF ACCIDENT MITIGATION SYSTEMS**



**Safety-Related**



**Non-Safety-Related**

Reviewed By:

Approved By:

System Lead

Programmatic  
Lead

O&M Lead

Accident  
Mitigation  
Lead

QA Engineer

Internal Review  
Committee  
Chairman

Verification Team  
Manager

Date: 3-6-97

*APK*

*WJ*

*WJ*

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*R. Gashoum*

*AKS*

*WJ*

Description

Initial Issue

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-07 REV. 0
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## 1.0 PURPOSE

This procedure establishes the requirements for the ICAVP Verification Team to identify and review the critical design characteristics for the accident mitigating systems to provide reasonable assurance that these system parameters meet their design and licensing requirements as discussed in References 2.1 and 2.2.

## 2.0 REFERENCE

- 2.1 NRC Confirmatory Order establishing Independent Corrective Action Verification Program - Millstone Power Station Units 1, 2 and 3.
- 2.2 Millstone Independent Corrective Action Verification Program - Oversight Inspection Plan dated 12/19/96.
- 2.3 S&L Project Instruction PI-MP3-01, ICAVP Communications Protocol
- 2.4 S&L Project Instruction PI-MP3-02, Review of System Design for Compliance with Design and Licensing Basis
- 2.5 S&L Project Instruction PI-MP3-03, Review of Plant Modifications Prepared After Receipt of Operating License for Technical Adequacy and for Configuration Control
- 2.6 S&L Project Instruction PI-MP3-06, Operations and Maintenance and Testing Procedures and Training Documentation Reviews
- 2.7 S&L Project Instruction PI-MP3-09, Preparation and Approval of Checklists
- 2.8 S&L Project Instruction PI-MP3-11, Discrepancy Report Submittal and Closure
- 2.9 S&L Project Instruction PI-MP3-12, Project File Index
- 2.10 CK-MP3-07 Series Checklists as follows:  
CK-MP3-07-01 FSAR Ch 15 Accidents, Systems & Components  
(Not included in this PI)

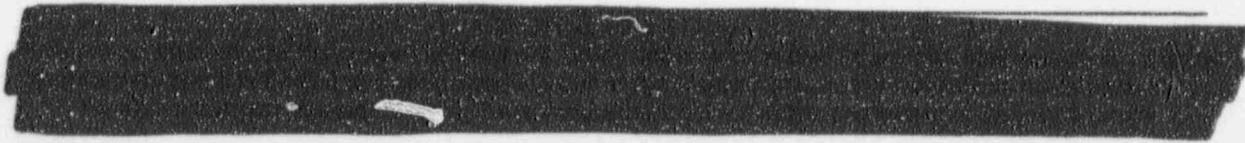
PROJECT INSTRUCTION	 Sargent & Lundy	INSTRUCTION PI-MP3-07 REV. 0
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### 3.0 DEFINITIONS

- 3.1 **Accident Mitigation Systems Review Group (ARG)** - The subgroup of the ICAVP Verification Team responsible for the identification and review of the critical design characteristics for the accident mitigating systems to ensure that they can perform their required safety functions.
- 3.2 **System Review Group (SRG)** - The subgroup of the ICAVP Verification Team responsible for performing an in-depth review of the design of the system in the scope of the ICAVP.
- 3.3 **Operations & Maintenance and Testing Review Group (ORG)** - The subgroup of the ICAVP Verification team responsible for the review of the operating, maintenance and testing procedures, and training manuals for the systems within the scope of the ICAVP.
- 3.4 **Independent Corrective Action Verification Program (ICAVP)** - The program required by NRC Confirmatory order, Reference 2.1 to verify the adequacy of the corrective actions taken by NU for their configuration management of design and licensing basis of the unit.
- 3.5 **Discrepancy Report (DR)** - The mechanism for documenting the discrepant conditions identified by the ICAVP and reporting an apparent error, inconsistency, or procedural violation with regard to licensing commitments, specifications, procedures, codes or regulations.
- 3.6 **Verifier** - The individual assigned to review engineering attributes within his area of responsibility.
- 3.7 **System Critical Parameters** - The variables that are relied upon for performing the safety related functions of an accident mitigating system.

### 4.0 RESPONSIBILITIES

- 4.1 The Verification Team Manager shall be responsible for providing overall guidance and management to the teams.
- 4.2 The ARG Lead shall be responsible for assigning the discipline verifiers for identifying the accident mitigating systems and a review of their critical design characteristics necessary to perform their safety function(s).



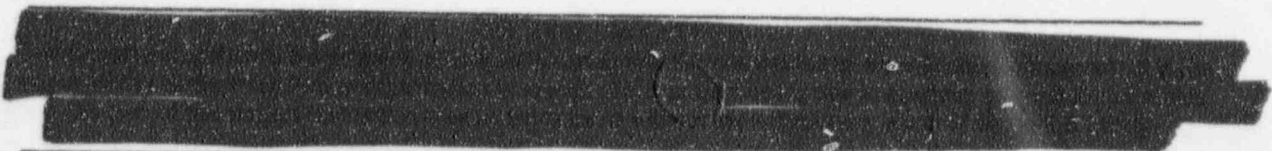
PROJECT INSTRUCTION		INSTRUCTION PI-MP3-07 REV. 0
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- 4.3 The Discipline Verifiers (Mechanical, Electrical, I&C, Nuclear) shall be responsible for identifying the critical system parameters from the FSAR accident parameters and verifying that these attributes meet the plant current design basis in accordance with this instruction.


## 5.0 PROCEDURE

The process discussed below shall be used by the ARG to develop the critical parameters for the accident mitigating systems. Sections 5.1, 5.2 and 5.3 discussed below shall be the responsibility of the ARG for all the accident mitigation systems. ARG shall be responsible for the remainder of the Sections 5.4 through 5.7 for only those accident mitigation systems which are not included in the detailed Vertical Slice Review (VSR) which shall be done by ORG and SRG. These reviews are addressed in the Project Instructions References 2.4 through 2.6.

- 5.1 The ARG Lead and Discipline Verifiers shall review the accidents analyzed in the FSAR, for Millstone Unit 3 and identify the accident mitigating systems, components within the system and specific critical parameters which are required to mitigate the event. As a result of this review the ARG Lead or his designee shall create a database consisting of the following items: a) Analyzed Accidents, b) Mitigating Systems, c) Components, d) Critical Parameters and e) References to the accidents and associated documents contained in the SAR, where the parameters were used by the NSSS supplier or AE during the original analysis at the time of receipt of the Operating License or a revised analysis due to changes or modifications.
- 5.2 The ARG Lead or his designee shall sort the database in Section 5.1 to facilitate the verification of the critical parameters in the following order: a) Mitigating Systems, b) Components, c) Critical Parameters, d) References and e) Analyzed Accidents.
- 5.3 The portion of the database consisting of the accident mitigation systems in the VSR shall be given to the ORG and SRG for their review of the Critical Parameters.



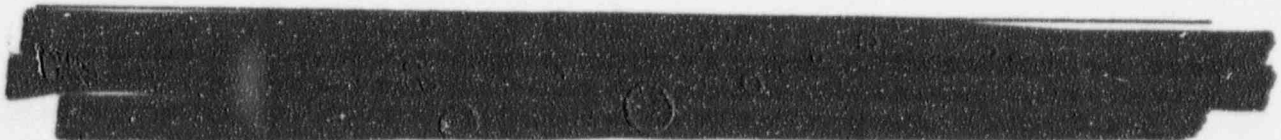


PROJECT INSTRUCTION		INSTRUCTION PI-MP3-07 REV. 0
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- 5.4 The ARG Verifiers shall verify the Critical Parameters listed in Section 5.2 using a documented System/Component test, and or Surveillance test from the Millstone Unit 3 Technical Specification or Post Maintenance Tests. The verification shall be documented on the appropriate ORG Checklist(s) from Reference 2.7 which shall be signed and dated.
- 5.5 In addition to the verification of the Critical Parameters by test reviews discussed in Section 5.4, the design calculations, specifications, vendor documents and drawings shall be obtained and reviewed for conformance with the design requirements of the accident analysis. Request for documentation shall be processed in accordance with Reference 2.3.
- 5.6 Verification of the Critical Parameters using design calculations, specifications, vendor drawings or documents shall be documented on the appropriate SRG Checklist(s) (Ref. 2.4 and 2.5) which shall be signed and dated. If the Critical Parameters cannot be verified the review conclusions shall be documented on the appropriate Checklist(s) and a Discrepancy Report shall be processed in accordance with Reference 2.8.
- 5.7 The ARG Lead or his designee shall verify that the checklists have been properly completed and indicate concurrence with his signature and date. He shall file the documents per Reference 2.9.
- 5.8 The ARG Lead shall draft a final report summarizing the results of the review. The report format shall be determined by the Verification Team Manager.

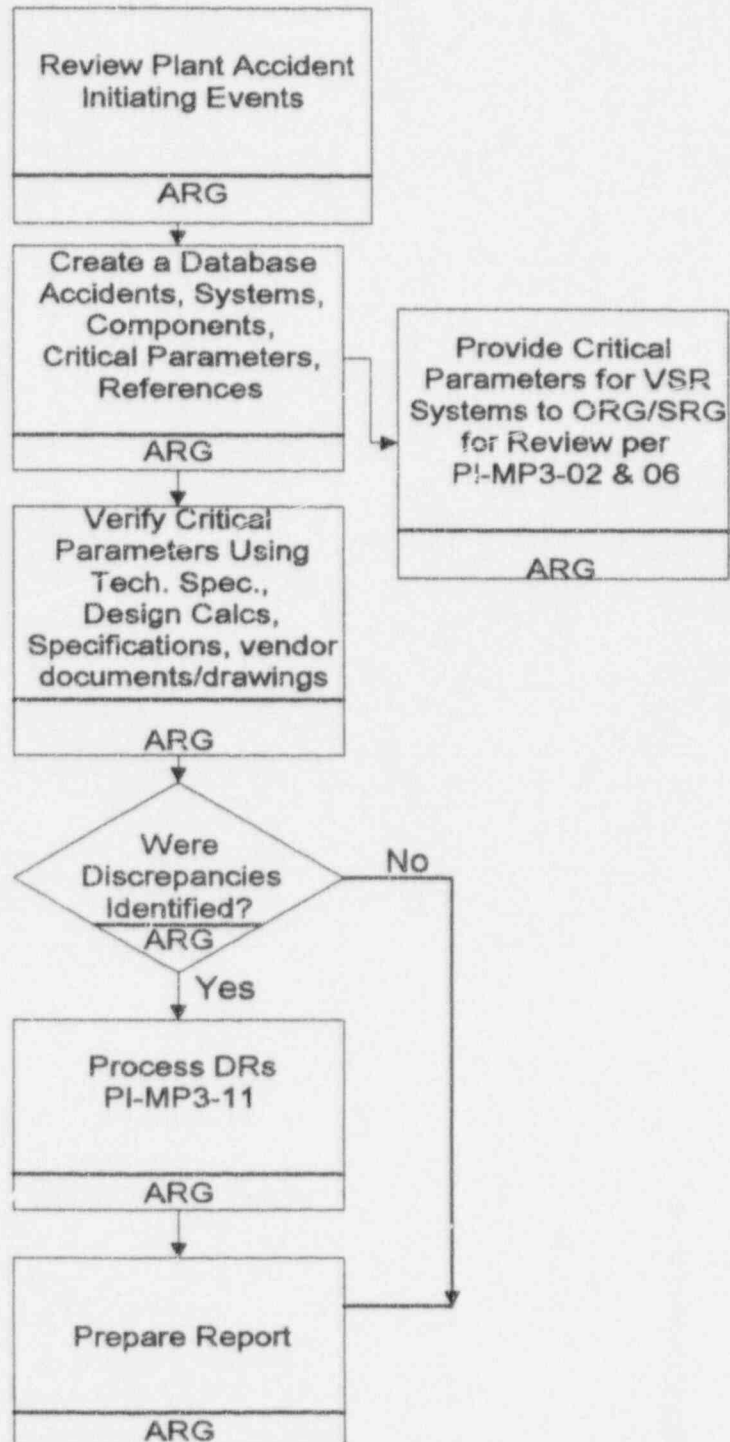
## 6.0 ATTACHMENTS

- 6.1 ICAVP Review of Critical Parameters for Accident Mitigation Systems  
- (1 page)



**Figure 1**

ICAVP Review of Critical Parameters  
for  
Accident Mitigating Systems



PROJECT  
INSTRUCTION

Sargent & Lundy

INSTRUCTION PI-MP3-08  
REV. 0

Client: Northeast Utilities

Station: Millstone Unit 3

Title: ICAVP TEAM PERSONNEL SUBSTITUTION AND/OR ADDITION



Safety-Related



Non-Safety-Related

Reviewed By:

Approved By:

System Lead

Programmatic  
Lead

O&M Lead

Accident  
Mitigation  
Lead

QA Engineer

Internal Review  
Committee  
Chairman

Verification Team  
Manager

Date: 3-6-97

*[Signature]*

*[Signature]*

*[Signature]*

*[Signature]*

*[Signature]*

*[Signature]*

*[Signature]*

Description

Initial Issue

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-08 REV. 0
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## 1.0 PURPOSE

This instruction establishes the requirements for the substitution and addition of personnel to the ICAVP Project Team. The selection of personnel for the ICAVP was based on their qualifications to perform the assigned reviews, their financial and technical independence from the Unit being reviewed, and NRC acceptance of the personnel. Substitution of existing personnel on the team may be required as a result of unavoidable circumstances. Addition of personnel may be required to add expertise or manpower to fully investigate issues which are identified during the course of the program.

## 2.0 REFERENCE

- 2.1 NRC Confirmatory Order Establishing Independent Correction Action Verification Program - Millstone Nuclear Power Station, Units 1,2, and 3
- 2.2 PI-MP3-01, ICAVP Communications Protocol

## 3.0 DEFINITIONS

- 3.1 **Substitution** - Replacing existing personnel on the ICAVP Project Team which were included in the original proposal for that Unit and which the NRC interviewed and accepted.
- 3.2 **Addition** - Adding personnel to the ICAVP Project Team.
- 3.3 **System Review Group (SRG)** - The subgroup of the ICAVP Verification Team responsible for performing an in-depth review of the design of the systems in the scope of the ICAVP.
- 3.4 **Operations & Maintenance and Testing Review Group (ORG)** - The subgroup of the ICAVP Verification Team responsible for the review of the operating, maintenance and testing procedures, and training manuals for the systems within the scope of the ICAVP.

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-08 REV. 0
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- 3.5 **Accident Mitigation Review Group (ARG)** - The subgroup of the ICAVP Verification Team responsible for the review of the critical system attributes of the systems used to mitigate the consequences of an accident.
- 3.6 **Programmatic Review Group (PRG)** - The subgroup of the ICAVP Verification Team responsible for performing a review of the design control and corrective action processes in the scope of the ICAVP.

#### 4.0 RESPONSIBILITIES

- 4.1 The Verification Team Manager shall be responsible for the selection of substitute or additional personnel for the ICAVP Project Team.
- 4.2 The individual personnel shall be responsible for completing the Objectivity Questionnaire.

#### 5.0 PROCEDURE

##### 5.1 Substitution

The Nuclear Regulatory Commission (NRC) Confirmatory Order referenced in Section 2.0 of this PI requires that the selection of the members of the ICAVP Project Team be subject to NRC staff approval. Prior to the start of the program the original team will have been approved by the NRC. If for some reason team members cannot fulfill their obligation to the Project Team, the Verification Team Manager shall select replacements for them. The substitute personnel shall have the technical background, education and experience necessary to perform the functions that are required of them by their position on the ICAVP Project Team. They shall also be required to meet the independence criteria established for the original team members. The substitute personnel shall satisfactorily complete the ICAVP Objectivity Questionnaire (Attachment 6.1). The Verification Team Manager shall notify the NRC and NU in writing in accordance with the Communications Protocol (PI-MP3-01) that substitutions were made. The Verification Team Manager shall provide the NRC and NU with a





PROJECT INSTRUCTION		INSTRUCTION PI-MP3-08 REV. 0
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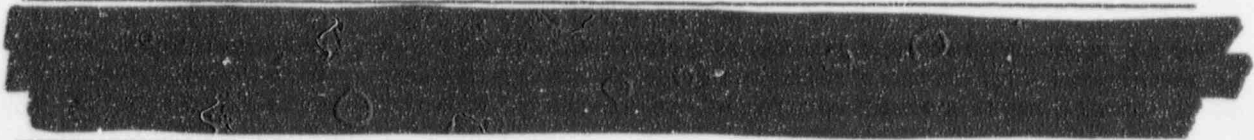
copy of the substitute personnels' resumes and a copy of their completed Objectivity Questionnaires (Attachment 6.1). If the NRC notifies S&L that it has unresolvable objections to the qualifications or the independence of the substitute personnel, they shall be suspended from any further work on the ICAVP and all work performed by them shall be reperformed by acceptable individuals.

## 5.2 Addition

Since the specific systems selected for the ICAVP are not known at this time, it is difficult to know exactly the number of engineers in each discipline and the number of specialists that will be needed to implement the ICAVP. In addition, as the program proceeds, specific issues may be identified which need specialized expertise to fully investigate. Or, the size and complexity of the systems chosen for review may be greater than estimated. If any of these situations occur, additional staff may be needed for the Verification Team. In this case the Verification Manager will select additional personnel for the ICAVP Project Team. Similar to section 5.1 above, the additional personnel shall have the technical background, education and experience necessary to perform the functions that are required of them by their position on the ICAVP Project Team. They shall also be required to meet the independence criteria established for the original team members. The additional personnel shall satisfactorily complete the ICAVP Objectivity Questionnaire (Attachment 6.1). The Verification Team Manager shall notify the NRC and NU in writing in accordance with the Communications Protocol (PI-MP3-01) that additional personnel are being added to the Project Team. The Verification Team Manager shall provide the NRC and NU with a copy of the additional personnel's resume and a copy of their completed Objectivity Questionnaires. If the NRC notifies S&L that it has unresolvable objections to the qualifications or the independence of the additional personnel, they shall be suspended from any further work on the ICAVP and all work performed by them shall be reperformed by acceptable individuals.

## 6.0 ATTACHMENTS

### 6.1 ICAVP Objectivity Questionnaire (1 page)



Millstone Unit 3 ICAVP  
Objectivity Questionnaire

Attachment 6.1

1. Name: \_\_\_\_\_
2. Current Employer: \_\_\_\_\_
3. Project Title/Function: \_\_\_\_\_
4. Have you ever been employed by any of the following companies:  
Northeast Utilities Yes \_\_\_\_\_ No \_\_\_\_\_  
Stone & Webster Yes \_\_\_\_\_ No \_\_\_\_\_  
MPR Yes \_\_\_\_\_ No \_\_\_\_\_
5. Have you been involved in any Millstone 3 activity in your previous or current position?  
Yes \_\_\_\_\_ No \_\_\_\_\_
6. Have any of your immediate family (father, mother, spouse, son, or daughter) been involved in any Millstone 3 activity in their previous or current position?  
Yes \_\_\_\_\_ No \_\_\_\_\_
7. Do you own/control stock in any of the following companies?  
Northeast Utilities Yes \_\_\_\_\_ No \_\_\_\_\_  
Stone & Webster Yes \_\_\_\_\_ No \_\_\_\_\_  
MPR Yes \_\_\_\_\_ No \_\_\_\_\_
8. Have you been promised any additional compensation, reward of anything of any value, contingent upon the position you take on any issue being considered by you in connection with the Millstone 3 ICAVP?  
Yes \_\_\_\_\_ No \_\_\_\_\_
9. Do you know of any reason, whether or not inquired about in this questionnaire, which would affect your ability to be completely objective in performing any of the tasks assigned to you with the Millstone 3 ICAVP?  
Yes \_\_\_\_\_ No \_\_\_\_\_
10. Are you aware of any reason which might create a perception that you would not act with objectivity in performing any of the tasks assigned to you in connection with the Millstone 3 ICAVP?  
Yes \_\_\_\_\_ No \_\_\_\_\_
11. If the answer to any one or more of the questions was "yes", please explain each such reply fully, referenced by the question number, on the reverse side of this questionnaire. Attach additional sheets as needed.

\_\_\_\_\_  
Signature of Applicant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Reviewed and Accepted by:

\_\_\_\_\_  
Date

PROJECT  
INSTRUCTION

Sargent & Lundy

INSTRUCTION PI-MP3-09  
REV. 0

Client: Northeast Utilities

Station: Millstone Unit 3

Title: PREPARATION AND APPROVAL OF CHECKLISTS



Safety-Related



Non-Safety-Related

Reviewed By:

Approved By:

System Lead

Programmatic  
Lead

O&M Lead

Accident  
Mitigation  
Lead

QA Engineer

Internal Review  
Committee  
Chairman

Verification Team  
Manager

Date: 3-6-97

*ADN*

*H. Khan*

*B. Chandra*

*P. W. Chappin*

*R. G. Gargawala*

*AK Singh*

*AK Singh*

Description

Initial Issue

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-09 REV. 0
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## 1.0 PURPOSE

This project instruction (PI) establishes the Sargent & Lundy procedure for preparing checklists to be used in the Independent Corrective Action Verification Program (ICAVP) reviews. These checklists shall be used by the ICAVP reviewers to document and verify key attributes and areas covered in the ICAVP. These checklists will provide the team with the basis for determining if discrepancies exist in the design, configuration, and operation, maintenance and testing of the Millstone Unit 3 plant (MP3).

All areas of the ICAVP shall utilize checklists to control the review activities. These areas include:

- System Reviews
- Operation, Maintenance and Testing Reviews
- Physical Configuration Reviews
- Programmatic Reviews
- Accident Mitigation Systems Review

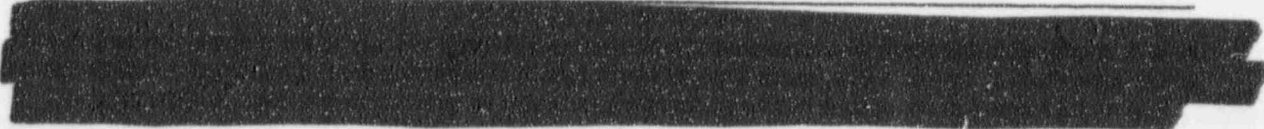
As many checklists as is required to adequately cover the particular review area shall be utilized.


## 2.0 REFERENCES

- 2.1 MP3 Final Safety Analysis Report
- 2.2 MP3 Safety Evaluation Report
- 2.3 MP3 Technical Specifications
- 2.4 MP3 Design Criteria
- 2.5 10CFR50 Appendix A General Design Criteria
- 2.6 NRC Inspection Manual, Chapter 2535, Appendix A

## 3.0 DEFINITIONS

- 3.1 **System Review** - In depth review of the design of the systems in the scope of the ICAVP



PROJECT INSTRUCTION		INSTRUCTION PI-MPC-09 REV. 0
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- 3.2 **Operation, Maintenance and Testing Review** - Review of the operating, maintenance and testing procedures, and training manuals for the systems within the scope of the ICAVP
- 3.3 **Physical Configuration Review** - Walkdowns to verify that the current as-built conditions are in conformance with the design and licensing basis for the systems within the scope of the ICAVP
- 3.4 **Programmatic Review** - Review of programs and processes addressing "generic" (non-system specific) issues
- 3.5 **Accident Mitigation System Review** - Review of the critical design characteristics for the accident mitigating systems to ensure that they can perform their required safety functions.

#### 4.0 **RESPONSIBILITIES**

- 4.1 A Verification Team (VT) Member shall be responsible for preparation of a checklist and for performing a review associated with a checklist.
- 4.2 The VT Lead or his designee shall be responsible for approving the checklists in his area and for providing concurrence for the reviews conducted within his area.
- 4.3 The VT Manager shall be responsible for resolving comments which cannot be resolved between a team member (reviewer) and the Team Lead. The Verification Team Manager may also approve checklists.

#### 5.0 **PROCEDURE**

##### 5.1 General

The checklists are intended to assure that key issues associated with a particular area or element are adequately and consistently evaluated during the review process. Some checklists may be system specific, but many of the checklists will apply to elements that are common to many or all systems.



PROJECT INSTRUCTION		INSTRUCTION PI-MP3-09 REV. 0
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## 5.2 Checklist Preparation

- 5.2.1 Checklists shall be prepared prior to performing the affected review activities.
- 5.2.2 The checklist shall be prepared by an individual knowledgeable in the area or element under review. The preparer may be the individual who will perform the review.
- 5.2.3 The first page of the checklist shall use a form similar to that shown in Attachment 7.2. The checklist shall contain questions related to key issues applicable to the area or element under review. Applicable checklists developed for previous project reviews may be utilized as a source for checklist preparation. Input for checklist preparation may be obtained from the following:

MP3 Final Safety Analysis Report  
 MP3 Safety Evaluation Report  
 MP3 Technical Specifications  
 MP3 Design Criteria  
 10CFR50 Appendix A General Design Criteria  
 USNRC Regulatory Guides applicable to MP3  
 Industry Codes and Standards applicable to MP3

In addition to the above MP3 source documents, S&L design experience and practices, as well as industry experience, shall provide a basis for checklist preparation. Chapter 2535, "Design Verification Programs", Appendix A, of the NRC Inspection Manual also provides guidance for checklist preparation, (Ref. 2.6).

Checklists shall address system design adequacy, component design adequacy, design process adequacy, and plant procedure adequacy. Specific accept/reject criteria shall be provided for configuration reviews.

- 5.2.4 Checklists shall be numbered by each ICAVP group according to the following scheme:

CK-MP3-XX-XX

Project Instruction  
Applicable to the  
Checklist

Sequential Number

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-09 REV. 0
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- 5.2.5 The Team Member designated as preparer of the checklist shall sign and date the checklist. The checklist shall be approved by the respective VT Lead or by the VT Manager.
- 5.2.6 The VT Lead shall file checklists in the project file in accordance with PI-MP3-12.

### 5.3 Checklist Completion

The ICAVP Verifier assigned to perform the evaluation of a particular area/element shall complete the appropriate checklist according to the requirements of the applicable project instruction and sign and date the checklist. It is recommended that the checklist be used to document the basis for accepting questionable items which might otherwise be considered discrepant by another reviewer. As a minimum, the appropriate VT Lead or his designee will indicate his concurrence with the review work performed by the ICAVP Verifier by also signing and dating the checklist. This concurrence will confirm that the checklist is complete and that there is adequate explanation describing the results. Concurrence shall not be given unless there is documentation of those records and/or documents used in filling out the checklist.

Any unresolved comments between the ICAVP reviewer and the VT Lead will be resolved by the VT Manager. Any differing professional opinions shall be handled in accordance with PI-MP3-10.

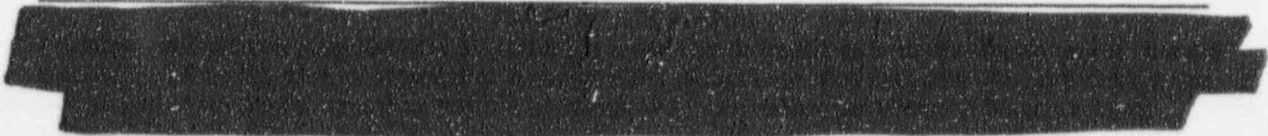
Discrepancies identified as a result of the checklist review shall be processed in accordance with PI-MP3-11.

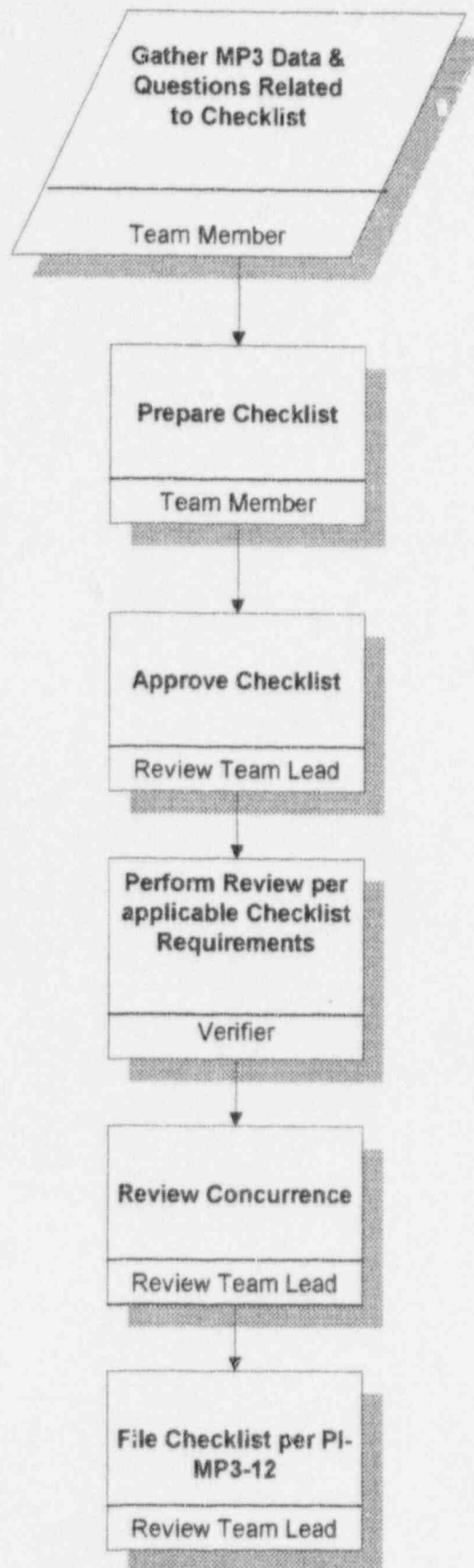
## 6.0 REVISIONS

Any revisions to a checklist shall be prepared and approved in the same manner as the original issue. The revision level of the checklist shall be indicated on the checklist. If a checklist revision is made subsequent to the completion of any reviews, the affected review shall also be updated, as applicable, to account for the revisions to the checklist.

## 7.0 ATTACHMENTS

- 7.1 ICAVP Process Flowchart, "Checklist Preparation, Approval and Use" (1 page)
- 7.2 Sample Checklist Form (1 page)





ICAVP PROCESS FLOWCHART  
Checklist Preparation, Approval and Use

Sample Checklist Cover Page

Northeast Utilities  
Millstone - Unit 3

Independent Corrective Action Verification Program  
(ICAVP)

System Review Checklist

CK-MP3-02 -4.3, Rev. 0

Electrical Schematic Review Checklist

Prepared by: \_\_\_\_\_  
Name Signature Date

Approved by: \_\_\_\_\_  
Name Signature Date

IMPLEMENTATION

System		
Document No./Rev.		
Verified by:		Date:
Concurrence by:		Date:

PROJECT  
INSTRUCTION

Sargent & Lundy

INSTRUCTION PI-MP3-10  
REV. 0

Client: Northeast Utilities

Station: Millstone Unit 3

Title: **DIFFERING PROFESSIONAL OPINIONS**



**Safety-Related**



**Non-Safety-Related**

Reviewed By:

Approved By:

System Lead

Programmatic  
Lead

O&M Lead

Accident  
Mitigation  
Lead

QA Engineer

Internal Review  
Committee  
Chairman

Verification Team  
Manager

Date: 3-6-97

*AA Wei*

*[Signature]*

*[Signature]*

*[Signature]*

*[Signature]*

*AK Singh*

*[Signature]*

Description

Initial Issue



PROJECT INSTRUCTION		INSTRUCTION PI-MP3-10 REV. 0
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## 1.0 PURPOSE

This instruction establishes the requirements for the handling and resolution of differing professional opinions (DPO) related to technical safety significant concerns raised during the implementation of the Independent Corrective Action Program (ICAVP) for Millstone Unit 3.

## 2.0 REFERENCE

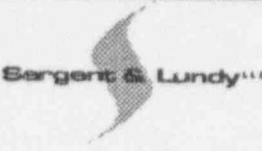
- 2.1 NRC Confirmatory Order Establishing Independent Correction Action Verification Program - Millstone Nuclear Power Station, Units 1,2 and 3
- 2.2 PI-MP3-01, Communications Protocol
- 2.3 PI-MP3-12, Project File Index
- 2.4 10CFR50.7, Employee Protection

## 3.0 DEFINITIONS

- 3.1 **Differing Professional Opinion** - a written statement expressing an individual's professional judgment on a technical issue that is different than a decision made or a position taken by the management of the project.
- 3.2 **DPO Resolution** - a written statement providing the technical basis for the disposition of the DPO.
- 3.3 **Initiator** - The individual Project Team member that initiates a DPO.

## 4.0 RESPONSIBILITIES

- 4.1 The Initiator shall be responsible for preparing the DPO when he believes it necessary to raise a technical safety concern.
- 4.2 The ICAVP Management Team (Project Director, Verification Team Manager, or Internal Review Committee Chairman, as appropriate) shall be responsible for providing the technical basis in writing for a decision made or a position taken on a technical issue for which a DPO has been generated.

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-10 REV. 0
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- 4.3 The Quality Assurance Manager shall be responsible for establishing a board to provide a disposition for the DPO using the resources of the firm as required.
- 4.4 The Verification Team Manager is responsible for maintaining a log of all DPOs initiated during the project and for submitting a copy of the DPOs and their resolution to the NRC.

## 5.0 PROCEDURE

### 5.1 General

Differences of opinion on technical issues occur from time to time during the conduct of professional activities. These differences are normally resolved by the individuals within the chain of command of a project. In the case of the ICAVP, it is expected that the Verification Team Manager will facilitate the resolution of issues within the Verification Team, and that the Project Director will facilitate the resolution of issues between the Verification Team and the Internal Review Committee, when required. However, if any member of the ICAVP Project Team disagrees with a decision or position taken on a technical issue that he believes has potential safety significance, he may initiate a formal Differing Professional Opinion in accordance with the following procedural steps.

- 5.2 The Initiator shall prepare the DPO on Attachment 6.1. The DPO shall contain the following information related to the technical issue, along with any supporting information:
  - a summary of the Management decision or position on the technical issue,
  - a description of the Initiator's view and how they differ from the management position,
  - the rationale for the Initiator's opinion on the issue, including an assessment of the potential consequences, based on risk and safety, if the Initiator's position is not adopted.
- 5.3 The Initiator shall sign and date the DPO form and forward the original of the form along with any attachments to the S&L Quality Assurance Manager. A copy of the DPO form shall be submitted to the Verification Team Manager and he shall maintain a log of all DPOs on the project.

PROJECT INSTRUCTION	 Sargent & Lundy	INSTRUCTION PI-MP3-10 REV. 0
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- 5.4 The QA Manager shall, within three working days of receipt of the DPO, acknowledge its receipt to the Initiator. The QA Manager shall notify the S&L Power Services Business Group Executive Vice President of the receipt of the DPO and shall convene a board consisting of himself, the PSBG Lead Nuclear Project Director and a mutually acceptable subject matter expert to disposition the DPO.
- 5.5 The DPO Board shall provide a disposition to the DPO based on the technical merits of the issue within 10 working days from receipt of the DPO. They may request to interview the Initiator and /or the management of the project or others as required to arrive at their decision. The QA Manager shall submit the DPO Resolution to the Initiator, the Verification Team Manager, the Project Director, and the PSBG Executive VP.
- 5.6 The Verification Team Manager shall log the resolution and submit a copy of the complete DPO and DPO Resolution along with all supporting documentation to the NRC primary contact listed in the Communications Protocol PI-MP3-01 (Reference 2.2).
- 5.7 The Verification Team Manager shall review the disposition and take any corrective action required by the disposition, including any "re-work" of the ICAVP review process, if required.
- 5.8 The Verification Team Manager shall file the DPO and the resolution in accordance with PI-MP3-12.
- 5.9 The Initiator and any other employee also has the right to contact the NRC directly with a safety concern without fear of reprisal in accordance with S&L policy and 10CFR50.7 (Reference 2.4).

## 6.0 ATTACHMENTS

- 6.1 Differing Professional Opinion Form (1 page)
- 6.2 Flow Chart, DPO Process (1 page)



DPO-MP3-\_\_\_\_\_

**Independent Corrective Action Verification Program  
Millstone Nuclear Power Station - Unit 3**

**Differing Professional Opinion**

---

**Description of Technical Issue and S&L Management Position:**

(Add pages as required)

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**Description of Initiator's View, Rationale, and Assessment of Consequences, if not adopted:**

Initiator \_\_\_\_\_

Date \_\_\_\_\_

(Add pages as required)

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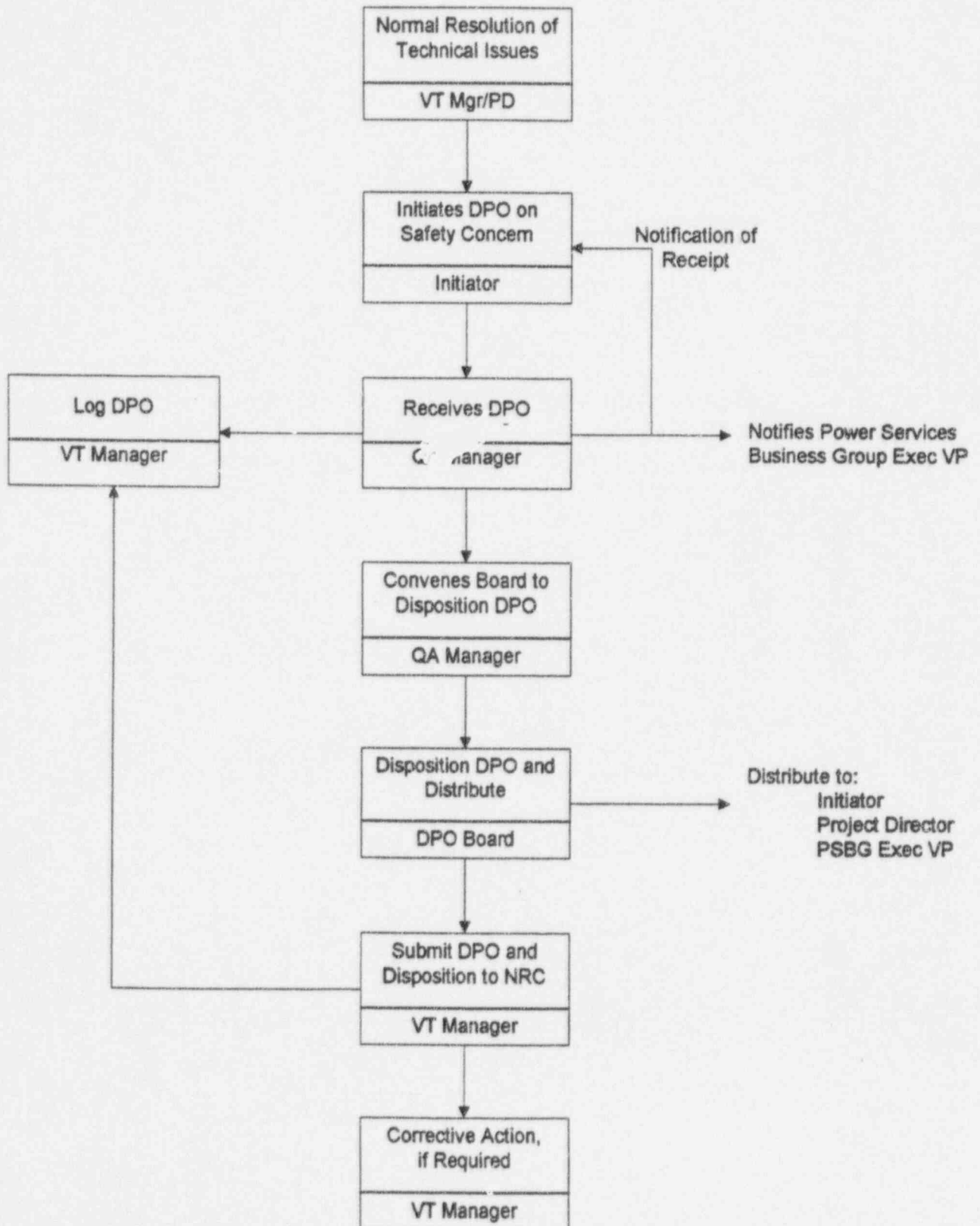
**Disposition:**

QA Manager \_\_\_\_\_

Date \_\_\_\_\_

(Add pages as required)

# DIFFERING PROFESSIONAL OPINION PROCESS FLOW CHART





PROJECT  
INSTRUCTION

Sargent & Lundy

INSTRUCTION PI-MP3-11  
REV. 0

Client: New England Utilities

Station: Millstone Unit 3

Title: **DISCREPANCY REPORT SUBMITTAL AND CLOSURE**

☒ **Safety-Related**

☐ **Non-Safety-Related**

Reviewed By:

Approved By:

System Lead

Programmatic  
Lead

O&M Lead

Accident  
Mitigation  
Lead

QA Engineer

Internal Review  
Committee  
Chairman

Verification Team  
Manager

Date: 3-6-97

*AP Meiri*

*T. Ryan*

*R. Elmer*

*P. Weis*

*R. Gorkovits*

*AK Seng*

*AK Seng*

Description

Initial Issue

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-11 REV. 0
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## 1.0 PURPOSE

This instruction establishes the requirements for the preparation, submittal and closure of Discrepancy Reports for discrepant conditions identified by the Independent Corrective Action Verification Program (ICAVP) Team. This instruction addresses the preparation of DRs by the ICAVP team, the review of proposed resolutions developed by Northeast Utilities and the trending of DRs generated by the Verification Team.

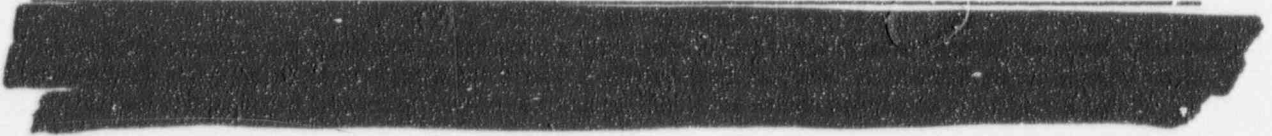
## 2.0 REFERENCE

- 2.1 NRC Confirmatory Order Establishing Independent Correction Action Verification Program - Millstone Nuclear Power Station, Units 1, 2, and 3
- 2.2 PI-MP3-01, ICAVP Communication Protocol
- 2.3 PI-MP3-02, Review of System Design for Compliance with Design & Licensing Basis
- 2.4 PI-MP3-03, Review of Plant Modifications Prepared After Receipt of Operating License for Technical Adequacy and for Configuration Control.
- 2.5 PI-MP3-04, Programmatic Reviews
- 2.6 PI-MP3-05, Physical Plant Configuration Walkdowns
- 2.7 PI-MP3-06, Operations and Maintenance and Testing Procedures and Training Documentation Reviews
- 2.8 PI-MP3-07, Review of Accident Mitigation Systems
- 2.9 PI-MP3-10, Differing Professional Opinions
- 2.10 PI-MP3-12, Project File Index

PROJECT INSTRUCTION		INSTRUCTION PI-MP3-11 REV. 0
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### 3.0 DEFINITIONS

- 3.1 **Accident Mitigation Review Group (ARG)** - The subgroup of the ICAVP Verification Team responsible for review of critical characteristics of accident mitigation systems to ensure those systems can perform their required safety functions.
- 3.2 **Internal Review Committee (IRC)** - A committee comprised of senior S&L management personnel responsible for overall technical oversight of the ICAVP.
- 3.3 **Operations & Maintenance and Testing Review Group (ORG)** - The subgroup of the ICAVP Verification Team responsible for the review of the operating, maintenance and testing procedures, and training materials for the systems within the scope of the ICAVP.
- 3.4 **System Review Group (SRG)** - The subgroup of the ICAVP Verification Team responsible for performing an in-depth review of the design of the systems in the scope of the ICAVP.
- 3.5 **Configuration Review Group (CRG)** - The subgroup of the SRG Verification Team responsible for walkdowns to verify the current as built conditions are in conformance with the design output documents.
- 3.6 **Programmatic Review Group (PRG)** - The subgroup of the ICAVP Verification Team responsible for review of the processes used to change the facility design or the operation, maintenance and testing of the facility. The PRG is also responsible for verifying the adequacy of NU's corrective actions.
- 3.7 **Discrepancy Report (DR)** - The mechanism for documenting the discrepant conditions identified by the ICAVP and reporting the condition to NU for resolution.



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#### 4.0 RESPONSIBILITIES

- 4.1 Initiator - Responsible for preparation of DR in accordance with the instructions contained in this project instruction.
- Responsible for review of proposed NU resolutions in accordance with the instructions contained in this project instruction.
- 4.2 Verification Group Lead - Responsible for first level review of DRs prepared by Initiator.
- Responsible for assigning DR number.
- Responsible for review of S&L's dispositions to proposed NU resolutions.
- Responsible for resolving comments with the Initiator.
- 4.3 Verification Team Manager - Responsible for reviewing initial DRs and S&L dispositions to proposed NU resolutions.
- Responsible for resolving comments with the Verification Group Lead and the Initiator.
- Responsible for overall control of DR process including maintenance of DR log, trending data and external distributions.
- 4.4 IRC Members/Chairman - Responsible for reviewing DRs and dispositions of proposed NU resolutions prepared by the Verification Team and for resolving any comments with the Verification Team.

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## 5.0 PROCEDURE

The Nuclear Regulatory Commission (NRC) Confirmatory Order (Reference 2.1) requires Northeast Utilities (NU) to implement the ICAVP. References 2.3 through 2.8 provide the instructions for implementing the reviews included in the scope of the ICAVP. Discrepant conditions identified by the Verification Team members during the performance of these reviews will require the initiation of a DR. This project instruction provides the requirements for initiating, processing and closure of DRs. DRs shall not be generated for findings already identified by NU during implementation of their Configuration Management Plan.

Note: DRs shall be generated as soon as practical after the condition has been identified. Those DRs which may be potential operability concerns shall be expedited through the review and approval process and NU shall be notified per Subsection 5.5.1 of this instruction.

The DR process involves the following tasks:

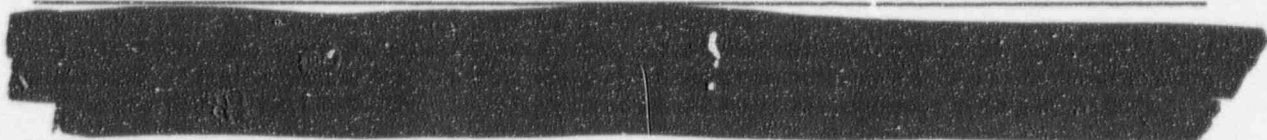
- a. DR initiation
- b. DR resolution and closure
- c. DR log and trending data
- d. DR distribution

DRs shall be generated in an electronic format using a DR Access Database. Attachments 6.2 through 6.5 of this project instructions illustrate sample database input screens. Hardcopies of the DRs, a DR Log, DR status reports and DR trend reports can be generated from the database.


The detailed instructions for each of the above task are described in subsections 5.2 through 5.5. Attachment 6.1 is a flow chart illustrating the DR process.

### 5.2 DR Initiation

- 5.2.1 Members of the ARG, CRG, ORG, PRG and SRG Verification Teams shall initiate a DR for any discrepant condition identified during their respective reviews. The individual initiating the DR shall be referred to as the Initiator.





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Note: Before initiating a DR, the Initiator shall ensure the condition has been thoroughly investigated and the total scope of the condition has been identified. Any additional information needed from NU shall be requested per PI-MP3-01.

- 5.2.2 The Initiator shall prepare the Discrepancy Report by entering the following data into the database's "Discrepancy Screen", Attachment 6.2:

Note: The fields listed below which are indicated with an asterisk have pulldown menus. Applicable entries in these menus are listed in Attachment 6.6.

<u>Field</u>	<u>Instruction</u>
Review Group*	Enter Applicable Review Group
Review Element*	Enter Applicable Review Element
Discipline*	Enter Applicable Organization
Discrepancy Type*	Enter Applicable Discrepancy Type
Potential Operability* Issue	Enter whether the Discrepancy is a Potential Operability Issue using the guidance in Attachment 6.7
System/Process	Enter by Full Name the system or process being reviewed.
Discrepancy	Enter brief title
Description	Enter detailed description of condition including specific references and basis for potential operability determination, if DR is determined to be potential operability issue.

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Initiator                      Enter your name; Last name first followed by first and middle initials (i.e. Doe, J. A.)

Date                              Enter preparation date

The database will automatically assign DR Nos., revision level and status.

5.2.3    The VT Lead shall review the initial DR draft.

5.2.3.1 If the VT Lead has comments on the DR or determines that additional information is needed, the VT Lead shall resolve the comments with the Initiator.

5.2.3.2 If the VT Lead does not concur with the DR, the VT Lead shall complete the "Invalid Screen", Attachment 6.3, by entering his name, date and justification for the invalid disposition. The VT Lead shall review the invalid disposition with the Initiator.

5.2.3.3 If the Initiator agrees with the VT Lead's invalid disposition, the Initiator shall indicate his concurrence on the "Invalid Screen", Attachment 6.3. The initiator shall then file the invalid DR with the applicable element review file.

5.2.3.4 If the VT Lead and Initiator do not reach agreement, the VT Manager shall resolve the issue. If either of the parties has a safety concern related to the DR, the provisions of PI-MP3-10 for Differing Professional Opinions may be invoked.

5.2.3.5 If the VT Lead concurs with the DR, the VT Lead shall enter his name, and date on the Discrepancy Screen, Attachment 6.2.

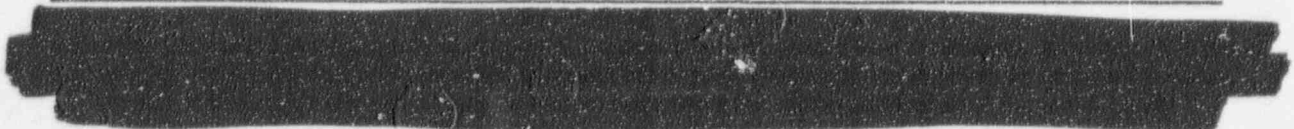
5.2.4    The VT Manager shall review the DR. The review process shall be consistent with the instructions contained in Subsections 5.2.3.1 through 5.2.3.5 above, except that any comments or invalid dispositions shall be reviewed with both the Initiator and the VT Lead.




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Note: The reviews associated with Subsections 5.2.3 and 5.2.4 can be concurrent in a group session.

- 5.2.5 The IRC shall review the DR. The review process shall be consistent with the instruction contained in Subsections 5.2.3.1 through 5.2.3.5 above, except that any comments or invalid dispositions shall be reviewed with the Initiator, VT Lead and VT Manager.
- 5.2.6 The VT Manager shall distribute approved DRs to the NRC, NU and the Public in accordance with Subsection 5.5 of this project instruction.
- 5.3 DR Resolution and Closure
  - 5.3.1 Proposed resolutions submitted by NU shall be reviewed in a manner similar to the DR initiation process described in Subsection 5.2 of this project instruction. The DR proposed resolution shall first be reviewed by the Verification Team and then the IRC. Concurrent review by VT members, Leads, and Manager are permitted.
  - 5.3.2 The Initiator shall summarize the NU resolution on the "NU Resolution Screen", Attachment 6.4. Concurrence by the VT members shall be indicated on the screen, Attachment 6.4. The DR shall be distributed to the NRC, NU and the Public per Section 5.5 of this project instruction.
  - 5.3.3 If the Initiator, VT Lead, VT Manager or IRC do not concur with the proposed resolution, the non-concurring party shall document their justification for rejecting the resolution on the "Rejection Screen", Attachment 6.5 and obtain concurrence from all other members on Attachment 6.5. Rejected Dispositions shall be distributed to the NRC and NU in accordance with Subsection 5.5 of this project instruction.
  - 5.3.4 Revised proposed resolutions submitted by NU in response to S&L comments shall be reprocessed in accordance with Subsection 5.3.1 through 5.3.3. Only one additional resolution cycle per discrepancy is anticipated.



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5.3.5 If all groups, (the VT members and the IRC) cannot reach agreement on acceptance of the proposed NU resolutions and anyone has a safety concern, then the provisions of PI-MP3-10 for differing professional opinions DPO may be invoked.

#### 5.4 DR Log and Trending Data

##### 5.4.1 DR Log

5.4.1.1 The DR database shall automatically assign DR Nos, status and revision. Hardcopy logs can be generated from the database.

##### 5.4.2 Trending Data

5.4.2.1 The DR database can be sorted by the entries on Attachment 6.6 to generate trend reports.

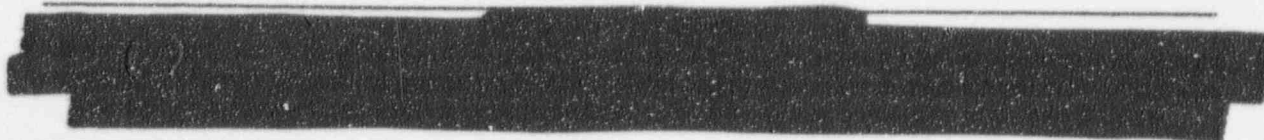
#### 5.5 DR Distribution

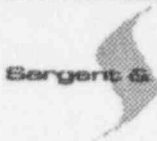
##### 5.5.1 Initial Issues

5.5.1.1 The VT Manager shall distribute valid DRs to the NRC, NU and the Public per Subsection 3.3 of PI-MP3-01. Distribution to the NRC and NU shall be in the form of hardcopies. Since generation of DRs will be by electronic media with database security provisions, signatures shall not be required.

5.5.1.2 DRs determined invalid during review shall not be distributed externally. Hardcopies shall be maintained in the project file in accordance with PI-MP3-12.

5.5.1.3 The VT Manager will fax DRs which may pose potential operability concern to the NU Point Of Contact identified in PI-MP3-01. The date sent shall be entered on the Discrepancy Screen.



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#### 5.5.2 Proposed Resolutions

5.5.2.1 The VT Manager shall distribute accepted (closed) DRs to the NRC, NU and the Public in accordance with Subsection 3.4 of PI-MP3-01. Hardcopies shall be sent to the NRC and NU.

5.5.2.2 The VT Manager shall distribute S&L comments on proposed resolutions to the NRC and NU only, in accordance with Subsection 3.4 of PI-MP3-01.

### 6.0 ATTACHMENTS

6.1 Process Flowchart, Processing Findings & Resolutions (1 page).

6.2 Sample Discrepancy Screen (1 page).

6.3 Sample Invalid Screen (1 page).

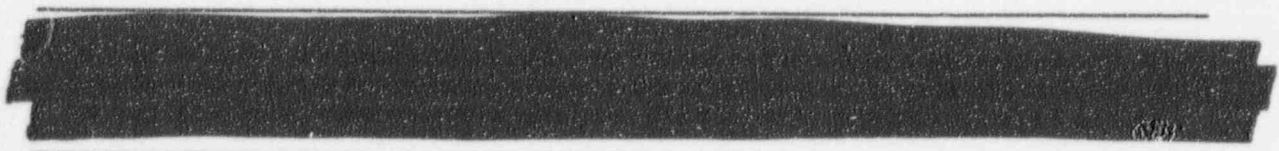
6.4 Sample Resolution Screen (1 page).

6.5 Sample Rejection Sheet (1 page)

6.6 Summary of Available Entries for Pulldown Menus (1 page)

6.7 Criteria for Operability Determination (1 page).

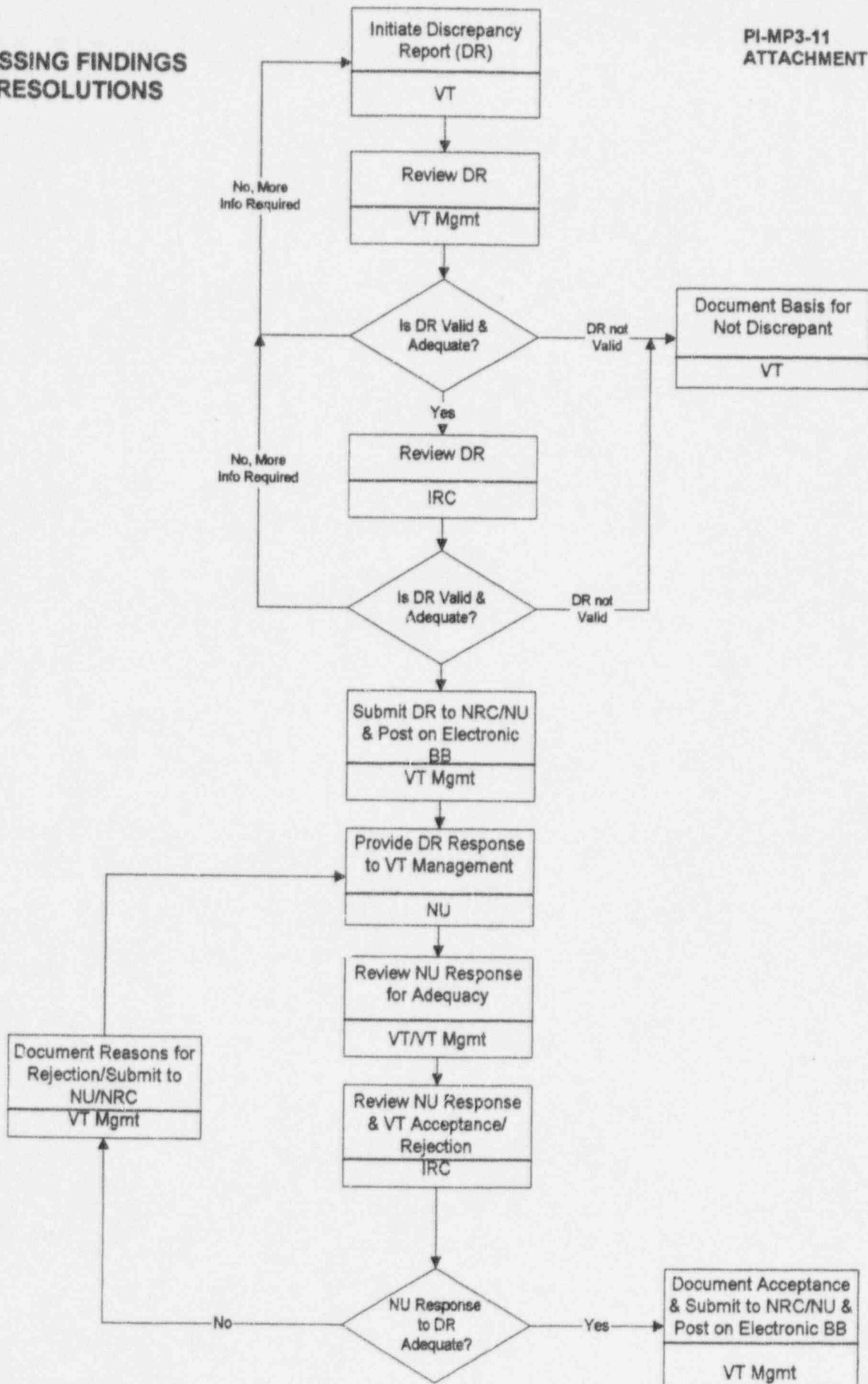
Note: Attachments 6.2 through 6.4 are sample illustrations of the DR Access Database data entry screens. This instruction will be revised if the data fields are revised. Revision to this instruction is not required for format changes to the data entry screens.





# PROCESSING FINDINGS AND RESOLUTIONS

PI-MP3-11  
ATTACHMENT 6.1



Discrepancy Report		No.:	DR-MP3-0001		Draft:	1		Status:	3	
Go to:		Discrepancy		Invalid	Resolution	Rejection	Exit			
Review Group:	System Review Group				<div>Potential Operability Issue</div> <div><input type="radio"/> Yes <input type="radio"/> Not Reviewed</div> <div><input checked="" type="radio"/> No</div>					
Review Element:	Modification Installation				Date to Nil: 2/20/97					
Discipline:	Piping Design				Initiator: Bittingham, Angelique					
Discrepancy Type:	Drawing Discrepancy				Date: 2/20/97					
System/Process:	Residual Heat Removal									
Discrepancy:		Drawing Discrepancy								
Description:		P & ID XXX shows the highpoint vent upstream of MOV-XXX while isometric drawing number XXX shows the high point vent downstream of MOV-XXX.								
VT Lead:	Neri, A. A.	Valid?	<input checked="" type="checkbox"/>	Date:	2/20/97					
VT Mgr:	Schopfer, D. K.	Valid?	<input checked="" type="checkbox"/>	Date:	2/24/97					
IRC Chmn:	Singh, A. K.	Valid?	<input checked="" type="checkbox"/>	Date:	2/26/97					

Input Screen for Discrepancy Report

Discrepancy Report		No.:	DR-MP3-0001	Draft:	1	Status:	3
Go to:	Discrepancy	Invalid	Resolution	Rejection	Exit		
Invalid Justification:	Justification for Invalid goes here, if applicable.						
<b>Initiator Concurrence w/ Invalid Disposition?</b> <input checked="" type="checkbox"/> <b>Date:</b> 2/20/97							
<b>VT Lead:</b>	Neri, A. A.	<input checked="" type="checkbox"/>	<b>Invalid?</b>	<input checked="" type="checkbox"/>	<b>Date:</b>	2/20/97	
<b>VT Mgr:</b>	Schopfer, D. K.	<input checked="" type="checkbox"/>	<b>Invalid?</b>	<input checked="" type="checkbox"/>	<b>Date:</b>	2/24/97	
<b>IRC Chmn:</b>	Singh, A. K.	<input checked="" type="checkbox"/>	<b>Invalid?</b>	<input checked="" type="checkbox"/>	<b>Date:</b>	2/26/97	

Input Screen for Invalid Justification

Discrepancy Report			No.:	DR-MP3-0001	Draft:	1	Status:	3
Go to:	Discrepancy	Invalid	Resolution	Rejection	Exit			
Date:	2/20/97							
NU Resolution:	The text of NU's resolution goes here.							
Initiator:	Bittingham, Angelique	<input type="checkbox"/>	Accept?	<input checked="" type="checkbox"/>	Date:	2/20/97		
VT Lead:	Singh, A. K.	<input type="checkbox"/>	Accept?	<input checked="" type="checkbox"/>	Date:	2/20/97		
VT Mgr:	Wilson, Kitty	<input type="checkbox"/>	Accept?	<input checked="" type="checkbox"/>	Date:	2/20/97		
IRC Chmn:	Smith, John	<input type="checkbox"/>	Accept?	<input checked="" type="checkbox"/>	Date:	2/20/97		

Input Screen for NU Resolution

Discrepancy Report				No.:	DR-MP3-0001		Draft:	1		Status:	3		
Go to:				Discrepancy	Invalid	Resolution	Rejection	Exit					
Justification for Rejection:				Justification for rejection goes here, if applicable.									
Initiator:				Bittingham, Angelique		<input checked="" type="checkbox"/>		Reject?	<input checked="" type="checkbox"/>		Date:	2/20/97	
VT Lead:				Singh, A. K.		<input checked="" type="checkbox"/>		Reject?	<input checked="" type="checkbox"/>		Date:	2/20/97	
VT Mgr:				Wilson, Kitty		<input checked="" type="checkbox"/>		Reject?	<input checked="" type="checkbox"/>		Date:	2/20/97	
IRC Chan:				Smith, John		<input checked="" type="checkbox"/>		Reject?	<input checked="" type="checkbox"/>		Date:	2/20/97	

Input Screen for Justification of Rejection of NU Resolution



**SUMMARY OF AVAILABLE ENTRIES FOR PULLDOWN MENUS**

<b><u>FIELD</u></b>	<b><u>ENTRIES</u></b>
Review Group	CRG ORG PRG SRG ARG
Review Element	System Design Modification Design System Installation Modification Installation Operating Procedures Test Procedure Maintenance Procedure Training Procedure Change Process Corrective Action Process
Discipline	Mechanical Design Electrical Design I&C Design Structural Design Piping Design Equipment Qualification Operations Maintenance Training Other
Discrepancy Type	Drawing Component Data Calculation Licensing Document Test Requirements Installation Requirements Installation Implementation O&M&T Procedure O&M&T Implementation Corrective Action Procedure Implementation Change Process
Potential Operability Issue	Yes No

**CRITERIA FOR POTENTIAL OPERABILITY ISSUE**

The following criteria shall be used to determine if a DR poses potential operability issue:

1. Any departure from the conditions of the operating license, Technical Specifications.
2. Any occurrence or plant condition that requires notification to the NRC or other regulatory agency in accordance with the Configuration Management Plan.
3. Failure to meet the provisions of the Technical Requirements Manual.
4. Conditions resulting in a Maintenance Rule Functional Failure (MRFF) (10CFR50.65).
5. Any occurrence that appears to jeopardize radiological protection, or may be a violation of a program, procedure or regulation with radiological implications.

PROJECT  
INSTRUCTION

Sargent & Lundy

INSTRUCTION PI-MP3-12  
REV. 0

Client: Northeast Utilities

Station: Millstone Unit 3

Title: PROJECT FILE INDEX



Safety-Related



Non-Safety-Related

Reviewed By:

Approved By:

System Lead

Programmatic  
Lead

O&M Lead

Accident  
Mitigation  
Lead

QA Engineer

Internal Review/  
Committee  
Chairman

Verification Team  
Manager

Date: 3-6-97

*AP Heir*

*Thompson*

*PC Quercia*

*W. Wang*


*Raymond*

*AK Singh*

*A. Schmitt*

Description

Initial Issue

PROJECT INSTRUCTION	 Sargent & Lundy LLC	INSTRUCTION PI-MP3-12 REV. 0
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## 1.0 PURPOSE

This project instruction supplements S&L Procedure GQ-6.01 for the implementation of the Project File Index for the Northeast Utilities Millstone Unit 3 Independent Corrective Action Verification Program (ICAVP).

## 2.0 REFERENCE

2.1 GQ-6.01, "Project Distribution List and Project File Indexes."

2.2 GOP 17.02, "Quality Assurance Records Control System"

## 3.0 DEFINITIONS


3.1 **Project File Index** - A project file index is a listing of document categories with location references for the central consolidated project file.

3.2 **Central Consolidated Project Files** - Central consolidated project files include documents pertaining to a project or group of projects for a single client and are maintained by a project team, usually under the direction of the Project Manager or his designee. Central consolidated project files are interdepartmental and are the source from which the Records Center receives documents for long-term storage.

3.3 **Project Documents** - Project documents are defined in the applicable project instructions. Examples of these documents are listed on Attachment 7.1.

3.4 **Internal Project Correspondence** - Internal project correspondence includes documents generated within S&L which are not distributed outside of S&L. Internal project correspondence includes, but is not limited to, the documents listed in Attachment 7.1.



PROJECT INSTRUCTION		INSTRUCTION PI-MP3-12 REV. 0
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3.5 **External Project Correspondence** - External project correspondence includes documents generated within S&L and distributed outside of S&L, as well as documents generated outside of S&L. External project correspondence includes, but is not limited to, the documents listed in Attachment 7.1.

3.6 **Special Project Documents** - Some project documents, such as purchase orders and contracts are normally filed with the Project Manager rather than the central consolidated project file. Files containing these documents are considered part of the central consolidated project file and shall be referenced in the project file index.

#### 4.0 RESPONSIBILITIES

4.1 The Verification Team (VT) Manager shall be responsible for establishing the central consolidated project file, and ensuring the transmittal to file of documents per Subsection 5.2.1.

4.2. Verification Team (VT) Group Leads shall be responsible for ensuring the transmittal to file of documents per Subsection 5.3.

#### 5.0 PROCEDURE


5.1 The VT Manager shall establish a central consolidated project file for the filing of documents.

5.2 Project documents shall be filed in the central consolidated project file in accordance with the project file index (Attachment 7.2). There are two general categories of project documents - generic project documents and task-specific documents.


5.2.1 The project file index contains the subcategories of the files for the generic project documents. It also indicates the person responsible for sending each subcategory of document to the central consolidated project File.





PROJECT INSTRUCTION	 Sargent & Lundy	INSTRUCTION PI-MP3-12 REV. 0
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- 5.2.2 Task-specific documents shall be filed by Verification Team identity, Verification element (system or program) and applicable review checklist. The project file index lists the subcategories and responsibilities.
- 5.3 All project personnel shall clearly indicate the appropriate project file number from the index when submitting documents to the central consolidated project file. The DPD personnel assigned to maintain the central consolidated project file shall file the documents chronologically in appropriate subcategory of the file system. If there are questions about the file number or no file number is shown, the DPD personnel shall resolve this with the person submitting the document or their supervisor.
- 5.4 Project documents shall be submitted to the project file as soon as possible after receipt/issue to keep the files current. Project personnel may keep working files in their own work areas as necessary in the performance of their work. The use and number of working files should be minimized. The individual is responsible for ensuring that the documents in the working file are current before relying upon them for quality related decisions.
- 5.5 External project correspondence shall be filed in two places. [Note: This is the only instance of permanent duplicate files on the project.] A copy of the correspondence should be filed under generic project files, and a copy should also be filed under the task-specific file when related to a task. The recipient, or addressee, is responsible for directing incoming external correspondence to the generic file and the task-specific file. The person signing the external correspondence is responsible for submitting outgoing correspondence to the generic project file and to the task-specific files.
- 5.6 A submittal schedule for QA records which shall be retained by S&L shall be developed in accordance with procedure GQ-17.01. These records shall be transmitted to storage in accordance with procedure GQ-17.02. Project-related documents which are not QA records shall not be sent to storage until the project has been completed and the transmittal has been authorized by the VT Manager."

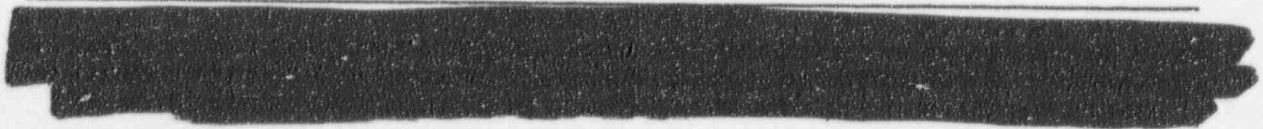
PROJECT INSTRUCTION	 Sargent & Lundy <sup>LLC</sup>	INSTRUCTION PI-MP3-12 REV. 0
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## 6.0 REVISIONS

The project file index (Attachment 7.2) may be revised by the VT Manager. The issue of a new or revised project file index shall not require retraining in this PI unless the VT Manager determines that, in a particular case, retraining is necessary.

## 7.0 ATTACHMENTS

- 7.1 Types of project-related documents (1 page)
- 7.2 Project File Index (2 pages)



## TYPES OF PROJECT-RELATED DOCUMENTS

### INTERNAL PROJECT CORRESPONDENCE

- Interoffice Memoranda
- Meeting Notes
- Internal Status Reports
- Internal Schedules, Lists, Estimates, and Budgets
- Internal hand-written or PC-generated Documents
- Telephone Memoranda Issued Internally

### EXTERNAL PROJECT CORRESPONDENCE

- Correspondence sent to S&L by Northeast Utilities , NRC and Others
- Correspondence sent by S&L to Northeast Utilities, NRC and Others
- Notes of meetings between S&L and Northeast Utilities, NRC and Others
- Schedules or Status Reports
- Telephone memoranda issued externally

### PROJECT DOCUMENTS

- Discrepancy Reports
- System Review Checklists
- Modification Review Checklists
- O&M&T Review Checklists
- Programmatic Review Checklists
- Accident Mitigation Review Checklists
- Walkdown Checklists
- Project Instructions
- Final Report

**MILLSTONE UNIT 3 ICAVP  
PROJECT FILE INDEX**

**I. GENERIC PROJECT FILES**

<u>File No.</u>	<u>Title</u>	<u>Position Title Responsible for Submitting - Project Files</u>
MP3-1.0	Contract and Supplements	VT Manager
MP3-1.1	Commercial Correspondence	VT Manager
MP3-1.2	ICAVP Requirements	VT Manager
MP3-2.0	Project Manual	QA Coordinator
MP3-2.1	Training Records	QA Coordinator
MP3-3.0	Status Reports	VT Manager
MP3-4.0	General Quality Assurance	QA Coordinator
MP3-4.1	Internal Audits	QA Coordinator
MP3-4.2	External Audits	QA Coordinator
MP3-5.0	Project Team Meeting Notes	VT Manager
MP3-5.1	Other Internal Meeting Notes	VT Group Lead
MP3-5.2	External Project Meeting Notes (Not Specific to a Task)	VT Manager
MP3-6.0	Manpower Planning and Overall Project Schedules	VT Manager
MP3-7.0	External Correspondence to NU or NRC	VT Manager
MP3-8.0	Correspondence from NU or NRC	VT Manager
MP3-9.0	Discrepancy Reports	VT Manager
MP3-10.0	Differing Professional Opinions	VT Manager

MILLSTONE UNIT 3 ICAVP

PROJECT FILE INDEX

II. TASK-SPECIFIC PROJECT FILES

<u>File No.</u>	<u>Title</u>	<u>Position Title Responsible for Submitting - Project Files</u>
SRG-XXX-YY-ZZ	System Review Files	SRG Lead
CRG-XXX-YY-ZZ	Configuration Review Files	SRG Lead
ORG-XXX-YY-ZZ	O&M&T Review Files	ORG Lead
ARG-XXX-YY-ZZ	Accident Mitigation Review Files	ARG Lead
PRG-AAA-YY-ZZ	Programmatic Review Files	PRG Lead

Where:      XXX =      3 Letter System Designator Assigned by ARG or SRG  
Lead.

             YY-ZZ =      Last 4 Digits of Checklist Number  
                                 (Example: Use 02-01 for CK-MP3-02-01)

             AAA =      3 Letter Program Designator Assigned by PRG



(CHECKLISTS UNDER DEVELOPMENT)