Wayne H. Jens
Vice President
Nuclear Operations

Detroit Edison

2000 Second Avenue
Detroit, Michigan 48226
(313) 237-8612

November 3, 1983
EF2 - 66,117

Director of Nuclear Reactor Regulation
Attention: Mr. B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Youngblood:

Reference: (1) Enrico Fermi Atomic Power Plant, Unit 2
NRC Docket No. 50-341

(2) Letter, NRC to Detroit Edison, Generic Letter 83-28, "Required Actions Based on Generic Implications of Salem ATWS Events", July 8, 1983

Subject: Detroit Edison Response to NRC Generic Letter 83-28

Attached please find our response to your Generic Letter 83-28. We have reviewed your positions and have summarized the Detroit Edison program relative to the positions on an item by item basis. Often we have referenced Detroit Edison procedures to demonstrate implementation of the program. Where a program is still being developed, we provide a description of the program and have included an estimated implementation date.

Should you have any questions regarding the above, please contact Mr. O. Keener Earle, (313) 586-4211.

Sincerely,

Wayne H. Jens

Attachment

cc: Mr. P. M. Byron
Mr. M. D. Lynch

B003
1/40

I, WAYNE H. JENS, do hereby affirm that the foregoing statements are based on facts and circumstances which are true and accurate to the best of my knowledge and belief.

Wayne H. Jens

WAYNE H. JENS
Vice President - Nuclear Operations

On this 3rd day of November 1983, before me personally appeared Wayne H. Jens, being first duly sworn and says that he executed the foregoing as his free act and deed.

James J. Morgan

Notary Public

JAMES J. MORGAN
Notary Public, Oakland County, MI
My Commission Expires Jan. 3, 1987
Acting in Monroe County Michigan

DETROIT EDISON

ENRICO FERMI 2

RESPONSE TO GENERIC LETTER 83-28

NOVEMBER 1983

DETROIT EDISON
ENRICO FERMI 2

RESPONSE TO GENERIC LETTER 83-28

TABLE OF CONTENTS

DETROIT EDISON
ENRICO FERMI 2

RESPONSE TO GENERIC LETTER 83-28

ITEM 1.1 POST-TRIP REVIEW (PROGRAM DESCRIPTION AND PROCEDURE)

NRC Position - Licensees and applicants shall describe their program for ensuring that unscheduled reactor shutdowns are analyzed and that a determination is made that the plant can be restarted safely.

Fermi 2 Response

The Detroit Edison Company has a post-trip review program that will be used during the operation of Fermi 2 to ensure that unscheduled reactor shutdowns are analyzed to determine if the plant can be restarted safely. The controlling procedure for this program is draft Operations Procedure - Administrative, Number 21.000.03, "Post-Scram Evaluation and Re-Start Authorization". A copy of this procedure is attached to this report.* This procedure is consistent with the Nuclear Operations Directive Number 21, "Effective Problem Solving", also attached to this report. (A Nuclear Operations Directive is a policy document, issued by the Vice President of Nuclear Operations, communicating policy to Detroit Edison managers, supervisors and employes.) The recently issued INPO "Good Practice" document on post-trip reviews is being reviewed and its recommendations will be incorporated, where appropriate, into the present Fermi 2 procedure.

The following is an item-by-item summary of the Fermi 2 post-trip program compared to NRC Generic Letter 83-28 positions.

ITEM 1.1.1 NRC Request - Describe the criteria for determining the acceptability of restart.

Fermi 2 Response

The criteria for determining the acceptability of restart is defined in draft Operations Procedure-Administrative, 21.000.03, "Post-Scram Evaluation and Restart Authorization." The specific procedural requirements satisfy the following three basic criteria:

- Has the reactor plant responded properly with all applicable safety systems functioning as required?

*All of the Detroit Edison procedures referenced in this response to NRC Generic Letter 83-28 are referenced to demonstrate implementation of the responses, but they are not referenced to document commitments to the NRC. These procedures are controlled, living documents that may change depending on Fermi 2 operational and organizational needs.

- o Has the cause of the reactor scram been determined and adequately explained?

- o Are shift supervisory personnel satisfied that no unreviewed safety questions exist?

If responses to any of the above criteria are negative, an independent engineering analysis and a thorough administrative review and reporting process is required prior to any restart authorization.

ITEM 1.1.2 NRC Request - Describe the responsibilities and authorities of personnel who will perform the review and analysis of these events (unscheduled reactor shutdowns).

Fermi 2 Response

The Nuclear Shift Supervisor (NSS) has the following responsibilities for the post-trip review program (as identified in Operations Administrative Procedure 21.000.03):

- o Ensure that the plant is stable and in a safe condition.

- o Complete the Post-Scram Data and Evaluation Form.

- o Consult with the Shift Technical Advisor (STA) in making the restart determination and ensure that the criteria of Item 1.1.1 are met.

- o Contact the Technical Engineer as required by procedure.

- o Provide documentation of the restart authorization.

The NSS has the authority to initiate a restart only if all criteria are met. The NSS has other recording, reporting and informing responsibilities in accordance with the overall Fermi 2 operations administrative program which compliment these efforts and provide for management review of his decisions.

The Shift Technical Advisor (STA) has the following responsibilities for the post-trip review program:

- o To consult with the Nuclear Shift Supervisor on determining the acceptability of a plant restart based on his review of the Post-Scram Data and Evaluation Form.

- o To provide input to the Nuclear Shift Supervisor concerning any unreviewed safety question that he believes may exist.

The Shift Technical Advisor reports by a matrix organization to the Nuclear Engineering department from which he can obtain additional technical assistance.

The Technical Engineer has the responsibility to perform a post-scram engineering review and issue a report of this review to the Superintendent-Nuclear Production to determine that the cause of any failure to meet the restart criteria (improper system response, inability to determine the cause of the scram, or an unreviewed safety question) has been thoroughly analyzed, determined, corrected and documented.

The Technical Engineer will draw on all available resources; informational and personnel, as necessary, to thoroughly address the technical issues raised. Informational resources available are parameters recorded in the Post-Scram Data and Evaluation Form by the Nuclear Shift Supervisor, as well as other information sources such as printouts from: sequence of events recorders, the process computer, and strip chart, as indicated in the response to Item 1.2, "Post-Trip Review Data and Information Capability." Personnel resources available are the operations, technical, and maintenance sections of the Nuclear Production department, and the Nuclear Engineering and Nuclear Administration departments.

The Superintendent - Nuclear Production has the responsibility for restart approval when any of the criteria of Item 1.1.1 are responded to negatively. He is to ensure that the cause of the failure to meet the restart criteria (improper system response, inability to determine the cause of the scram, or an unreviewed safety question) has been thoroughly analyzed, determined, corrected, and documented. Following this review and after consultation with the Technical Engineer and other personnel, as necessary, the Superintendent-Nuclear Production has the authority to approve a reactor plant restart.

The Operations Engineer has the following administrative responsibilities concerning the post-trip review effort:

- To conduct a post-event review of the Post-Scram Data and Evaluation Form.

- To ensure proper documentation of the authorization for plant restart, whether by Nuclear Shift Supervisor or Superintendent-Nuclear Production.

These specific responsibilities are included in the general responsibilities of the Operations Engineer which are defined in the overall operations administrative program. These responsibilities ensure that the Operations Engineer is actively involved in the review of any abnormal plant responses, corrective actions, and all decisions for a plant startup or restart.

In addition to these pre-restart activities, there are several follow-on analysis and review activities conducted following restart. Any scram requiring a post-scram engineering review by the Technical Engineer will also require an Internal Incident Report to be written and reviewed under the guidelines contained in the Administrative Procedure - General, Number 12.000.47, "Incident Reporting System." This procedure requires formal review of the Internal Incident Report by the Technical Engineer and by the

On-Site Safety Review Organization (OSRO). All Internal Incident Reports are also reviewed within the Fermi 2 Nuclear Operating Experience Reviews program. This program is described in the Nuclear Operations Program Description NOP-105, "Nuclear Operating Experience Reviews." Additionally, both the Nuclear Engineering department and the Nuclear Safety Review Group will receive copies of the post-scram evaluation and will selectively review the evaluation. When determined appropriate, these groups will conduct a detailed re-evaluation of the scram.

ITEM 1.1.3 NRC Request - Describe the necessary qualifications and training for the responsible personnel.

Fermi 2 Response

The qualifications and training of personnel responsible for the review, analysis, and restart authorization are presented in the FSAR, Sections 13.1 and 13.2. This training will be augmented to include special training on the conduct of post-scram reviews at Fermi 2 including the use of the sequence of events recorders and other devices providing important information.

ITEM 1.1.4 NRC Request - Describe the sources of plant information necessary to conduct the review and analysis. The sources of information should include the measures and equipment that provide the necessary detail and type of information to reconstruct the event accurately and in sufficient detail for proper understanding. (See Item 1.2)

Fermi 2 Response

The Post-Scram Data and Evaluation Form provides the Nuclear Shift Supervisor and the Shift Technical Advisor with the plant parameters and equipment status indications that are necessary to determine if the plant can meet the following basic restart criteria:

- Has the reactor plant responded properly with all applicable safety systems functioning as required?
- Has the cause of the reactor scram been determined and adequately explained?
- Are shift supervisory personnel satisfied that no unreviewed safety questions exist?

Additional sources of plant information are made available to the Technical Engineer for his detailed engineering analysis, if the restart criteria of the Post-Scram Data and Evaluation Form cannot be met. Additional instrumentation and sources of plant information are specified in the response to Item 1.2, "Post-Trip Review-Data and Information Capability."

ITEM 1.1.5 NRC Request - Describe the methods and criteria for comparing the event information with known or expected plant

behavior (e.g., that safety-related equipment operates as required by the Technical Specifications or other performance specifications related to the safety function).

Fermi 2 Response

The Fermi 2 post-trip review program compares actual event information with expected system response or behavior. The criteria for "expected" system or plant behavior is determined through the overall Fermi 2 operations program.

The training received by Fermi 2 operators, Nuclear Shift Supervisors, and Shift Technical Advisors includes general operating, operating surveillance, abnormal operating, and alarm response procedures. These procedures are written to satisfy Technical Specifications and in accordance with system design specifications. The procedures identify the proper system response and behavior criteria. The operating logs and an operational experience assessment program provide additional specific value criteria for both normal and experienced abnormal plant behavior.

ITEM 1.1.6 NRC Request - Describe the criteria for determining the need for independent assessment of an event (e.g., a case in which the cause of the event cannot be positively identified, a competent group such as the Plant Operations Review Committee, will be consulted prior to authorizing re-start) and guidelines on the preservation of physical evidence (both hardware and software) to support independent analysis of the event.

Fermi 2 Response

As previously described in the responses to Item 1.1.1 and Item 1.1.2, the Fermi 2 post-trip review program always requires an independent assessment if the Nuclear Shift Supervisor and the Shift Technical Advisor concur that any of the following basic criteria cannot be met:

- Has the reactor plant responded properly with all applicable safety systems functioning as required?
- Has the cause of the reactor scram been determined and adequately explained?
- Are shift supervisory personnel satisfied that no unreviewed safety questions exist?

The direct involvement of the Technical Engineer, the Superintendent-Nuclear Production, and the resources available to them such as the Nuclear Engineering department, provide the necessary independent assessment. In addition, an Internal Incident Report would have to be documented, (as described under Item 1.1.2), and reviewed by the Technical Engineer and the On-Site Safety Review Organization (OSRO).

The completed Post-Scram Data and Evaluation Form along with the printouts, graphs and recordings discussed in Item 1.2, includes the essential physical evidence necessary for an independent analysis of an event.

Item 1.1.7 NRC Request - Items 1.1.1 through 1.1.6 above are considered to be the basis for the establishment of a systematic method to assess unscheduled reactor shutdowns. The systematic safety assessment procedures compiled from the above items, which are to be used in conducting the evaluation, should be in the report.

Fermi 2 Response

Operations Administrative Procedure, 21.000.03, "Post-Scram Evaluation and Re-Start Authorization" contains the Fermi 2 post-trip review safety assessment method. As part of the Plant Operating Manual, any personnel responsibilities, authorities, or functions specified in Procedure 21.000.03, are consistent with and subject to plant administrative policies and practices.

ITEM 1.2 POST-TRIP REVIEW - DATA AND INFORMATION CAPABILITY

NRC Position - Licensees and applicants shall have or have planned a capability to record, recall and display data and information to permit diagnosing the causes of unscheduled reactor shutdowns prior to restart and for ascertaining the proper functioning of safety-related equipment.

Adequate data and information shall be provided to correctly diagnose the cause of unscheduled reactor shutdowns and the proper functioning of safety-related equipment during these events using systematic safety assessment procedures (Action 1.1). The data and information shall be displayed in a form that permits ease of assimilation and analysis by persons trained in the use of systematic safety assessment procedures.

Fermi 2 Response

The Detroit Edison Company has installed the necessary data and information systems at Fermi 2 to permit diagnosing the causes of unscheduled reactor shutdowns and determining the proper functioning of safety-related equipment. The Fermi 2 systems used to provide the diagnoses and determinations as required by draft Operations Procedure - Administrative Number 21.000.03, "Post-Scram Evaluation and Re-Start Authorization" include printouts from two sequence of events recorders, strip charts, and the plant process computer. The data and information provided by these systems allow for a complete systematic assessment of unscheduled reactor shutdowns. The following is an item-by-item summary of the Fermi 2 data and information systems compared to NRC positions.

ITEM 1.2.1 Capability for assessing sequence of events (on-off indicators).

ITEM 1.2.1.1 NRC Request - Provide a brief description of equipment.

Fermi 2 Response

Two dedicated sequence of events recorder systems have been provided for assessing the sequence of events on Fermi 2. The primary sequence of events recorder has a capacity of 2200 inputs and includes both nuclear steam supply (reactor protection system trip logic) and balance-of-plant (BOP) signals. The second smaller sequence of events recorder has a capacity of 120 inputs and is dedicated to monitoring the reactor protection system trip logic only. Each system shares the same input logic contacts, but are isolated from each other by optical coupling devices. The primary recorder displays the recorded sequence on two printers located on the operators record desk in the main control room. The smaller recorder is located in the equipment cabinet in the relay room.

ITEM 1.2.1.2 NRC Request - Discuss parameters monitored.

Fermi 2 Response

The primary trip variables for each scram channel of the Reactor Protection System (RPS) are monitored by both sequence of events recording systems. The resulting RPS sequence data set currently consists of approximately 54 inputs. A summary of the monitored reactor protection system variables is included in Table 1.2.1.2. Each variable generally requires several inputs.

ITEM 1.2.1.3 NRC Request - Describe time descrimination between events.

Fermi 2 Response

Both dedicated sequence of events recording systems have the ability to resolve events to one millisecond.

ITEM 1.2.1.4 NRC Request - Describe the format for displaying data and information.

Fermi 2 Response

The format of the data and information printed on the primary sequence of events recorder includes: the type of event; the time of event in hours, minutes, seconds and milliseconds of real time; a four digit point identification; and an alpha-numeric description of the event. The format for the smaller recorder, which only prints the RPS trip logic data, is similar but without the alpha-numeric description.

ITEM 1.2.1.5 NRC Request - Discuss capability for retention of data and information.

Fermi 2 Response

Both sequence of events recording systems provide infinite retention capability since the final records are printed on hard copy.

ITEM 1.2.1.6 NRC Request - Describe the power sources.

Fermi 2 Response

Both sequence of events recording systems are powered directly from the plant BOP battery. All of the associated AC operated devices are supplied by battery inverters making both sequence of events recorders independent of AC power supplies.

ITEM 1.2.2 Capability for assessing the time history of analog variables needed to determine the cause of unscheduled reactor shutdowns, and the functioning of safety-related equipment.

ITEM 1.2.2.1 NRC Request - Provide a brief description of equipment (e.g., plant computer, dedicated computer, strip charts).

Fermi 2 Response

The ability to record the important analog variables needed to determine the cause of unscheduled reactor scrams has been provided by two distinct techniques at Fermi 2. The first method is through the use of dedicated strip chart recording devices located on the control room operating panels. The second method provided is the post-scram log generated by the plant process computer.

ITEM 1.2.2.2 NRC Request - Describe parameters monitored, sampling rate, and basis for selecting parameters and sampling rate.

Fermi 2 Response

Reactor parameters which are used to determine the cause of scrams and the proper functioning of safety-related equipment are pressure, water level, and neutron flux level which are continuously recorded on strip chart recorders. The computer post-scram log of the process computer is triggered into operation by a reactor scram, and will record 15 preselected analog variables at a rate which samples each point every 5 seconds. Parameters are selected to allow rapid determination that the reactor safety analysis limits were not exceeded and include: neutron flux, reactor pressure, core pressure, feedwater flow, reactor water level, steam flow, recirculation flow, and feedwater temperature.

ITEM 1.2.2.3 NRC Request - Describe the duratation of the time history (minutes before trip and minutes after trip).

Fermi 2 Response

The recordings produced by the dedicated strip chart recorders are continuous, and therefore the entire time history is available. The post-scram log on the plant process computer provides the values of the variables for a period of 5 minutes before and after the scram occurs.

ITEM 1.2.2.4 NRC Request - Describe the format for displaying data including scale (readability) of time histories.

Fermi 2 Response

The format of the dedicated recorders are major divisions linearly spaced over the range of the instrument. Intermediate range neutron flux is a manually ranged variable and is scaled 0 to 40 and 0 to 125 percent; power range neutron flux is scaled from 0 to 125 percent, reactor pressure is scaled from 0 to 1500 psig and the wide range water level is scaled from 10 to 220 inches above the top of active fuel. Flux recorders have a readability of 1 percent, pressure 20 psig, and level 2 inches.

The plant computer system will provide a table of point identification numbers, and point descriptions followed by the pre-scram and post-scram values of the variables.

ITEM 1.2.2.5 NRC Request - Describe the capability for retention of data, information, and physical evidence (both hardware and software).

Fermi 2 Response

For both types of analog recording, the use of a printed record results in infinite retention capability. The process computer log is automatically archived on magnetic tape for future use by the plant staff.

ITEM 1.2.2.6 NRC Request - Describe the power source(s) (e.g., class IE, non-class IE, noninterruptible).

Fermi 2 Response

Power is supplied to the level and pressure recorders by Class 1E battery inverters. A BOP uninterruptible power supply provides the power for the neutron monitor recorders. The plant process computer is supplied by a highly reliable non-class 1E AC power source.

ITEM 1.2.3 NRC Request - Describe other data and information provided to assess the cause of unscheduled reactor shutdowns.

Fermi 2 Response

Fermi 2 will have an additional system that can also be used for post-scram logging of transient and accident events. This is the Emergency Response Information System (ERIS) computer system described in Appendix H.III.A.1.2.7 of the Fermi 2 FSAR.

ITEM 1.2.4 NRC Request - Provide the schedule for any planned changes to existing data and information capability.

Fermi 2 Response

No changes are planned for the existing Fermi 2 data and information systems. The ERIS system is expected to be functional by September, 1984, as described in Detroit Edison letter EF2-62,262 to the NRC dated June 23, 1983.

Table 1.2.1.2

Reactor Protection System Variables Monitored by the
Fermi 2 Sequence of Events Recorders

1. APRM Upscale Trip on Level.
2. Scram Discharge Volume High Water Level.
3. IRM Upscale Trip on Level.
4. Reactor Neutron Monitor System Trip.
5. Reactor Vessel Low Water Level.
6. Main Steam Line Isolation Valve Closure.
7. Reactor Vessel High Pressure.
8. Primary Containment High Pressure.
9. Manual Scram.
10. Reactor Scram.
11. Turbine Control Valve Fast Closure.
12. Turbine Stop Valve Closure.
13. Main Steamline High Radiation.

ITEM 2.1 EQUIPMENT CLASSIFICATION AND VENDOR INTERFACE (REACTOR TRIP SYSTEM COMPONENTS)

ITEM 2.1.1 Equipment Classification (Reactor Trip System Components).

NRC Position - Licensees and applicants shall confirm that all components whose functioning is required to trip the reactor are identified as safety-related on documents, procedures and information handling systems used in the plant to control safety-related activities, including maintenance, work orders, and parts replacement.

Fermi 2 Response

Detroit Edison has identified all components of the Reactor Trip System (RTS) which should be classified as safety-related for Fermi 2. These components include all active components of existing plant systems that function to implement a reactor scram. The following documents and procedures used in the plant to control safety-related activities, including maintenance, work orders and parts replacement, are being reviewed to ensure that these components are appropriately identified as safety-related:

- o Documents - Drawings (P&ID's, Schematics) and Equipment History Folders (where applicable), Master Instrument List, Mechanical Equipment List, QA1 Major Electrical Equipment List, QA Level 1 Electrical Cables List, QA Level 1 Valves List, and QA1-Motor List.

- o Procedures - Surveillance and Maintenance Administrative Controls.

The preliminary results of this review indicate that Fermi 2 has already established sufficient administrative controls and procedural practices to meet this position.

Detroit Edison intends to complete this review and correct any deficiencies to ensure that all documents and procedures are complete, accurate, and identified as safety-related for all Reactor Trip System components. It is estimated that this task will be completed by April 1, 1984.

Detroit Edison also is an active participant in a BWR Owners Group considering special programs in this area. Detroit Edison will use the results of these programs, as appropriate, to check its equipment classification and safety-related document identification program.

ITEM 2.1.2 Vendor Interface (Reactor Trip System Components).

ITEM 2.1.2.1 NRC Position - For these components, applicants shall establish, implement and maintain a continuing program to ensure that vendor information is complete, current and controlled throughout the life of the plant, and appropriately referenced or incorporated in plant instructions and procedures.

Fermi 2 Response

Detroit Edison's current program to control vendor information including Reactor Trip System (RTS) components is discussed in Item 2.2.2.1.

The experience gained from this current program will be used to establish an improved vendor information program, as discussed in Item 2.2.2.1, to be used during the operation of Fermi 2. The Reactor Trip System is included in this program and will be the first part of the program implemented. For the Reactor Trip System, the program will meet the following requirements:

1. The responsibilities for the receipt, review, approval, distribution, and use of vendor manuals and related vendor information pertinent to the Reactor Trip System (RTS) components will be established.

2. Specific administrative controls for the receipt, storage and distribution of vendor information pertinent to RTS components will be established.

3. Technical controls necessary to provide for the technical review, approval, and use of vendor information, including the control of revisions or changes to the vendor information pertinent to RTS components, initiated either by Detroit Edison or the vendor, will be established.

Detroit Edison will establish the appropriate arrangements to ensure that information for the RTS components is complete, current, and its use controlled throughout the life of the plant. The estimated schedule for implementation of this improved vendor information program for the RTS is June 1, 1984.

ITEM 2.1.2.2 NRC Position - Vendors of these components should be contacted and an interface established. Where vendors cannot be identified, have gone out of business, or will not supply the information, the licensee or applicant shall assure that sufficient attention is paid to equipment maintenance, replacement, and repair, to compensate for the lack of vendor backup, to assure reactor trip system reliability. The vendor interface program shall include periodic communication with vendors to assure that all applicable information has been received. The program should use a system of positive feedback with vendors for mailings containing technical information. This could be accomplished by licensees acknowledging receipt of technical mailings. The program shall also define the interface and division of responsibilities among the licensees and the nuclear and nonnuclear divisions of their vendors that provide service on reactor trip system components to assure that requisite control of and applicable instructions for maintenance work are provided.

Fermi 2 Response

The existing interface between Detroit Edison and General Electric (our prime RTS component supplier) includes GE initiated Service Information Letters (SIL's), Application Informations Document (AID's) and other specific GE technical letters directed to Detroit Edison. Detroit Edison presently has a controlled process to receive, review, approve, control, and utilize such information. The Operating Experience Review (OER) Program at Detroit Edison includes GE originated SIL's and AID's as well as INPO originated reports (SER, SOER, AND O&MR's), NRC I&E Bulletins, Circulars, and Notices, and other miscellaneous documents including INPO "NOTEPAD" generated questions or items applicable to Detroit Edison.

In support of this ongoing effort, Detroit Edison in 1982, backordered all SIL's designated by General Electric to be potentially applicable to Fermi 2, to assure that all such SIL's have been addressed. A system will be established to ensure receipt of all applicable SIL's. This review program is described in Nuclear Operations Program Description NOP-105, "Nuclear Operating Experience Reviews."

To further enhance the vendor interfaces, Detroit Edison will be contacting RTS component suppliers to update vendor information pertinent to RTS components. The schedule for the completion of this RTS vendor interface activity is June 1, 1984. Detroit Edison is an active participant in the BWR Owners Group Committee and the Nuclear Utility Task Action Committee (NUTAC) Group on Generic Letter 83-28. Detroit Edison will consider Owners Group and NUTAC recommendations as they are developed and will modify its vendor interface program based on these recommendations, as appropriate.

The primary source of RTS components vendor information are the operational and/or maintenance manuals provided to Detroit Edison by General Electric or other vendors. These documents generally contain: component or system operating procedures, preventive maintenance requirements, calibration procedures, removal/replacement instructions, post-maintenance test procedures, component parts list and related drawings as appropriate. The use of this vendor information by plant personnel in conducting the required maintenance, operations, calibration, parts replacement, and other related activities will be accomplished as described in Item 2.2.2.1.

ITEM 2.2 EQUIPMENT CLASSIFICATION AND VENDOR INTERFACE (PROGRAMS FOR ALL SAFETY-RELATED COMPONENTS)

ITEM 2.2.1 Equipment Classification (Programs For All Safety-Related Components).

NRC Position - For equipment classification, licensees and applicants shall describe their program for ensuring that all components of safety-related systems necessary for accomplishing required safety functions are identified as safety-related on documents, procedures, and information handling systems used in the plant to control safety-related activities, including maintenance, work orders and replacement parts.

ITEM 2.2.1.1 NRC Request - Describe the criteria for identifying components as safety-related within systems currently classified as safety-related. This shall not be interpreted to require changes in safety classification at the systems level.

Fermi 2 Response

The general basis used for identifying safety-related structures, equipment and components is described in the FSAR, Section 3.2. If credit is taken for operation of any system or component to (a) prevent or mitigate the consequences of accidents and malfunctions originating within the reactor coolant pressure boundary (RCPB), (b) permit shutdown of the reactor and maintain it in the safe shutdown condition, and (c) contain radioactive material; then that system, component, or structure is designated safety-related.

Many systems and components were identified by the NSSS vendor (General Electric) as safety-related in the original design. Systems were also developed by Edison for which Design Instructions and P&ID's were prepared. The Design Instructions and P&ID's were prepared utilizing input from General Electric and the Fermi 2 PSAR. The Design Instructions provide essential information describing the system function, which would include the safety-related status. The Design Instructions were written based upon a generic guide so that all essential information is provided. The P&ID's augment the information of the Design Instructions, showing all major components of the system, also including the safety-related system classification. In general, all components associated with a system designated to be safety-related are, in fact, safety-related. The designer made this assumption unless there was concrete evidence that the component does not perform a safety-related function.

Additions or modifications to systems were made during the design and construction phase of Fermi-2. Revisions or additions to systems, including classification of added or changed components, were controlled utilizing procedure based multiple levels of review.

To aid in component identification, various lists were prepared as part of the design process. The lists identify components by Plant Identification System (PIS) number and include a safety classification. Procedures were developed to control the information on the lists. These equipment lists have been subject to review and audit.

For maintenance and surveillance, procedures have been, and continue to be developed for identification of safety-related components. The procedures generally require reference to design documents, drawings or lists for classifications of components.

For procurement of spare parts for maintenance, procedures have been written requiring technical review of all requisitions. The technical reviewer's procedure includes guidance for determining the safety classification of a sub-component in accordance with the definition referenced above. Review and signature by the Procurement Quality Assurance section and the responsible Section Head is also required.

The criteria and methodology described above adequately and conservatively identify safety-related components because:

1. Adequate direction in the form of Design Specifications was obtained from the NSSS vendor to identify systems and components in vendor supplied systems as safety-related.

2. P&ID's and Design Instructions were prepared by Detroit Edison which include identification of safety-related status (subject to multi-level review and approval).

3. Within safety-related systems, designers designated components and sub-components as safety-related unless there was justification that the component or sub-component did not perform a safety function.

4. Any change addition or deletion affecting safety-related components is subject to multi-level review.

5. For maintenance, surveillance and parts procurement, procedures are prepared, or in the process of being prepared, which require either: the careful review of existing Fermi 2 documents to obtain the predetermined safety classification, or the evaluation of the component function to determine the safety-related status.

ITEM 2.2.1.2 NRC Request - Provide a description of the information handling system used to identify safety-related components (e.g., computerized equipment list) and the methods used for its development and validation.

Fermi 2 Response

The information handling system for Fermi 2 includes equipment and components identified in FSAR Section 3.2 (Table 3.2-1), electrical diagrams, P&ID's and equipment lists at the component level. The Fermi 2 information

handling system was developed using the methodology described in Item 2.2.1.1 and identifies safety-related equipment on a component level.

Detroit Edison procedures require that these documents be reviewed and approved by several levels within the Fermi 2 organization, and revision control is required for future changes.

These documents, which are available to plant personnel, contain the predetermined safety classification of plant components. The equipment and components are identified by Plant Identification System (PIS) numbers, which is a numbering system that station personnel are familiar with and use routinely. This system, developed by the Fermi 2 Project, has been validated by review and audit. Provisions within Detroit Edison's Quality Assurance Program assures that the information handling system is maintained current, and that revisions are controlled.

ITEM 2.2.1.3 NRC Request - Provide a description of the process by which station personnel use this information handling system to determine that an activity is safety-related and what procedures for maintenance, surveillance, parts replacement and other activities defined in the introduction to 10CFR50, Appendix B, apply to safety-related components.

Fermi 2 Response

As outlined below, Fermi 2 has approved procedures controlling activities for safety-related components during maintenance, surveillance, parts replacements and other activities as defined in the introduction to 10CFR50 Appendix B. These approved procedures assure that safety-related components are treated as such during plant activities. The predetermined safety classification minimizes the potential for errors which might result from determinations made on a case-by-case basis. The process pertaining to these activities is summarized below:

Procurement, Storage, and Spare-Parts Replacement

When a replacement component is ordered, the component is evaluated to determine whether or not it is safety-related. A technical evaluation is performed using approved procedures. In accordance with these procedures, the design, qualification, and quality assurance requirements are specified for safety-related components. This information is applied to the purchase order, receipt inspection, storage, and issuance of safety-related components. The user of a spare or replacement component is required to specify the safety classification of the component based on its application, and on the predetermined classification in the information handling system.

Maintenance and Surveillance

Prior to the commencement of maintenance and surveillance activities, Work Orders are prepared and processed in accordance with the approved Plant Procedure 12.000.15, "PN-21 Work Order Processing." During Work Order

preparation and review, approved procedures are used to determine a component's safety classification. At a minimum, the contents of a Work Order considers and documents the disposition of the following: (1) safety classification; (2) applicable plant procedures; (3) controlled drawings; (4) quality assurance requirements; and (5) reviews and approvals pertinent to the maintenance and/or surveillance of the component.

Approved plant procedures (as designated within the Work Order) govern the actual performance of: (1) routine and non-routine preventative maintenance; (2) non-routine corrective maintenance; (3) routine surveillance; and (4) post-maintenance testing (see Item 3.2).

ITEM 2.2.1.4 NRC Request - Describe the management controls utilized to verify that the procedures for the preparation, validation, and routine utilization of the information handling system have been followed.

Fermi 2 Response

Administrative procedures and the Detroit Edison quality assurance program for Fermi 2, control activities and procedures related to the information handling system. These controls govern the preparation, validation and routine use of the information handling system. The controls provide for checks, reviews, approvals, controlled documents and QA audits related to safety-related activities. These provisions help assure that approved procedures are followed. Furthermore, a complete review of the adequacy of the administrative controls is performed by the Onsite Review Organization (OSRO). This review will assist in ensuring the routine utilization of specified management controls by plant personnel.

ITEM 2.2.1.5 NRC Request - Demonstrate that appropriate design verification and qualification testing is specified for procurement of safety-related components. The specifications shall include qualification testing for expected safety service conditions, and provide support for the licensee's receipt of testing documentation to support the limits of life recommended by the supplier.

Fermi 2 Response

The program for component procurement includes a technical evaluation which assures that the appropriate design verification and qualification testing is specified for procurement of safety-related components. This program includes: approved procedures which require a determination of the safety classification of the component (MI-245, Maintenance Instruction - "Criteria for Technical Review"), the environmental conditions associated with the in-plant application of the component, and the qualification testing requirements for the component.

Plant personnel perfcrm these activities using approved procedures. These procedures include the use of predetermined information contained in the information handling system. This process is subject to audit under the Detroit Edison quality assurance program for safety-related components.

ITEM 2.2.1.6 NRC Request - Licensees and applicants need only to submit for staff review the equipment classification program for safety-related components. Although not required to be submitted for staff review, your equipment classification program should also include the broader class of structures, systems, and components important to safety required by GDC-1 (defined in 10CFR Part 50, Appendix A, "General Design Criteria, Introduction").

Fermi 2 Response

The Fermi 2 program for classification of safety-related components is described above in Items 2.2.1.1 through 2.2.1.5. Detroit Edison, in addition, has generally applied design and quality standards to nonsafety-related structures, systems, and components in a manner comensurate with the functions of such items in the overall safety and operation of the plant. Detroit Edison is also an active member of the Utility Safety Classification Group and will specifically respond to the NRC on this issue based on the Group's recommendation. Detroit Edison is confident that the quality and design standards which were used for Fermi 2 adequately ensure nonsafety-related equipment will perform its intended function.

ITEM 2.2.2 Vendor Interface (All Safety-Related Components).

ITEM 2.2.2.1 NRC Request - For vendor interface, licensees and applicants shall establish, implement and maintain a continuing program to ensure that vendor information for safety-related components is complete, current and controlled throughout the life of their plants, and appropriately referenced or incorporated in plant instructions and procedures.

Fermi 2 Response

Detroit Edison's current program to control vendor information is documented in project procedures used for the design and construction of Fermi 2. These project procedures provide the following:

1. The administrative procedures necessary to receive, control, store and distribute vendor information (drawings and documents, exclusive of manuals).

2. The administrative procedures necessary to receive and distribute vendor operations and maintenance manuals.

3. The procedures for technical review, approval and control of the use of vendor drawings and documents and any revisions to them (initiated either by Detroit Edison or the vendor).

Detroit Edison is currently establishing an improved vendor information program to be used during the operation of Fermi 2. This program will be based on the experience gained during the construction of the plant.

The vendor information program at Fermi 2 will include:

1. Specific identification of responsibilities for the receipt, review and approval, distribution, and use of vendor manuals and related vendor information pertinent to safety-related components.

2. Establishment of the administrative controls necessary to provide for the receipt, storage and distribution of vendor information pertinent to safety-related components.

3. Provisions for the technical review, approval, and use of vendor information, including the control of revisions or changes to the vendor information.

Procedures are being established to define, implement, document, and maintain a program to ensure that vendor supplied information of safety-related components is complete, current, and their use controlled throughout the life of the plant. The schedule for the implementation of this vendor information program is June 1, 1983.

The organizational responsibilities for the implementation of the vendor information program will include the following activities by the organizational units of Nuclear Operations:

1. Nuclear Administration:

   Information Systems - Receive and process all manuals, supplements, revisions, and Engineering Change Notices. Nuclear Administration's Automated Records Management System (ARMS) will contain applicable information necessary for identification, control, and retrieval. The ARMS listing will show:

   a. Document status

   b. Document revision level

   c. Document number

   d. Originator

   e. Reference to the component or sub-system

   Information Systems shall record, film and establish controlled files in the Production Information Center, from which all vendor information is checked out. Vendor information will be available to all users on an around the clock basis. Only "approved for use" materials (or copies of) will be distributed to users. Attached to each document will be a cover sheet clearly stating its review and revision status and the statement "controlled."

   Nuclear Procurement - Order new, lost or replacement vendor information as requested by Nuclear Engineering, Nuclear Production or

Nuclear Administration. Nuclear Procurement will initiate contact with vendors as required to obtain updates or new information pertinent to safety-related vendor supplied components.

NOTE: This process is subject to considerations and actions of the Nuclear Utility Task Action Committee (NUTAC) on Generic Letter 83-28 and the related BWR Owners Group Committee.

2. Nuclear Engineering:

Will be responsible, with support from Nuclear Production personnel, as appropriate, for the technical review, evaluation and approval of vendor supplied information. Nuclear Engineering is also responsible for verification of assigned document numbers, and for approving and/or initiating and approving required Engineering Change Notices generated by any user.

3. Nuclear Production:

Will support Nuclear Engineering in the technical review and evaluation of vendor supplied information when requested. Additionally, Nuclear Production will be responsible for implementing the use of approved and controlled vendor supplied information. Nuclear Production will have access to the Production Information Center from which they will obtain the applicable, controlled information as necessary. The use of vendor information will be in accordance with approved plant procedures and instructions. Nuclear Production initiated modifications or changes to vendor supplied information will be controlled and approved by Nuclear Engineering, and documented as being approved, prior to use by plant personnel.

ITEM 2.2.2.2 NRC Request - Vendors of safety-related equipment should be contacted and an interface established. Where vendors cannot be identified, have gone out of business, or will not supply information, the licensee or applicant shall assure that sufficient attention is paid to equipment maintenance, replacement, and repair, to compensate for the lack of vendor backup, to assure reliability commensurate with its safety function (GDC-1). The program shall be closely coupled with action 2.2.1 above (equipment qualification). The program shall include periodic communication with vendors to assure that all applicable information has been received. The program should use a system of positive feedback with vendors for mailings containing technical information. This could be accomplished by licensee acknowledgement for receipt of technical mailings. It shall also define the interface and division of responsibilities among the licensee and the nuclear and nonnuclear divisions of their vendors that provide service on safety-related equipment to assure that requisite control of and applicable instructions for maintenance work on safety-related equipment are provided.

Fermi 2 Response

As discussed in Item 2.2.2.1, Detroit Edison has a program for interfacing with vendors during the construction phase of Fermi 2. The experience gained from this interfacing during construction will be used to establish the program for the operation of Fermi 2. Detroit Edison is also an active participant in a NUTAC group created to address this item. Detroit Edison intends to incoporate into its vendor interface program the results of the NUTAC group. These results are expected to be availabie for approval during February, 1984.

ITEM 3.1 POST-MAINTENANCE TESTING (REACTOR TRIP SYSTEM COMPONENTS)

ITEM 3.1.1 NRC Request - Licensees and applicants shall submit the results of their review of test and maintenance procedures and Technical Specifications to assure that post-maintenance operability testing of safety-related components in the reactor trip system is required to be conducted and that the testing demonstrates that the equipment is capable of performing its safety functions before being returned to service.

Fermi 2 Response

The Detroit Edison Company's committment to operate Fermi 2 in accordance with Plant Technical Specifications mandates the Fermi 2 post-maintenance test program for safety-related equipment. Periodic equipment and instrumentation operability testing is required by Plant Technical Specifications; Section 4.0, "Surveillance Requirements." These surveillance requirements call for a variety of tests to demonstrate the functional OPERABILITY of the associated equipment, system, or instrumentation channel and are required to be performed following any RTS maintenance.

The Plant Operations Manual (POM) includes the Nuclear Operations and I&C surveillance program procedures that implement the Technical Specification surveillance requirements and establish OPERABILITY of the associated equipment, system, or instrumentation channel. Plant Procedure 12.000.15, "PN-21 Work Order Processing," provides for specification of these post-maintenance testing requirements.

Prior to declaring a component OPERABLE (returning it to service) to meet a particular Limiting Condition for Operation (LCO), all the applicable surveillance requirements for the LCO will have been met. A computerized system correlating the specific surveillance procedure(s) to the specific surveillance requirement has already been established and will be operational prior to fuel loading.

The Nuclear Operations and I&C surveillance programs have been designed to facilitate post-maintenance testing. The divisional and channelized features of these programs will aid in the accurate identification of specific post-maintenance testing requirements. All components whose functioning is required to trip the reactor are demonstrated operable in these programs. These procedures are all safety-related and are approved by the On-site Safety Review Organization (OSRO).

The Fermi 2 Technical Specifications are still in the review and approval stage. If, during the Detroit Edison review, any changes are identified as necessary for the RTS, the changes and justification will be submitted for NRC review.

ITEM 3.1.2 NRC Request - Licensees and applicants shall submit the results of their check of vendor and engineering recommendations to ensure that any appropriate test guidance is included in the test and maintenance procedures or the Technical Specifications, where required.

Fermi 2 Response

Detroit Edison has endeavored to include applicable vendor and engineering recommendations in the development of its various procedures, programs and plant Technical Specifications. All such procedures reference the appropriate source material. This includes the updated material contained in General Electric's SIL's and AID's, as well as other experience related information, as it is processed through the Nuclear Operating Experience Reviews program described under item 2.1.2.2. Moreover, the existing administratively required periodic review of procedures (Administrative Procedure - General, Number 12.000.24, "Periodic Review of Plant Procedures") will be augmented in conjunction with the improved vendor information program, discussed under Items 2.1.2.1 and 2.2.2.1, to include a check to assure that current vendor and engineering recommendations are appropriately included in the relevant safety-related test and maintenance procedures. For the RTS related procedures, this will begin as soon as the relevant vendor information is updated as described under Item 2.1.2.1.

ITEM 3.1.3 NRC Request - Licensees and applicants shall identify, if applicable, any post-maintenance test requirements in existing Technical Specifications which can be demonstrated to degrade rather than enhance safety. Appropriate changes to these test requirements, with supporting justification, shall be submitted for staff approval.

Fermi 2 Response

The Fermi 2 Technical Specifications are still in the review and approval stage. If, during the Detroit Edison review and use of the Fermi 2 Technical Specifications, any requirements are discovered that degrade rather than enhance safety, the appropriate changes and justification will be submitted for NRC review.

ITEM 3.2 POST-MAINTENANCE TESTING (ALL OTHER SAFETY-RELATED COMPONENTS)

ITEM 3.2.1 NRC Request - Licensees and applicants shall submit a report documenting the extending of test and maintenance procedures and Technical Specifications review to assure that post-maintenance operability testing of all safety-related equipment is required to be conducted and that the testing demonstrates that the equipment is capable of performing its safety functions before being returned to service.

Fermi 2 Response

As discussed in our response to Item 3.1.1, post-maintenance testing is inherently required by plant Technical Specifications for all equipment, systems, or instrumentation channels covered by a Secton 4.0 surveillance requirement and a Limiting Condition for Operation.

The existing Fermi 2 computerized system that correlates specific surveillance requirements to the procedures that fulfill those requirements already extends to all systems covered by plant Technical Specifications. In addition, a prioritized Preventative Maintenance Program includes all other Technical Specifications related components*, not specifically required by Technical Specifications or covered by an individual surveillance procedure, and assigns them the highest priority category.

ITEM 3.2.2 NRC Request - Licensees and applicants shall submit the results of their check of vendor and engineering recommendations to ensure that any appropriate test guidance is included in the test and maintenance procedures or the Technical Specifications where required.

Fermi 2 Response

Detroit Edison has endeavored to include applicable vendor and engineering recommendations in the development of its various Nuclear Operations procedures, programs and plant Technical Specifications. All such procedures reference the appropriate source material. This includes appropriate vendor manuals as well as updated material contained in General Electric's SIL's and AID's and other experience related information as it is processed through the Nuclear Operating Experience Reviews Program described under Item 2.1.2.2. Moreover, the existing administratively required periodic review of all procedures (Administrative Procedure - General, 12.000.24, "Periodic Review of Plant Procedures") will be augmented in conjunction with the improved vendor information program discussed under Items 2.1.2.1 and 2.2.2.1. The improved vendor information program includes a check to assure that current vendor and engineering recommendations are appropriately included in the relevant safety-related test and maintenance procedures.

*Such as an instrument necessary in performing Technical Specification surveillance, but not germane to the Technical Specification itself.

ITEM 3.2.3 NRC Request - Licensees and applicants shall identify, if applicable, any post-maintenance test requirements in existing Technical Specifications which are perceived to degrade rather than enhance safety. Appropriate changes to these test requirements, with supporting justification, shall be submitted for staff approval.

Fermi 2 Response

The Fermi 2 Technical Specifications are still in the review and approval stage. If, during the Detroit Edison review of the Fermi 2 Technical Specifications, any requirements are discovered that degrade rather than enhance safety, the appropriate changes and justification will be submitted for NRC review.

(Items 4.1 thru 4.4 do not apply to boiling water reactors)

ITEM 4.5 REACTOR TRIP SYSTEM RELIABILITY (SYSTEM FUNCTIONAL TESTING)

NRC Position - On-line functional testing of the reactor trip system, including independent testing of the diverse trip features, shall be performed on all plants.

Fermi 2 Response

At Fermi 2 detailed surveillance requirements and sufficient administrative programs are "in place" to ensure that thorough on-line functional testing of the reactor trip system is performed. The following are responses to the specific requests of the NRC concerning this issue:

ITEM 4.5.1 NRC Request - The diverse trip features to be tested include the scram pilot valve and the backup scram valves (including all initiating circuitry) on GE plants.

Fermi 2 Response

The reactor trip system components at Fermi 2 that are required to function to cause a reactor scram fall into two categories:

1. Components required to function for the insertion of all rods (common).

2. Components required to function for the insertion of each individual rod (185 sets of these).

The components whose function is common to all rods are the initiating circuitry and the final output relays. All the diverse initiating circuits and final output relays are on-line functionally tested in accordance with plant Technical Specifications, Section 3.3.1, Reactor Protection System Instrumentation.

The components required to function for the insertion of the individual control rod (185 sets of these) are on-line functionally tested by a sample group in accordance with plant Technical Specifications, Section 3.1.3.2, "Control Rod Maximum Scram Insertion Times". This is accomplished by individually scramming at least 10% of the control rods, on a rotating basis, every 120 days of power operation. The 185 sets of pilot scram valves are included in this group of components.

The backup scram valves and associated logics are tested at each refueling outage (or every 18 months) in the Reactor Protection System Logic Functional Test in accordance with plant Technical Specifications, Section 3.3.1, "Reactor Protection System". Fermi 2 will also administratively require that the "low scram header pressure" alarm be acknowledged after each scram occurrence prior to resetting the scram logic. (This will

confirm that at least one of the backup scram valves has functioned properly.) The NRC has indicated that this is an adequate method to ensure the operability of the backup scram valves in NUREG-0979, Safety Evaluation Report related to the final design approval of the GESSAR II BWR/6 Nuclear Island Design (April 1983).

It should be noted that possible modifications to the RTS based on the NRC's final ATWS rule could change this response.

ITEM 4.5.2 NRC Request - Plants not currently designed to permit periodic on-line testing shall justify not making modifications to permit such testing. (Remainder of item applicable to licensees only.)

Fermi 2 Response

As indicated in the response to Item 4.5.1 above, Fermi 2 is designed to permit on-line testing of the reactor trip system. Therefore, this item is not applicable to Fermi 2.

ITEM 4.5.3 NRC Request - Existing intervals for on-line functional testing required by Technical Specifications shall be reviewed to determine that the intervals are consistent with achieving high reactor trip system availability when accounting for considerations such as:

1. uncertainties in component failure rates
2. uncertainty in common mode failure rates
3. reduced redundancy during testing
4. operator errors during testing
5. component "wear-out" caused by the testing

Licensees currently not performing periodic on-line testing shall determine appropriate test intervals as described above. Changes to existing required intervals for on-line testing as well as the intervals to be determined by licensees currently not performing on-line testing shall be justified by information on the sensitivity of reactor trip system availability to parameters such as the test intervals, component failure rates, and common mode failure rates.

Fermi 2 Response

Detroit Edison is an active member of the BWR Owner's Group currently undertaking a special study of the on-line testing intervals in Technical Specifications. Detroit Edison plans to use the results of this study as a basis for requesting/or not requesting changes to the existing on-line testing intervals in the Fermi 2 Technical Specifications. As Detroit Edison gains operational experience with Fermi 2, changes to testing intervals will also be considered, based on this operational experience.

ATTACHMENTS

Operations Procedure - Administrative Number 21,000.03
Post-Scram Evaluation and Re-Start Authorization

Nuclear Operations Directive Number 21
Effective Problem Solving

DRAFT

21.000.03

ENRICO FERMI ATOMIC POWER PLANT
UNIT NO. 2

Type: OPERATIONS PROCEDURE - ADMINISTRATIVE

INFORMATION ONLY

Title: POST-SCRAM EVALUATION AND RE-START AUTHORIZATION

DRAFT

TABLE OF CONTENTS

4

1.0 Purpose

1.1 The purpose of this procedure is to provide guidelines to the plant operating authority in defining the post-scram data requirements and the criteria for reactor re-start authorization.

2.0 References

*2.1 Administrative Procedure 12.000.10, "Plant Reporting Requirements". 4

*2.2 Administrative Procedure 12.000.47, "Incident Reporting System".

2.3 Operations Administrative Procedure 21.000.01, "Shift Operations and Control Room".

*2.4 Operations Administrative Procedure 21.000.06, "Documentation of Allowable Operating Transients".

3.0 Functions and Responsibilities

3.1 In the event of a Reactor Scram it shall be the responsibility of the Nuclear Shift Supervisor to assure that the Reactor Protection Systems and Reactivity Control Systems have operated properly to place the reactor in the required shutdown condition.

3.2 Following a Reactor Scram, the Nuclear Shift Supervisor or his delegate must notify the On-Call Plant Supervisor and provide information regarding the occurance of the scram and the status of the plant. This notification should be made as soon as practical but no later than thirty (30) minutes after the scram has occurred.

3.3 After the plant has been placed in a safe, stable condition following a Reactor Scram, the Nuclear Shift Supervisor must assure completion of the Post-Scram Data and Evaluation Form (Attachment 1). 4

3.4 If the information recorded on the Post-Scram Data and Evaluation Form indicates that:

3.4.1 The Reactor Protection Systems operated properly.

3.4.2 The Reactivity Control Systems operated properly.

3.4.3 No Emergency Core Cooling Systems were actuated with injection into the reactor vessel.

3.4.4 The initiating scram signal has been identified.

*Denotes "Use" Reference

4

4.5 The Operations Engineer or his delegate shall assure that the appropriate information derived from the circumstances prior to and following the reactor scram are documented and processed in accordance with References 2.1, 2.2 and 2.4.

POST-SCRAM DATA AND EVALUATION

1.0 Initial Condition Prior to Scram:

1.1 Reactor Mode Switch Position:

Shutdown ☐ Refuel ☐
Startup/Hot Standby ☐ Run ☐

1.2 Reactor Power, _____%.

1.3 Generator Gross Load, _____ Mwe.

1.4 Total Core Flow, _____ M#/hr.

1.5 Reactor Pressure, _____ PSIG.

1.6 Reactor Water Level, _____ IN.

1.7 Reactor Recirculation Loop A Flow _____ M#/hr.

1.8 Reactor Recirculation Loop B Flow _____ M#/hr.

1.9 RHR Division I mode/status _____.

1.10 RHR Division II mode/status _____.

1.11 Reactor Feedwater Control:

1. Master Control, MAN ☐ AUTO ☐
2. Elements selected, SINGLE ☐ THREE ☐
3. Reactor Feed Pump A, MAN ☐ AUTO ☐
4. Reactor Feed Pump B, MAN ☐ AUTO ☐

1.12 Reactor Pressure Regulator in Service, A ☐ B ☐

1.13 CRD Pump in service, A ☐ B ☐

2.0 Reactor Scram Data:

2.1 Time and Date of Reactor Scram, _____ / _____.

2.2 Control Room NSO on duty, _____.

2.3 Initiating Scram signal, _____.

2.4 Parameter value at which initiating scram signal occurred, _____.

4

POST-SCRAM DATA AND EVALUATION (con't)

3.0 Post-Scram Data

3.1 Did all operable control rods fully insert? YES ☐ NO ☐

1. List Control Rod number and notch for all operable control rods not fully inserted.

Rod _____, Notch _____
Rod _____, Notch _____
Rod _____, Notch _____
Rod _____, Notch _____
Rod _____, Notch _____
Rod _____, Notch _____
Rod _____, Notch _____
Rod _____, Notch _____

3.2 SRM's fully inserted YES ☐ NO ☐

3.3 SRM Count Rate and *Time:

1. SRM A _____ CPM, _____
2. SRM B _____ CPM, _____
3. SRM C _____ CPM, _____
4. SRM D _____ CPM, _____

3.4 Did any SRV's open? YES ☐ NO ☐

1. List Safety Relief Valve letter, opening mode, lift pressure, and reseat pressure for any SRV's that opened.

Valve _____, Mode _____, lift _____ PSIG, Reseat _____ PSIG
Valve _____, Mode _____, lift _____ PSIG, Reseat _____ PSIG
Valve _____, Mode _____, lift _____ PSIG, Reseat _____ PSIG
Valve _____, Mode _____, lift _____ PSIG, Reseat _____ PSIG
Valve _____, Mode _____, lift _____ PSIG, Reseat _____ PSIG
Valve _____, Mode _____, lift _____ PSIG, Reseat _____ PSIG
Valve _____, Mode _____, lift _____ PSIG, Reseat _____ PSIG
Valve _____, Mode _____, lift _____ PSIG, Reseat _____ PSIG

2. List SRV's which cycled and number of cycles, if known.

_____
_____
_____
_____
_____
_____
_____
_____

*Include date if different from scram date.

4

POST-SCRAM DATA AND EVALUATION (con't)

3.5 Did any isolations occur? YES ☐ NO ☐

1. List any isolations which occurred by group number.

3.6 Describe, if any, the actuation of any Safety Systems and the reason for their actuation.

*

4

4.0 Post-Scram Evaluation

4.1 Did Reactor Protection Systems operate properly? YES ☐ NO ☐

1. If NO, describe what improper operation was observed.

*Use additional attached description if necessary.

POST-SCRAM DATA AND EVALUATION (con't)

4.2 Did Reactivity Control Systems operate properly? YES ☐ NO ☐

If NO, describe what improper operation was observed.

4.3 Did any Emergency Core Cooling System actuate and inject into the reactor vessel? YES ☐ NO ☐

1. If YES, describe what system(s) actuated and what signals initiated the actuation.

4.4 Has the initiating scram signal as listed in 2.3 of this attachment been confirmed as the initiating scram signal?
YES ☐ NO ☐

1. If NO, describe the reasons for the non-confirmation.

4

POST-SCRAM DATA AND EVALUATION (con't)

4.5 Has the reason for the confirmed initiating scram signal been clearly explained? YES ☐ NO ☐

1. If NO, describe the reasons for the non-explanation.

4.6 Did all automatic initations which were required to function during the transient, initiate properly? YES ☐ NO ☐

1. If NO, describe which automatic initiation that failed to function and the corrective action taken.

4.7 Describe any plant response which appeared to be abnormal either before, during, or after the scram.

4

POST-SCRAM DATA AND EVALUATION (con't)

5.0 Post Scram Action

5.1 The review of the data and evaluation sections of this attachment indicate that:

1. No unreviewed safety question exists.

_____
(NSS Initial)

2. The criteria specified in Section 3.4 of this procedure has been met.

_____
(NSS Initial)

3. No transient related plant responses were determined to be abnormal.

_____
(NSS Initial)

4

5.2 Based on the information provided in this Post-Scram Data and Evaluation form and after consultation with the Shift Technical Advisor, authorization is given to re-start the plant.

_____	_____	_____
Shift Technical Advisor	Nuclear Shift Supervisor	Date

5.3 Based on the information provided in this Post-Scram Data and Evaluation form and after consultation with the Shift Technical Advisor, an engineering review is ordered and plant re-start must be authorized by the Superintendent - Nuclear Production.

_____	_____	_____
Shift Technical Advisor	Nuclear Shift Supervisor	Date

6.0 Post-Scram Administration

6.1 The information provided in the Post-Scram Data and Evaluation form has been reviewed and all sections are complete as required.

_____	_____
Operations Eng./delegate	Date

6.2 The Technical Engineer has been notified of the re-start decision in either section 5.2 or section 5.3 of this Attachment and the following documents are attached:

POST-SCRAM DATA AND EVALUATION (con't)

		(check)
1.	Sequence Recorder printout.	_____
2.	Process Computer Rod position printout.	_____
3.	Copy of the applicable pages of the NSO log.	_____
4.	Copy of the applicable pages of the NSS log.	_____

4

_____ _____
Operation's Engineer/delegate Date

6.3 The Post-Scram Data and Evaluation Form has been forwarded to the Technical Engineer for review and file. _____

END

FOR INFORMATION ONLY

NUCLEAR OPERATIONS DIRECTIVE NO.21

EFFECTIVE PROBLEM SOLVING

PURPOSE

The purpose of this directive is to assure that the cause of a problem is accurately determined and properly resolved prior to continuing a safety-related activity.

GENERAL

It is fundamental to identify a problem before working on its solution. (Detroit Edison provides supervisors and management personnel with training in the use of Kepner-Tregoe problem solving techniques.)

After an incident or apparent problem occurs, no safety-related activity should be resumed until the problem has been identified, its cause determined and a solution formulated and implemented. (Example: In the case of a plant trip, the reason for the trip must be determined by careful analysis of the data. After the problem has been identified, its solution should be formulated and implemented. Startup must be properly authorized before the reactor is again started.)

It is vital that this directive be followed to the fullest extent.

Wayne H. Jens
Vice President - Nuclear Operations

100/R140/26.0