U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-341/89013(DRS)

Docket No. 50-341 Operating License No. NPF-43

Licensee: Detroit Edison Company
2000 Second Avenue
Detroit, MI 48226

Facility Name: Fermi 2

Inspection At: Fermi 2 Site, Newport, Michigan

Inspection Conducted: May 8-12, 1989

Inspectors: A. M. Bongiovanni — 6/9/89 Date

G. M. Nejfelt — 6/9/89 Date

E. D. Rau — 6/9/89 Date

Approved By: Monte P. Phillips, Chief
Operational Programs Section — 6/9/89 Date

Inspection Summary

Inspection on May 8-12, 1989 (Report No. 50-341/89013(DRS))

Areas Inspected: Routine announced inspection of licensee actions to correct deficiencies identified by the NRC Diagnostic Evaluation Team regarding training and qualification effectiveness. Modules 41400 and 41701 were used for this inspection.

Results: No violations or deviations were identified. Weaknesses were identified in the timetable being utilized to qualify systems engineers on individual systems and in the program for determining and implementing training prior to procedure revisions becoming effective. Strengths were noted in the licensed operator examination process, Deficiency Event Report (DER) Evaluation training, and the Steps To Effective Plant Supervision (STEPS) program.

DETAILS

1. Persons Contacted

Detroit Edison Company
*B. R. Silvia, Senior Vice President, Nuclear Operations
*S. G. Catola, Vice President, Nuclear Engineering and Services
*W. S. Orser, Vice President, Nuclear Operations
*D. R. Gipson, Plant Manager
*R. McKeon, Superintendent, Operations
*G. H. Reece, Supervisor, Operations Training
*L. Goodman, Director, Nuclear Licensing
*R. Matthews, Acting Superintendent, Maintenance and Modifications
*P. Anthony. Licensing Engineer
*D. W. Delk, Group Leader, Audits
*A. C. Settles, Jr., Superintendent, Technical Engineering
J. A. Nyquist, Supervisor, Independent Safety Engineering Group
R. B. Stafford, General Director, Nuclear Quality Assurance & Plant Safety
C. A. Baker, Supervisor, Procedures Coordination
R. W. Bovinet, Supervisor, Programs
G. V. Cranston, General Director, Nuclear Engineering

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*W. Rogers, Senior Resident Inspector
*S. Stasek, Resident Inspector

*Denotes those attending the exit meeting on May 12, 1989.

The inspectors also interviewed other licensee personnel during the course of the inspection.

2. Introduction

During the period August 22 through September 2, 1988, the NRC conducted a special Diagnostic Evaluation Team (DET) inspection at the Fermi 2 site. That inspection concluded that there were several deficiencies in the licensee's training and qualifications programs. These deficiencies related to the following: (1) licensed operator programmatic weaknesses; (2) planning & scheduling knowledge; (3) plant knowledge by Quality Engineering(QE)/Production Quality Assurance (PQA); (4) training plans for intermediate and executive management; (5) training on new administrative procedures; (6) training on plant changes resulting from modifications; (7) systems engineers knowledge of their systems; and (8) station training needs.

By letter dated January 17, 1989, the licensee described the initiatives they had undertaken to correct the deficiencies identified by the DET inspection, including deficiencies related to training effectiveness.

The purpose of this inspection was to determine whether the initiatives undertaken by the licensee since the DET have resulted in correction of the above listed deficiencies. This inspection focused on changes made to the licensee's training and qualification programs since the time of the DET inspection. This report consists of a brief description of the finding made by the DET, followed by an evaluation of the corrective actions implemented by the licensee and the effectiveness of those actions. For the purpose of evaluating the quality of licensed operator training, the inspection team included two certified NRC Operator Licensing Examiners.

3. Licensed Operator Training Program

The specific deficiencies identified by the DET related to this area included the following: (1) poor training department morale; (2) instructor qualifications were not clear; (3) training instructors were not being audited; (4) out of date student texts; (5) Emergency Operating Procedures (EOPs) utilization; (6) the operator of the simulator and instructor were the same person during training; (7) lesson plans were weak; (8) technical specification training was weak; (9) case history training needed improvement; (10) the simulator did not completely match the plant; and (11) shift performance was uneven.

The inspectors evaluated the changes which had been made to the licensed operator training program since August 1988. With the exception of the simulator matching the plant, all of the actions taken relative to the licensed operator training concerns of the DET were considered acceptable. Therefore, this issue is resolved. The upgrade of the simulator to match the plant is being conducted in accordance with the licensee's March 23, 1989, letter, and is planned for completion in accordance with the requirements of 10 CFR Part 55.

Poor training department morale was not found during this inspection. No adverse comments were noted either in discussions with training department personnel or in classroom sessions. Overall, the attitude of the training staff is positive.

Since the DET inspection, three licensed Senior Reactor Operators (SROs) have been added to the training staff as instructors. An additional SRO is being sought to complete the desired staffing level. Also, a comprehensive Simulator Instructor Training Program to achieve full utilization of the simulator by each instructor was instituted on February 23, 1989. These training programs for instructors consist of seven modules. As of May 12, 1989, all staff license training instructors have completed the first three of these modules, with the remaining four scheduled to be completed by November 1989.

The inspectors interviewed several licensed operators to determine the Fermi 2 training program effectiveness. The universal response was that the training has substantially improved within the last six months. The addition of three operationally experienced individuals as instructors was cited by them as a primary reason.

The licensee's current method to ensure continued instructor qualification consists of evaluating the instructors by senior training management both

in the classroom and simulator as required by Fermi Implementing Procedure (FIP) TQ1-23, "Instructor Qualification," Revision 1. For the first quarter of 1989, all instructors were evaluated in accordance with this procedure. No deficiencies were noted.

The lesson plans and student texts that were presented to the current "hot license" class were all revised since November 1988. The inspectors reviewed the lesson plans and student texts for Control Rod Drive Mechanism, Residual Heat Removal, Recirculation, and Governor Control Systems. The scope of the lesson plans was up-to-date and in sufficient detail to support the lesson plan objectives.

Two simulator evaluation sessions requiring the utilization of the EOPs were observed by the inspectors. These scenarios involved a Torus Rupture and a Loss of Condenser Vacuum followed by an Anticipated Transient Without a Scram (ATWS). The Vice President for Nuclear Engineering & Services, the Operations Superintendent, and three Nuclear Training Department instructors were present to evaluate the crew's performance during the scenarios. This level of evaluative personnel was as specified in the Nuclear Training Business Plan for 1989-1993. A formal debriefing was conducted after each scenario with an useful exchange of information between the evaluators and operators. The participation of senior plant management, such as the Senior Vice President and Vice President of Nuclear Operations, in these evaluations is commendable because it emphasizes the importance of the crew in the operations of the facility.

The licensee developed a new procedure, Operations Training Guidance (OTG-003), "Simulator Session Instructor's Guide," as a result of the DET. This OTG required that two instructors be present in the simulator during all training sessions, and that three instructors be present in the simulator during all evaluation sessions. No deviations from this OTG were observed during the one training session and two evaluation sessions attended by the inspector.

Technical Specification training (Lesson Plan CP-OP-202-1001) was reviewed and determined to meet the appropriate level of knowledge required by NUREG-1123, September 1986, for licensed Reactor Operators (ROs) and SROs. No deficiencies were noted.

A "Case History" training session (Lesson Plan CP-OP-315-127) concerning the reactor protection system was observed. This "Case History" training, which had been revised since the DET, was well prepared and provided the operators with ample opportunities to exercise their diagnostic skills. Although the second case history required more time than allotted, both case histories were considered to be good training tools by the inspector.

The crew simulator performance observed was satisfactory. Fermi Nuclear Training Letter NT-89-0043, dated March 31, 1989, provided the means to obtain and to maintain the desired levels of crew readiness. The overall crew readiness goal was ensured by the active participation of senior plant management in evaluating all crews' simulator performance. No deficiencies were noted.

The use of senior management in the evaluation process is considered a programmatic strength.

No violations or deviations were identified in this area.

4. Planning and Scheduling Knowledge

The DET concluded that the Planning and Scheduling group was weak in the areas of systems knowledge, coordination of surveillances and maintenance work, and communications between different departments. The licensee has taken the following steps to improve their performance in these areas: (1) the licensee hired an experienced outage supervisor from another BWR site which increased the expertise in the Planning & Scheduling (P&S) group; (2) two licensed operators were dedicated to the P&S section to provide guidance on potential constraints due to Technical Specification requirements and coordinating simultaneous systems outages; and (3) the training and experience requirements for job incumbants were upgraded. In this latter case, to ensure a thorough knowledge of the facility and its operation, each individual is required to meet the job qualifications of the newly-issued Selection, Training, and Qualification Program Description (STQPD). The STQPD (QP-TS-105) requires each individual to complete the eleven week initial and biannual continuing training specified in the licensee's "Technical Staff and Manager Training" course. This course included material on Deficiency Event Reports (DERs) and their evaluation, plant operations, and Fermi 2 plant systems. Because of the number of personnel required to attend this training, the licensee's current projection for completion was late 1994.

To improve the actual performance of the planning and scheduling activities, selected staff attend daily meetings to discuss the potential work schedule for the next 72 hour period, priorities, and critical tasks. These actions should result in improved performance by the P&S staff.

No violations or deviations were identified in this area.

5. Plant Knowledge by Quality Engineering/Production Quality Assurance

The DET stated that there was limited operating plant systems knowledge and experience at the working level within these groups. All of the personnel within these two groups are now required to take the "Technical Staff and Manager" training program described above. Completion of this training for all QE/PQA personnel would be as described above. In addition, all personnel have received the plant systems course. The licensee was also in the process of hiring two SRO personnel into the Production Quality Assurance Group. The inspector interviewed several working level personnel and did not find that they lacked sufficient knowledge to perform their duties.

No violations or deviations were identified in this area.

6. Training Plans for Intermediate and Executive Management

The DET stated that they did not find any training plans for intermediate (middle) and executive management, although the licensee had just initiated a training program entitled Steps To Effective Plant Supervision (STEPS) to address team building and improve supervisory skills among first and second line supervisors.

At the time of this inspection, staff of the Senior Vice President were all being trained to be "SRO certifiable" in plant operations. In addition, middle and executive management participated in reinforcement meetings as part of the STEPS program. These meetings were routinely conducted prior to each segment of the STEPS program to provide the information/techniques needed to support the material presented in the course. In this manner, middle and executive management were being kept current with what supervisory information was being taught to each class. The inspector reviewed the material for Session 4, "Interpersonal Management Skills," and found it to be very good in providing management training on ways to improve communications effectiveness and other interpersonal skills. The current class of STEPS included 75 supervisors. Discussions with licensee personnel indicated that a total of 300 supervisors were to be provided the course, with a management reinforcement session prior to each module of each class. The goal was to complete the modules for all 300 supervisors by the end of 1992, and then utilize the last two training modules on a continuous basis.

No violations or deviations were identified in this area.

7. Training on New Administrative Procedures

The DET noted that the licensee had no programmatic controls for implementing training on revised administrative control procedures, rather, the operations department management would evaluate the necessity of training for each new procedure on a case-by-case basis. At the time of this inspection there is still no formal programmatic control for ensuring training is conducted on procedure revisions.

At the time of this inspection, the licensee's practice was that as a part of every procedure change, a Procedure Revision cover page would be developed which addressed the revision summary, implementation plan, attachments, enclosures, and ARMS sign-off. Procedure FIP-PR1-01 required the implementation plan for technical procedures to only address whether ongoing work could continue under the old procedure prior to revision issuance. This FIP indicated that the author was to determine if changes were needed in Fermi 2 design or the training program; and if these were needed, to initiate appropriate changes. In this way, the author was the sole determinant of whether training on the procedure change would occur prior to implementation. The procedure did not require a determination of whether training was necessary prior to implementation of the procedure regardless of whether a programmatic change was necessitated. The NRC Resident Inspectors had recently identified a situation where required training had not been conducted prior to procedural implementation, and had issued an associated Notice of Violation (see inspection report 50-341/89008(DRP)).

All administrative control procedures are reviewed by the Procedures Coordinatrion Supervisor for completeness. The incumbant Procedures Coordination Supervisor has developed a standard "procedure revision cover page's implementation plan" which did address the need to ensure that personnel affected by the changes were trained on them by a specific date; whether additional informal or formal training was required; who would provide that training; and when it would be completed. However, this process was strictly a personnal undertaking by the incumbant.

While there is assurance that procedures reviewed by the current Procedures Coordination Supervisor will address training, there is no assurance that this will continue if the specific individual changes jobs.

Procedure changes were covered in licensed operator requalification training during the Procedure Review and Revision Session. Instructors were made aware of all procedure changes by means of the procedure distribution process.

The lack of formal programmatic controls to address training of personnel on procedure changes is considered a programmatic weakness.

No violations of deviations were identified in this area.

8. Training on Plant Changes Resulting from Modifications

The DET noted that technical information concerning plant design changes and modifications were not being incorporated into the training program in a timely manner. The inspectors reviewed the training guides and student manuals for six selected systems and noted that appropriate changes had been made to incorporate modifications implemented in the plant prior to the conduct of the class. The licensee revised FIP TQ1-18, "Training Program Feedback," Revision 1, to establish a mechanism to incorporate information from operating experiences and plant design changes into training materials. This FIP did not address changes to procedures. A computer was used to track the needed training material revisions, which were implemented prior to the next teaching of the associated course.

No violations or deviations were identified in this area.

9. Systems Engineers' Knowledge of Their Systems

The DET report stated that the staffing shortage and the work restraints prevented the systems engineers from becoming completely knowledgeable on all assigned systems. Discussions with the licensee during the inspection showed that by July 1989, the plant systems group would be fully staffed with 21 systems engineers, with each engineer assigned approximately nine major and minor systems. The current system assignments and workloads would be adjusted accordingly. The engineers and systems were divided into four groups: mechanical, Instrument and Control, electrical, and nuclear steam supply systems. The inspector had no concern with the staffing structure.

The inspectors reviewed the applicable STQPD which describes the training required for system engineer qualification. In addition to the eleven week technical staff training program described in Section 4 above, the systems engineers are required to complete specialized training on their assigned systems. The additional training consisted of a study of Technical Specifications, Piping and Instrument Diagrams, system descriptions, plant interactions, systems walkdowns, 10 CFR Part 50 Appendix J requirements, pending design changes, and ongoing maintenance associated with the system. Upon completion of the self-study, the engineer is required to pass a comprehensive written examination and an oral evaluation by a

licensed operator.

Discussions with the licensee showed that each engineer was expected to qualify on one system prior to the fall outage, and on two or three major systems each year thereafter. The inspectors were concerned that at the present qualification rate, the engineers assigned to the safety systems would not complete their specialized training for four years. With future reassignments and career changes, it was possible that systems engineers may never complete specialized training on all of their assigned systems.

The present schedule for completion of specialized training for systems engineers is considered a programmatic weakness.

No violations or deviations were identified in this area.

10. Station Training Needs

The DET found no assessment of technical training needs for nonunion station personnel other than control room operating personnel. For example, there were no requirements for plant systems training for new or reassigned employees in technical positions. In addition, the DET found that the members of the Independent Safety Engineering Group (ISEG), who were responsible for evaluating Human Performance Evaluation System (HPES) reviews of events and follow-up actions, had not all received training in HPES.

Subsequent to the DET inspection, the licensee developed a detailed system utilizing STQPDs for each plant position to ensure that appropriate training was provided to all new or reassigned employees in technical positions prior to the individual being considered qualified to perform that job. The STQPD specified the amount of time an incumbent was allowed to take to complete qualifications for the position. The following STQPDs were reviewed: QP-TS-105, Technical Staff and Managers; and QP-QA-201, Inspector/Auditor - Nuclear Quality Assurance. The STQPDs included general training requirements such as radiation protection, ALARA, and procedure adherence; as well as specific training requirements to meet the demands of an individual's job, including certification requirements.

The training of the technical staff and managers was controlled by STQPD QP-TS-105. All of the plant's approximately 230 technical staff and managers were required to participate in an eleven week initial and biannual continuing training courses. Vice Presidential level staff personnel were not required to participate in this program. The eleven week initial session included courses in basic atomic theory, mechanics, DERs and their evaluations, preparation of safety evaluations, plant operations, and Fermi 2 plant systems. The continuing training included industry events, recent procedure changes, and a review of material presented during the eleven week course. Some experienced personnel were waived from the basic courses through testing; however, all technical staff and managers were required to attend the courses associated with plant operations, plant systems, safety evaluations, and DERs. The licensee initiated the program in late March 1989, and expects to have the training conducted for two or three groups per year. Because of the total

number of personnel required to attend this training, the licensee's current projection for completion was late 1994.

The DET was specifically concerned with HPES training for members of the ISEG. The HPES concept of deficiency evaluation for personnel errors was developed by INPO, and has been incorporated into the licensee's "DER and Their Evaluation" training. The inspector evaluated the lesson plan and student handouts for this course and found that DER training is not limited to HPES, but also incorporates change comparison evaluation techniques and Management Oversight Risk Tree (MORT) analysis techniques. The later two methodologies will also apply to non-human performance deficiencies. The lesson plans and student texts were well-developed, comprehensive, and provided many opportunities for class participation in the training process.

As indicated in the DET report, one member of the ISEG had received HPES training from INPO in September 1988; another had completed the licensee's DER evaluation training in April 1989. All of the remaining members of the ISEG were scheduled to complete this training by November 1989.

The "DERs and Their Evaluation" training is considered a programmatic strength.

No violations or deviations were identified in this area.

11. Exit Meeting

The inspectors met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on May 12, 1989, and summarized the purpose, scope, and findings of the inspection. The licensee stated that the inspectors had no access to proprietary information. The licensee also indicated that the specialized training for systems engineers (see paragraph 9 above) should be completed within two years to increase the effectiveness and performance of the systems engineers.