U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-341/84-20(DRP)

Docket No. 50-341 License No. CPPR-87

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

Facility Name: Enrico Fermi Nuclear Power Station, Unit 2

Inspection At: Fermi Site, Newport, MI

Inspection Conducted: August 1 through September 30, 1984

Inspectors: P. M. Byron
M. E. Parker

Approved By: R. C. Knop, Chief
Projects Section 1C

10-29-84
Date

Inspection Summary

Inspection on August 1 through September 30, 1984 (Report No. 50-341/84-20(DRP))
Areas Inspected: Routine, unannounced inspection by resident inspectors of licensee action on previous items of noncompliance; licensee action on previous inspector identified items, review of licensee action on 10 CFR 50.55(e) reports; headquarters requests; IE Bulletins; IE Circulars; allegations; engineered safety features - preoperational test witnessing; comparison of as-built plant to FSAR description; Technical Specifications review; Title 10 requirements; emergency procedures; independent inspection; fire protection; plant tours. The inspection involved a total of 475 inspector-hours onsite by 2 NRC inspectors, including 80 inspector-hours onsite during off-shifts.
Results: Of the 15 areas inspected, no items of noncompliance or deviations were identified in 13 areas. Within the remaining areas, three items of noncompliance were identified (failure to perform adequate review, Paragraph 13; failure to follow procedures, (3 examples) and inadequate and untimely corrective action, Paragraph 14).

DETAILS

1. Persons Contacted

*F. Agosti, Manager, Nuclear Operations
*L. Bregni, Licensing Engineer
J. DuBay, Director, Planning and Control
O. Earle, Supervisor, Licensing
R. Eberhardt, Rad-Chem Engineer
*W. Fahrner, Manager, Fermi 2 Project
*E. Griffing, Assistant Manager, Nuclear Operations
*W. Holland, Vice-President, Fermi 2 Project
*W. Jens, Vice-President, Nuclear Operations
R. Kunkle, Director, SAFETEAM
S. Leach, Director, Nuclear Security
J. Leman, Maintenance Engineer
*R. Lenart, Superintendent, Nuclear Production
R. Mays, Director, Project Planning
*W. Miller, QA Supervisor, Operational Assurance
T. Mintun, Startup Director
*T. Nickelson, Startup Engineer
*S. Noetzel, Site Manager
J. Nyquist, Acting Assistant Superintendent, Nuclear Production
*G. Overbeck, Assistant Plant Superintendent, Startup
J. Plona, Technical Engineer
E. Preston, Acting Operations Engineer
*G. Trahey, Director, Nuclear QA
*R. Vance, Assistant Project Manager, Engineering

*Denotes those who attended the exit meetings.

The inspectors also interviewed others of the licensee's staff during this inspection.

2. Followup on Items of Noncompliance

a. (Closed) Noncompliance (341/83-20-01(DPRP)): All the required prerequisites were not included in the supplemental test procedure. The licensee revised Startup Instruction (SI) 8.4.2.03, "Supplemental Testing," by adding a note to Section 3.1.1.2 which states that all applicable prerequisites will be signed off prior to commencing any retest activities. The note was added by Revision 4 to SI 8.4.2.03 dated January 26, 1984, as well as the requirement that the startup test engineer will ensure that all prerequisites are signed off. The inspectors consider this action to be satisfactory and the item is considered to be closed.

b. (Closed) Noncompliance (341/83-20-03a(DPRP)): Inspection of Level A items not performed in area which meets Level A storage requirements. The licensee constructed inspection facilities in the Level A storage area of the receipt warehouse, Warehouse B, and had training sessions

for warehouse personnel. Nuclear Quality Assurance Procedure (NQAP) 0704, Revision 0, dated September 30, 1983, "Receiving Inspection," was issued subsequent to the finding. Section 6.3.2.2 of NQAP 0704 states that receiving inspections will be performed in an area equivalent to the level of storage required for the item.

The licensee performed an N.Q.A. surveillance, QSR No. 84032, dated April 11, 1984, which confirmed that inspection of Level A material was being performed in Level A storage areas. This item is considered to be closed.

c. (Open) Noncompliance (341/83-20-03b(DPRP)): Status of material not identified. Licensee corrective action stated that training had been given to selected DECo and contractor personnel on February 7, 1984, on Project Procedures Manual (PPM) 7.38, Revision 1, dated January 30, 1984, "Storage and Handling of Material During Construction." Section 5.2 of PPM 7.38 was revised by Revision 1 to require the usage of tags to identify material, list its status, and identify any special instructions. However, the licensee stated that PPM 7.38, Revision 3, dated June 7, 1984, was issued as part of the corrective action. The inspectors reviewed both Revision 1 and Revision 3 of PPM 7.38 and noted that Revision 3 added the requirement that scrap material shall be stored in refuse containers labeled "SCRAP - NOT FOR PLANT USE."

The inspectors have requested the licensee determine which revision to PPM 7.38 was issued as the corrective action to this finding. The inspectors have also requested that corrective action training be given to the proper revision of the procedure. This item will remain open pending subsequent review by the inspectors.

d. (Closed) Noncompliance (341/83-20-03d(DPRP)): Material in Level A storage not stored off the floor. A cardboard box was also found in the same area. The cardboard box was removed and the licensee reviewed applicable procedures which were found to be adequate. The licensee conducted training sessions for materials personnel. A surveillance, QSR No. 84030, was completed on April 3, 1984, which verified that corrective action was effective. The inspectors consider this item to be closed.

e. (Closed) Noncompliance (341/83-20-03e(DPRP)): Materials in Level D storage partially submerged in water. The licensee took several steps to correct this deficiency. Drains were installed where required and one storage area was elevated. All material was placed on dunnage. Material storage is now under the control of DECo rather than split among the various contractors. Site tours by the inspectors have demonstrated that the licensee's corrective action has been effective. The inspectors consider this item to be closed.

f. (Closed) Noncompliance (341/83-20-03f(DPRP)): Protection of Level B and C material from airborne contaminants. The inspectors found the large garage doors at each warehouse open and containers which were not sealed allowing airborne contaminants to get on Level B and C

material. The licensee sealed the containers and instructed material personnel in several training sessions about the requirements to seal broken containers, keep the garage doors closed when not being used, and other means to reduce airborne contaminants. It was determined that the garage-type doors were kept open because of the lack of ventilation in the warehouses.

The licensee stated that full compliance had been achieved March 1, 1984. However, the inspectors observed on June 30 and July 1, 1984, that the doors remained open for several hours each day as described in Inspection Report 50-341/84-19. The licensee initiated additional corrective action after this was brought to their attention. The inspectors have verified that the supplemental corrective action has been effective and this item is considered to be closed.

g. (Closed) Noncompliance (341/83-20-03g(DPRP)): QA Level 1 material was stored without caps or plugs to cover the openings. The licensee initiated corrective action by inspecting all material received in the warehouse and inserting plugs where required. Material personnel have been instructed to check for closures while performing inventories. The licensee did not address the cause of the discrepancy. However, this is a moot point as all material on the site is now under the control of the licensee and not the contractors. The licensee's corrective action has been effective as verified by QA surveillance QSR No. 84034 dated April 3, 1984, and inspector observation. This item is considered to be closed.

h. (Closed) Noncompliance (341/83-20-03h(DPRP)): Food, drink, and lunch boxes were observed in Level A storage and other warehouse areas. The licensee immediately took corrective action by removing all items of concern. Training was initiated for all materials personnel, and materials supervision has increased its tours. Inspector observation has verified that the licensee's corrective action has been effective and this item is considered to be closed.

i. (Closed) Noncompliance (341/83-20-06(DPRP)): Failure to implement a preventative maintenance program for items in storage. Review of Plant Operations Manual Procedure 12.000.17, Revision 2, dated July 19, 1984, "Preventative Maintenance Program," has identified that a PM program is in place for warehouse components. This is a computerized program identifying those components/items in storage requiring periodic maintenance. The required maintenance activity has been assigned to the maintenance engineer. The inspectors reviewed Quality Surveillance Report S-QA-84-652, Rev. 1, dated July 17, 1984, and several maintenance work orders to verify adequate implementation of the program. This item is considered to be closed.

3. Followup on Inspector Identified Items

a. (Open) Open Item (341/81-10-02): SER 2.4, "Emergency Procedure for Monitoring Groundwater after Spills." This SER item required the licensee to incorporate into plant operating procedures a program to

monitor subsurface travel and dispersion of radioactive material in groundwater after a spill by drilling monitoring wells between the affected structures and Lake Erie. The inspectors reviewed POM 69.000.26, Revision 0, dated July 31, 1984, "Radioactive Liquid Storage Tank Leakage." This procedure addressed monitoring of groundwater during leakage, overflow, and spill of storage tanks, but did not address spill of radioactive material under any other conditions. The SER also identifies that during a failure of the condensate storage tanks that the condensate would be pumped to the radwaste building. This has not been addressed in POM 69.000.26. This item will remain open pending incorporation of the above comments into plant procedures.

b. (Open) Open Item (341/81-10-09): SER 10.6, "Implementation of Water Chemistry Program." This SER item required the licensee to incorporate the water chemistry program into plant operating procedures prior to issuance of the operating license. The inspectors reviewed POM 71.000.03, Revision 1, dated May 25, 1984, "Sampling and Analysis Schedule." This procedure identifies the analysis to be performed, frequency of sampling, and operating limits to be followed. The chemistry program meets the guidelines of Regulatory Guide 1.56 for the condensate system water. The SER also addressed that the licensee would change out a filter demineralizer unit when the conductivity is 0.1 micromho/cm. The licensee's Alarm Response Procedure indicates that when the alarm is received in the control room at 0.2 mhos/cm that the demineralizer should be changed out. This is inconsistent with the SER. See Paragraph 13 for more information on this subject. This item will remain open pending incorporation of SER commitments in Alarm Response Procedures.

c. (Closed) Open Item (341/81-10-19): SER II.K.1. Item 10, "Safety-Related System Operability Status Assurance." The licensee was requested to review and modify procedures for removing safety-related systems from service (and restoring to service) to assure that operability status is known. The inspectors reviewed Plant Operations Manual (POM) Procedure 12.000.15, Revision 7, dated August 8, 1984, "PN-21 (Work Order) Processing," and Procedure 21.000.01, Revision 8, dated June 26, 1984, "Shift Operations and Control Room." Review of POM 21.000.01 identified that the licensee has addressed technical specifications limiting conditions for operations, operability of system when returned to service including surveillances, and has implemented a Control Room Information System and a Plant and Equipment Status System to inform operating personnel whenever equipment is removed from and returned to service. POM 12.000.15 describes the processing of work orders to accomplish the above steps including tagging and post-maintenance testing. This item is considered to be closed.

d. (Open) Open Item (341/81-17-07(DPRP)): SER Item II.B.4., "Degraded Core Training." This item concerns implementation of a training program to teach the use of installed equipment and systems to control or mitigate accidents in which the core is severely damaged. As identified in Inspection Report 50-341/84-07, two items remain to closeout this SER item: 1) all required individuals attend the course, and 2) upgrade

course to cover all SER topics. The inspectors have been informed that all required individuals have successfully passed the course. Discussions with the DECo training department have identified that the course content has not been upgraded nor has a requalification or refresher been conducted to address the new course content. This item will remain open pending NRC review of upgrading and completion of training.

e. (Open) Open Item (341/82-07-01(DPRP)): Preoperational test procedures do not meet FSAR commitments. The inspectors reviewed the licensee's corrective action and determined that the licensee addressed the specific issues addressed in the open item. Preoperational Test PRET.R3201.001, "260/130V Direct Current (DC) System," was revised to include the FSAR commitment of operability of DC loads at the end of battery load or minimum battery voltage in Section 6.4 of Revision 2 dated February 15, 1984. The FSAR Section 14.1.3.2.40(d) acceptance criteria commitments which were not included in PRET.R3100.001, "I&C Power Supply," were included in Sections 6.2.6.3 and 6.2.6.4 of PRET.A8100.001, Revision 0 dated August 28, 1984. The tests were witnessed by the inspectors.

The inspectors reviewed DECo letter EF2-67,208 dated February 6, 1984, Jens to Spessard, which listed actions taken since January 1982 to improve the preoperational testing program. The letter contained the steps taken to improve the control of FSAR commitments and acceptance criteria. The licensee was not able to provide the inspectors the date this program was initiated.

The inspectors requested the licensee to provide documentation that all applicable preoperational test procedures had been reviewed to verify that all FSAR commitments and acceptance criteria had been included. This item remains open pending further review by the inspectors in a subsequent inspection report.

f. (Closed) Open Item (341/83-20-05(DPRP)): The licensee has been unable to verify that the tapes used meet the halogen and sulfur requirements of ANSI N45.2.2--1972. This item was previously reviewed in Inspection Report 50-341/84-19. The item remained open pending the review of the chemical analysis of the Ideal tape. The inspectors reviewed Engineering Research Report 84D26-13, "Chemical Evaluation of Ideal Gray Duct Tape," dated July 25, 1984. The report states that Ideal duct tape meets the halogen and sulfur requirements of ANSI N45.2.2--1972. This item is considered to be closed.

g. (Closed) Unresolved Item (341/83-30-04(DPRP)): Emergency Diesel Generator (EDG) Control Panel Termination Discrepancies. The inspectors' review of this issue identified several items of noncompliance. The unresolved item is considered to be closed and the items of noncompliance are described in Paragraph 14.b.

h. (Closed) Unresolved Item (341/84-19-01(DRP)): Inadequate Definition of a minor Test Change Notice (TCN). The licensee revised Section 4.4.3.1.b of Startup Instruction 4.5.1.01, "Administrative Controls of Startup Originated Procedures and Test Change Notices," in Revision 11,

dated September 6, 1984. The revised definition of a minor TCN states in part that if the test procedure change requires crossing system boundaries, a major TCN shall be required. This revision adequately addresses the inspectors' concerns and this item is considered to be closed.

i. (Closed) Unresolved Item (341/84-19-02(DRP)): L. K. Comstock Inspector Certifications. The licensee amended their final 10 CFR 50.55(e) report (341/83-02-EE) No. 88, DECo letter EF2-69701 dated August 27, 1984, to reflect the actual finding. The inspectors reviewed the amended report and supporting documentation and verified that the amended final report contains the corrective action performed by L. K. Comstock. The inspectors consider this item to be closed.

4. Licensee Action on 50.55(e) Items

(Closed) 341/83-02-EE (Licensee No. 88): L. K. Comstock Inspector Certifications. Closure of Unresolved Item 341/84-19-02(DRP) in Paragraph 3.i of this report completes the required action for this item. This item is considered to be closed.

No items of noncompliance or deviations were identified.

5. Followup on Headquarters Requests

a. Human Factors - Control Room Deficiencies

The inspectors assisted members of the Human Factors Branch (HFB) staff on November 3 and 4, 1983, in closing open items which were listed in Appendix D of the SER (NUREG-0798). The results of this inspection are documented in Inspection Report 50-341/83-29. The inspectors were requested by HFB to verify the implementation of the remaining outstanding items.

The inspectors verified on September 27, 1984, that the following SER items had been implemented.

SER Item

1.5 There are no written procedures stored at the remote shutdown panel: The inspectors verified that written procedures were stored within 50 feet of Division I and Division II remote shutdown panels as well as at the location for planned independent shutdown panel. This item is considered to be closed.

5.5 There are no unit markings on the RCP or Oil Cooler temperature controller indicator scales. The licensee has requested that this be redefined as a Priority Rating 3 item as the concern is generic to all GEMAC controllers. The inspectors in discussion with HFB staff concurred with the licensee's position and this item will be changed to a Priority Rating 3 item.

9.2 The operators' keyboard combines a standard QWERTY keyboard with function keys: The licensee disabled the subject keys and the inspectors verified that the subject keys did not move. This item is considered to be closed.

9.4 The CRT control console has temporary labels: The inspectors verified that permanent labels have been provided on the control console. This item is considered to be closed.

9.5 The number of significant digits displayed in CRT data is not consistent with instrument accuracy: The inspectors did not observe the CRT output but did review DECo letter EF2-64329, Revision E, dated April 28, 1984, which is the input/output list for the Instrument and Controls Process Computer System.

The list documents that the display software has been modified to reflect instrument accuracy. This item is considered to be closed.

10.3 The scale lengths on some recorders differ from the paper scale: The inspectors reviewed Purchase Requisition 489-978 for the required paper and verified that the proper paper is installed in all the recorders in the control room. This item is considered to be closed.

In addition, nine items were identified with minor incorrect engraving during the November 3 and 4, 1983, inspection. The inspectors verified that the licensee corrected these deficiencies.

The licensee has not completed action on the remaining SER open items as listed below. The inspectors will verify the implementation of these items prior to the issuance of an operating license as specified in the SER.

SER Item

2.2 There is inadequate normal and emergency lighting on Back Panels H11-P812 and H11-P813, with the existing temporary system. (Open Item 341/84-20-01(DRP)).

2.3 There is no emergency lighting available at the remote shutdown panels. (Open Item 341/84-20-02(DRP)).

3.9 The evacuation signal system was not connected and could not be evaluated. (Open Item 341/84-20-03(DRP)).

4.4 The relief valve position indication on Panel H11-P601 uses the valve solenoid excitation instead of a positive position indicator. (Open Item 341/84-20-04(DRP)).

5.6 Many meters/displays on various panels do not have normal, lower, or upper operating limit range markings. Operating limit range markings will be provided. (Open Item 341/84-20-05(DRP)).

8.2 Units are not indicated on the PRMS recorder on the back of panel H11-P601. The units will be added to the PRMS recorder scale. (Open Item 341/84-20-06(DRP)).

10.1 The alarm points are not identified on recorder scales. Alarm points will be indicated on all one-, two-, and three-point recorders. (Open Item 341/84-20-07(DRP)).

10.2 All panels with recorders did not have the recorder scales marked with normal or abnormal, safe or unsafe, or expected or unexpected range. The ranges will be marked on one-, two-, and three-point recorders. (Open Item 341/84-20-08(DRP)).

10.7 On many recorders there is no indication of units. Scale units will be added to recorders. (Open Item 341/84-20-09(DRP)).

The inspectors note that the HFB Control Room Design Review open items were identified in 1981 and documented in Appendix D of the SER dated July 1981. The HFB staff closed all but 13 of the items in their November 1983 inspection. The inspectors were only able to close out 6 items in their supplemental inspection on September 27, 1984. The inspectors believe the licensee's performance needs improvement.

b. NRC Commissioner Plant Tour

Commissioner Bernthal visited Fermi 2 on August 17, 1984, to get a first-hand view of the state of readiness and condition of the facility prior to issuance of the operating license. The Senior Resident Inspector conducted a tour of the facilities for Commissioner Bernthal, his Technical Assistant, the Director of the Division of Reactor Projects, and DECo management. The Commissioner met with the NRC staff prior to the tour to discuss resident concerns and perceptions. Following the tour, he met with the NRC staff and licensee management to give his observations and discuss general licensing issues.

No items of noncompliance or deviations were identified.

6. IE Bulletin Followup

For the IE Bulletins listed below the inspector verified that the Bulletin was received by licensee management and reviewed for its applicability to the facility. If the Bulletin was applicable the inspector verified that the written response was within the time period stated in the Bulletin, that the written response included the information required to be reported, that the written response included adequate corrective action commitments based on information presented in the Bulletin and the licensee's response, that the licensee management forwarded copies of the written response to the appropriate onsite management representatives, that information discussed in the licensee's written response was accurate, and that corrective action taken by the licensee was as described in the written response.

(Closed) IE Bulletin 78-14 (341/78-14-BB): Deterioration of Buna-N Components in ASCO Solenoids. This bulletin concerns the failure of Buna-N material in scram pilot valve solenoids which prevents the valves from properly venting air from the scram valve. As identified in Inspection Report 50-341/84-19, the licensee's response to this bulletin did not address those solenoid valves that had been backfitted for alternate rod insertion, nor did it adequately address the periodic maintenance program to ensure components do not exceed useful life. Subsequent review of individual solenoid valve drawings for those valves used in alternate rod insertion identified that these valves do not use Buna-N components but use EPR (Ethylene Propylene Rubber). The licensee has placed these valves on a preventative maintenance schedule of five years as recommended by the vendor. Review of Plant Operations Manual Procedure 12.000.17, Revision 2, dated July 19, 1984, "Preventative Maintenance Program," and a sampling of individual solenoid valve maintenance schedules has identified that the licensee has taken the necessary action to ensure these components do not exceed their useful life. This bulletin is considered to be closed.

No items of noncompliance or deviations were identified.

7. IE Circular Followup

For the IE Circulars listed below, the inspector verified that the Circular was received by the licensee management, that a review for applicability was performed, and that if the circular were applicable to the facility, appropriate corrective actions were taken or were scheduled to be taken.

a. (Closed) IE Circular 77-06 (341/77-06-CC): Effects of Hydraulic Fluid on Electrical Cables. This circular describes the circumstances under which fire resistant hydraulic fluid had a deleterious effect on insulation and jacketing of electrical cables. It was recommended that the licensee 1) review their design and operating procedures for systems containing synthetic hydraulic fluids and other potentially aggressive fluids to minimize the probability of leakage, overflow, or inadvertant spill of fluids, and 2) review housekeeping practices to assure that they provide prompt cleanup of spills or leakage of any type of fluid. The inspectors reviewed DECo letter NE-84-0523 dated June 15, 1984, in which the licensee determined that Fermi's unitized actuator system differs significantly from conventional Electro-Hydraulic Control (EHC) systems and will not be a problem at Fermi 2. Each steam valve in the unitized actuator design has its own self-contained hydraulic power unit requiring only electrical power and cooling water supplies. With this type of construction, oil leakage is considerably reduced as there is no external piping to the tank. In addition, the type of oil used is a mineral oil type verses a phosphate ester type. The licensee has also reviewed other types of aggressive fluids on the cable jackets found at Fermi 2 and has determined the effect to be insignificant and would not destroy the jacket. Plant Operations Manual Procedure 12.000.48, "Plant Housekeeping," and Procedure 21.000.01, "Shift Operations and Control Room," were reviewed and determined acceptable to assure adequate cleanup of fluids. This circular is considered to be closed.

b. (Closed) IE Circular 77-12 (341/77-12-CC): Dropped Fuel Assemblies at BWR Facilities. This circular describes several reported events involving dropped fuel assemblies at BWR facilities and suggests several steps and measures that should be implemented to minimize the possibility of a fuel assembly dropping incident.

As noted in Inspection Report 50-341/84-19, this circular was to remain open pending further review of the licensee's resolution of the discrepancy between engineering and production. The licensee has subsequently issued DECo letter NE-84-0514, Revision B, dated August 8, 1984, in which the licensee's engineering and production organizations have come to the conclusion that the current modified single grapple hook with administrative controls is adequate to preclude the dropping of a fuel assembly. The licensee has also issued Potential Design Change PDC-1032B dated August 21, 1984, to evaluate the grapple's performance after initial fuel load. This circular is considered to be closed.

c. (Open) IE Circular 79-24 (341/79-24-CC): Proper Installation and Calibration of Core Spray Pipe Break Detection Equipment on BWR's. This circular was issued as a result of improper installation of core spray pipe break detection instrumentation and failure to consider density changes resulting in the pipe break alarm system being inoperative. Review of DECo letter EF2-72463 dated August 3, 1984 identifies that the licensee has taken necessary action to verify that the alarm instrumentation is installed in accordance with the circular, which is connecting the high pressure side of the d/p instrument to the core support pressure tap. The licensee has verified the construction modifications have been installed in accordance with option 2 of G.E. recommendations and has also modified the alarm response procedures to correctly reflect the as-built configurations. The licensee's review has determined that the alarm setpoints have been removed from Technical Specifications by the NRC. Review of this item with NRR determined that core spray leak detection alarm setpoints will be addressed in Fermi 2 Technical Specifications. The licensee is in the process of modifying the operator inspection sheets and Plant Operating Manual Procedure 23.203, "Core Spray System." This item will remain open pending completion of modifications to plant procedures.

8. Followup on Allegations

a. (Closed) Allegation (RIII 830097): Quality Practices at Fermi 2. During the week of October 4, 1983, the inspectors received an allegation concerning quality practices at Fermi 2. This allegation concerned five different issues. Each issue will be addressed separately as follows:

(1) Qualification of Level I inspectors promoted to Level II in 30 to 40 days: Through review of training and certification records, the inspector was able to substantiate this allegation. Review of the three inspectors identified, along with others, revealed

that these individuals meet the minimum qualification requirements of ANSI N45.2.6, Qualifications of Inspection, Examination, and Testing Personnel for Nuclear Power Plants, for Level II inspectors at initial time of hiring/transfer into the QC organization. Discussions with QC indicated that they use this as a management tool when transferring/hiring individuals into the QC organization. QC hires them into the organization as a Level I even though they might be qualified as a Level II, by ANSI N45.2.6. This allows QC time to observe these Level I inspectors and their work and helps QC to determine the adequacy of the inspector's Level II qualifications prior to actual certification to Level II. This item, even though substantiated, has no safety significance as the individuals in question have been determined to be qualified to ANSI N45.2.6. This item is considered to be closed.

(2) Punchlist cards are being sent directly from Bechtel to Startup without going through QA/QC: Review of the punchlist card program identified that punchlist cards do not require QA/QC concurrence prior to work being performed. The punchlist card is a means of tracking open items and does not state corrective action. The open item that generated the punchlist normally requires QA/QC concurrence to the corrective action, i.e., nonconformance reports (NCR), incomplete work. Review of the punchlist card did identify that QA/QC does verify completion of work on the form. A review of punchlist cards during the time frame of the allegation did not identify any case in which QA/QC was indicated "not applicable" for their completion of work signature. The inspector ws unable to substantiate this item and considers this item to be closed.

(3) NCR requires wires in Limitorque to be inspected but QC inspector signed the electrical portion as "not applicable" - in the inspection report: Review of NCRs on Limitorque wiring generated within six months prior to the allegation were reviewed to determine if QA/QC was being bypassed. The inspector did not notice any case in which the NCR was indicated "N/A" or "Not Applicable" for the QA/QC organization. The inspector was not able to substantiate this allegation. This item is considered to be closed.

(4) and (5) Electrical/Mechanical inspectors were provided copies of the test/answers prior to taking certification examination: Through a review of test proctors, supervisors, and individual QC inspectors, the inspectors were unable to substantiate this allegation. QC/QA supervisors indicated that the test is locked up and that it is not released to the proctors until the morning of the test. Generally the test is not made up until the morning of the test as the questions are generated from a pool of questions. Discussions with Regional inspectors indicated that they interviewed electrical inspectors concerning this allegation during an inspection in 1983 and that they were unable to confirm this allegation. These items are considered to be closed.

b. (Open) Allegation (RIII-84-A-D116): The inspectors were notified by a reporter on or about July 25, 1984, that his newspaper had received several anonymous allegations over a three-month period. A total of eight letters were received, each containing from one to four allegations. The reporter met with the inspectors on August 1, 1984, to discuss the allegations. The inspectors received a synopsis of the allegations at this meeting. The inspectors reviewed the allegations and determined that all but one of the allegations had either been previously identified or were not safety-related.

The items which had been previously identified or are not safety-related are discussed below. An inspection by Region III is in progress for the remaining item and will be documented in a subsequent inspection report.

(1) (Closed): A DECo employee was allegedly involved in a potential conflict of interest involving contracts.

-- This is not a safety-related concern; however, DECo has resolved the issue.

(2) (Closed): "Fermi has a very large quantity of unqualified equipment installed and plans to get permission from the NRC to operate with the equipment installed in the plant. If any Justifications for Interim Operation (JIO) are approved for Fermi, it would make licensing a joke because Edison has known for years about problems. Would JIOs defer replacement until refueling?"

-- DECo has a program to qualify equipment for operation in a harsh environment in accordance with NUREG-0588. This program and the results obtained have been monitored by the Equipment Qualification Branch (EQB) of NRR. EQB staff visited the site within the last 90 days to review the licensee's program. DECo has submitted some JIOs but a condition will be added to the operating license which requires that the conditions of 10 CFR 50.19(g) must be implemented. All the equipment which is required to be qualified will be installed by March 1985 in accordance with regulations.

(3) (Closed): "Lack of design change control at Fermi. If equipment were modified, then it must be requalified. DECo has made thousands of design changes at Fermi 2, many of which altered the configuration of qualified equipment and did not retest the design in a laboratory. NRC should look, not only at existing program with assumption of no major problems, but also at a poor program that may have existed for years."

-- The inspectors consider that the allegation contains two issues and will address each separately. Region III has reviewed the design change program several times during the past six years and has not found any significant problems which affected hardware.

The inspectors consider the term "equipment qualification" to mean environmental qualification. Design changes which affect configuration only do not have the design retested at a laboratory. The replacement components must meet the same environmental qualification requirements and may be substituted if they meet these requirements. If equipment meets the seismic qualifications, an engineering analysis may be performed rather than testing to determine the effects of additional components.

(4) (Closed): "Problem with control of material, Federal law on quality materials for nuke plants. For years, Fermi 2 did not comply with this Federal law in particular for material considered commercial quality (CQ). Installing documents for CQ materials at Fermi 2 do not have that traceability, in particular when the installation was made by the Startup or Instrument and Control organizations. Evidence of this can be found by reviewing the records that installed the circuit protective fuses and motor control center thermal overload heaters. Minor Deficiency Log (MDL) now used, but it was not used for years."

-- The problem of DECo using CQ material in safety-related applications without qualifying it was identified by Region III in Inspection Report 50-341/83-31. DECo initiated a program which reviewed all CQ items used in safety applications. Components were qualified to the most hostile environment to which the equipment would be subjected. Region III inspectors followed the implementation of the CQ qualification. This is also documented in Inspection Report 50-341/83-31. The Startup organization does not install equipment. There does not appear to be a connection between the usage of MDLs and the traceability of CQ material.

(5) (Closed): "Poor quality or lack of properly approved procedures for conducting testing and completion of work on nuclear safety-related components. Should review procedures used by the Instrument and Controls (I&C) group to calibrate instrumentation. Generic procedures were vague for years. Similar situation with Systems Completion Organization in that unqualified people were assigning the quality requirements to work documents (punchlist cards) which resulted in inadequate work controls being established. A review of all completed punchlist cards (PLC) will prove this. One can even find evidence that some safety-related work performed by L. K.Comstock organization did not even use a standard work document to perform or record work completion."

-- This allegation is vague and lacks any specifics by which one can attempt to verify the concerns. The PLC has a box which must be filled in to indicate the QA or ASME level of the work being performed. The system which is being worked on determines the quality level which is listed. System Completion Organization Work Procedure SCOWP-04, Revision A, dated 3/15/82, "The Use of Punchlist Card (PLC) for the Completion of Remaining Work at the Fermi 2 Site," states in Item 8 of Exhibit "J" that the QA/ASME

level is available from the isometric, sketch link, line list from boundary package and if in doubt contact field engineering. This is a QA auditable item. The procedure requires the System Completion Engineer (SCE) prepare the PLC. The inspectors reviewed SCOWP-04, Revision 0, dated 2/5/82, and noted that it did not contain a list of the examples. The inspectors also reviewed System Completion Organization Procedure 6.1, "The Completion of Open Items by SCO," and noted that Exhibit B lists only the SCE or System Test Engineer (STE) as the only individuals authorized to prepare a PLC. Section 9 of Exhibit D of Procedure 6.1 states that the SCE has the responsibility of identifying the QA level on each punchlist item. The inspectors reviewed the following revisions of Procedure 6.1 to verify that this requirement did not change: Revision 0 dated 12/1/82, Revision 1 dated 1/25/83, Revision 2 dated 3/3/83, Revision 5 dated 10/19/83, Revision 6 dated 10/28/83, Revision 7 dated 1/19/84, and Revision 8 dated 2/22/84.

It should be noted that the SCE has the responsibility of identifying the quality level on each item, but does not have the responsibility of determining the quality level. Engineering has the responsibility of establishing quality level of items, not the SCE. The placing of the quality level on a PLC is a clerical function. The SCE obtains the required level from the engineering drawings. The inspectors do not concur that unqualified individuals were assigning quality requirements when they were actually performing a clerical function for that particular item on the PLC.

I&C calibration procedures are reviewed and approved by the Onsite Review Organization (OSRO). The inspectors verified that the I&C calibration procedures were reviewed and approved. All of the I&C equipment installed in safety-related systems will be calibrated using the approved procedures prior to fuel load.

The allegation regarding L. K. Comstock not using a standard work document to perform or record work completion of safety-related work is vague. The inspectors are unable to determine the validity of the concern without more specific information.

(6) (Open): "Field Engineering Memo (FEM) was used for years to establish design criteria, yet it was not treated as a quality document. Violation of federal law? Thousands of those documents filed in books maintained by Field Engineering group."

-- DECo Project Procedures Manual (PPM) Procedure 3.8, Revision 0, dated 10/17/83, "Field Engineering Memorandum (FEM)," Section 1.0 states that the FEM is used by site contractors, Startup, Nuclear Production, and other groups at the site to request clarification or information from Field or Project Engineering regarding a design document. Section 4.1 states that FEM is not used to initiate a change in a design document and Section 4.2 states that

it is not a construction document, a design document, or a QA record. It is an information document used to provide a formal means of tracking a question and recording the response. It is apparent from review of the governing document that the FEM does not establish design criteria.

The inspectors reviewed audits and surveillances relating to FEMs and were able to find only one example of incorrect usage of FEMs. An FEM was used to document a nonconforming condition. This item will be reviewed during a subsequent inspection.

(7) (Open: "Lack of cleanliness control when work was completed using a document called a Punchlist Card (PLC). A review of several thousand will show that controls were very seldom established for previously cleaned piping systems. Pieces of wood discovered in cleaned systems. NRC did not conduct complete investigation."

-- PLC's are not work packages, but are part of a system which is used to track open or uncompleted items. Completion of the task or work package is identified on the PLC which provides part of the documentation which demonstrates that the item is closed. Lack of cleanliness control had been identified by the NRC and by the licensee to the NRC. This has been documented in Inspection Reports 50-341/84-06, 50-341/84-07, and 50-341/84-29, and by 10 CFR 50.55(e) Reports 341/83-15-EE and 341/84-19-EE. The identified items are still open pending review by the NRC.

(8) (Closed): "Many revisions made to construction work and test procedures without reviewing which activities completed by outdated procedures must be repeated. Example is test procedure for hydrostatic tests on piping systems; revised many times, but no documents to indicate retest review was conducted."

-- Systems are constructed and tested to specified standards, documents, etc. Systems and components which are for QA Level 1 systems have documents which list the revision of the document or procedure to which they are built or tested. Additionally the change referred to in the concern may not affect the component or system.

Piping systems are hydrostatically tested in accordance with Section III of the ASME code. Test procedures are written which describe test boundaries, valve lineups and the specific pressure at which the system is to be tested. Test procedures are revised to test different sections of the same system and do not necessitate a retest. Retest is required when a system fails the original hydrostatic test.

(9) (Open): "Seismic clearance or "rattlespace." It was 1981 before Detroit Edison issued a design criteria for seismic clearance, much too late for most of the plant. Sample survey was conducted on fixes."

-- Sargent and Lundy is conducting an interaction "rattlespace" walkdown to investigate all components in Category 1 buildings to verify that adequate spacing exists between components. This is an ongoing program and no report is available. This item was addressed in Section 5.2 of the Duke Power Company Final Assessment of Construction for Fermi 2 dated July 31, 1984. This item will be reviewed by Region III in a subsequent inspection report.

(10) (Closed): "Fire protection system not properly built. The design specification was completely revised to meet current requirements after the system had been constructed. There was no rebuilding to the revised specifications, and the piping system does not conform to the revised specifications. In addition, Detroit Edison knew there was a very serious problem with the infestation and growth of the hard-shelled clam and mussel in the plant's service water (cooling water) and fire protection systems, yet made a misleading report to the NRC concerning a similar problem at other nuclear power plants. Clams actually plug some systems. Do they? Clams plug sprinkler heads or distribution mains."

-- Fermi 2 has had two fire protection inspections by the NRC as documented in Inspection Report 50-341/83-12 and 50-341/84-16. The inspection results have not substantiated the concern regarding the fire protection system not being constructed to the revised specifications. Additional fire protection inspections will be performed prior to licensing. The issue of Asiatic clams and mussels has been addressed in IE Bulletin 81-03 and Inspection Report 50-341/84-33. There has been no indication that this aquatic life would clog sprinkler heads.

(11) (Closed): "Gripes about delays and cost increases."

-- This is not a safety concern.

(12) (Closed): "Quality problems with structure of Reactor Heat Removal (RHR) building. Poor quality of concrete used. Sampling techniques during quality inspections were poor and not always done, concrete was poured after allowed time between mixing and pouring."

-- The concrete in the RHR building has been reviewed several times in the last two years, e.g., Cygna Energy Services (1983), the NRC (5/84), and the Duke CAT inspection (6-7/84). Duke tested the concrete and found it to be above the strength requirements and this is documented in Section 3.2.3 of the Duke Power Company Fermi 2 Final Assessment of Construction Report dated July 31, 1984. The Duke report is currently being reviewed.

(13) (Closed): "Emergency Diesel Generators. Testing way behind; been trying for two years; gross mismanagement. The test procedures do not comply with all Federal requirements such as sequential load testing. Load banks have not been purchased. Edison violated reporting requirements and did not properly document problems."

-- This concern has several issues and all will be addressed individually. Schedular issues are not safety related. The Emergency Diesel Generator (EDG) test procedures were thoroughly reviewed by the NRC; and, in addition, the NRC witnessed many of the preoperational tests. The EDGs successfully passed the load sequencing tests. The purchase of a load bank is not safety-related and is not a requirement. While some problems were experienced during the testing phase, the diesel generators currently meet requirements.

The last item of the concern is not specific but the inspectors are aware of a recent incident which related to failure to report in the RHR complex. Region III identified, in the course of an inspection, that anchor bolts fastening switchgear to the floor of the RHR complex might be improperly imbedded and the licensee had not properly evaluated the situation. This is documented in Inspection Report 50-341/83-31. In addition, DECo submitted a 10 CFR 50.55(e) Report 341-83-22. The licensee's action has been reviewed by Region III and the item has been closed as documented in Inspection Report 50-341/84-34.

(14) (Closed): "A problem with undersized power cables used to operate 480-volt alternating current motor-operated valves which are nuclear safety-related was not reported to the NRC as required, nor was a similar problem with undersized starters. A problem with direct current powered motor-operated valves was reported, but the AC problem was covered by the Engineering Department. Failure to report is violation of federal law?"

-- The part of the concern which relates to undersized 480 volt power cables and motor starters has been reviewed by Region III. The review is documented in Inspection Report 50-341/84-45.

The section of the concern which relates to direct current motor-operated valves was reported in 10 CFR 50.55(e) Report 341/82-12. DECo Nonconformance Report 82-043 dated March 15, 1982, was written to document the problem and provide the necessary corrective action. The corrective action consisted of design changes which provided for the proper size cable. The changes have been completed and verified by a Region III inspection which is documented in Inspection Report 50-341/84-33.

(15) (Closed): Problems with General Service Water building on Lake Erie. Water enters through sluice gates into pump suction pit, then put through deep draft pumps into fire protection loops and cooling water. It is possible, under severe conditions, for the level in Lake Erie to drop to a level where inadequate suction head would be experienced by the pumps in the GSW building. The last hope then would be the reservoir in the RHR complex, and that would be unsafe. There was a provision to isolate suction pit from lake by including sluice gates on the intake and using water from the Circulating Water reservoir to maintain normal cooling

for up to 12 hours. This is where the design flaw is. With the sluice gates closed, water is supposed to flow by the force of gravity through a special return pipe from the CW reservoir to the GSW suction pit. Unfortunately, this pipe will not provide enough flow to maintain an adequate pump suction level in the pit under the most severe conditions, which would be maximum design demand for fire fighting water while pumping the maximum required GSW. This can be proven by closing the GSW water intake sluice gates and pumping down the pit to some reduced level. The pumps should then be turned off and pit level monitored to ensure the gates do not leak. The circulating water reservoir should be decanted to minimum operating level and the bypass valve opened to the GSW pit. Start a fire protection pump, or pumps, and enough GSW pumps needed to provide the worst case demand flow. Open enough fire hydrants to establish worst case demand on the fire main. After establishing design GSW flow, the suction pit level will drop to a level such that all pumps will cease to perform as designed. The pipe on the return from the circulating water reservoir must be increased in diameter before the system will work. Above test should have been part of the test program, but was not."

-- The General Service Water (GSW) system is not a safety system. The concern does refer to the reservoir in the RHR complex. The design of the plant uses the water in the reservoir in the RHR complex which is called the ultimate heat sink to cool the plant under emergency conditions and does not use the GSW system. The ultimate heat sink has sufficient reserve to cool the plant for thirty days if required.

The inspectors reviewed the section of the allegation relating to sufficient water for fire protection under certain adverse conditions. The review determined that the licensee has procedures which should preclude this from occurring. Plant Operations Manual (POM) Procedure 20.000.22, "Plant Fires," requires the Nuclear Shift Supervisor (NSS) to manually shut the plant down by scramming the control rods in the event of a "major" fire. POM Procedure 23.101, "Circulating Water (CW) System," requires the NSS to manually secure the circulating water pumps if the CW pond reaches a low-low level of 568 feet 4 inches. The 54 inch tie line between the CW pond and the GSW pit remains flooded with a head of approximately 2 feet. Shutting down the CW pumps will result in a plant shutdown. The GSW pumps will be shutdown with the plant in a shutdown condition, thereby providing adequate fire-fighting capability.

(16) (Open): Check-out and Initial Operation (CAIO) Testing. Completed CAIO test data is being reviewed by the Startup Assurance group at Fermi and this group has found numerous errors with this data, yet correction has not been taken for all the identified problems. In fact, just finding these errors is serious in that management had approved this data prior to this review taking place."

-- Startup Assurance did find numerous errors with the CAIO data which proved to be principally incomplete filling out of the data forms. The required data has been obtained and the forms are complete. However, management does not approve CAIO data with the exception of valves. The inspectors have verified that all items which have been identified as deficiencies are tracked by the licensee. Corrective action has not been completed for all the identified items, but they are identified. All significant deficiencies will be reviewed prior to the issuance of the operating license.

(17) (Closed): "Lack of proper slope in installed instrument air lines. Design called for slope, but was missed during installation."

-- This concern is vague and is difficult to substantiate. The allegation does not state if the referenced instrument air lines are safety-related. Control air supplied to safety-related instrument air lines goes through dryers which minimizes the concern of slope and the effects of entrapped water. Region III inspectors have performed several inspections of instrument air lines in containment and have not noted the condition described in the allegation. The inspectors are unable to verify the concern without additional specific information.

(18) (Open): "Physical separation of electrical divisions. Problem with crossover cables. Edison decided to route nondivisional cables through divisional cable trays or conduit, with the explanation for this being divisional separation is not compromised, hogwash. NRC should investigate."

-- This concern was identified by the NRC and is documented in Inspection Report 50-341/81-12. The licensee is currently working on this concern. This item will be resolved prior to the issuance of an operating license.

(19) (Closed): "Lack of accurate as-built drawings, especially in electrical and instrument and control area. Fermi never had proper system for recording system configuration. The NRC accepts information from Detroit Edison that is inaccurate; in fact, it is false information."

-- This concern appears to have three parts. As-built drawings are developed by a hand-over-hand system walkdown. Several walkdowns have been performed by various organizations utilizing the latest system drawings with the appropriate changes. Discrepancies were identified and the drawings have been corrected. Nuclear Production performs a system walkdown to verify the accuracy of the system drawings prior to system acceptance. All discrepancies are identified and the drawings reconciled. The corrected or revised drawings from this walkdown become the as-built drawings. An as-built drawing verification of portions of selected systems was performed during the Duke CAT inspection. In addition, the NRC performs an as-built drawing verification of selected complete systems. All identified discrepancies are resolved by the licensee.

The second part of the allegation refers to a proper system for configuration control. The term "proper" is subjective and the inspectors are unable to verify the concern. However, the System Completion Organization (SCO) was responsible for and maintained system configuration control. Several NRC inspections were performed in this area with no significant discrepancies identified.

The third part of the concern is more difficult to address. It is the responsibility of the licensee to provide the NRC with accurate information. The NRC does not verify all information submitted by the licensee. This part of the concern is all encompassing and almost impossible to verify without more specific information.

The inspectors believe that all of the concerns have been or will be addressed or are not safety-related. The generalization of some of the concerns is such that it would be virtually impossible to verify on a specific basis without more information. The inspectors consider all items to be closed except items 6, 7, 9, 16, and 18. These items will be reviewed prior to fuel load and documented in subsequent inspection reports.

c. (Closed) Allegation (ATS-RIII-84-A-0130): Improper Damper Material. The inspectors received an allegation thru NRR by an individual who claimed that C.D.I. had installed ventilation dampers fabricated with incorrect material and painted them to disguise this fact. The alleger stated that he learned of this from a third party and the incident occurred approximately two years ago. The inspectors contacted the licensee to determine if C.D.I. had performed any safety-related ventilation work at Fermi. The licensee informed the inspectors that there was no record of C.D.I. performing any work at Fermi. Two companies, C.V.I. and Curbs and Damper Products, Inc., had performed ventilation work in the past two years.

The inspectors contacted the alleger who stated that the company in question was called C.D.I. which stood for Curbs Dampers, Inc. With the above information, the inspectors consider Curbs and Damper Products, Inc. to be the company in question. The inspectors recontacted the licensee and asked if Curbs and Damper Products, Inc. had performed any safety-related work at Fermi. The licensee informed the inspectors that Curbs and Damper Products, Inc. had performed no safety-related work at or for Fermi. The company supplied hardware for nonsafety-related heating and ventilation systems.

The inspectors were unable to substantiate the allegation as no safety-related work was performed by the contractor nor did he supply any safety-related materials. This allegation is considered to be closed.

9. Engineered Safety Features - Preoperational Test Witnessing

The inspectors observed the performance of parts of Preoperational Test PRET.A8100.001, "Emergency Core Cooling System (ECCS) Integrated Test," on September 27 and 29, 1984. The inspectors observed segments of Section 6.3 "loss of offsite power and simulated loss of coolant with balance of plant AC and DC power and Division II Engineered Safety Features (ESF) ac and battery out-of-service tests" and Section 6.4 which tests the same for Division I. The tests demonstrated that the ECCS equipment as an overall system, functioned upon demand. The tests were successful and all systems performed as planned. No major problems were identified.

This test was the first time that a preoperational test was under the control of Operations. Previously, testing had been under the control of Startup with Operations in a support function. The inspectors observed that operators verified all prerequisites in an orderly manner, quickly identified and solved problems as they arose, were well prepared, and demonstrated good knowledge of the plant and its interactions. The inspectors have observed that the operators' performance has shown steady improvement as was demonstrated during this test.

No items of noncompliance or deviations were identified.

10 Comparison of As-Built Plant to FSAR Description

The objective of this inspection was to determine that the as-built plant conforms to the commitments contained in the FSAR. The inspectors commenced a system walkdown of the mechanical and fluid portions of the core spray system to determine that the as-built plant conforms to FSAR commitments by comparing field drawings used at the site to Piping and Instrument Drawings (P&ID) and the description of the system contained in the FSAR. During this inspection, the inspectors noted that the FSAR P&IDs were not in agreement with the as-built P&ID as the FSAR does not contain the latest approved revisions to these drawings. The licensee has indicated that updating these drawings is a continuing process and that a program does exist to update FSAR P&IDs annually by an amendment to the FSAR, in accordance with 10 CFR 50.71. The inspectors are aware that the licensee has been continually changing and updating the FSAR and intend to review the licensee's program to ensure that the FSAR is updated to incorporate system design changes. This is considered an open item (341/84-20-10(DPR)), pending review of the licensee's program for periodically updating the FSAR.

No items of noncompliance or deviations were identified.

11. Technical Specification Review

The inspectors reviewed the Proof and Review Copy of Fermi 2's Technical Specifications for technical content, clarity, and enforceability. The scope of the review was primarily limited to technical content and clarity of Limiting Conditions for Operation, Surveillance Requirements, Design Features, and Administrative Controls, including applicable action statements. The inspectors' comments were combined with regional comments and forwarded to NRR, Division of Licensing.

These comments were reviewed by LRR for points of contention and potential areas requiring change in the Proof and Review Technical Specifications. Because of the large number of changes required due to comments by both the licensee and NRC, a draft version of Fermi 2's Technical Specification will be issued for comment and verification of incorporation of previous comments.

No items of noncompliance or deviations were identified.

12. Title 10 Requirements

The inspectors' review was to determine the licensee's conformance to the following selected Title 10 requirements applicable during the testing phase:

a. 10 CFR 19

(1) Posting Requirements

(2) Instructions to Workers

b. 10 CFR 20

(1) Storage of Licensed Material

c. 10 CFR 50

(1) Construction Deficiency Reporting

(2) Changes, Tests, and Experiments

The conformance to these requirements was based on the review of portions of the preoperational test program and certain plant procedures. The inspectors reviewed the following plant procedures:

POM 11.000.117 "Requirements for Posting of Regulatory Material"
Revision 0, April 19, 1984
POM 11.000.127 "Licensing Interface with NRC Region III"
Revision 0, March 30, 1984
POM 12.000.13 "Radiation Work Permits"
Revision 4, September 25, 1984
POM 12.000.62 "Radiologically Controlled Area Rules of Practice"
Revision 3, June 26, 1984
POM 61.000.15 "Health Physics Posting"
Revision 2, July 31, 1984
POM 67.000.10 "Procurement and Receipt of Radioactive Material"
Revision 5, July 26, 1983
Startup Manual Section 8, "Preoperational Test Phase"
Revision 27, September 25, 1984
NQAP 1606T "Evaluating and Reporting 10 CFR 50.55(e) Deficiencies"
Revision 0, April 2, 1984

During the review and witnessing of testing, the inspectors verified that codes and standards in use corresponded to the revisions required by 10 CFR 50.55a. A review of the test program included checks to verify that alterations or deletions to testing described in the FSAR were documented and reviewed in a manner equivalent to 10 CFR 50.59.

Concerning posting requirements and instructions to workers, the inspectors identified minor problems which the licensee has agreed to correct. This includes revising 11.000.117 and 11.000.127 and updating some posted material. No items of noncompliance or deviations were identified.

13. Emergency Procedures

The inspectors performed a review of selected emergency procedures in the following category: Alarm Response Procedures (ARP). The procedures were reviewed for technical adequacy, applicable operating limits, and regulatory requirements. The procedures were also reviewed to determine whether they were consistent with the general guidance of ANSI N18.7.

The inspectors reviewed the following ARPS:

16D18 "Condensate Pump Discharge Header Conductivity Hi-Hi"
Revision 0, July 3, 1984
16D19 "Polishing Demineralizer Influent Conductivity Hi-Hi"
Revision 0, July 3, 1984
16D21 "Main Steam Conductivity High"
Revision 0, July 16, 1984
16D22 "Condensate Pump Discharge Header Conductivity High"
Revision 0, July 16, 1984
16D23 "Polishing Demineralizer Influent Conductivity High"
Revision 0, July 16, 1984
16D24 "Polishing Demineralizer Effluent Conductivity High"
Revision 0, July 16, 1984
16D45 "Reactor Water Cleanup Effluent Conductivity High"
Revision 0, July 16, 1984
16D46 "Feedwater Heater 6N Discharge Conductivity High"
Revision 0, July 16, 1984
16D47 "Feedwater Heater 6S Discharge Conductivity High"
Revision 0, July 16, 1984

These ARPs were reviewed in conjunction with closing out Open Item 341/81-10-09 which was an SER item concerning condensate cleanup system (see Paragraph 3).

The following conditions were observed during the review:

a. On all nine ARPs the alarm initiating setpoints were identified mhos/cm but the alarm initiating device was calibrated to micromhos/cm. During the review it was determined that the Nuclear Production Department personnel were using Project Procedures Manual, Appendix B, "Abbreviations and Acronyms," Revision 2, to obtain abbreviations for

micromhos. This procedure was in error in that the "micro" symbol was deleted on all abbreviations where required. This procedure is currently in Revision 3 and has still not been corrected to include the "micro" symbol where required.

b. On ARP 16D24, the alarm setpoint was identified as 0.2 mhos/cm, at which point the demineralizer should be changed out. Fermi 2 SER indicated that a demineralizer would be changed out at 0.1 micromho/cm.

c. On ARP 16D23, the alarm setpoint is 0.09 mhos/cm. This setpoint should be 0.2 micromhos/cm to be consistent with ARP 16D22, as the conductivity alarm setpoint should be the same for both devices.

d. On ARP 16D23 and 16D24, the initiating device is identified as CMA P33-R103 and CMA P33-R102 respectively. ARP 16D23 and ARP 16D24 should have been identified as CMA P33-R102 and CMA P33-R103 respectively.

The above items are considered to be an item of noncompliance with 10 CFR 50 Appendix B, Criterian VI, in that the licensee failed to perform an adequate review (341/84-20-11(DRP)).

14. Independent Inspections

a. Containment Coatings

Discrepancies with containment coatings were identified during the Duke CAT inspection and dcumented in Inspection Report 50-341/84-21(DRP) and tracked as an unresolved item (341/84-21-03(DRP)). Discussions were held with the licensee, Region III, and NRR to discuss the coatings. NRR requested that the licensee perform an evaluation of the failure mechanisms of unqualified coatings and their effects on safety systems.

The licensee with the assistance of two consultants, Bechtel and Multiple Dynamics Corporation, presented their evaluation to NRR management and staff, Region III staff, and the Senior Resident Inspector at NRR on September 14, 1984. The licensee's analysis revealed that no damage would occur by failed unqualified coatings. The staff raised several issues which the engineering evaluation had not addressed. The licensee agreed to respond to the staff's concerns. This item will be reviewed by Region III and documented in a subsequent inspection report.

b. Emergency Diesel Generator (EDG) - Control Panels

The inspectors identified an unresolved item (341/83-30-04(DPRP)) which relates to the licensee's handling of EDG control panel termination discrepancies in Inspection Report 50-341/83-30(DPRP)). The inspectors' review of the finding revealed 2 items of noncompliance.

The inspectors reviewed Purchase Order IE 90236 dated February 23, 1973, to Fairbanks Morse for the purchase of four EDGs. The purchase order did not contain any quality requirements. The inspectors noted in subsequent correspondence that the contract price was increased to accommodate several changes including quality requirements. The change documents were unavailable for review. This item is considered to be an unresolved item (341/84-20-12(DRP)) pending review of the contract change documentation by the inspectors.

DECo source inspection report dated May 27, 1975, for the EDGs revealed that testing delays were encountered of which the majority were due to control malfunctions. It was the opinion of the DECo inspector that the malfunctions should have been detected during preliminary inspection and functional testing of the equipment and control circuits prior to the running tests. The report goes on to state that connections to types J13 and J20 relays were made by inserting bare wire strands under the terminal clamping plate. The report stated that the terminations were made using poor industry practices and did not mention that the from DECo specifications were not implemented. The report also states that terminations for the same type relays in the skid mounted control cabinets and the exciter cabinets used open and spade lugs rather than the bare wire strands. The report further stated that this was contrary to DECo practice but was not referenced on the purchase order, but change-out would be at the discretion of personnel at the site during installation of the equipment.

The inspectors consider that the control malfunctions and termination deficiencies which were documented in the source inspection report dated May 27, 1975, should have alerted the licensee of potential problems and should have been evaluated. It is apparent that the DECo Engineering recommendation (the change-out of terminations will be at the discretion of personnel at the site during installation of the equipment) was not properly documented or tracked as the discrepancies were not identified until Checkout and Initial Operation (CAIO) testing and not during installation. In addition, the inspectors reviewed the EDG installation inspection reports, all dated June 7, 1979, and no problems were identified with the terminations (lugs). The licensee has been unable to provide any documentary evidence to the inspectors that notification was provided to the affected organizations. This is considered to be an unresolved item (341/84-20-13(DRP)).

The licensee issued Nonconformance Report (NCR) 83-1055 dated October 17, 1983, which documented loose crimps on control wiring terminations in the EDG No. 11 control panel. This was treated as an isolated occurrence and only the identified lugs were recrimped. The licensee issued NCR 84-0024 dated January 11, 1984, which documented 2 wires were pulled out of the lugs in the EDG No. 14 control panel. This was dispositioned by replacing all of the vendor installed ring lugs on all internal wiring No. AWG 8 or larger except pigtail leads of devices and field installed lugs in all 4 panels. The lugs identified in NCR 84-0024 were for power cables rather than the previously identified control cables. The licensee's final disposition dated January 9, 1984, of

this NCR reflects adequate corrective action to identify any remaining similar discrepancies. DECo reported this finding to the NRC by a 10 CFR 55.55(e) Report (341/84-03-EE) (Licensee No. 112) on January 13, 1984. The inspectors requested that the licensee provide the applicable source, receipt, and installation inspection reports for their review. The inspectors had been informed that some work had been done on the control panel terminations using the minor deficiency log (MDL). The inspectors subsequently requested that all applicable MDLs be supplied. The licensee met with the inspectors on January 17, 1984, to discuss the issues and provide the requested data. Review of the MDLs revealed 132 vendor crimped lugs were replaced on April 23, 1982, which were undersized (No. 12 lugs on No. 10 AWG wire) during CAIO testing of EDG No. 11. Replacement of 240 lugs was done during the testing of EDG No. 12 on April 27, 1982. Replacement of 218 lugs was done on EDG No. 13, and 114 lugs were replaced on EDG No. 14 on March 1, 1983, during CAIO testing. A total of 704 lugs were replaced in the four panels using four MDLs. The licensee amended the corrective action for NCR 84-0024 on January 19, 1984, by inspecting all of the vendor supplied lugs on all vendor supplied wiring smaller than AWG #8 in all EDG panels.

Startup Instruction (SI) 7.4.5.01, "Repair/Rework Request Procedure," Revision 7, dated January 31, 1982, states in Section 4.5.2.1 that MDLs are not to be used if the deficiency significantly affects a characteristic that is essential to the safety-related function of QA Level 1 items. Section 4.53 of the SI states that the Shift Test Engineer (STE) is responsible for determining if the work falls within the definitions of a minor deficiency when approving the work.

Startup Instruction (SI) 7.4.5.04, Minor Deficiency Log (MDL), Revision 0, dated July 10, 1982, states in Section 3.1.2 that the cognizant Lead Startup Test Engineer (LSTE) will review all MDLs for accuracy, PQA verification and configuration control, Section 3.2.1 states that appropriate PQA personnel must verify all QA Level 1 work performed on an MDL and Section 4.1.3.2 states that an MDL can be used if it does not significantly affect a characteristic or process that is essential to the availability of the plant for power generation.

It is apparent that the licensee performed an inadequate review of MDLs in that an adequate review would have revealed that large number of terminations which were changed out was beyond the scope of the MDL and should have been documented in a DDR or NCR. It is also apparent that neither the LSTE, the STE, nor QA followed SI 7.4.5.04, "MDLs." This is considered to be an item of noncompliance (341/84-20-14a(DRP)) with the requirements of 10 CFR 50, Appendix B, Criterion V. It has also been clearly demonstrated that the licensee misused MDLs by correcting discrepant items by the use of the MDL and issuing a nonconformance report which is contrary to the requirements of SI 7.4.5.04 and Procedure 12.000.52T. This is considered to be an item of noncompliance (341/84-20-14b(DRP)) with the requirements of the 10 CFR 50, Appendix B, Criterion V.

The inspectors reviewed Quality Surveillance Summary FC/M-4789, "Vendor Terminations in RHR Cabinets," dated November 4, 1983, which listed three nonconforming conditions observed in all four EDG control cabinets. The QC inspectors found that 1) the lugs were crimped on opposite sides of the barrel, 2) various vendor wiring in each cabinet can be found with cut or scored strands, and 3) all blue insulated terminations on the "Motor Operated Control" devices in each cabinet were deficient in that the conductors were not properly crimped allowing bare strands to move freely in the lug barrel. Section 3.1 of Procedure 12.000.52T requires that all personnel discovering nonconformances shall initiate an NCR. In addition, Project Procedure 7.13, Section 4.2 requires any site personnel observing a deviation shall bring it to the attention of QA and document it on a Design Deviation Report (DDR). The licensee did not document nonconforming conditions on nonconforming or deviation reports as required. This is considered to be an item of noncompliance (341/84-20-14c(DRP)) with the requirements of 10 CFR 50, Appendix B, Criterion V.

The inspectors also reviewed the corrective action for the items identified on FC/M-4749. The first item was closed out by Field Engineering memorandum FE4-088 dated January 11, 1984, which addressed all three items. The second item was closed out on the basis of the corrective action of NCR 84-0024. The third item which describes inadequate crimping was closed out on the basis of the corrective action of NCR 84-0109. However, NCR 84-0109 addresses unsupported conduit and does not address crimping. This is considered to be an unresolved item (341/84-20-15(DRP)).

The Startup Organization directed that the usage of the LDL for QA Level 1 components and equipment be discontinued after March 1, 1984, by letter SU-84-0387 dated February 23, 1984. The MDL was replaced by the PN-21 (work order) using Procedures 12.000.15 and 12.000.45T. The inspectors also reviewed Quality Surveillance Report S-QA-84-395, "Minor Deficiency Logs (MDL)" dated April 18, 1984. The surveillance reviewed 101 MDLs which were written by Startup during the months of January and February 1984. Eleven minor discrepancies were observed during the performance of the surveillance. The finding of the surveillance was that implementation apoeared to be adequate and no corrective action was taken. The surveillance did, however, recommend that Procedure 12.000.15, PN-21 (work order) Processing, and 12.000.45T (as appropriate) be used as a replacement for SI 4.5.4.04 as the results of the surveillance indicated a potential for a lack of programmatic control inherent in the MDL system. SI 4.5.4.04, "MDL," was cancelled by letter SU-84-0765 dated April 17, 1984.

The inspectors consider that the licensee should have taken corrective action at the time the problem was brought to the attention of the inspectors on January 17, 1984. This is considered to be an item of noncompliance (341/84-20-16(DRP)) with the requirements of 10 CFR 50, Appendix B, Criterion XVI. Subsequent action taken by the licensee included procedure revision and additional training. The inspectors consider the corrective action to be adequate to minimize recurrence and this item is considered to be closed.

The inspectors consider that the above described incidents represent a programmatic problems in several areas. The licensee has subsequently taken action by eliminating the usage of MDLs, reviewing all MDLs, and correcting discrepancies identified during the review.

15. Fire Protection

The licensee met with NRR management and staff, Region III staff, and the Senior Resident Inspector on September 13, 1984, at NRR to present their conceptual design for the independent remote shutdown system to meet 10 CFR 50, Appendix R requirements. DECo proposed to use the electric auxiliary feedwater pumps which would be powered by the combustion turbine generators (gas turbine peaker units) in the event a fire would disable both Division I and II Emergency Core Cooling System (ECCS). This proposed design resolved many of the staff's concerns relating to the effects of two panel fires.

The licensee also discussed their conceptual initiating actions and procedures for the proposed shutdown system. Interim compensatory measures were also discussed. The staff raised several concerns relating to the licensee's presentation. DECo will address the staff's concerns in subsequent submittals. A final design for the independent remote shutdown system, including interim compensatory measures, will be submitted by the licensee to NRR for review. The submittal of the satisfactory response to staff's concerns is presently pacing the licensing review.

16. Plant Tours

During the months of August and September 1984, the inspectors conducted tours of the RHR complex, the Reactor Building, the Auxiliary Building, the Turbine Buildings, and the Radwaste area, including the fifth floor of the Reactor Building, the Control Room, and the cable spreading rooms. The areas were inspected for general housekeeping and fire prevention practices, work controls, and maintenance of safety-related system integrity. The inspectors observed control room operations, reviewed applicable logs, and conducted discussions with control room operators. No items of noncompliance or deviations were identified.

17. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspectors, and which involve some action on the part of the NRC or licensee or both. Open items disclosed during the inspection are discussed in Paragraphs 5.a, 10.

18. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. Unresolved items disclosed during the inspection are discussed in Paragraph 14.b.

19. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) throughout the month and at the conclusion of the inspection and summarized the scope and findings of the inspection activities. The licensee acknowledged the inspectors' comments.