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February 18, 1985
EF2-70386

Mr. James G. Keppler
Regional Administrator
Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

Reference: (1) Fermi 2
NRC Docket No. 50-341

(2) Letter, W.H. Jens to J.G. Keppler,
February 16, 1985, EF2-70390

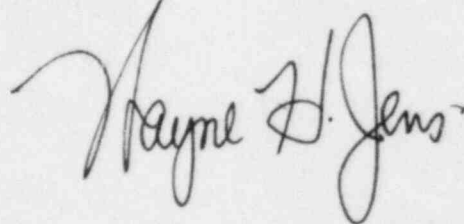
Subject: Detroit Edison Response
Inspection Report 50-341/84-68

This letter responds to the items of noncompliance described in your Inspection Report No. 50-341/84-68. This inspection was conducted by Messrs. R. Mendez, Z. Falevits, K. Tani, and A. Gautam of NRC Region III on December 19-20, 1984 and January 3-5 and 10-12, 1985.

The item of noncompliance is discussed in this reply as required by Section 2.201 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations. The enclosed response also addresses each of the unresolved issues identified in the inspection report. These items are arranged to correspond to the sequence of items cited in the body of the inspection report.

We trust this letter satisfactorily responds to the item of noncompliance and the unresolved issues cited in the inspection report. If you have questions regarding this matter, please contact Mr. Lewis Bregni, (313) 586-5083.

Sincerely,



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THE DETROIT EDISON COMPANY

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NUCLEAR OPERATIONS ORGANIZATION

RESPONSE TO NRC INSPECTION REPORT NO. 50-341/84-68

DOCKET NO. 50-341

LICENSE NO. CPPR-87

INSPECTION AT: FERMI 2, NEWPORT, MICHIGAN

INSPECTION CONDUCTED: DECEMBER 19-20, 1984
JANUARY 3-5, 1985
JANUARY 10-12, 1985

Statement of Noncompliance 84-68-20

10 CFR 50, Appendix B, Criterion VI, as implemented by DECo Quality Assurance Manual, QAPPR 6, Revision 1 requires that measures be taken to assure that documents such as instructions, procedures, and drawings, including changes thereto, are reviewed for adequacy...and are distributed to and used at the location where the prescribed activity is performed.

Contrary to the above, the licensee failed to assure that changes and revisions to drawings were adequately distributed, reviewed, and controlled when used in checkout and initial operation (C&IO) testing of safety-related systems.

The following discrepancies were identified:

- a. There was a lack of consistent procedural requirements. (C&IO) Startup Instructions Procedure (SIP) 7.7.2.01 Revision 6 requires that superseded revisions of drawings be filed in the Startup Resource Center, while procedure SIP 4.7.4.02 requires that [unmarked] superseded revisions be thrown away.
- b. Revisions D, E, F, G, H, I and J of drawing 6I721-2201-2 did not contain the proper stamping signatures and dates, contrary to procedure SIP 7.7.2.01.
- c. Revision D of drawing 6I721-2201-2 was not stamped "superseded" or "testing void" as required by procedure SIP 7.7.2.01 when portions of the schematic had been changed or when subsequent revisions required new testing.
- d. Revisions E and I of drawing 6I721-2201-2 were found missing from the files, contrary to procedure SIP 7.7.2.01.
- e. Sections of schematic 6I721-2201-2 were observed to be yellow lined indicating that these sections were tested, although there was no evidence that tests had been performed.
- f. There was no one consistent method applied among the startup engineers to document the status of performance of C&IO testing required by procedure SIP 7.7.2.01.

Corrective Action Taken and Results Achieved

The following corrective actions are arranged to correspond to the sequence of items in the statement of noncompliance:

- a. Startup Instructions (SI) 7.7.2.01, "Electrical Checkout Instructions" and SI 4.7.4.02, "Control and Handling of Electrical System Drawings," have been revised. Superseded drawings are being stamped or marked "Superseded" and are filed in the Startup Resource Center.
- b. Each revision of drawing 6I721-2201-2 has been reviewed and updated in accordance with SI 7.7.2.01. In accordance with the SI, each revision of the drawing was reviewed by the Startup Test Engineer (STE). Yellow-line updating and necessary retesting, with the appropriate marks, stamps and signatures, were performed to the latest drawing revision.
- c. See Item b above.
- d. The intermediate revisions were missing from the file as a result of the Document Control practice of removing and discarding superseded prints which did not have yellow marking. The effect of a missing intermediate drawing revision is not significant since the latest drawing revision reflects the C&IO testing status by yellow-lining the tested portion of the drawing. Document Control personnel have been directed not to discard any drawing from the "Yellow-Line Master" drawing file and the SI's have been revised appropriately. Additionally, the need for timely review of drawing revisions in accordance with SI 7.7.2.01 has been emphasized during training sessions given to the STE's.
- e. Drawing 6I721-2201-2 has been corrected and updated through Revision L to reflect C&IO testing status in accordance with SI 7.7.2.01.
- f. SI 7.7.2.01 has been revised to clarify the requirements for yellow-lining the status of C&IO testing. Training has been conducted to promulgate the requirements of the revised procedure.

Corrective Action Taken to Avoid Further Noncompliance

All electrical STE's were directed to ensure that drawing revisions are processed when received in accordance with Startup Instruction 7.7.2.01. For the case where multiple revisions are issued over a short period of time or more than one revision exists in the file for review, the Startup Instruction has been revised to clarify that the STE will perform his review for each revision, but the yellow-line updating and retest will be performed to the latest drawing revision only. It was emphasized that this clarification does not preclude the need for timely response to drawing revisions by STE's.

To remind personnel of the procedural requirements, the Document Control Satellite Clerks have been instructed, via Startup letter SU-85-0040 dated January 29, 1985, not to discard superceded revisions of unmarked "Yellow-Lined Master" drawings.

The actions taken will ensure that "Yellow-Line Masters" are maintained in accordance with SI 7.7.2.01.

The Date When Full Compliance Will Be Achieved

Full compliance has been achieved.

UNRESOLVED ITEM 84-68-01

The NRC inspector and the licensee's representatives performed a physical walkdown of the as-built field configuration of the main steam line high flow instrument sensing lines B21-L003A and B21-L004A, which provide isolation signals to the MSIV B21-F022A and B21-F028A. It was determined that the sensing line installation appeared to be adequate per the as-built isometric drawing; however, the inspector observed the following discrepancies:

- (1) Main stem line D instrument tap condensing chambers fed by lines B21-L003D and B21-L004D, were observed to be separated by three (3) inches of free air from other sensing lines that were labeled as B31-L001A, Division I, and B31-L002B, Division II.
- (2) Instrument sensing lines labeled B31-L001A, Division I, B31-L002A, Division I, B31-L001B, Division II, and B31-L002B, Division II, were separated from one another by six (6) inches of free air.
- (3) Instrument sensing lines labeled B31-L001A, Division I, B31-L002A, Division I, B31-L001B, Division II, B31-L002B, Division II, and B21-L016, Division I, were all routed through one common penetration labeled Pen. X-28D.

The NRC inspector queried the licensee as to what separation requirements apply to redundant instrument sensing lines at Fermi 2. The licensee responded that they will be investigating the above discrepancies to determine if this is a separation violation or a mislabeling of the sensing lines. Pending a review of the licensee's investigation results, this item is considered unresolved (341/84-68-01).

RESPONSE TO UNRESOLVED ITEM 84-68-01

The basis for separation criteria is Specification 3071-536. This specification defines the design requirements which account for the effects of pipe ruptures inside the primary containment. A walkdown and evaluation was conducted to verify compliance with this criteria. No discrepancies were identified. Detroit Edison's report of 10 CFR 10.55 (e) Item 115, August 20, 1984, EF2-69694 informed the NRC of the results of this evaluation.

RESPONSE TO NRC INSPECTION REPORT NO. 50-341/84-68

RESPONSE TO UNRESOLVED ITEM 84-68-01 (Continued)

Detroit Edison's investigation of unresolved item 84-68-01 revealed that there was no violation of separation criteria. Each of these instrument lines belongs to Division I. The appearance of separation criteria violations was created by labeling errors. The incorrect labeling was documented on a Deviation/Event Report. To correct this discrepancy, the identification of the instrument lines has been verified and the incorrect labels will be removed. The policy for labeling instrument lines in the drywell is being reviewed.

UNRESOLVED ITEM 84-68-02

The inspector reviewed P&ID 6M721-2089, Revision K, and other electrical drawings (discussed below) and observed the following discrepancies:

- (1) Fermi 2 FSAR Figures 7.3-10 sheets 1, 2, and 3 do not appear to reflect the implementation of FMR S-1109 dated March 15, 1979.
- (2) It appears that the correct reactor low water level interlocks are not used in the MSIV isolation logic (Ref. drawings 6I721-2095-14 & 15, Revision C).
- (3) Color code discrepancies exist between the drawings listed in the brackets. (6I721-21-16 [sic-6I721-2155-16] and 17, Revision C, and 6I721-2282-55, 60, 65, and 70, Revision F.) (Ref. DCP-B2100-I05 and I06, IDCN-442, IRMR-1087 and DCN-5990.) It appears that some of the referenced design change documents were not properly and completely implemented.

RESPONSE TO UNRESOLVED ITEM 84-68-02

- (1) Detroit Edison made an effort to keep the FSAR updated during the construction phase. FSAR Figure 7.3-10, sheets 1, 2, and 3, "Nuclear Boiler System FCD" are covered under Interfacing Procedure 11.000.121, "FSAR and ER Amendments." This procedure provides for annual updates of the FSAR beginning two years after the operating license is issued. Typically, however, there is a significant delay in the incorporation of changes into FSAR drawings issued and maintained by General Electric if the change is not initiated by GE. This is the case with FMR S-1109. To alleviate this problem, Detroit Edison will obtain the mylars for these drawings and will maintain these drawings internally. The revised drawings will be annotated to show that the GE issued drawings are being maintained by Detroit Edison. FSAR Figure 7.3-10 is being revised by FCN-84-579 which is scheduled to be incorporated by July, 1986.
- (2) The reactor low-water level interlocks shown on drawings 6I721-2095-14 & 15 are correct. Although the drawing appears to combine Division I and II signals, a closer examination reveals that the separation criteria have been met. In a meeting subsequent to the inspection, the NRC inspector concurred.

RESPONSE TO UNRESOLVED ITEM 84-68-02 (Continued)

- (3) The inspectors observations concerning color code discrepancies are correct. These particular color code discrepancies exist because an acceptable alternate cable type was used due to material availability when the cables were installed. In this case, Cable Code No. 119 was substituted for No. 111. DCN-5990, which documented the change, corrected the cable color on the pull card and wiring diagrams 6I721-2282-55, 60 and 70, but failed to change the color on schematics 6I721-2155-16 and 17. This error was corrected on Revision D of the schematics except for 2 cables which were again overlooked.

Cable color does not affect the function of the circuit. In accordance with the electrical and I&C as-built program, a Deviation/Event Report (DER) was used to document this discrepancy. This DER will be posted against the drawing to prevent confusion until the drawing is updated.

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UNRESOLVED ITEM 84-68-03

As-built wiring drawing 6SD7212501-40, Revision E., was reviewed for general arrangement of devices, identification of devices and external cables.

Device locations were found to be in accordance with the above as-built drawing. External cables 200022 A and B were reviewed in the rear compartment of position E8 and found identified and located per above as-built drawing.

During this review it was observed that the following devices and termination blocks, identified on the above as-built drawing, had either temporary or missing identification tags in the field: PK, PL, PM, PG, LA, LB, LC, LD, AA, AN, RA and RZ. The licensee reported there was no current program in place to identify such devices inside cabinets. Pending further review, this is an unresolved item (341/84-68-03A).

During inspection of the 4KV switchgear core spray pump cubicle, the inspector observed that numerous terminal blocks had not been labeled in accordance with the connection diagrams. Labels were observed to be missing from most of the terminal blocks in the 4KV Bus No. 65E position E10 cubicle.

The inspector observed missing identification tags inside the cubicle for the following components LA, LB, LD, LC, AF, AE and AZ. The licensee does not have a current program in place to identify missing identification tags inside a cubicle. This matter will be reviewed in a subsequent inspection and is considered unresolved (84-68-03B).

RESPONSE TO UNRESOLVED ITEM 84-68-03

For electrical equipment, Detroit Edison's policy is to provide adequate and accurate identification labels on components which are operated by operations personnel. Identification numbers are placed on internal components as an aid to wire and test the unit and they are applied as determined by the manufacturer and testing personnel. Therefore, not all positions, components, or panels will be tagged to the same degree. Other than fusing type and size which is being covered under an ongoing program, Detroit Edison engineering does not require internal component identification tagging.

RESPONSE TO NRC INSPECTION REPORT NO. 50-341/84-68

RESPONSE TO UNRESOLVED ITEM 84-68-03 (Continued)

If Detroit Edison determines that an internal component must be operated by an operator, permanent tags will be installed to facilitate operation and prevent operator error. In Unresolved Item 84-68-03, the components identified as not having identification tags are either automatic control devices or passive circuit components which do not require operator action.

UNRESOLVED ITEM 84-68-08

Electrical road maps [Lead Design Document Index - LDDI] for 480V and 4160V switchgear were reviewed for adequacy and clarity of information. The following discrepancies were observed.

- (1) Attachment 3, page 3 of 47, refers to wiring diagrams as having modifications which deviate from standard internal connections. There was no clarification as to what these deviations entail.
- (2) Attachment 3, page 13 of 47, refers to wiring diagrams as not always showing exact locations of devices. It could not be determined how many drawings and how much variation of location was being indicated.
- (3) Attachment 3, page 14 of 47, indicates that schematics show relay and limit switch contact developments, "as applicable." It could not be determined what devices and developments were not applicable.
- (4) Attachment 3, page 13 of 47, references wiring diagrams not to be lead documents for identifying spare cable conductors. There was no reference to the correct lead documents for identifying spares.
- (5) Attachment 3, page 13 of 47, regarding the use of wiring diagrams states, "May not reflect as-built wiring configuration of actual equipment, but is functionally correct in accordance with lead document, schematic." This disposition was not considered acceptable because it is contrary to as-built requirements as it could inadvertently cause errors during maintenance.

The items above are considered unresolved (341/84-68-08).

RESPONSE TO UNRESOLVED ITEM 84-68-08

The electrical and I&C road maps have been revised twice since the subject NRC inspection. The revisions have incorporated a number of changes based on comments from the NRC, recommendations from Nuclear Quality Assurance based upon their verification of the utility of the Lead Design Document Index (road maps) and comments from the users. The current revision of the Lead Design Document Index (LDDI) is substantially more functional.

RESPONSE TO UNRESOLVED ITEM 84-68-08 (Continued)

The specific discrepancies documented by the NRC in the inspection report are addressed below:

- (1) The modifications referred to are those due to the craftsman option, i.e., the connections are electrically equivalent and consistent with the schematic, but may not accurately reflect the point-to-point wiring. Such deviations were identified during the walkdowns of the electrical and I&C equipment and evaluated. Their resolution will occur when the drawings are updated under the electrical and I&C as-built program.
- (2) Detailed dimensions for locations of devices found on the wiring diagrams can be obtained from the vendor drawings. For future design changes which affect the location of such devices, location details will be included on the drawings in the Engineering Design Package. The LDDI has been revised to delete the statement about device location information on wiring diagrams.
- (3) The "as applicable" statement refers to the devices illustrated on the individual schematic.
- (4) Revision 2 of the LDDI refers to the cable pull cards to identify spare conductors. If the cable pull card indicates that the cable has 16 or more conductors, then the wiring diagram is the lead document for spare conductors.
- (5) The statement by the NRC is acknowledged. Wiring interconnection and termination deviations were identified during the walkdowns of the electrical and I&C equipment and evaluated. Their resolution will occur when the drawings are updated under the electrical and I&C as-built program.

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UNRESOLVED ITEM 84-68-09

Connection points on drawings 6SA721-2501-52 [sic-6SD721-2501-52] show that on terminal block 1B, two conductors terminate on points 5 and 6. According to the drawing, a number eight conductor is terminated on point 6 and a number twelve is terminated on point 5. The inspector observed that the above connections were reversed in the field. The drawing designated these conductors as being connected to the main current transformer on the incoming power leads. The connection of the No. 2 conductor should be to the ground of the current transformer, but according to the as-built connection, the No. 12 conductor was connected on the positive side of the current transformer. Both Division II core spray pumps (B&D) have this discrepancy. This matter is considered unresolved pending further review to determine whether the drawing is incorrect or whether the field installation is incorrect. (341/84-68-09).

RESPONSE TO UNRESOLVED ITEM 84-68-09

This discrepancy between the drawing and the installed wiring has been documented and evaluated under Detroit Edison's electrical and I&C as-built program. The evaluation indicated that the installed wiring is functionally equivalent to the wiring shown on drawing 6SD721-2501-52; although, the routing of wire between termination points in the field does not match exactly the wiring shown on the drawing. Since functionally equivalent wiring has no effect on the operation of the equipment, the discrepancy was not detected when the system was tested. This discrepancy was documented on Deviation/Event Report (DER) No. 85-109 and the drawing will be updated prior to exceeding 5% power. To prevent confusion to operations and maintenance personnel using this drawing, the DER which documents this discrepancy will be posted against the drawing until the drawing is updated.

Detroit Edison has recently completed extensive walkdowns of electrical and I&C equipment in order to identify and resolve differences between the as-built plant and design drawings. This program has provided assurance that deviations are documented and corrected. Refer to Detroit Edison's final report on 10CFR50.55(e) Item 143, Reference 2, for additional information.

RESPONSE TO NRC INSPECTION REPORT NO. 50-341/84-68

UNRESOLVED ITEM 84-68-10

The inspector observed that inside the core spray pump D cubicle, the positive and negative conductor terminations were reversed when connected to current transducers identified as XCCC-5. Drawing 6SD721-2501-52 shows the black [sic-white] conductor connected to the negative terminal and the white [sic-black] conductor connected to the positive terminal of the current transducer. The field installation was observed to be the reverse of the above connection. Additionally, the schematic diagram also indicates that the positive and negative connections do not agree with the field installation. The licensee stated that the termination of the other end is to an AC ammeter and was of no consequence. However, schematic diagram 6SD721-2211-4 shows the connection to a DC ammeter. It appears that testing or start up personnel switched the wiring without initiating the proper design change paper to revise the schematic and wiring diagrams. This matter is considered unresolved. (341/84-68-10).

RESPONSE TO UNRESOLVED ITEM 84-68-10

As discussed above, a DC ammeter was installed using black cable for the negative lead and white cable for the positive lead. Detroit Edison's standard practice and the design drawing call for black leads to be positive and white leads to be negative. Cable color has no effect on the function of the circuit. This discrepancy has been documented and the cables will be corrected to maintain the site standard.

As previously discussed in this report, Detroit Edison has recently completed an extensive program to identify, correct and prevent the recurrence of similar discrepancies between the drawings and the as-built plant. Details of this program are being supplied to the NRC in Detroit Edison's final report of 10 CFR 50.55(e) Item 143.

UNRESOLVED ITEM 84-68-11

During observation of the terminations inside panel H11-623, the inspector noted an extra connection on points 9 and 10 on a relay identified in the panel as AX-K120. Drawing No. 6I721-2045-60, Revision H, which shows the control development of this relay, indicated that this was incorrect. These points were later verified to be normally closed contacts that were not identified during testing by startup personnel. These normally closed contacts are in series with control room indication and could if undetected provide false indication to control room operators. This issue is considered unresolved pending further review of this matter (341/84-68-11).

RESPONSE TO UNRESOLVED ITEM 84-68-11

The Core Spray Pumps are operated from the control room by back lighted switches which flash if the pump switch is in the OFF position. In the auto mode, the Core Spray Pumps will start automatically when reactor water level is low or drywell pressure is high. During normal plant operation, the flasher warns the operator that the Core Spray Pump is not prepared to start automatically.

As installed, the flasher would operate correctly during normal operation and would warn the operator that the pump was not prepared to respond to an emergency. However, after an automatic start signal is received and the Core Spray Pump has responded, if the Core Spray Pump is manually stopped, the flasher will not operate. This discrepancy existed on all 4 Core Spray Pumps.

Detroit Edison's investigation revealed that this discrepancy resulted from insufficient control of consecutive design changes to the same circuit. FMR-1030 Revision B (implemented GE FDDR-KHI-567 Revision 0) was issued on May 27, 1979. This FMR added the contacts which are described by the Inspector. FMR-1396 (implemented GE FDDR-KHI-620) was issued on January 1, 1980. This FMR removed these contacts. However, FMR-1030 was revised and re-issued as Revision C on April 29, 1980. Therefore, the contacts, which were required by FDDR-KHI-567 and later removed by FDDR-KHI-620, were re-installed. FDDR-KHI-620, which superseded FDDR-567, did not reference the document it superseded.

Detroit Edison has initiated action to implement FDDR-KHI-620 for all 4 Core Spray Pumps.

UNRESOLVED ITEM 84-68-12

The following are examples where the equipment connections were installed such that the electrical components will function as designed but are not in accordance with the connection and/or schematic diagrams. The licensee has indicated that they will identify and document the deficiencies and revise the connection diagrams to reflect as-built installation. These matters will be followed-up in subsequent inspections.

- (a) Limit switch compartment of core spray minimum flow bypass valve "B" was checked against drawing numbers 6I721-2211-9, Revision G. According to the drawing, the connection from terminal point 36 is green block [sic] conductor, the field installation was observed to be red. The schematic diagram also shows this connection to be incorrect. The inspector observed that this field connection is properly terminated at motor control center cubicle E2150F031B. The above discrepancies were noted as deficiencies and documented by the licensee.
- (b) During review of the connections inside a motor control center cubicle it was observed that the field terminations were CR to R to F relays instead of CR to F to R relays as shown on drawing 5SA721-2521-9 [sic-5SD721-2521-9], Revision B. Additionally, conductors identified as No. 10 and No. 12 to contactors F and R respectively, were not in accordance with this same drawing; also in this cubicle, the drawing indicated a ground at the 120V/24V transformer low side connection, while the connection was to the 480V/120V transformer low side connection.

The issues (5) (a), and (5) (b) above are considered unresolved (341/84-68-12).

RESPONSE TO UNRESOLVED ITEM 84-68-12

Item (a) addresses a wiring drawing and schematic that show a conductor as Green-Black when the installed conductor is Red. The Green-Black conductor was replaced with the spare Red conductor from the same cable by DCR E-3993. The DCR revised the pull card and cable routing report but did not change the schematic. The schematic has been revised to show the correct color of the conductor.

RESPONSE TO NRC INSPECTION REPORT NO. 50-341/84-68

Item (b) addresses two items where the installed wiring was functionally equivalent to the design drawing; although, the point-to-point wiring did not match the drawing exactly. This discrepancy will be resolved in accordance with Detroit Edison's as-built program as described in this response under Unresolved Item 84-68-09. In this case, the drawing will be updated.

UNRESOLVED ITEM 84-68-14

The inspector reviewed the as-built inspection program performed by the licensee utilizing the licensee's LDDI. The auxiliary relay room high pressure coolant injection relay cabinet H11-P620 was visually inspected by the NRC inspector to ascertain the effectiveness of the licensee's as-built verification program. The visual inspection consisted of a comparison between the number of wires landed at the panel terminal points and the number of wires shown on the applicable design drawings. This effort included relay terminations, plugs, etc...

The following discrepancies were identified:

- (1) Schematic Diagram 6I721-2225-1, Revision K dated September 28, 1984, indicated the following:
 - (a) Contact 3-4 of relay K3 is being utilized to interlock valve E4150-F021. However, this contact was found to be a spare in panel H11-P620.
 - (b) Contact 3-4 of relay K4 is being utilized to interlock valve E4150-F021. However, this contact was found to be a spare in panel H11-P620.
 - (c) Contacts 1-7, 3-7, and 2-8 of relay K82 were being utilized to interlock relay K35. However, relay K82 was found to be a spare in panel H11-P620.
- (2) Schematic Diagram 6I721-2225-1 [sic-6I721-2221-12], Revision C [sic-F] dated October 4, 1984 [sic], indicated that contacts 1-2 of relay K92 are being utilized. Inspection of the relay in panel H11-P620 indicated that contact T1-M1 was being utilized.
- (3) Schematic Diagram 6I721-2225-5, Revision I dated October 4, 1984, indicated that Fuse F22 was wired to TBDD point 13 and fuse F21 was wired to TBDD point 14. However, field and applicable connection diagram 6I721-2045-54, Revision L, indicated that F22 was wired to TBDD-14 and F21 was wired to TBDD-13. Items 8.a.(1)(2) and (3) are considered unresolved pending licensee action (341/84-68-14).

RESPONSE TO UNRESOLVED ITEM 84-68-14

- (1) Field Modification Request (FMR) 4378 and Design Change Package (DCP) 3500I02 modified the wiring to the configuration that is currently installed and changed the design drawings. However, the FMR and DCP failed to include drawing 6I721-2225-1, "HPCI System Notes and Relay Tabulations," among the drawings to be revised to reflect this modification. Revision M of the relay tabulation drawing has been issued and properly incorporates the FMR and DCP.
- (2) FMR 4378 replaced the GE HFA type relay designated K92 with an Agastat type GP relay. This changed the relay contact numbering convention, but not the function of the relay designated as K92. Contacts 1-2 on the old relay became contacts T1-M1 on the new relay. This change was made on drawings 6I721-2225-1 and 6I721-2221-12 where the contacts were still shown as 1-2. The K92 relay development shown on 6I721-2221-12 has been deleted on Revision G because the information is redundant to the information shown 6I721-2225-1 and 6I721-2225-6.
- (3) This discrepancy, a drafting error, reversed the leads used to monitor the fuse condition for fuses F21 and F22. These fuses are in the same circuit. As wired, the fuse condition, which is not a safety-related function, was still being monitored. The schematic diagram, 6I721-2225-5, has been revised to Revision J which corrects the drawing to show fuse F21 wired to TB-DD-13 and fuse F22 wired to TB-DD-14.

This unresolved item involves 3 drawing errors. Two of the errors resulted from the failure to identify and correct all of the applicable information shown on the drawings when a design change was made. The third error was a drafting error. To reduce these types of errors, an improved design verification program under Fermi 2 Engineering Procedure 4.3 has been instituted. Additionally, Detroit Edison personnel have conducted extensive walkdowns of Fermi 2 electrical and I&C equipment and performed drawing-to-drawing checks to identify and correct existing errors. A detailed description of this Fermi 2 as-built program is contained in the final report of 10CFR50.55(e), Item 143, Reference 2.

UNRESOLVED ITEM 84-68-17

C&IO test procedure TF.000.017.01, Revision 4, dated January 25, 1983, relating to the tests and inspections performed to shielded cable 234427-26 [sic-234437-2C] indicated by the documented signatures of the test engineer that the cable was checked for proper termination (ref. 3.3), that the cable shield is grounded where applicable (ref. 7.1), that the cable was checked for proper phasing and continuity "working drawings" are yellow-lined (ref. 7.3). Contrary to the above, the shield of the above cable was found ungrounded and improperly terminated during licensee's walk-down. This item is considered unresolved pending licensee review and action (341/84-68-17).

RESPONSE TO UNRESOLVED ITEM 84-68-17

This item is a continuation of the previous item, Open Item 84-68-16, which discusses a jumper between TBAA-80 and TBAA-84. This jumper is shown on the wiring diagram, 6I721-2045-54, Revision K, although the jumper is not installed in the field. The schematic shows the shield as grounded. TBAA-84 is a ground connection. The cable shield is terminated at TBAA-80. Without the jumper installed, the shield for cable 234427-2C was correctly terminated, as documented in C&IO Test TF.000.017.01, but the shield was not grounded as was documented in DER-85-021 during the walkdown.

The jumper was apparently removed during testing to prevent connecting terminal TBAA-80 to ground because TBAA-80 was also being used as part of an energized circuit. This occurred because two design changes were issued against drawing 6I721-2045-54 which required using terminal TBAA-80. DCP E4100Q01 used TBAA-80 to terminate the shield of cable 234427-2C and installed a jumper from TBAA-80 to ground (TBAA-84). FMR 4198 used TBAA-80 to connect the relays in H11-P612 and H11-P614 to the coils which activate the "HPCI AUTO ISOLATION SIGNAL B" in H11-P620. This error was not identified when the design changes were incorporated. As installed, both circuits worked properly although the cable shield was not grounded. Had the jumper been installed, it would have resulted in a single ground on a DC system but the HPCI Auto Isolation Signal B would still have been functional.

Engineering Design Package (EDP) 2135 has been issued to correct this discrepancy.

UNRESOLVED ITEM 84-68-19

During the as-built review, the inspector examined FMR 7096, Revision O, A and B. This FMR addressed the requirements of GE FDDR KHL-1041, Revision O to provide bypass of limiting resistors ED1-R1 during manual mode of RCIC turbine and GE FDDR KHL-1086, Revision O, addressed the same in the HPCI turbine control. The inspector noticed that on sheet 4 of FMR 7096, Revision O and A, the circuit had been modified by the licensee's engineer and sent to the field for incorporation without written documented approval from GE for this change. Revision B of the FMR again modified the GE circuitry in a different way than Revision A, but no written approval was available. It also contained GE FDDR KHL-1086, Revision O, without superseding it; therefore, having two open FDDRS addressing the same item.

Furthermore, review of incorporation of above FMR into the applicable design schematic diagram 6I721-2042-15, Revision F, indicated that the circuit shown on this drawing does not conform to FMR specifications and was modified during the incorporation into the drawing. Note that the drawing revision block reads: "Per FMR-7096, Revision B..." even though drawing did not reflect FMR-7096, Revision B as specified.

The above appears to be another example where an engineer or a draftsman modified a design drawing arbitrarily without following the specific requirements of the design change document.

This matter is considered unresolved (341/84-68-19).

RESPONSE TO UNRESOLVED ITEM 84-68-19

Detroit Edison was authorized by the GE Project Manager to revise GE design prior to GE's approval, where necessary at design interfaces, on an "at risk" basis. The risk is not related to plant safety, but to additional cost for rework if GE disagreed with the design change. Changes to GE design by Detroit Edison were listed on the cover of the related FMRs and transmitted to GE for their review and concurrence or comment. GE, in turn, would revise their FDDR or FDI or send a letter stating their concurrence or disagreement.

RESPONSE TO NRC INSPECTION REPORT NO 50-341/84-68

Changes to FDDR KHL-1041, Revision 0, were transmitted to GE on FMR 7096, Revision 0, by letter EF2-69,460, dated June 21, 1984. FMR 7096, Revision 0, was approved by the responsible discipline engineer on June 19, 1984. GE subsequently issued FDDR KHL-1086, Revision 0, to address the design change. The latter FDDR was more conceptual in nature and lacked sufficient detail, by itself, to perform the necessary construction. FMR 7096, Revision B, expanded on the design of FDDR KHL-1086, Revision 0, to allow construction to proceed. Since FMR 7096, Revision B, did not change the GE conceptual design, Revision B was not transmitted to GE for review and concurrence.

The NRC inspector was correct relative to two (2) FDDRs being open and applicable to the same design item. GE superseded FDDR KHL-1041 Revision 0, by issuing FDDR KHL-1041, Revision 1, on December 28, 1984. The latter revision cancelled FDDR KHL-1041 and referred to FDDR KHL-1086 for the applicable design. Relative to construction activities, FMR 7096, Revision B, issued FDDR KHL-1086, Revision 0. Per Detroit Edison procedures governing the FMR process, preceding revisions of a FMR are superseded by the latest FMR revision issued. FDDR KHL-1041, Revision 0, was for construction purposes superseded by FDDR KHL-1086, Revision 0, through FMR 7096, Revision B. Revision B of the FMR was issued on August 24, 1984.

Detroit Edison has investigated the Inspector's concern that a design document was changed arbitrarily. During incorporation of the FMR into drawing 6I721-2042-15, Revision F, the draftsman recognized that sheet 9 of the FMR contained an error. This observation was based on having reviewed previous sheets of the FMR, specifically sheets 2, 3 and 7. Realizing the error, the draftsman incorporated the correct design into the drawing. It is recognized that such practice is not appropriate and should not take place. Procedural changes have been implemented which address this concern. Additional controls (including the use of a checklist) are being implemented during verification of the drawing revision process. Additional related information is provided in the response to 10CFR50.55(e) Item No. 143.