U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-341/85-04(DRS)

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

Licensee: Detroit Edison Company
2000 Second Avenue
Detroit, MI 48224

Facility Name: Fermi Nuclear Power Plant, Unit 2

Inspection At: Fermi 2 Site, Monroe, Michigan

Inspection Conducted: January 29 thru 31, 1985

Inspectors: A. S. Gautam RBLore for 2/8/85
Date

Z. Falevits RBLore for 2/8/85
Date

K. Tani RBLore for 2/8/85
Date

R. Mendez RBLore for 2/8/85
Date

RBLore for

Approved By: C. C. Williams, Chief
Plant Systems Section 2/8/85
Date

Inspection Summary

Inspection on January 29 thru 31 1985 (Report No. 50-341/85-04(DRS))
Areas Inspected: Routine, announced inspection by regional inspectors of licensee action on previous inspection findings. The inspection involved a total of 120 inspector-hours onsite by 4 NRC inspectors including 24 inspector-hours onsite during off shifts.
Results: Of the areas inspected, no items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Detroit Edison Company (DECo)

*W. R. Holland, Vice President
*W. H. Jens, Vice President, Nuclear Operations
*S. Noetzel, Assistant Manager
*F. Agosti, Manager, Nuclear Operations
*G. M. Trahey, Director-Nuclear Quality Assurance
*P. Acharya, Director, SCO
*J. F. Bross, S/U Assurance Engineer
*T. S. Nickelson, Assistant to S/U Engineer
*R. S. Lenart, Superintendent Nuclear Production
*R. A. Vance, Assistant Project Manager
*D. Spiers, Director Field Engineer
*S. E. Martin, Licensing Engineer
*K. Earle, Superintendent Licensing
*L. G. Fergerson, Resident Engineer I&C
*J. R. Bunge, Field Engineer Electrical
*W. M. Ripley, Startup Engineer
*D. Timmins, Licensing Engineer
L. P. Bregni, Engineer - Licensing
W. M. Street, Supervising Engineer
R. C. Nelson, General Supervisor

*Denotes those persons who attended the exit meeting on January 31, 1985.

2. Action on Previous Inspection Findings

a. (Closed) Unresolved Item (341/81-12-02): This item concerned the crossover of approximately 200 circuits from Balance of Plant (BOP) trays to Class IE trays. The licensee was asked to verify by analysis, that under worst case conditions these BOP crossover circuits would not degrade the Class IE divisional circuits and affect the safety of the plant.

The licensee performed an analysis for worst case conditions, #EF2-72036, dated December 13, 1984. This analysis listed all circuits routed in trays containing both Division 1 and Division 2 crossover cables; current characteristic curves for the FRN-R Fusetron Dual-Element 250V Fuses; heating effects of prolonged short circuit in watts per square meter of conductor surface for each crossover cable; heating effects for failure criteria using the outer diameters of cable for evaluation of damage to outer cable surface; and calculations for maximum current flow for unfused 12V, 33 Amp circuits.

The licensee postulated a worst case condition by selecting a two conductor #9 cable fault which could affect adjacent crossover cables going to Division 1 and Division 2 Class IE trays. A

maximum potential of 260V DC was considered across the crossover cables. Two cables 204456-0C and 204474-0C (Reference drawing 6SD721-2530-12) were chosen having 100 Amp, 250V FRN-R fuses. The fuse characteristic curve indicated, for example, that an 1100A "worst case" current could be sustained by the 100A fuse for 0.2 sec. This current was considered to be sufficient to damage/degrade associated Class IE circuits. However, the licensee calculated that based on the resistance of the applicable circuits the actual fault current would be limited to considerably smaller values.

The licensee's analysis calculated fault currents in all crossover control cables, assuming a 260V DC potential across them. Heating effects were also calculated in watts per square meter of conductor surface and for heating effects on the outer diameter of a cable due to adjacent cables.

The licensee's calculations indicated that fault current in these crossover cables would not reach levels such as to cause cable insulation damage. The analysis identified 2 cases where cables did exceed the criteria/threshold of damage, defined as 6 kilowatts per square meter in EPRI Report NP-1767. However, these cables were found to be associated with Division 2 only, thereby maintaining a redundant division 1 circuit for the same function.

In the above analysis, instrumentation cables were also analysed for worst case conditions defined as 12V and 33 Amps, but apparently no exceptions were found. The licensees response regarding future fusing protection of spare crossover cables indicated a commitment for proper protection, per procedures and criteria that presently exists and was considered acceptable by the inspector. Based on the above review this item is closed.

b. (Closed) Open Item (341/83-12-05): This item addressed procedures and circuits associated with the HPCI steam supply line break isolation (high temperature) function. The licensee addressed this item in letters: OP-84-168 dated April 4, 1984; OP-83-330 dated August 29, 1983; OP-83-329 dated August 29, 1983, and F2583-5031 dated June 30, 1983. The NRC had raised concerns regarding postulated spurious faults due to a fire in division (DIV) 1 areas, being carried by cables 232821-1K and 232823-1K in DIV 1 conduit HP-002-1K to DIV 2 HPCI trip circuits in the relay room. These faults were postulated in association with a fire in the control room, in which event this isolation could not be bypassed, resulting in a loss of HPCI.

The licensee addressed this issue by installing a Bypass Selector Switch C35-S3, in the Remote Shutdown Panel H21-P101 shown on drawing 6I721-2225-4, Revision J. The licensee also generated instructions for operator action regarding this bypass switch in procedure 20.000.19, Revision 3, Step 2.5.2, "Shutdown from outside the control room." In the event of an evacuation of the control room, Procedure 20.000.19 requires operators to first place the

Transfer DIV 2 switch in Panel H21-P101 to the ON position, and then place the "Bypass 5th Leak Detection Isolation Signal Switch" (Bypass Switch C35-S3) to the BYPASS position. These activities addressed the initial NRC concerns regarding the development of "Abnormal Procedures" for fires in specific areas, and their adequacy in addressing operating personnel when to bypass the HPCI area high temperature isolation function.

The inspector also reviewed cable installation records for: cable 232821-1K, routed from temperature element E41-N029A to temperature switch E41-N601A in panel H11-P614, installed September 14, 1983; and cable 232823-1K, from temperature element E41-N030A, to temperature switch E41-N602A in panel H11-P614, cable installed June 3, 1984. Both cables were 2/c #20, copper-constantan, thermocouple wire, type T, shield-blue tracer. Pull cards documenting cable installation were reviewed for routing, equipment termination, acceptability and review. These cables were then reviewed in the field for termination in panel H11-P614. No deficiencies were found. This addressed the NRC concern regarding identification of cable routing.

The inspector also reviewed the above two cables for Appendix R requirements and licensee justification. It was found that cable 232821-1K was connected to the input terminal of a differential temperature switch, E41-N601A, which inputs to alarms and a temperature meter module, as shown on schematics 6I721-2095-27, Revision H and 6I721-2098-28, Revision F. Cable 232821-1K was therefore determined by the inspector not to affect the HPCI logic/operation, and to be strictly an indication circuit.

Cable 232823-1K was reviewed by the inspector on schematic 6I721-2095-27, Revision H and found to be an input to temperature switch E41-N602A, and to be tied into the HPCI trip logic. Closure of the temperature switch, due to a high temperature in the HPCI subbasement room, would in sequence energize relays K4A (drawing 6I721-2095-28, Revision F), K44 & K36 (drawing 6I721-2225-4, Revision J) and "CLOSE" relay of the steam supply line inboard isolation valve E41-50-F002 (drawing 6I721-2221-9, Revision H), thereby inhibiting HPCI operation. To avoid such an isolation during a fire in the control room the operator manually operates transfer switch C35-S1 and selector switch C35-S3, as required per procedure 20.000.19, which deenergizes relays K44 and K36, preventing closure of valve F002 and allowing HPCI to operate. Based on the above review this item is closed.

c. (Closed) Open Item (341/83-12-06): This item addressed procedures and circuits regarding RCIC steam supply isolation during a fire in the control room. The NRC identified concerns regarding the transmission of faults by Division 2 cables 232906-2K, 232907-2K, 232908-2K and 232909-2K, to Division 1 RCIC trip circuits via Division 2 conduit AA-006-2K, and a lack of an alternate means to bypass steam isolation during an event requiring evacuation of the

control room. The licensee addressed these concerns on letters: EF2-69, 487 dated July 9, 1984; OP-83-343 dated September 2, 1983 and EF2-63685 dated July 21, 1983, which identified corrective action based on an Appendix R analysis, cable function analysis and new procedures.

The inspector reviewed the licensee's corrective action and observed that in response to the NRC concerns, the licensee had installed two Leak Detection Bypass Switches 100C79 (DIV 1) and 100C80 (DIV 2), with barriers, in Remote Shutdown Panel H21-P100. The inspector verified this installation via Design Change Package 3500103, having a completion date of February 20, 1984, and reviewed the installation in the field in panel H21-P100. No deficiencies were found.

The licensee addressed operator action regarding this bypass switch in Procedure 20.000.19 Revision 3 "Shutdown from outside the Control Room". Step 2.3 of this procedure states "Place RCIC Steam Leak Detection Switches to the bypass position". This appears to address NRC concerns regarding a lack of development of the required "abnormal procedure" for preventing spurious RCIC steam isolation during a control room fire requiring evacuation of the control room.

This item also addressed NRC concerns regarding identification of cable routing for cables 232906-2K thru 232909-2K. During this review the inspector verified installation and routing on cable installation pull cards 232906 dated July 27, 1983 and pull cards 232907 thru 232909 dated July 28, 1983. Cables were found to be 2/c #20, Copper-constantan, Thermocouple wire, Type T, Shield-Blue Tracer. The cable terminations were verified by inspector in the field in panel H11-P614. No deficiencies were found.

The inspector also reviewed the above cables for Appendix R requirements and licensee justification. The inspector observed that IE Cables 232907-2K and 232909-2K had been considered in the licensee's Appendix R analysis. Cables 232906-2K and 232908-2K were not Class IE, and were observed to be inputs to recorders G33-R621 and G33-R620 respectively. Cable 232907-2K was reviewed by inspector on schematic 6I721-2095-28, Revision F and found to be the input for temperature switch E51-N601B and not part of the RCIC Trip Circuitry. Cable 232909-2K was observed to be connected from temperature sensor E51-N023B to temperature switch E51-N602B, in panel H11-P614, as shown on drawing 6I721-2095-28, Revision F, and found to be part of the RCIC trip logic. A high temperature spurious signal from the temperature switch N602B energizes, in sequence, relays K3B (6I721-2095-28, Revision F), energizes and seals-in relay K33 (6I721-2235-3, Revision K) and energizes the "CLOSE" relay of the RCIC steam line inboard isolation valve E5150-F007 (6I721-2231-3, Revision I), thereby inhibiting RCIC operation. Since relay K33 is sealed-in, in the event of the control room being evacuated, the above relays could not be reset.

The licensee took corrective action and installed two bypass switches 100C79 and 100C80 requiring manual operator action at the Remote Shutdown Panel H21-P100. On being closed these switches energize relays C35M802 and C35M803, which prevents the seal-in of relay K33. This allows control of the RCIC steam line isolation from panel H21-P100 during a fire in the control room (this analysis does not consider a fire in the relay room or the entire control center) and prevents loss of RCIC due to steam isolation. Based on the above review this item is closed.

d. (Open) Unresolved Item (341/84-21-07): This item addressed Duke Recommendation No. 24, "Associated significant findings, and associated conditions".

This item identified various discrepancies in nameplates and tagging of 4160V switchgear, terminal boxes, motor terminal boxes and control panels.

The licensee addressed this item by generating Procedure EFP1066 dated July 6, 1984, "Identification of Fermi 2 Components", and EFP1048, Revision 2, "Guidelines for the Design, Ordering and Erection of Signs, Labels, Tags and Nameplates. These procedures provided corrective action for the Duke findings with the exception of the color coding of motor terminal box nameplates.

During this review, the license reported no proposed action, procedure or specification addressing requirements for color coded nameplates in motor terminal boxes and reported installing BOP (Black) labels on the motor terminal boxes in the plant. This appeared to be inconsistent with color coding requirements for divisional raceways, with the potential for inadvertent errors being made during maintenance. The licensee reported that they would address this exception in their specifications or procedures. Pending future review, this item remains open.

e. (Closed) Unresolved Item (341/84-21-09): (Duke item No. 167 and recommendation No. 22). During the Duke Construction Assessment Team inspection and during previous NRC inspections, it was found that various loose terminations existed in the safety related systems. (Ref. report 341/84-14).

Subsequently, the licensee initiated a survey for electrical termination tightness which began on July 23, 1984 (Ref letter F2 170-84 dated September 6, 1984). The Core Spray (CS) and High Pressure Core Injection (HPCI) systems were chosen for this walkdown because they have a fairly representative cross section of electrical equipment found in the plant. This survey was performed to obtain termination data so that an analysis could be done to determine if a generic problem existed with respect to the tightness of electrical terminations. Special test procedure 42.000.22T was generated to provide a uniform method of inspection. In addition class instruction was provided to all personnel associated with this survey.

Paragraph 4.1.1 of procedure 42.000.22T stated, "A compression, wrap-around, or spade-lug termination is considered tight if it does not become determinated when slightly twisted or wiggled". Furthermore paragraph 8.2.2 stated, "Further ensure the tightness of the termination by attempting to tighten the screw".

Criteria used to determine the tightness of a termination was:

(1) when termination was found less than a 1/4 turn, it was considered tight.

(2) when termination was found more than a 1/4 turn, it was considered to be loose.

Results of the survey indicated that out of 11311 terminations checked, 67 terminations were found loose (0.59%).

Analysis made by the licensee as to the potential individual worst case effect of the loose terminations and the resulting consequences indicated that in certain cases the entire HPCI or LPCS systems would be lost if a particular loose termination became open and circuit continuity was lost. Single failure criteria dictates that analysis considerations be made to one failure at a time. This would mean that only one system (HPCI or LPCS) could be considered lost at a time which will require the use of backup shutdown systems to the HPCI and LPCS systems. The licensee indicated (Ref. letter F2-170-84 dated September 6, 1984) that none of the 67 loose terminations created a loss of continuity in the circuits. Furthermore, the letter stated, "If any of the terminations would have lost continuity they would have been detected during surveillance testing, preventive maintenance activities or via loss of control room indication".

It appeared to the inspector, that due to single failure criteria considerations it was reasonable to assume that the loose termination problem was not significant. This item is closed.

f. (Closed) Unresolved Item (341/84-50-04): During a previous inspection in May 1984, the inspector identified a separation violation relating to redundant RPS scram channel inputs from the turbine stop valve limit switches, reported in detail in inspection report 341/84-17. Fermi specification 3071-33, Revision R, page 115, require that redundant RPS protective scram channels be separated. Specifically RPS channel A1 be separated from A2 and B2. The same separation requirements are delineated in IEEE 279-1971. Contrary to the above, the inspector observed that channels A1 and B2 cables were routed into turbine stop valve #2 limit switch, and channels B1 and A2 were routed into the stop valve #3 limit switch.

This matter was subsequently discussed between Region III, the licensee and NRR.

The licensee presented the inspector with engineering design package EDP 1793 dated November 9, 1983, which requires the separation of

redundant cables routed to the same limit switches. This will be accomplished by rerouting the respective cables to separate existing limit switches. The cables will be retested following rework in accordance with approved site procedures.

The inspector reviewed the design aspect of this EDP, and found it to adequately address the separation concern.

The licensee indicated that the field implementation of this EDP will be completed prior to 30% power.

Based on this licensee commitment for completion, this item is closed.

g. (Closed) Unresolved Item (341/84-50-05): This item concerned various deficiencies observed by the inspector regarding seven testable check valves, such as improper disc and actuator position status indication in the control room, missing limit switch retainers, broken flex conduit, and excessive number of missing calibrations on valve limit switches within the last six months.

The licensee issued PN-21 #370896 dated January 7, 1984, which required a comprehensive review of all 15 testable check valves in the plant. The following were verified:

(1) Solenoid operation
(2) Limit switch tightness
(3) Actuator arm modification
(4) Air leaks encountered

A walkdown was conducted per Operation Order 370896, and it was found that 2 out of 15 solenoids were bad and all but 8 limit switches were loose. The licensee installed lock washers or jam nuts to resolve the problem of limit switches being loose. To resolve the problem with the bad or bent arms the licensee replaced all limit switch actuating arms with stainless steel or carbon steel arms. All valves are in the process of being recalibrated and retested.

The inspector reviewed various applicable PN-21 work orders, test equipment, data sheets, nameplates, dates sheets, valve history cards, specification sheets, operating or maintenance work orders, maintenance inspection checklists, and engineering sheets.

The licensee's disposition of this matter was adequate. This item is closed.

h. (Closed) Open Item (341/83-12-04): In a previous inspection it was identified that cable 218364-OK was not found inside cabinet H1100P836. Additionally, the identification of cable 218355-OK could not be determined inside cabinet H1100P612. The particular cables mentioned above are balance of plant (BOP) cables, but routing was checked to determine whether separation between redundant divisions was maintained when balance of plant cables were routed with a single division. The

inspector reviewed drawing 5I721-2052-G, Revision 6, Miscellaneous Instrument Cabinet H1100P836 Internal/External Wiring diagram and the pull card for cable 218364-OK. The pull card and drawing indicated that this cable was terminated inside non-safety related instrumentation panel H1100P836 and in Division II panel H2100P101. It appeared that the original open item identified cable 218364-OK as being routed through conduit UN-156-OC. According to the licensee's records cable 218364-OK is not routed through conduit UN-156-OC since the conduit contains only control cables and the particular cable in question is an instrumentation cable. With respect to 218355-OK, the routing and identification of this cable appear acceptable. The routing of this cable was verified to be from rack H1100P612 (Division II) through balance of plant raceway to panel H2100P101 (Division II).

This item is closed.

i. (Closed) Part 21 Item (341/82-01-PP): "G.E. Type HFA Relay Contact Gap and Wipe Setting Adjustments." G.E. issued a letter dated July 28, 1982, reporting an incorrect, "Wipe Setting" of normally closed contacts on some HFA relays converted from normally open contacts. Field modification request (FMR) No. 4064 and G.E. instructions FDI-WHIY were issued to implement corrective action for adjusting the normally closed contacts. The inspector reviewed a selected number of records and determined the settings to be in accordance with G.E. instruction FDI-WHIY. In a previous inspection report, it was determined that the licensee had not reported the deficiency under a part 50.55(e). However, this issue is mitigated by instruction FDI-WHIY which was being implemented prior to issuance of the Part 21. In addition, corrective action by the licensee to resolve this discrepancy is complete and this item is closed.

j. (Closed) Part 21 Item (341/82-02-PP): "Possible ITE Gould Circuit Breaker Failures." This concern involves potentially defective capacitors located in the solid state trip devices for circuit breakers. This Part 21 was also identified as 50.55(e) 341/83-01-EE and was closed in Inspection Report 341/84-47. This issue is considered closed based on the licensee actions to resolve 50.55(e) 341/83-01-EE.

k. (Open) Part 21 Item (341/84-03-PP): It was previously identified that a defect was identified on the adjustment of the low voltage shutoff and turn on for General Electric (G.E.) Class 1E inverters. It appears that G.E. checked for an operable range of 105 to 140 volts, instead of 100 to 140 volts DC. The manufacturer's (Topaz Electronics) operating and instruction manual for the static invertor model N250-GWR-125-60-115 requires that the low sensor adjustment be 5% below the low input limit of 105 volts. The instructions state that the inverter should shutdown at about 100.75±0.5 volts. According to test records, the inverters have been checked for regulation to 112VDC but no information or tests were available that would have indicated that the inverters were checked either at the 105-140V or 100-140V set points. This item remains open pending a commitment date by the licensee to test the inverters.

l. (Open) Unresolved Item (341/84-21-10):

(1) Duke Recommendation No. 17

Duke identified several areas where drawing updates and technical accuracies of the drawings were inadequate. In addition, Duke determined that many drawings were not as-built. Examples of discrepancies identified by Duke were such deficiencies as improper fuse sizing and as-built installation that were not in accordance with the drawings. Initial review of the Duke findings by the licensee revealed that some of the Duke findings were a result of drafting errors. The examples of discrepancies in the licensee's as-built program that Duke identified are currently being evaluated by Region III, and the licensee has implemented a program to identify discrepancies found in the field and to evaluate the Duke findings in terms of their safety significance. In addition, the licensee has reported the above Duke finding in 50.55(e) 84.35.EE. Based on the licensee's commitments to provide as-built drawings, this recommendation appears to have been adequately addressed by the licensee. Duke Recommendation No. 17 is closed.

(2) Duke Recommendation No. 1

During verification of cable tray hanger installation, the Duke CAT team found the supports to be acceptable, except that the volume of change paper required to inspect the supports was excessive. Duke recommended that the licensee provide an understandable method for determining what changes had been made in the design drawings of cable tray hangers. Typical problems identified by Duke included: confusing drawing details; conflicting information on drawings; and excessive time to incorporate design changes. It appears that during the Duke team inspection, the licensee had initiated a program to reevaluate the loading of cable tray hangers. As a result of fire protection requirements, additional loads were placed on the existing cable tray hangers and consequently, many hangers were reworked. The number of design change packages (DCP'S) outstanding to the hanger drawings made it confusing and time consuming to verify hanger installation. According to the licensee, all DCP'S have been incorporated into the hanger drawings. The inspector reviewed several drawings and noticed only a few of design change notices posted against the hanger drawings. In addition, the licensee has developed a drawing sequence to aid in going through the various plan, tabulation and arrangement drawings, including all drawing specification. It appears the licensee has properly addressed this question. Duke Recommendation No. 1 is closed. Pending a review of licensee action on Duke Recommendations 2 and 4, this item remains open.

m. (Open) Open Item (341/84-21-11):

Duke Recommendation No. 21

Duke identified numerous deficiencies in the area of cable and raceway installations. This recommendation was associated with the following Duke item numbers: 135, 137, 138, 196, 164, 129, 134, 108, 130, 131, 139, 132, 140, 156, and 136. The Duke items could be categorized in the following areas: cable separation and support concerns; installation of tie wraps; cable tray overfill; inadequately coiled cable; damaged flexible conduit; uncapped spare conduits; and missing covers from a pullbox.

The licensee has taken corrective action to resolve each of the Duke team items. A brief summary of corrective action taken by the licensee is as follows:

(1) Cable separation and support identified by Duke items 135, 137, 164, 138, 196 and 164 indicated that the licensee addressed this particular concern. For example, with respect to items 137, 138 and 196, the licensee determined that adequate separation existed, since the raceways were protected by metal covers. Item 135 was reworked to provide adequate separation.

(2) The installation of tie-wraps on vertical cable runs (at a minimum of eight foot centers) were verified during the area walkdowns. The licensee determined that in two instances (108 and 129) tie-wraps were adequate and no further action would be required. In one instance (134) the cable run was reworked and Kellum Grips were installed to support the cables.

(3) Item #130 involving cable tray overfill is presently being covered by the licensee's QA/QC program. The inspector reviewed several nonconformance reports which indicated that the licensee had an in-process program to continuously inspect to this criteria.

(4) Item 131 is similar to (3) above and has been addressed by the licensee.

(5) Item #139 involved an inadequately support of coiled cable. The licensee's cable group has developed a coiled cable package which lists all identified coiled cables. The licensee indicated the program to be ongoing, and this program will continue to be maintained as completed work is recorded.

(6) Item #132 identified damaged flexible conduit. The licensee initiated several area walkdowns which identified damaged or broken flexible conduits, which were identified in several NCR's.

(7) Items 140 and 156 involved uncapped spare conduits. The licensee has addressed the overall concern regarding the consequences of leaving spare or empty conduits uncapped. In addition, Design Change Notice (DCN) 10,864 revised specification 3071-33 to require that spare conduits be capped.

(8) Duke Item #136, which identified a missing cover from a pullbox had been previously identified by the licensee.

The licensee has a program in place that addressed each Duke finding under Recommendation No. 21. Based on the licensee's program and a review of the completed items, Recommendation No. 21 is closed. Pending a review of licensee action on remaining Duke Recommendations under this item, this item remains open.

n. (Closed) Part 21, Item No. (341/83-01-PP) It was previously identified that Brown Boveri Electric Inc, Type HK and HKV Breakers manufactured between 1961 thru October 1973 and June 1975 thru June 1977 had a potential deficiency in the plastic contact carrier devices of the Breakers. BBE issued a Part 21 report on April 28, 1982, informing the licensee of these deficiencies. During a previous inspection, as documented in NRC inspection report No. 84-68, the NRC inspector requested that the licensee provide a list of the Breakers with the deficient plastic contact carrier and documentation indicating Systems or Buses where these Breakers are used for NRC review. During this inspection the inspector was presented with the requested information which included DWG #6SD721-2500-5 Revision J, 6SD721-2500-6 Revision K as well as receipt and inspection reports for the four (4) Breakers. The information presented to the inspector indicated that the licensee utilized only four (4) of these breakers in the entire plant, in Balance of Plant switchgear. Based on the information presented to the inspector, this item is closed.

o. (Open) (Open Item 341/84-21-11):

Duke Recommendation No. 20

It was previously identified that reactor water level and pressure instruments had calibration and grounding deficiencies, and that limit switches and scram valves also had calibration deficiencies. The Duke recommendation called for the licensee to conduct a comprehensive operability verification of all instrument loops, limit switch and scram valve calibration prior to fuel load. A detailed discussion of the licensee's response and the NRC review of the licensee's response is discussed as follows. During this inspection the inspector reviewed three licensee actions on Duke finding and recommendation No. 20. This finding was previously identified in NRC Report No. 84-17 and was identified as Item 341/84-17-01c.

The following areas in the Duke recommendation No. 20 were reviewed:

(1) B21-N091C and B21-N094 were not calibrated to the required 0.25% accuracy. The inspector reviewed the licensee's response to the Duke recommendations and observed that:

(a) The licensee had punchlisted the safety-related instruments for recalibration to 0.25% accuracy.

(b) The licensee's had committed to calibrate the safety-related instruments to the required 0.25% accuracy, and where it was not possible to calibrate the instruments to the required accuracy, Detroit Edison Engineering would provide an Engineering Evaluation Report (EER) or a start-up Field Report to provide justification for a "use-as-is" disposition. This commitment is shown in letter No. NP-84-749 dated May 31, 1984.

(c) The inspector reviewed EER #84-288 dated November 7, 1984. The disposition and the justification of this EER appeared to be adequate. However, a review of EER #84-298 dated November 6, 1984, did not have any substance to support the disposition and justification for the "use-as-is" final disposition for approximately fifty-five (55) safety-related instruments, which included instruments for reactor water level 1, 2, 3,...etc. The licensee agreed with the inspector that EER #84-298 did not substantiate its "use-as-is" disposition. The inspector informed the licensee that proper and adequate disposition of EER #84-294 was required before any further review by the NRC staff. Since the Reactor water level issue was identified previously in report #84-17, and it is being currently tracked as item #341/84-17-01C, this attribute of the Duke Recommendation #20 is considered closed for the purpose of this NRC verification.

(2) Reactor Protection Panels and safety-related instrumentation grounded to station ground.

(a) The licensee dispositioned this finding as not being a potential finding, stating that the CAT team misunderstood the licensee's Technical Specifications No. 33. The NRC inspector reviewed Technicial Specification No. 33 with the licensee. The Technical Specification No. 33, paragraphs 5.20.12.9 and 5.20.12.9.1 states: "Install a separate grounding system for the instrument and control system, the computer system and radwaste instrumentation to prevent an excessive voltage gradient. These grounding systems shall be separate from the general grounding network, and shall serve as an isolated ground."

Paragraphs 5.20.12.13 and 5.20.12.17 of Specification #33 further states that: "Instrument case and panel ground, differs from Instrument and Control System grounding, and is provided for protection. All grounding shall be installed as shown on the drawings issued by Edison or as per equipment manufacturer's specifications and/or as directed by Edison or Vendor's representative."

The Technical Specification #33 specifically states that a separate grounding system shall be provided for instrument and control system, the computer system and radwaste instrumentation to prevent an excessive voltage gradient

or transients. These voltage gradients or transients are known in the industry to cause computer memory loss, to cause malfunctions in instrument data recorders and instrument outputs to provide false signals---etc. Since the reactor protection panels and other safety-related instrumentation are connected to the station ground, these panels and instrumentation will possibly be subjected to high and constant voltage transients which normally occur in industrial applications. The licensee's contention that this CAT team finding is not a potential finding is not considered valid. The inspector informed the licensee that the effect of connecting the reactor protection panels and other safety-related instruments to power station ground, without high voltage suppression protection, should be analyzed for the safe operation of the plant. Further, the licensee was informed that it was violating its own Construction Specifications by grounding the instrumentation panels and other safety-related instruments to station instruments ground. It is noted that the licensee's FSAR section 8.3.1.12.1 is in agreement with the configuration as stated by the licensee. A discrepancy exists between this and the construction specification.

This attribute of Duke Recommendati #20 is considered open, pending a NRC review of the l ee's analysis of the effect of high voltage gradients on the plant's safety-related instrumentation, and co-ordination of the specification and the FSAR.

(b) High Radiation Monitor #E11-N006A cables severed; Coaxial cables 231575-EZ, 231574-EZ, 231569-E1, and 231568-F1 appeared to have been spliced.

Background: There are six (6) High Radiation Ion Chamber Detectors - D11-N006A, B, C, D, E and F. Detectors D11-N006A, B, C and D are used in four (4) separate logics, which provide isolation signals to the Main Steam Isolation Valves MSIV #B21-F022A, B, C and D, and B21-F028A, B, C and D. Detectors D11-N006E and F are spare or stand-by units.

During a CAT team walkdown, it was identified that D11-N006A had severed cables and that the coaxial cables mentioned above appeared to have been spliced.

1. The NRC inspector reviewed the licensee's response and observed that detector D11-N006A, that was identified by the CAT team as having severed cables, had not been addressed by the licensee in its response. The inspector asked why D11-N006A was not addressed, and was informed by the licensee that the CAT team might have misidentified D11-N006A. This will be reviewed further by the NRC inspector during a subsequent inspection.

2. The cables that appeared to be spliced, as documented in the Duke Recommendation #20, were actually not spliced, rather, these cables had been installed in a way that resulted in the cable jackets being compressed, thus giving the appearance of the cables being spliced. These cables were tested (continuity and insulation test) and were found to be adequate to perform their functions.

(p) (Open) Unresolved (341/84-21-03): Duke recommendation No. 10. As previously reported, certain coating deficiencies existed in the dry-well. This matter has been addressed by NCR and a supplement to the SER specify acceptable corrective action is being prepared. During this inspection, NRC reviewed the corrective actions initiated by the licensee. A number of areas of structural steel and dry-well penetrations were observed to be rusted (flaking). Several areas of construction damaged coating had not been re-coated. A heavy burden of dust, grinding products, and debris was observed in the upper levels of a section of the dry-well. The entire surface area of the dry well has a burden of adhered dust and dirt. It appears that a general wash down of these surfaces will be necessary to remove the adhered burden of debris. This matter remains unresolved. It was noted that the licensee indicated this item to have been addressed, and was in their opinion ready for NRC review and closure. The NRC observed this to be not true. The licensee acknowledged this NRC finding.

3. Exit Interview

The inspectors met with the licensees representatives (denoted under paragraph 1) on January 31, 1985, and summarized the scope and findings of the inspection. The licensee acknowledged the statements made by the inspectors and agreed to take corrective action on all of the outstanding items of concern.