

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-341/85016(DRS)

Docket No. 50-341

License No. CPPR-87

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

Facility Name: Enrico Fermi Nuclear Power Plant, Unit 2

Inspection At: Enrico Fermi 2 Site, Newport, Michigan

Inspection Conducted: March 11-18, 1985

Inspectors: *R. Mendez*
R. Mendez

4/3/85
Date

K. Tani
K. Tani

4/3/85
Date

R. Mendez for
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Date

C. C. Williams for
L. Reyes (March 16-18, 1985 only)

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Approved By: *C. C. Williams*
C. C. Williams, Chief
Plant System Section

4/3/85
Date

Inspection Summary

Inspection on March 11-18, 1985 (Report No. 50-341/85016(DRS))

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Areas Inspected: Special, announced safety inspection of licensee actions on previous inspection findings and review of 50.55(e) 84-35-EE pertaining to deviations of as-built plant from design documents which included verification of electrical and I&C deviations. The inspection involved a total of 275 inspector-hours including 108 inspector-hours during offshifts.

Results: Of the areas inspected, no items of noncompliance were identified.

DETAILS

1. Persons Contacted

Detroit Edison Company (DECo)

- *W. H. Jens, Vice President, Nuclear Operations
- *W. R. Holland, Vice President
- *O. K. Earle, Supervisor, Licensing
- *R. S. Lenart, Superintendent, Nuclear Production
- *G. M. Trahey, Director, Nuclear QA
- *S. H. Noetzel, Assistant Manager
- *S. P. Zoma, Principal Resident Engineer
- J. A. Rofe, Field Engineer
- L. S. Ferguson, Principal Resident Engineer
- A. Klemptner, Field Engineer
- D. Whatley, Quality Assurance
- J. Rotondo, NQA, Senior Quality Specialist
- W. M. Street, Supervising Engineer, Civil
- D. C. Timmins, Licensing Engineer
- B. E. Wickman, Staff

The inspectors also contacted and interviewed other licensee and contract employees.

*Denotes those who attended the exit meeting on March 18, 1985.

2. Licensee Action on Previous Inspection Findings

- a. (Closed) Open Item (341/81-10-01): Shore Barrier Issue. As was previously reported in NRC III Report No. 50-341/84-64, all issues related to this previously identified open item have been resolved. Region III has verified the completion of the specified survey of the as-built Shore Barrier Structure prior to issuance of an operating license. This entire matter is resolved.
- b. (Closed) Unresolved Item (341/84-21-03): Duke Recommendation No. 10. As was previously reported, coating deficiencies existed inside the power plant drywell. The inspectors examined the associated records and observed through extensive inspection that the required repairs and additions to the drywell coating have been satisfactorily completed. This matter is considered resolved.
- c. (Closed) Unresolved Item (341/84-21-11): Duke Recommendation No. 20 (attribute (4)). It was previously identified that the limit switches on valves E21-F006A and on HCU 46-07 were not properly calibrated to provide the required indication. Subsequently, the licensee took corrective action to resolve this deficiency by modifying the limit switch cam arm design. This corrective action was reviewed by the inspector during a previous inspection and it appears that licensee's corrective action is adequate.

During this inspection, the inspector reviewed the licensee's corrective action regarding the hydraulic control unit (HCU) limit switch actuating plates. During scram valve operation the improperly aligned plates could have prevented the actuation of the limit switches. The limit switches, therefore, would not provide proper indication of valve operation during a reactor scram. An additional concern mentioned in Duke Recommendation No. 20 identified the fact that this scram valve had been preoperationally tested; however, the deviation relative to the limit switch had not been identified by the test engineer.

The licensee indicated that misalignment of 129 limit switches on 94 HCU's was documented in MCR 84-0989. However, based on a review of these limit switches by the Edison instrument shop, and Engineering concurrence, 89 of these 129 limit switches were dispositioned "use-as-is." The criteria used by the licensee is that at least one-third of the head of the limit switch adjustment bolt which is mounted on the actuating plate, should extend over the microswitch actuating plunger. The remaining 40 limit switches were dispositioned by MCR 84-0989 to be realigned by the instrument shop. The work was completed.

The licensee indicated that the cause of the limit switch misalignment appears to be torsional displacement of the scram valve diaphragm resulting from spring adjustments on these valves. This occurred following the completion of preoperational testing of the scram valve limits switch circuits.

The inspectors visually inspected 370 limit switches mounted on 185 scram valves for proper alignment of switch actuator assemblies, plungers and micro switches. No deficiencies were identified.

The inspector examined the following associated documents generated by the licensee as a corrective action to resolve this problem:

- (1) PN 21-P006553
- (2) Control Rod Scram Insert Time Test - Procedure No. 54.000.03, Revision 5
- (3) Scram valve microswitch misalignment deviation event report No. NP-85-019 dated January 15, 1985.
- (4) Maintenance Instructions, MI-IC-3008, Revision 13, dated February 14, 1985 (HCU scram inlet and scram outlet valves).

This item is considered closed.

- d. (Closed) Unresolved Item (341/84-68-01): It was previously identified that safety-related sensing lines inside the drywell and outside the drywell appeared to be in violation of separation criteria. During this inspection, the licensee presented the NRC inspector with memo QA-85-0727, dated March 8, 1985. This memo documented some of the corrective action that the licensee has taken in the form of QA walkdowns of the sensing lines identified

earlier by the NRC. The licensee also walked down the redundant division of the subject sensing lines and observed and documented similar discrepancies. Further, the licensee presented the NRC inspector with Quality Surveillance Report No. S-MA-85-170 dated February 27, 1985, which documents the licensee's corrective actions on the above findings. On March 15, 1985, the licensee presented the inspector with memo EF2-102, 520 which states,

"SUBJECT: Unresolved Item 84-68-01, Commitment to NRC

Unresolved Item 84-68-01 identified instrument sensing lines which appeared to be in violation of separation criteria because the lines were incorrectly labeled. Detroit Edison's response (Reference 2, 3 & 4) to this item was to verify that separation criteria was met, routing was correct and to document the incorrect labels on a Deviation/Event Report.

In addition to the actions identified in Reference 2, 3 & 4, a walkdown will be performed to verify correct tagging of the approximately 118 instrument sensing lines which originate inside the drywell. Tagging verification will be for the entire length of the sensing line - from the source of the sensing line to the instrument rack. This verification and necessary corrective action will be completed prior to reactor plant heatup. Prior to the verification, the QA1 line lists (5I721-2836-1 thru 5) and the tagging drawing (6I721-2541-11) will be verified correct."

Based on the corrective action that has been initiated by the licensee and the commitment in memo EF2-102, 520, this item is considered closed.

- e. (Closed) Unresolved Item (341/84-68-08): As previously reported this item identified concerns regarding the scope, adequacy and clarity of the lead Design Document Index (LDDI) Procedure No. 11.000.54, Revision 0, Attachments 3 and 4. During this inspection the inspector examined Revision 3 of the subject procedure, its Attachments 1 - 5 and other related procedures such as Work Order Processing Procedure No. 12.000.15 (PN-21). As a result of this examination and discussion with the responsible members of the licensee's staff, it is concluded that all issues and concerns identified by the NRC have been adequately addressed. The licensee is currently in the process of preparing Revision 4 of the subject procedure (No. 11.000.54-LDDI). The proposed revisions are minor and principally address issues of clarification. This matter is considered closed.
- f. (Closed) Noncompliance Item (341/84-68-20): This item concerns the licensee's failure to follow procedures addressing the yellow lining of design prints for tested components. Checkout and Initial Operating (C&IO) test engineers conducted tests, yellow lining, and tracking of circuits tested using their own methodology and were not consistent in signing off completed tests. This issue is closed

based on the licensee's commitment to train test engineers in the use of C&IO test procedures. However, an additional issue was raised regarding documentation methodology in ascertaining that instrument loop schematics were being tested properly. For more information, refer to unresolved item 341/85016-01.

- g. (Open) Unresolved Item (341/85009-01): This item addresses various cases where Balance of Plant (BOP) cables are electrically interfaced with Divisional cables in safety and non-safety related circuits. The inspector identified several cases in the HPCI initiation circuitry where BOP and Divisional cables are electrically tied without the benefit of isolation devices. During the previous inspection, the inspector requested that licensee's engineers to review the safety-related schematic diagrams to determine if other such ties are present. The review conducted by the licensee indicated other interfaces between BOP and Divisional cables, designated as (OC, OK) and (Div. I or II), respectively. The review included 464 Class 1E tagging center schematics. The following interfaces between BOP and Divisional cables have been identified by the licensee:

Schematic Drawing Number/Rev.		BOP and Divisional Cables in same circuit		
Drawing No.	Rev.	BOP	Div. I	Div. II
6I721-2642-1	F	242898 (OC)	226419-1C	
6I721-2642-2	F	242898 (OC) 229171 (OC)		227536-2C
		240307 (OC)		227523-2C 241896-2C
6I721-2225-3	I	218384 (OC)		218386-2C
		218387 (OC)		225303-2C
6I721-2201-1	H	220032 (OK)	225143-1K	
		BOP cable see (6I721-2205-14)	220031-1C 230936-1C	
		235811 (OC)	220031-1C	
6I721-2573-4	L	200570C (OC)	246851-1C	
		200566A (OC)	226605-1C	
6I721-2235-6	H	247807 (OK)	225125-1K	

Drawing No.	Rev.	Number of interfaces between BOP and Divisional Cables
6I721-2205-9	J	5
6I721-2441-1	K	3
6I721-2235-3	L	1
6I721-2578-19	F	5
6I721-2578-11	F	2
6I721-2578-9	H	3
6I721N-2578-6	O	1
6I721-2265-2	O	7
6I721N-B578-8	O	8
6I721N-2578-10	P	8
6I721N-2578-12	P	8
6I721-2578-20	G	4

The inspector requested the licensee to address the cases identified, either by documented analysis, FSAR justification, GE NEDO document justification or by hardware fix. The inspector will review licensee progress during a subsequent inspection. The licensee was informed that the above identified interfaces needed to be resolved by 5% power.

- h. (Closed) Open Item (341/85009-03): It was previously identified that acceptance criteria regarding labeling of safety-related electrical equipment and components was lacking from the licensee's Lead Design Document Index (LDDI). The licensee had previously issued a Stop Work Order (SWO) number 85-001 to initiate action to halt all work in the area of labeling. The SWO was issued as a result of identified discrepancies between the load description labeling of distribution panels and applicable drawings. The inspector reviewed revision 3 of the LDDI which now establishes the lead documents used for tagging and labeling for DC distribution cabinets, 260V DC motor control centers (MCC's), 480V MCC's, 480V and 4KV switchgear. In addition, labeling activities are to be coordinated between the licensee's Engineering and Plant Production staffs. Furthermore, the licensee revised plant order number EFP-1066 which establishes guidelines for the identification of plant components. The plant order specifies which equipment is to be identified, who is responsible for proper identification of

components and delineates the necessary steps to be taken in the event that component labels are found defined. This issue is considered closed.

- i. (Closed) Open Item No. (341/85009-04): As previously reported certain deficiencies in the implementation of Procedure No. 11.000.54 Lead Design Document Index (LDDI) were noted. These principally involved the adequacy of personnel training in several areas; clarification of the status and scope of the LDDI and the associated procedures; and the adequacy of the procedural interfaces (cross references). During this inspection, the inspectors verified that each of the previously identified concerns have been comprehensively addressed and corrected by the licensee. All areas were found to be satisfactory. Minor discrepancies which were immediately corrected or controlled by the licensee were noted. Region III inspectors verified the foregoing through review and discussion with licensee personnel; review of the procedures and records involved in the implementation of the LDDI and associated procedures; review of personnel training records and observations of completed work. This matter is resolved.
- j. (Closed) Open Item (341/85009-05): It was previously identified that the licensee did not provide proper and adequate technical justification for narrow, wide, and fuel zone range safety-related instruments with "use as is" dispositions of NCR's. During this inspection, the inspector was presented with DECo Potential Design change form #PDC-1784 Rev. C dated March 15, 1985. This document indicates that the total loop error of the subject instrument was still within the G.E. specified total loop error for these instruments. Based on the information that was presented to the NRC inspector, this item is considered closed.

3. 10 CFR 50.55(e) Followup

(Closed) 10 CFR 50.55(e) Item (341/84-35-EE): During a walkdown of as-built equipment, as part of the as-built drawing verification program, the NRC and the licensee found many deviations from the design drawings and the as-built plant configuration in the electrical and instrument and controls (I&C) areas. The discrepancies were categorized into three categories (Category A, B, or C). Category A was assigned to those items that were determined to affect component operability. Category B was assigned to those items that were determined to affect the performance of operations and maintenance personnel. Category C was assigned to those items that are minor in nature, not A or B issues. A total of 479 hardware deviations were identified during the inspection, (154 Category A and 325 Category B). Approximately 5000 category C items were also identified. The total number of items is subject to change due to the requirements of the licensee's program and methodology for categorizing A and B hardware items. Additional information concerning the NRC's review of the licensee's as-built program and discrepancy categorization method is delineated in Paragraphs 4 and 5 of Inspection Report 341/85009. NRC Inspection Reports 341/84-62, 341/84-68 and 341/85004 also address the licensee's efforts to resolve the Electrical and I&C as-built issue.

Each identified discrepancy is to be dispositioned. When the disposition requires rework a work package (Form PN-21) is prepared. The inspectors reviewed a sample of the completed Category A and B PN-21s (work packages) to verify that deviations were corrected in accordance with the applicable administrative procedures and design specifications. The field work was inspected for adequacy and whether required testing was performed. An independent verification of related components was also made to verify whether similar deviations were being identified and corrected. The inspectors reviewed 61 Category A and 7 Category B work packages. These work packages (PN-21's) contained 108 line items of which 93 were Category A and 15 were Category B. Therefore, approximately 22% of the total of A & B hardware items were examined by NRC prior to considering the resolution of this issue before fuel load. The following PN-21's were reviewed and walked down during this inspection.

<u>PN-21 Number</u>	<u>System or Component</u>
984324	Emergency Diesel Generator (EDG) #12 Control Panel
564807	EDG 13 underfrequency relay
286014	Instrument racks (H21-P572 and H21-P573)
*984778	EDG 14 Control Panel (R3000S008)
652244	EDG 14 Control Panel (R3000S008)
652285	EDG 11 Control Panel (R3000S005)
984797	EDG 12 Control Panel (R3000S006)
984750	Instrument E11-R003B (RHR system)
984710	Class 1E Motor Control Centers
984746	Class 1E Motor Control Centers
984704	Division I Valve Relay Cabinet (H11-P622)
578348	Class 1E Motor Control Centers
561491	Core Spray Division I local panel (H11-P62)
577187	High Pressure Coolant Injection (HPCI) panel (H11-P620)
984722	RHR relay cabinet (H11-P617)
652269	Reactor control panel (H11-P603)
652628	Drywell HVAC control panel (H11-P817)
984785	Recirculation system control panel (H21-P006)
992871	RHR Division I local panel (H21-P018)
992872	RHR Division I local panel (H21-P018)
984759	Main Steam System Instrument Rack (H21-P015)
984772	Jet Pump instrument rack (H21-P009)
*979128	Division II ECCS trip unit cabinet (H21-P08)
652654	Division II Remote Shutdown Panel (H21-P10)
984756	Instrument Rack (H21-P575K)
984757	Instrument rack (H21-P575L)
992693	EDG 12 Control panel (R3200S006)
652205	Containment Monitoring Panel (H11-P915)
577385	Instrument Rack (H11-P855)
578327	Class 1E Motor Control Centers
567454	Division II Jet Pump Differential Pressure Transmitter

553375	Recirculation Pump A Suction Pressure Transmitter
349971	Recirculation Pump B Suction Pressure Transmitter
577353	Division I ECCS Trip Unit Cabinet (H21-P080)
652601	Control Room Panel (H11-P809)
984169	Primary Containment Monitoring Panel (H11-P914)
*984703	Containment Monitoring Relay Panel (H11-P886)
984706	Division I Termination Cabinet (H11-P822)
984732	Division I ECCS valve control cabinet (H11-P614)
984787	Division I Core Spray Cabinet (H11-P627)
564808	EDG 13 Control Panel (R3000S007)
*984733	Instrument panel (H21-P259B)
652680	Instrument panel (H11-P612)
652638	Instrument Panel (H11-P612)
652681	Instrument Panel (H11-P612)
*984789	Instrument Panel (H11-P914)
984707	Instrument Panel (H21-P296B)
984728	Local Relay Panel (H21-P423B)
652603	Class 1E Motor Control Center (R16-S005)
984752	Local Relay Panel (H21-P014)
816753	Local Relay Panel (H21-P005)
578330	Class 1E Motor Control Centers
578329	Class 1E Motor Control Centers
977846	Local Relay Panel (H21-P081)
*984760	Local Relay Panel (H21-P022)
*984747	RCIC System Instrument (E51-H002)
*652203	Control Room Panel (H11-P602)
*578650	MCC 72E-5A Position 2C
*652246	Local Control Panel (H21-P015)
*970775	Local Control Panel (H21-P005)
979128	Local Panel (H21-P082)
652653	Local Panel (H21-P081)
984705	Control Room Panel (H11-P822)
984719	Control Room Panel (H11-P617)
984786	Core Spray Pump "A" Panel (H11-P626)
984784	Process Instrument Panel (H11-P613)
578346	MCC 72B-3A Position 5DR
984771	MCC 72E-5A Position 2C

*Discrepant work packages (PN-21) discribed in paragraph a. below.

- a. The NRC staff's inspection efforts as discussed above and the followup of the unresolved items contained in Paragraph 2 of this inspection report, verified that the DECo corrective actions were adequately implemented. However, several discrepancies were identified by the NRC staff pertaining to the corrected line items that were either corrected but required additional work, corrected inadequately or were deviations not identified by the licensee during their walkdowns. The following are examples of discrepancies identified during this inspection.

- (1) Cable 228794-2C4 was identified by DER 85-405 as being a deviation in that the cable was improperly supported on the top of EDG 14 control panel R3000S008. PN-21 No. 984778 was issued to correct the discrepancy. However, the adhesive cable tie-wraps used were inadequate to support the cable permanently. The inspector identified the condition to the licensee and it was corrected with permanently mounted metal supports prior to the completion of the inspection.
- (2) DER 85-380 Item 3 which identified wrong fuses installed in MCC 72E-SA Pos. 2c (Fuses should be FNQ-15 and FNQ-05 vs. FNM-15 and FNM-5 as installed). This discrepancy was identified during the licensee's fuse walkdown program conducted on November 28, 1984, as indicated on PN-21 No. 578650. These fuses were apparently changed to FNQ-15 and FNQ-05 during implementation of above PN-21. However, during the as built program verification the wrong fuses were identified in this MCC position. The licensee could not immediately identify the cause and source of this error. The licensee issued revision A to deviation event report (DER) No. 85-380 to resolve this issue.
- (3) The inspector reviewed PN-21 No. 984703 which contained a field completed category "A" item. This item concerned missing fuses in Post Loca Combustible Gas Control System Division I panel H11-P886.

The inspector reviewed the walkdown package pertaining to panel H11-P886 (DIIV) and panel H11-P887 (DIV II) which are used in the Post Loca Combustible Gas Control System. An inspection by the NRC inspector of the above panels after the licensee had completed its walkdown identified the following deficiencies:

- (a) Power supply device power supply D.C.(-): There are three lugs at one termination point. The licensee's specification allows two lugs at one termination point.
- (b) YY 14 and 15 relays were observed to have the connections reversed at the coil.
- (c) Wiring of ground bus are different than drawings. Six (6) are connected in the field; eight (8) shown on drawing, and drawing does not reflect field condition.
- (d) Broken lock screw on an annunciator box door.
- (e) Center position of switches CS-1 and CS-2 were not identified in the panel. In addition, functional name plates were not installed for these switches.
- (f) Point 10 on annunciator (window FT-2) engraved "Thru Gas Flow" is energized. Window is spare per FMR S-7309.

- (g) Several instances were identified where the walkdown prints were not yellowed out to indicate whether wiring and connection diagrams were checked against the field configuration.
 - (h) Cable No. 247502-1K is not identified in the panel - was missed during the walkdown program. A subsequent walkdown found the missing tags in the panel.
 - (i) Control switches CS-1 and CS-2 were not wired per drawing, nor was wiring yellowed out on the walkdown print.
 - (j) A number of wires (internal wires) were observed to be bent at a sharp angle, e.g., possible bend radius violation.
 - (k) Butt joint at one connection to HS-3.
 - (l) Fuse FU-6 and FU-7 wiring on drawing 6721-2655-2, Revision D does not agree with field conditions and was not verified during walkdown in H11-P886 and P887.
 - (m) Switch HS-3 wiring does not agree with drawing 6I721-2655-2 and was not verified during walkdown in H11-P887.
- (4) PN-21 No. 979128 addressed the re-lugging of a conductor that was terminated at TB-BB-33 of Panel #H21-P082. An inspection of the subject panel and TB revealed that the item addressed in the PN-21 has been adequately completed. However, further inspection of the panel revealed the following discrepancies:
- (a) The red conductor of BOP cable #230625-0C which was landed on TB-HH-9 had a 1' long cut along the length of the insulation of the conductor. The licensee has issued a Deficiency Notice Tag to correct this deficiency.
 - (b) Device identified as C35-K410 (signal isolator/converter) is installed in the field, however, drawing #6I721-2285-45 Revision F, does not reflect this device. The licensee indicated that S&L review which is a part of the as-built program has identified this discrepancy; however, this item is not listed in the DER associated with this package.
 - (c) Drawing #6I721-2095-29, Revision G, incorrectly shows Cable #218369-1C black and white conductors connected to device C35-K410 (Black positive conductor connected to the common and the white negative conductor connected to supply side of device C35-K410). The licensee indicated that the drawing to drawing review portion of the as-built program addresses this discrepancy, although this is not listed in the associated DER of this package.

- (d) Termination to the inboard side of TB-BB-28 as shown in drawing 6I721-2282-45, Revision F, does not exist in the field. The licensee has written a DER to correct the drawing discrepancy.
- (e) Drawing #61721-2095-29, Revision G, shows the white conductor of cable #225166-1K connected to TB-AA-22 on Panel H21-P082 and device #B21-N6910-CA-TB4-4. On the contrary, drawing #61721-2282-45, Revision F, shows cable #245772-1 shielded conductor connected to TB-AA-22 of panel #H21-P082. This item was missed in the as-built program Scope (walk-down, Engineering review and S&L review). The licensee is going to take corrective action to correct this discrepancy.
- (f) Drawing #6721-2095-29, Revision G, shows that device B21-N691C-CA-TB-4 has the white conductor of cable #225166-1K connected to it. On the contrary, drawing #61721-2282-42, Revision E, shows the white conductor of cable #225166-1K connected to device B21-N691C-CA-TB4-3.

The licensee indicated that this item was addressed during engineering review, although this item is not listed in the associated DER of this package.

- (g) Drawing #6I721-2282-42, Revision E, shows that CA-TB1-3 has three conductors landed. On the contrary, field shows only 2 conductors landed.

The licensee responded that this item was addressed during engineering review, although this item is not listed in the associated DER of this package.

- (h) Drawing #61721-2282-42, Revision E, shows that CA-TB1-4 has three conductors landed. On the contrary, field shows four conductors landed.

The licensee responded that this item was addressed during engineering review, although this item is not listed in the associated DER of this package.

- (i) Drawing #61721-2282-42, Revision E, shows that CA-TB4-3 has three conductors landed. On the contrary, field shows two conductors landed.

The licensee responded that this item was addressed during engineering review, although this item is not listed in the associated DER of this package.

- (j) Drawing #61721-2282-42, Revision E, shows that termination point CA-TB4-4 has three conductors landed. On the contrary, field shows four conductors landed.

The licensee indicated that this item was addressed during engineering review, although this item is not listed in the associated DER of this package.

- (k) Various other connections in the field connected to CA-TB1 through CE-TB14 are not shown on the drawings.

This item was missed in the as-built program scope but was picked up for other panels (H21-P081). This licensee is going to address this item.

- (l) Contacts 3-4 and 5-6 of relay A71B-K53 used in recorder #B21-R623A are not shown on drawing 6I721-2095-29, Revision G. This item was missed in the as-built program scope. However, the licensee is going to address this item.
- (5) The inspector reviewed PN-21 No. 970775 which addresses repair work to be performed on Transmitter #B21-N094D. The work was completed per the PN-21. However, further inspection of this instrument rack - H21-P005 revealed the following discrepancies:
 - (a) Drawing 6I721-2281-5, Revision I, shows that the low side of level transmitter #LXE-N027 is connected to RPS channel A3 sensing line. On the contrary, the field inspection shows that the low side of the instrument is connected to a B21-Div. 11 sensing line (V13-2323-FDCV-B21-F512) in the field. Similar deficiencies were also observed for other safety related instruments on this Rack and Rack H21-P004. The licensee indicated that these deficiencies were missed in the as-built program scope, and that these were labeling deficiencies which will be addressed in the program that was initiated following NRC findings that were discussed in unresolved item #341/84-68-01.
 - (b) During the inspection of Rack H21-P005, while the inspector was verifying which sensing was connected to transmitter B21-N091C & D, the inspector observed that four sensing lines were (B21-6009, E11-L406, E11-L406D, B21-L011) bent in the field at various locations. These bent sensing line tubings with reverse slopes were identified during an NRC inspection in April of 1984. At that time, the licensee indicated that corrective action was being initiated to address these deficiencies. However, at the time of this inspection, these deficiencies were still uncorrected. Subsequently, the licensee issued a PN-21 during this inspection (PN-21 No. 652325) to address these deficiencies.
 - (6) The following discrepancies were identified with PN-21 No. 652246:
 - (a) Unit Strut support bolts for three way valve manifold on Racks H21-P004, H21-P005, H21-P025, and H21-P015 were observed to be loose in the field. This observation was

made during a review and inspection of PN-21 No. 970775 and PN-21 No. 652246. This item was missed in the as-built program scope. The licensee is going to address these deficiencies on the above mentioned Racks.

- (b) Loose flex fittings on safety-related transmitters were observed by the NRC inspector. A similar observation was made on the same Racks (H21-P004 and P005) and transmitters during an inspection in April 1984. At that time, the licensee issued NCR #84-0713 and 84-0714. Similar observations were made during this inspection period on Racks H21-P015 and H21-P025. The licensee has indicated that these deficiencies were missed in the as-built program scope. However, part of the corrective action to address these deficiencies shall include the training of I&C craft to tighten these loose flex fittings following calibrations on these instruments and that procedures shall so state that these fittings are to be checked and tightened if necessary following calibration or maintenance on these Racks.
- (7) A review and inspection of PN-21 No. 652203 for Panel H11-P602 which addresses Div. I boxes identified as AZ/BE and AP/AV revealed that work on these Div. I boxes which are mounted in a Div. II panel was not actually completed as signed off in the PN-21. Additional rework to achieve divisional isolation was required.
- The licensee has indicated that rework and re-inspection will be performed on these boxes.
- (8) Attachment A to PN-21 No. 984747 required that a compression fitting on the high side of 3 way valve FSE-N002 be reworked to stop the valve from leaking. The valve was inspected on February 18, 1985 and the QC inspector noted that the valve had stopped leaking. However, the inspector observed that the valve was still leaking on March 12, 1983.
- (9) PN-21 No. 984760 required that a 3/8" tube fitting to shut-off valve connection A14 on instrument rack H11-P014 be repaired and inspected. The inspector observed that the shutoff valve connection was no longer leaking. However, the fittings, connections and valves associated with reactor recirculation pump "A" transmitters B31-N112B, B31-N113B, and B31-N1140 were observed to be leaking. Additionally, the header pipe cap to the instrument on the rack was observed to be loose. These conditions had not been previously identified by the licensee.
- (10) PN-21 No. 984789 required that work be accomplished to install a missing ground connection at termination point TBR3-29 in order to conform with drawing 6I721-2674. The licensee's QC inspectors had verified that the connections were in accordance

with the applicable drawing. During verification of the two line items, the inspector observed that the field configuration was not in accordance with the applicable drawing. For example, drawing 6I721-2674-2 shows that two shields and two conductors are terminated on point TBR3-29, however, two shield and one conductor were observed to be terminated on this point. The licensee could not explain whether the ground had not been installed or whether the internal connection to point TSA-6 was the missing conductor.

A second issue involved the number of shields connected on termination point TBR4-41. PN-21 No. 984789 required that the lugs connecting this point be shielded cables per drawing 6I721-2674-2. This drawing indicates that two shields are connected at point TBR4-41, however, only one shield could be verified. The licensee could not explain why the field configuration differed from the drawing.

A third discrepancy on drawing 6I721-3674-2 involved a termination point not associated with a line item. The inspector observed that connections to point 7BR3-26 did not agree with this drawing. The licensee verified that the observation by the inspector was correct and agreed to further investigate this matter.

- (11) The licensee's specification requires that no more than two lugs be connected at one termination point. PN-21 No. 984733 was issued to rework the termination point K005B-2 and requested that QC verify that two lugs were terminated on this point. QC verified this line item on February 16, 1985. However, during this inspection, it was observed that three lugs were still terminated on this point.

Each of the issues documented above (a.1 through a.11) were discussed with the licensee and shall be corrected in accordance with the applicable corrective action program. The majority of these discrepancies occurred during the initiation of this corrective action program. Overall the discrepancy rate is within an acceptable range.

b. 10 CFR 50.59 Evaluation of Postponed Rework for Certain Category A & B Line Items

The NRC staff also conducted an independent evaluation of 11 of 20 safety evaluations (10 CFR 50.59) performed by the licensee for maintenance work Category A and B hardware items that were deferred until after fuel load due to difficulties in acquiring replacement parts. The inspectors verified that the evaluation addressed the possible impact on the safe shutdown of the unit and whether the item presented an unreviewed safety question or compromised the margin of safety as defined in the FSAR and Technical Specifications.

The Category A and B hardware items contained within the safety evaluations included the following.

- (1) Control room panel H11-P602 groundwire (Insert B515) was missing for the P4200 system (Reactor Building Closed Cooling Water).
- (2) Various parts missing from the Nitrogen Inserting instrument rack (H21-P548) including a valve handwheel and the Eccentric Reducer for the Rack Drain Manifold. This item was also evaluated, in addition to the safety evaluation as described above, for a potential ALARA concern with background radiation levels.
- (3) The RCIC system turbine coupling and bearing temperature indicator (E51-N203) was found with a damaged indicator face bezel and thermocouple armor shielding.
- (4) Instrument rack (B21-P423B) for the Main Steam Isolation Valve Leakage Control System (MSIV/LCS) requires replacement of the eccentric reducer on the drain manifold. This item was also evaluated for ALARA.
- (5) Knobs were found missing on instruments (TSE-T41-N2200 and TSE-T41-N057B) located on the Control Center Heating, Ventilation and Air Conditioning (HVAC) system.
- (6) The MSIV/LCS pressure transmitter (PXE-B21-N482) sensing line calibration valve interferes with the instrument quick disconnect fitting.
- (7) The annunciator lens cover was found missing for the EDG service water pump trip indication on the EDG 14 control panel.
- (8) The support bracket for the Source Range Monitor Detector Recorder (C51-R602B) was found damaged.
- (9) The power supply fuse for level transmitter LXE-T48-N443 (Nitrogen Inserting and Control System) was found to need replacing.
- (10) Reactor Instrumentation and Control System multiple electrical connectors were found missing spare pin plugs.
- (11) The power fuse clip on the "Y" phase for the Drywell Cooling Fan No. 3 was found bent and will be replaced.

The inspectors concluded that there were no safety concerns with the postponed rework of these items based on the detail and adequacy demonstrated by the licensee's staff in performing the safety evaluations.

In conclusion, there were approximately 479 category A and B items that were required to be corrected and completely dispositioned prior to fuel load. As described above, the inspectors reviewed and examined the licensee's implementation of this program. The inspectors concluded that

the licensee has adequately implemented its commitment to correct all category A and B hardware items prior to fuel load. The licensee established the verification of completion of all category A and B hardware items as a procedural prerequisite for fuel load. Completion of this will be verified by NRC inspectors during a subsequent inspection. Further, since the remaining (longer term) issues addressed in the licensee's 50.55(e) report no. 84-35-EE will become a condition of the operating license, this report (no. 84-35-EE) is considered closed.

4. Independent Review

The inspectors conducted an independent inspection of various components and systems, other than those identified by PN-21 line items, such as verification of fuse ratings of related motor control centers, sampling terminal blocks for lug crimping or wire termination attributes and an independent verification of the design drawings against the as-built configuration. These components included Class 1E Motor Control Centers, various remote control panels for the Emergency Diesel Generators, safety-related DC distribution systems, the Residual Heat Removal system and various safety-related instrumentation.

- a. During this inspection, the inspector selected the Reactor Protection System yellow-lined use of latest schematic diagrams 6I721-2155-6 rev. "H" and 6I721-2155-7 rev. "H" to ascertain whether the licensee's test engineers followed procedures applicable to yellow lining. The above mentioned drawings were yellow lined. However, the portions that had been yellow lined had not been circled, initialed or dated as required by Startup Instructions Procedure 7.7.2.0, rev. 7 paragraph 5.5.10 which states "All yellow lining which is not affected by the new revision will be transferred to the new revision by the Startup Test Engineer (STE), circled, initialed and dated and the new revision marked or stamped "Does Not Change Completed Test Documentation." The test engineers that did not follow this procedure had been trained to the revised procedure prior to their yellow lining the above drawings. However, the inspector did not complete his review on the subject and will continue it on subsequent inspection. This item will therefore remain unresolved item pending further review (341/85016-01).
- b. During verification of line items associated with PN-21 No. 984786 in panel H21-P626 (Division 1 Core Spray), the inspector observed Division I and Division II cables, all associated with the core spray system bundled together. The licensee had previously issued a nonconformance report to route Division II cables inside the panel to assure that Engineered Safety Features (ESF) systems meet the separation criterion specified by Detroit Edison Company (DECO) Specification 3071.39, 5.15.14.8.3 and the licensee's FSAR. The licensee's FSAR requires that no single control panel includes wiring essential to the protective function of two systems which are backup for each other unless they are separated by a barrier and provided that there is a one inch separation. However, these conditions were not met since the flexible conduit which enters the Division I panel

and houses the Division II cables had been cut away to allow the cables to be terminated inside the panel. This condition causes Division I and Division II cables associated with the Core Spray System to be mixed together.

The licensee stated that they had previously analyzed for a one inch separation. However, the licensee could not readily produce documentation which would indicate that they had analyzed for the effects of less separation or that sufficient isolation was provided to protect the circuits from credible faults. Pending review to determine whether sufficient electrical isolation has been provided, this issue remains unresolved (341/85016-02).

5. Unresolved Items

Unresolved items are matter about which more information is required in order to ascertain whether they are acceptable items, items of non-compliance, or deviations. Unresolved items disclosed during the inspection is discussed in Paragraphs 4.a. and 4.b.

6. Exit Interview

The inspector met with licensee representatives (denoted under persons contacted) at the conclusion of the inspection on March 18, 1985. The inspector summarized the scope and findings of the inspection. The licensee acknowledged the information.