August 17, 2001

Mr. William O'Connor, Jr.
Vice President
Nuclear Generation
Detroit Edison Company
6400 North Dixie Highway
Newport, MI 48166

SUBJECT: FERMI 2 NRC SUPPLEMENTAL INSPECTION REPORT 50-341/01-10(DRP)

Dear Mr. O'Connor:

On July 27, 2001, the NRC completed a supplemental inspection at your Fermi 2 Nuclear Power Station. The enclosed report documents the inspection findings which were discussed on July 27, 2001, with you and other members of your staff.

In April 2001, your performance indicator submittal reported for Emergency Alternating Current Power resulted in exceeding the threshold for the performance indicator, representing a reduction in safety margin characterized by a WHITE performance indicator. This WHITE performance indicator was primarily the result of a catastrophic bearing failure on emergency diesel generator 14 which occurred on March 21, 2001. The reduced safety margin associated with this performance indicator warranted a supplemental NRC inspection and assessment of your actions to improve performance under the Mitigating Systems Cornerstone of Operational Reactor Safety.

Based on the review of your root cause evaluations for the catastrophic failure of the outboard generator bearing for emergency diesel generator 14, we have concluded that your corrective actions have addressed the underlying root cause and contributing causes for the events. The evaluations were determined to be thorough and followed an established structured approach for performing such reviews. The corrective actions associated with each of the events adequately addressed the identified root causes. The extent of condition appears sufficient to prevent a recurrence of a similar condition on other safety-related equipment. No additional findings of significance were identified.

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Sincerely,

Original signed by
Geoffrey E. Grant

Geoffrey E. Grant, Director
Division of Reactor Projects

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

Enclosure: Inspection Report 50-341/01-10(DRP)

cc w/encl: N. Peterson, Director, Nuclear Licensing
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Compliance Supervisor
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REGION III

Docket No:	50-341
License No:	DPR-43
Report No:	50-341/01-010(DRP)
Licensee:	Detroit Edison Company
Facility:	Enrico Fermi, Unit 2
Location:	6400 N. Dixie Hwy. Newport, MI 48166
Dates:	July 23 through July 27, 2001
Inspectors:	S. Campbell, Senior Resident Inspector G. Hausman, Senior Reactor Inspector, RIII, DRS
Approved by:	Mark Ring, Chief Projects Branch 1 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000341-01-010(DRP), on 7/23-7/27/01, Detroit Edison Company, Fermi 2 Nuclear Power Station. Supplemental Inspection IP 95001.

This report covers a 1-week supplemental inspection. The inspection was conducted by resident and specialist inspectors. No findings of significance were identified.

Cornerstone: Mitigating Systems

This supplemental inspection was performed by the NRC to assess the licensee's evaluation associated with a WHITE performance indicator for emergency alternating current (AC) power that resulted from the catastrophic failure of the outboard bearing for emergency diesel generator 14 on March 21, 2001. The bearing failure occurred during surveillance testing on the emergency diesel generator and was considered a self-revealing event. During this supplemental inspection, performed in accordance with Inspector Procedure 95001, the inspectors determined that the licensee performed a thorough evaluation of the bearing failure and identified the root cause and contributing causes for the event.

The licensee's corrective action adequately addressed the causes and the extent of condition actions appeared sufficient to prevent the recurrence of a similar condition on other safety-related equipment. Due to the licensee's acceptable performance in addressing the emergency diesel generator bearing failure that resulted in a WHITE performance indicator, the WHITE indicator will only be considered in assessing plant performance for a total of four quarters in accordance with the guidance in Inspection Manual Chapter 305, "Operating Reactor Assessment Program."

Report Details

01 Inspection Scope

This supplemental inspection was performed by the NRC to review the licensee's evaluation associated with the Unit 2 Performance Indicator (PI) for Emergency Alternating Current Power exceeding the licensee response band threshold to WHITE. This threshold was greater than 2.5 percent train unavailability for less than or equal to two emergency diesel generators (EDGs) over the previous 12 quarters. The event is described below:

On March 21, 2001, the licensee initiated routine Surveillance Procedure 23.307.33, "EDG 14 - 24-Hour Run Followed by Hot Fast Start." Approximately 12 hours into the 24-hour run, an annunciator alarmed for EDG 14. An operator dispatched to investigate reported that the EDG outboard bearing exhibited a high and rising temperature. Control room personnel directed the operator to shutdown the EDG.

Subsequently, bearing housing metal temperature was sufficient to ignite the paint that covered the housing and the operator reported a fire coming from the EDG outboard bearing area. The operator immediately put out the fire with a carbon dioxide fire extinguisher.

Based on the report of the fire affecting plant safety system and safe shutdown equipment, control room personnel classified the event at the Fermi plant as an "Alert" per Procedure EP-101, "Classification of Emergencies." The "Alert" condition was immediately exited based on the fire being extinguished and the visible damage limited to the EDG outboard bearing. The licensee notified federal, state, and local government agencies. The licensee documented the EDG 14 outboard bearing failure on Condition Assessment Resolution Document (CARD) 01-14004.

Investigation into the EDG outboard bearing failure revealed that the oil level in the bearing housing was below the manufacturer recommended minimum level. In 1984, a stiffner plate was added to the endbell of the generator housing of EDG 14 to reduce axial vibration. This modification resulted in the oil sight glass piping reference (tick) mark being lowered by 7/8 inch. In 1999, a program for improving oil level indications, installed a "green band" on the oil site glass. Due to the modification and the oil level "green band," when the oil level was indicated at the bottom end of the "green band" it was actually approximately 1-1/4 inches too low. The recent EDG runs provided no indication of bearing problems.

02 Evaluation of Inspection Requirements

Inspection Procedure 95001 required the inspectors to address objectives of problem identification, root cause and extent of condition and corrective actions. Specific guidance was identified in the inspection procedure at the beginning of each section.

02.01 Problem Identification

a. Determination of who (i.e., licensee, self-revealing, or NRC) identified the issue and under what conditions

The EDG outboard bearing failure was considered a self-revealing event. Following the event, the licensee made the required notifications, entered the appropriate Technical Specifications (TSs) and took the required actions to correct the deficiency. When the allowed outage time per TSs was going to expire before repairs were completed, the licensee sought enforcement discretion from the NRC not to enforce the TSs. After weighing the risks incurred from not enforcing the TSs versus a plant shutdown, the NRC granted enforcement discretion.

Condition Assessment Resolution Document 01-14004 was written to document the catastrophic failure of the EDG bearing. A root cause team was formed to gather the facts and background documents, and to conduct interviews to learn the circumstances, contributing causes and missed opportunities related to the event. The licensee used a fault tree analysis/event and causal factors chart as a method to conduct the root cause determination that identified the following:

- inappropriate actions
- events or Happenings
- causes
- failed or broken barriers
- information related to the event

From this information, the licensee assembled facts that proved their conclusions and documented the findings as Attachment 1 to CARD 01-14004. The report was issued on April 11, 2001.

b. Determination of how long the issue existed, and prior opportunities for identification

The report documented that a 1984 modification of the sight glass piping through a stiffener plate installed on the endbell of the generator for EDG 14 was too short (approximately 7/8 inch). The stiffener and piping modification was done under Field Modification Request S-7455. No quality assurance records existed to assure that the vendor's minimum oil level requirements were maintained. In 1984, Startup Engineering Letter EF2-103,547 documented disapproval of the stiffner, however, the startup engineer granted permission to leave the stiffener installed until after the first fuel load. The field modification request was placed on a master punch list for tracking. Subsequently, PN21991546 was initiated to remove the stiffner.

By 1987, engineers believed that the diesel operated satisfactorily with the modification installed and they initiated Plant Design Change 7592-1 to leave the stiffner installed and canceled PN21991546. The plant design change was closed by issuing as-built notice 7592-1 to update base configuration control documents to reflect an actual configuration of the equipment. A missed opportunity to identify the inadequate piping lengths occurred when the engineer did not walk down the piping to verify the design while developing the as-built notice.

Although the pipe was too short, which gave a false reading of 7/8-inch too high, operators always maintained oil level at a "tick" mark next to the sight glass, which gave the vendor recommended standstill level. At this level, the bearing was sufficiently lubricated to pass subsequent surveillance tests.

An NRC maintenance inspection team arrived onsite in 1987 and opened an unresolved item regarding the standstill oil levels for EDGs that may be too high. The team's concerns were documented on Deviation Event Report 97-1067, which was later transferred to CARD 98-12355.

By 1999, the licensee attempted to implement corrective actions for CARD 98-12355 by attaching a "green band" next to the sight glass to give acceptable standstill and operating ranges. Schedule pressure existed to implement the corrective actions because the contract for engineering personnel to complete the task was about to expire. Engineers developed a list of equipment needing "green bands." Engineering personnel developed Technical Service Request (TSR) 30330 to show the appropriate distances for installing operating and standstill "green band" ranges for the outboard bearing on EDG 14. Another missed opportunity occurred when, after laser measurements of the oil sight glass piping was discovered too low on EDG 14, no CARD was written to identify the deficiency.

A contract engineer, who was assigned the task of fabricating and installing the "green band" label plates per the TSR, made the plates for all four EDGs similar although the sight glass piping for EDG 14 was about 7/8 inch too low. Following fabrication, the "green bands" were installed. The licensee was unable to interview the engineering contractor for the root cause evaluation because he left the site after installing the "green bands."

The "green bands" allowed operators to deviate oil levels below the "tick" mark after oil sampling and refilling. Following one oil refill, oil was replaced within the "green band" stand still range but below the "tick" mark. The date of filling the generator outboard bearing oil reservoir for EDG 14 below the "tick" mark was unclear. This failure was not self revealed until the 24-hour surveillance run on March 21, 2001, when the bearing failed.

c. Determination of the plant-specific risk consequences (as applicable) and compliance concerns associated with the issue

By April 23, 2001, the licensee determined that the failure of the bearing from inadequate lubrication was due to a combination of the sight glass piping being reassembled too low (≈7/8 inch) and the addition of the minimum green band tolerance level (≈3/8 inch). This failure generated 6185 fault exposure hours, which were estimated hours that a train was in an undetected, failed condition. Calculation of the train unavailability resulted in 7.8 percent unavailability time, which exceeded the GREEN to WHITE threshold of 2.5 percent. The licensee reported this value to the NRC and that the GREEN threshold had been exceeded. The evaluation assumed the diesel generator was inoperable for half the time since the last successful operability run, and found the increase in core damage frequency due to internal events to be

about 3.8 E-6 per year. The risk impact due to external initiating events was negligible. The risk significance of the related inspection finding based on the change in core damage frequency was also considered WHITE. This finding was documented in NRC Inspection Report 50-341/0-009 (EA-01-092).

The licensee initiated CARD 01-14726 to document that the EDG unavailability had caused the NRC performance indicator to exceed the GREEN to WHITE threshold. Corrective actions included forming an emergency diesel reliability team to review industry documents, procedures, vendor manuals, work requests, and NRC documents. The inspectors did not review this CARD because the inspection focus was on the event that caused excessive accumulated fault exposure hours.

d. Conclusions for Problem Identification

The inspectors reviewed records and interviewed licensee personnel. The inspectors determined that the licensee had properly identified and documented the circumstances involving the catastrophic failure of the outboard bearing and recognized that the PI threshold had crossed into the regulatory response band (WHITE). Appropriate reviews and evaluations were performed to assess the causes of the event, extent of condition, multiple missed opportunities and to identify any potential common causes.

02.02 Root Cause and Extent of Condition Evaluation

a. Evaluation of method(s) used to identify root cause(s) and contributing cause(s)

The licensee performed a formal, structured root cause evaluation and contributing cause evaluation for the event. Additionally, the licensee evaluated the potential common causes for the event that resulted in the PI crossing the GREEN to WHITE threshold. As mentioned above, the licensee used a fault tree analysis/event and causal factors chart to evaluate the root and the contributing causes of the events. This method included identifying inappropriate actions, events or happenings, causes, failed or broken barriers and information related to the event.

The licensee used Quality Assurance Conduct Manual MQA12, Revision 3, “Cause Analysis and Corrective Action Determination,” to conduct the root cause evaluation and to assign corrective actions to address root and contributing causes. Manual MQA12 provided instructions for the following:

- developing a root cause process diagram
- developing event failure scenarios
- selecting a root cause analysis method
- collecting data and review
- interviewing effectively
- charting events and causal factors
- change analysis
- distinction analysis
- barrier analysis
- human performance investigation process

- organizational and programmatic deficiencies
- using a corrective action priority guideline to develop corrective actions for the causes of the events

After completing the root cause report for the bearing failure, the licensee sent the report to a contractor for review who specialized in fault tree analysis/event and causal factors chart methodology (root cause evaluations, barrier analysis and corrective actions). The contractor had no additional concerns with the report.

b. Level of detail of the root cause evaluation

The root cause evaluation was done per MQA12. The procedure provided sufficient guidance for personnel to follow a structured and methodical approach to evaluating events. Limited documentation existed for the modification of the 1984 sight glass oil piping because of the age of the issue and the difficulty in maintaining old construction documents. Nevertheless, the inspectors determined that with the lack of documentation, the root cause evaluation for the event was performed with sufficient detail and analysis to support the conclusions reached.

Sufficient documentation existed for the 1999 “green band “ modification. The evaluation documented reviews, considered previous operating experience, organizational response, programmatic weakness, procedure and training adequacy, external events, and communications.

The fault tree analysis event/causal factors chart methods chosen were considered appropriate to evaluating the event and identified the implementation of poor engineering processes that culminated in the bearing failure. The fault tree analysis/event and causal factors chart identified events, any barriers that failed, and inappropriate actions. These elements were graphically represented in a bubble chart. Further, the licensee listed these elements as facts in the report, looked at the facts collectively and developed two root causes and several contributing causes.

For the 1984 piping modification, the licensee determined the cause to be improper use of the modification control process. For the 1999 installation of the “green band,” the licensee determined the root cause to be that the process used by system engineering to install oil level operating bands did not provide adequate direction and control for “green band” installation. After reviewing several documents supporting the licensee’s root cause evaluations, the inspectors verified the root causes.

c. Consideration of prior occurrences of the problem and knowledge of prior operating experience

The inspectors determined that the licensee thoroughly searched for and identified any precursors of the problem. This included an industry experience review using the plant event databases EPIX and the nuclear network. These reviews found a similar occurrence that involved the EDG bearing failure. This event occurred at the Clinton Power Station on March 31, 1995, where inadequate lubrication due to leakage caused failure of the inboard and outboard bearings of the Division III diesel. The licensee

reviewed work requests and test packages and documented in the fault tree analysis/event causal factors chart all EDG runs since October 22, 1999, when the last successful surveillance test was completed. Further, the licensee conducted a search of the CARD data base to learn whether any precursors to the bearing failure could be identified.

One potential problem was identified and documented on CARD 98-18997, where EDG 14 had exhibited elevated axial vibration on October 13, 1998. However, vibrations had decreased over subsequent runs and sampling of the oil found that the severe wear index, which is a measure on bearing degradation, showed normal. Also, the licensee identified that the severe wear index exceeded the alert range on June 23, 2000, however, samples were satisfactory on subsequent surveillance runs. The licensee appropriately considered these issues not to be a precursor.

The inspectors also reviewed the CARD database and previous problem reports. One occurrence was found where the bearing for EDG 14 had failed on May 4, 1984. This was documented on Non Conformance Report 8-0668. Detroit Edison Alternator Bearing Failure Report R5.08-570, dated September 17, 1984, described that the cause of this failure was prolonged vertical storage of the bearing so that gravity caused deformation (flat spots) on the rollers. This event was not captured in the fault tree event/causal factors chart because it was unrelated to the bearing oil problems and occurred before the sight glass piping modification was done. Therefore, the licensee did not consider this event in the root cause evaluation. The inspectors found this reasonable.

d. Consideration of potential common cause(s) and extent of condition of the problem

The licensee recognized that all safety related equipment with “green bands” installed under TSR 30330 may be impacted. These included EDGs 11, 12 and 13. On March 25, 2001, the licensee used a laser level to check the sight glasses for these EDG s. They found that EDG 11 and 13 were positioned 13/64 to 13/32 inch too high, which was conservative regarding sufficient oil covering of the bearings. However, Colt Vendor Manual VME 8-1.2.4 stated that the bearing oil reservoirs filled greater than 1/8 inch too high could cause air entrainment and foaming, subjecting the bearing to inadequate lubrication. The inspectors confirmed that the Engineering Functional Analysis addressed this aspect. However, the inspectors considered this evaluation to be weak because the engineer who wrote the analysis assumed no foaming occurred because the diesels had passed all surveillance runs successfully without leaking bearing oil. Elevated bearing temperatures were one indication of inadequate lubrication attributable to foaming. Bearing temperatures recorded during these runs were not addressed to prove the absence of foaming. In response to the inspectors questions, the licensee reviewed bearing temperatures during these tests and confirmed temperatures were not high. The licensee updated CARD 01-14004 to reflect this information. The inspectors found this approach to be acceptable.

For other safety-related equipment, the licensee developed TSRs to determine acceptable “green band” locations. Developing the TSR involved reviewing associated vendor manuals and contacting the vendors for obtaining the correct operating and standstill ranges for all equipment. Engineers reviewed the oil sight glasses for their

respective safety-related risk significant systems against the information in the TSRs to verify accuracy. Personnel issued CARDs whenever discrepancies were identified. The licensee issued corrective maintenance work requests to implement the TSR information and to correct the discrepancies.

The extent of condition review was expanded to include a reexamination of work performed under the TSR process. This included reviewing 547 TSRs for installation discrepancies that could affect operation of safety-related equipment. The licensee found that only 75 TSRs were used to add, delete, or modify plant equipment. Forty-seven TSRs met procedure requirements for the process. Eight TSRs had procedural issues and no operability issues. The inspectors verified these were entered into the corrective action program as CARD 01-13182. Finally, 20 TSRs involved installation of oil "green bands" on plant equipment. The inspectors verified that these were listed as Corrective Action 5 in CARD 01-14004. The inspectors reviewed a sample of these TSRs and had no additional concerns.

The inspectors walked down oil levels for risk significant and safety-related equipment and had no additional findings. The inspectors verified that nonsafety-related equipment was included in the licensee's matrix.

e. Conclusions for Root Cause and Extent of Condition Evaluation

The inspectors concluded that the licensee had used a formal, structured approach to perform the evaluation to identify root and contributing causes. The licensee used plant and industry databases effectively to determine prior occurrences of the problem and knowledge of any prior operating experience. Also, the inspectors concluded that the licensee's extent of condition review was thorough and sufficiently addressed potential oil level operating band issues on safety-related equipment. Further, the inspectors concluded that the licensee conducted a thorough review of the engineering processes that installed these "green bands".

02.03 Corrective Actions

a. Appropriateness of corrective action(s)

The inspectors reviewed both root causes and the contributing causes that occurred during the 1984 sight glass piping modification, the 1999 modification of the standstill and operating ranges and the associated corrective actions. Corrective actions to prevent recurrence were based on the root causes. The corrective actions were clearly described and were entered into the licensee's tracking system. The inspectors selected a number of corrective actions and verified that they had been completed or were being tracked for resolution and closure. The established corrective actions were determined to be appropriate in that they addressed the root and contributing causes.

b. Prioritization of corrective actions

The corrective actions developed as part of the root cause evaluation were ranked per Quality Assurance Manual MQA11, "Condition Assessment Resolution Document," Step 4.4.1, for Level 1 CARDs. Also, Quality Assurance Manual MQA12, Step 4,

provided the criteria for developing corrective actions and Enclosure T, "Corrective Action Priority Guideline," provided instructions for ranking corrective actions. Prioritization of the corrective actions was based on the time needed to implement the corrective action and the safety-significance of the condition. The licensee had a process in place to track all corrective actions and priority levels.

c. Establishment of schedule for implementing and completing the corrective actions

Corrective actions to prevent recurrence to correct sight glass piping and "green band" ranges were implemented immediately upon repair of the EDG. Extent of condition to review sight glasses on the other EDGs was completed within a week of the event. As of July 20, 2001, 5 of the 14 corrective actions have been completed and the inspectors concluded that the completed items appropriately received the highest priority. The remaining proposed dates to complete the corrective actions appear reasonable.

d. Establishment of quantitative or qualitative measures of success for determining the effectiveness of the corrective actions to prevent recurrence

Quality Assurance Procedure MQA11 provided instructions for performing effectiveness reviews. The procedure provides various effectiveness review methods, which included field verification or observation, and audits. Effectiveness reviews are normally performed after all corrective actions are implemented and after CARD closure to ensure that the evaluation identified and corrected the root cause of the problem. Unfortunately, the CARD was not closed at the time of the inspection because all corrective actions had not been completed and an effectiveness review had not been completed. However, the licensee had established procedures to ensure these reviews are completed.

Effectiveness of correcting the design discrepancy was measured by monitoring the bearing temperature during all EDG 14 runs. The inspectors reviewed EDG operating logs recorded by an operator during diesel runs and verified that the bearing temperatures were included. Further, the licensee increased sampling of the generator bearing from every 13 weeks to every month, which the inspectors confirmed was documented in Performance Scheduling and Tracking Event AC21.

Quality Assurance personnel performed an audit, however, when several "green band" labeling inconsistencies were identified on other safety-related equipment while addressing CARD 01-14004. A mixture of "green bands" and "green marks" on graduated sticks were identified on various plant equipment. The licensee documented this discrepancy on CARD 01-14788. Corrective actions for this CARD included the following:

- re-verifying "green band" position for each component
- obtaining field measurements and comparing with vendor information, operating histories, and associated TSRs that developed the "green band" information
- reviewing operating procedures and rounds sheets for errors
- initiating as-built TSRs for each equipment

e. *Conclusions for Corrective Actions*

The inspectors concluded that immediate corrective actions were effectively measured through bearing temperature monitoring and increased bearing oil sampling. Also, although the effectiveness reviews for CARD 01-14004 had not been completed, processes existed to assure that the reviews would be completed. Additionally, the inspectors concluded that the Quality Assurance organization had been used effectively to resolve oil indicator "green band" discrepancies on other safety-related/risk significant equipment.

03 Management Meetings

On July 27, 2001, the inspectors presented the inspection results to Mr. W. O'Connor and other members of licensee management. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

KEY POINTS OF CONTACT

Resident Inspection

W. O'Connor, Vice President, Nuclear Operations
R. Libra, Director, Nuclear Engineering
S. Stasek, Director, Nuclear Assessment
N. Peterson, Manager, Nuclear Licensing
D. Noetzel, Manager, System Engineering
D. Cobb, Manager, Plant Operations
K. Hlavaty, Manager, Nuclear Operations
T. Haberland, Manager, Maintenance
Q. Duong, Acting Manager, Plant Support Engineering
E. Kokosky, Superintendent, Radiation Protection
R. Johnson, Supervisor, Licensing
J. Bragg, Supervisor, Audits
J. Hobbs, Supervisor, System Engineering
R. Newkirk, Supervisor, Nuclear Engineering
P. Smith, Supervisor, ISEG
J. Pendergast, Principal Engineer, Licensing

LIST OF ACRONYMS USED

CARD	Condition Assessment Resolution Document
EDG	Emergency Diesel Generator
NRC	Nuclear Regulatory Commission
PI	Performance Indicator
TS	Technical Specification
TSR	Technical Service Request

LIST OF DOCUMENTS REVIEWED

The following documents were selected and reviewed by the inspectors to accomplish the objectives and scope of the inspection and to support any findings.

MQA12	Course Analysis and Corrective Action Determination	Revision 3
MES11	Technical Service Request	Revision 10
MES11	Technical Service Request	Revision 11
Chemistry Report 1100-00-L0	EDG 14 Generator Bearing	12/21/00
Engineering Report	Alternator Bearing Failure Alternator S/N 504075R4	9/25/84
Non-Conformance Report 84-0668	Potential Bearing Failure on EDG 14	5/04/84
12.000.52T	Non-Conformance Report	8/23/82
12.000.52T	Non-Conformance Report	Revision 1, 1/30/84
Project QA Procedure 9.0503	Review of Work Order (PN-21) Packages	1/31/84
VME-1.2.4	Two Bearing, Spherical Roller, Oil Lubricated Alternator	7/22/97
Projects Procedures Manual, Edition 2	Field Modification Requests	7/27/83
Projects Procedures Manual, Edition 3	Field Modification Requests	8/29/84
Nuclear Generation Memo	Summary of Expert Panel Meeting 122, Conducted 7/3/01	7/06/01
Field Modification Request S-7455	RHR Complex (R30-00) System EDG 14 (R30005004)	Revision 0
10 CFR 50.55(e) 84-0834	Excessive Vibrations EDG 14	6/13/84
Surveillance Scheduling / Tracking	Obtain Sample of Inboard and Outboard EDG Generator Bearing Oil	7/25/01

WR Scheduling / Tracking	Missing Green Band	7/25/01
CARD 98-12355	NRC Unresolved Item 97-005-03	3/18/98
CARD 98-18997	EDG 14 High Axial Vibration	10/23/98
CARD 00-18558	Green Band Oil Level Indicators	7/22/00
CARD 01-10656	Use of Inappropriate Document to Install Oil Level Bands	3/29/01
CARD 01-14004	EDG 14 High Temperature on Generator Outboard Bearing Resulted in Engine Shutdown, Fire, and Alert Declaration	3/21/01
CARD 01-14726	EDG Unavailability Has Caused NRC PI MS01 “Emergency AC Power System Unavailability” to Exceed Green White Threshold Value of 2.5 percent	5/10/01
CARD 01-14788	Green Band Oil Level Labeling is Inconsistent	5/23/01
CARD 01-17025	Standby Feedwater Bearing Housing Lube Oil Supply Line is Leaking During System Standby	7/26/01
CARD 01-17257	Evaluate Vendor Recommendation From 1984 to Remove Stiffner Plate Installed on EDG 14 Outboard Endbell	7/25/01
DER 97-0877	EDG Generator Standstill Bearing Oil Level May be Too High	5/29/97
DER 97-1067	NRC Unresolved Item 97005-13 - EDG 12	7/07/97
TSR 30327	Equipment Lube Oil Level Gauges on the Woodward Governor and Alternator Sight Glasses	Revision 0
TSR 30328	Equipment Lube Oil Level Gauges for Woodward Governor and Alternator Sight Glasses on EDG 12	Revision 0
TSR 30329	Equipment Lube Oil Level Gauges for Woodward Governor and Alternator Sight Glasses on EDG 13	Revision 0
TSR 30330	Equipment Lube Oil Level Gauges for Woodward Governor and Alternator Sight Glass on EDG 14	Revision 0

TSR 30343	Equipment Lube Oil Level Gauges for HPCI Booster Pump Bearings (Thrust and Radial) and Turbine Reservoir Sight Glasses	Revision 0
TSR 30347	Equipment Lube Oil Level Gauge for RCIC Coupling End Bearing Sight Glass	Revision 0
TSR 30422	Equipment Lube Oil Level Gauge for Fire Protection Diesel Fire Pump Right Angle Drive Sight Glass	Revision 0
TSR 30423	Equipment Lube Oil Level Gauges for the Fire Protection Electric Driven Fire Pump Motor Sight Glass	Revision 0
TSR 30424	Equipment Lube Oil Level Gauge for GSW 2 Pump Motor Upper Bearing Sight Glass	Revision 0
TSR 30425	Equipment Lube Oil Level Gauges for Control Air North and South Compressor Sight Glasses	Revision 0
TSR 30426	Equipment Lube Oil Level Gauges for GSW Pump Motor(s) Upper and Lower Bearing Sight Glasses	Revision 0
TSR 30427	Equipment Lube Oil Level Gauges For SLC Reactor Pump(s) Sight Glasses	Revision 0
TSR 30453	Equipment Lube Oil Level Gauge for Station Air East Compressor Sight Glass	Revision 0
TSR 31442	EDG 14 Outboard Alternator Bearing Lube Oil Piping	Revision 0
TSR 31490	EDG Lube Oil Level Gauges Operator Aid/Green Band	Revision 0
WR000Z990345	Install Lube Oil Level Gauges on Various Plant Equipment (Non-Intrusive)	1/26/99
WR 000Z010897	Change EDG 14 Outboard Generator Bearing Oil	3/29/01
WR 000Z010941	Obtain “As-Found” Locations for Operating and Standstill Level Bands	3/25/01
WR 000Z010969	Revised to Just Replace the Nipple Between the Sight Glass and Elbow, Instead of Between the Elbow and Bearing Holding	3/27/01
WR 000Z011616	Determine/Record Generator Inboard and Outboard Bearing Oil Levels	5/23/01

WR 000Z012016	Change the Operating Level Green Bands on the HPCI Booster Pump Inboard Bearing Sight Glass to Coincide with the Proper Level	7/11/01
WR 000Z012019	Change the Operating Level Green Bands on HPCI Turbine Oil Reservoir Sight Glass to Coincide with Proper Dimensions	7/11/01
WR 000Z012020	Change the Operating Level Green Band on RCIC Turbine Coupling End Bearing Sight Glass to Coincide with Proper Dimensions	7/11/01
WR 000Z012021	Determine/Record Oil Level on South Control Air Compressor	7/02/01
WR 000Z012022	Determine/Record Oil Level on Diesel Fire Pump	7/02/01
WR 000Z012024	Determine/Record Oil Level on North Control Air Compressor	7/02/01
WR 000Z012048	Determine Record Oil Level on GSW Pump 3	7/03/01
WR 000Z012049	Determine Record Oil Level on GSW Pump 4	7/03/01
WR 000Z012050	Determine/Record Oil Level on GSW Pump 6	7/03/01
WR 000Z012051	Determine/Record Oil Level on EDG 11 Governor	7/03/01
WR 000Z012052	Determine/Record Oil Level on EDG 12 Governor	7/03/01
WR 000Z012054	Determine/Record Oil Level on EDG 14 Governor	7/03/01
WR 000Z012072	Determine/Record Oil Level on East Station Air Compressor	7/05/01
WR 000Z012332	Measure Location of Sight Glass Tic Mark	7/27/01