UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET SW SUITE 23T85
ATLANTA, GEORGIA 30303-8931

March 29, 2001

SDP/EA-00-263

Carolina Power & Light Company
ATTN: Mr. James Scarola
Vice President - Harris Plant
Shearon Harris Nuclear Power Plant
P. O. Box 165, Mail Code: Zone 1
New Hill, NC 27562-0165

SUBJECT: SHEARON HARRIS - NRC SUPPLEMENTAL INSPECTION REPORT 50-400/01-07

Dear Mr. Scarola:

By letter dated February 9, 2001, you were informed that the NRC would conduct a supplemental inspection at your Shearon Harris Nuclear Power Plant for a White finding related to the 'C' Charging/Safety Injection Pump (CSIP). The enclosed inspection report presents the results of that supplemental inspection which were discussed on March 2, 2001**,** with you and other members of your staff.

This supplemental inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspector reviewed selected procedures and records, observed activities, and interviewed personnel. Specifically, this inspection reviewed activities associated with a White inspection finding related to the inoperability of the 'C' CSIP due to a failed thrust bearing including your root cause evaluation and associated corrective actions. This White finding was in the mitigating systems cornerstone of the reactor safety strategic performance area.

We determined that your root cause evaluation for this issue was acceptable although a definitive root cause was not determined. Your evaluation identified two potential root causes. They were a partial loss of lubrication to the outboard thrust bearing, and an improper filling and venting of the 'C' CSIP. Loss of lubrication was considered the most probable cause.

In our final significance determination for a White finding and Notice of Violation letter, dated February 2, 2001, we requested that you respond to the Notice of Violation. We have evaluated your response dated March 2, 2001, and found that it meets the requirements of 10 CFR 2.201. Corrective actions have been completed which returned the 'C' CSIP to operable status. The completed and proposed corrective actions, including actions to prevent

recurrence, appropriately addressed the results of your root cause evaluation and your implementation schedule was consistent with the overall safety significance of the problem.

No findings of significance were identified during the inspection.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Brian R. Bonser, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket No. 50-400
License No. NPF-63

Enclosure: NRC Supplemental Inspection Report
50-400/01-07

cc w/encl: (See page 3)

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.	50-400
License No.	NPF-63
Report No:	50-400/01-07
Licensee:	Carolina Power and Light Corporation (CP&L)
Facility:	Shearon Harris Nuclear Power Plant, Unit 1
Location:	5413 Shearon Harris Road New Hill, NC 27562
Dates:	February 26 - March 2, 2001
Inspectors:	George MacDonald, Senior Project Engineer
Approved by:	B. Bonser, Chief Reactor Projects Branch 4 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000400-01-07, on 02/26-03/02/2001, Carolina Power & Light Company (CP&L). Supplemental inspection for a White finding related to inoperability of the 'C' Charging/Safety Injection pump due to outboard thrust bearing failure. This inspection was conducted by a senior project engineer and identified no significant findings. The significance of inspection findings would have been indicated by their color (green, white, yellow, red) using NRC Inspection Manual Chapter 0609 "Significance Determination Process".

Cornerstone: Mitigating Systems

This supplemental inspection was performed to assess CP&L's activities associated with identification, root cause evaluation, and corrective actions for the inoperability of the 'C' CSIP due to a failure of the outboard thrust bearing. The thrust bearing failure is described in section 1R13.1 of NRC Inspection Report 50-400/00-03.

Using Inspection Procedure 95001, the inspector found that the licensee's problem identification and root cause analysis was acceptable although a definitive root cause for the outboard thrust bearing failure could not be determined. The root cause evaluation identified two potential root causes a partial loss of lubrication to the outboard thrust bearing, and an improper filling and venting of the 'C' CSIP. Loss of lubrication was determined to be the most probable root cause. The 'C' CSIP was restored to operable status. The completed and proposed corrective actions, including actions to prevent recurrence, adequately addressed the results of the root cause evaluation.

No findings of significance were identified.

Report Details

01 Inspection Scope

This supplemental inspection was performed in accordance with Inspection Procedure 95001, "Inspection for One or Two White Inputs in a Strategic Performance Area." The inspector reviewed the licensee's root cause evaluations and the corrective actions associated with a White finding related to a failure of the outboard thrust bearing of the 'C' Charging/Safety Injection Pump (CSIP) which led to pump inoperability. The inspector assessed the adequacy of the licensee's root cause determination, determined if appropriate corrective actions were specified and scheduled commensurate with risk, and determined if the actions were sufficient to prevent recurrence. The inspection was completed by review of documents, inspection of plant systems and equipment, and discussions with licensee personnel. The root cause evaluations and specified corrective actions were contained in Action Request (AR) 20822 which was reviewed in detail.

02 Evaluation of Inspection Requirements

02.01 Problem Identification

a. Determine that the evaluation identifies who (i.e. licensee, self revealing, or NRC), and under what conditions the issue was identified.

The problem was identified by the licensee and was documented in AR 20822, 'C' CSIP Bearing Damage, Licensee Event Report (LER) 50-400/2000-007, and NRC Inspection Report (IR) 50-400/00-03. The licensee identified the problem on June 19, 2000, with the Harris Nuclear Plant at 100 percent reactor power when the 'C' CSIP was disassembled for a scheduled pump mechanical seal replacement. When the CSIP bearing housing was removed the outboard thrust bearing shoes were discovered to have been severely damaged. The inspector verified this information through document review and discussions with licensee engineering and maintenance personnel.

The licensee's post-failure inspection of the 'C' CSIP thrust and radial bearings determined that the outboard thrust bearing shoes had failed. The thrust bearing collar was damaged and melted bearing babbitt material was found in the outboard bearing housing. The inboard thrust bearing and outboard radial bearing had only minor scoring. The inboard radial bearing was not damaged. The post-failure inspection of the 'C' CSIP lube oil system found no evidence which could have caused a partial loss of lubrication to the outboard thrust bearing. Also, no evidence was found to indicate that an improper filling and venting evolution of the 'C' CSIP which could cause excessive outboard pump thrust had occurred.

The licensee's review of 'C' CSIP oil analyses results did not identify the failed bearing. The oil analyses results were assessed against the results against the criteria in the Electric Power Research Institute/ Nuclear Maintenance Applications Center (EPRI/NMAC) Lubrication Guide, NP-4916, revision 2. The analysis of a September 29, 1999, oil sample showed a high particle count, in the 5 to 10 micron particle size,

approximately forty times higher than previous sample results with no increase in wear metal elemental analysis results. The licensee did not investigate the elevated particulates but replaced the oil on December 21, 1999. The licensee concluded that the elevated particulate count without an increase in wear metal elemental results was not indicative of bearing failure. A February 2000 'C' CSIP oil sample indicated high particulate again with only trace levels of iron and tin in the wear metal elemental analysis results. The licensee again did not investigate to determine the makeup of the particulate and since the oil had been changed in December 1999 chose to monitor and trend the results since there was no indication of significant bearing wear. An oil sample taken on June 18, 2000, prior to the June 19, 2000, thrust bearing failure discovery, showed results similar to the February 2000 results. After the failure was discovered the licensee's Harris Energy and Environmental Center (E&E Center), the corporate Carolina Power and Light (CP&L) analytical laboratory, used electron microscopy to examine the June 18, 2000, oil sample and determined that the particulate material contained microscopic spherical tin particles which were evidence of likely bearing damage. The bearing failure most probably occurred on the May 15, 1999, pump start which preceded the first high particulate oil sample taken on September 29, 1999. The licensee's evaluation determined that more aggressive investigation into the high particulate results should have been performed. The inspector agreed with this assessment.

The licensee's initial evaluation of the failed thrust bearing did not determine the 'C' CSIP to have been inoperable and classified the issue as a non-significant condition in their corrective action program. The licensee's corrective action program did not require a formal root cause evaluation to be performed for non-significant conditions adverse to quality. The NRC resident inspectors reviewed the corrective actions associated with the failed thrust bearing in parallel with CP&L's review. Because common cause failure implications, which could have significantly impacted risk, did not appear to have been adequately addressed, the resident inspectors shared these concerns with the licensee in July 2000 before the adverse condition investigation was finalized. Subsequently the licensee reclassified the issue as a significant condition and reached different conclusions from the original assessment regarding pump operability and root cause. However, the NRC review could not determine that the licensee would not have reached a significantly different final conclusion absent the NRC interaction with licensee staff.

b. Determine that the evaluation documents how long the issue existed and prior opportunities for identification.

AR 20822, 'C' CSIP Bearing Damage, developed an extensive sequence of events timeline which detailed the periods of pump operation and determined that the periods of pump inoperability were from May 15 to June 4, 1999; November 13 to December 18, 1999; and January 3 to January 7, 2000.

AR 20822 indicated that the predictive maintenance program did not identify the 'C' CSIP failed thrust bearing and discussed the prior opportunities for identification. The inspector reviewed the prior opportunities discussion in AR 20822 and determined that it consisted of the lubricating oil analysis program, and the pump vibration monitoring program. The inspector reviewed the oil analysis results for the 'C' CSIP and the licensee's evaluation criteria which consisted of the EPRI /NMAC Lubrication Guide,

NP4916, revision 2, and verified that the oil sample high particulate count for small particle sizes and no increase in wear metal elemental analysis did not indicate bearing failure. Review of the vibration analysis results also gave no sign of significant thrust bearing damage. During pump surveillance testing the CSIP is operated with thrust in the inboard direction. The CSIP experiences outboard thrust during startup and when it is operated at a flow rate between 200 to 500 gallons per minute. The inspector concluded that the evaluation adequately identified the prior opportunities for identifying the condition and explained why the existing programs did not identify the thrust bearing failure. Licensee corrective actions for the failed thrust bearing included improvements to these predictive programs.

c. Determine that the evaluation documents the plant-specific risk consequences (as applicable) and compliance concerns associated with the issue.

The risk consequences of the 'C' CSIP failed outboard thrust bearing were evaluated by the licensee and discussed with the NRC at a regulatory conference held on January 30, 2001, at NRC's Region II offices. The licensee's estimate of the incremental core damage frequency for the period of time the 'C' CSIP was inoperable was 5.1x10-6/year. The NRC's estimate was slightly higher at 9.5x10-6/year. The risk evaluation was described in NRC IR 50-400/00-10 and in the Final Significance Determination For A White Finding And Notice Of Violation letter dated February 2, 2001.

The inspector concluded that the licensee's problem identification of the 'C' CSIP thrust bearing failure was adequate, however, the inspector agreed with the licensee's assessment in AR 20822 that more aggressive investigation of the high particulate oil analysis results could have been performed.

02.02 Root Cause and Extent of Condition Evaluation

a. Determine that the problem was evaluated using a systematic method(s) to identify root cause(s) and contributing cause(s).

AR 20822 contained the root cause evaluation for the failed thrust bearing. The evaluation was performed using a combination of cause and effect analysis along with change and trend analysis. The licensee's criteria for performing root cause analysis was defined in licensee procedure CAP-NGGC-0200, Corrective Action Program, Revision 2. The inspector verified that the root cause evaluation was performed using methods specified in CAP-NGGC-0200.

b. Determine that the root cause evaluation was conducted to a level of detail commensurate with the significance of the problem.

The root cause evaluation considered twenty two possible failure mechanisms and included input from the CSIP pump vendor, other industry personnel, and personnel from the Harris E&E center. The root cause evaluation concluded there could be two potential root causes for the failed 'C' CSIP thrust bearing. A partial loss of lubrication to the outboard thrust bearing or improper filling and venting of the 'C' CSIP. The evaluation could not determine a definitive root cause from the review of the physical evidence, however, all other failure mechanisms were evaluated and eliminated as root

causes. The inspector reviewed the CSIP vendor manual, licensee pump operating and maintenance procedures, documentation of the disassembly and inspection of the pump by vendor personnel, documentation of the oil analysis by Harris E&E Center personnel, and interviewed Harris E&E Center personnel, maintenance mechanics, and engineering personnel, and performed a walkdown of the pump and the pump lubrication systems. The inspector concluded that the licensee had determined the most probable root causes based on the licensee's observations and review of the physical evidence and had performed a root cause evaluation of the problem using diverse resources.

c. Determine that the root cause evaluation included a consideration of prior occurrences of the problem and knowledge of prior operating experience.

From review of AR 20822, the inspector determined that the licensee considered prior Harris Nuclear Plant pump history and included vendor pump failure and performance history in the evaluation. The review found no previous instances of a failure of a CSIP thrust bearing at Harris. Review of the Nuclear Plant Reliability Database System database revealed two examples of pump thrust bearing failures due to improper pump balance drum installation and loss of cooling water. Both of which were ruled out as possible causes for the failure of the 'C' CSIP.

d. Determine that the root cause evaluation included consideration of potential common cause(s) and extent of condition of the problem.

The licensee's evaluation considered the possibility of common cause and concluded that the 'C' CSIP bearing failure was a one time occurrence. The post-failure inspection of the 'C' CSIP lubrication system determined that all system components were operable. The vendor's failure evaluation also considered the failure as a one time event and not the result of wear or operational problems. Each CSIP has its own independent pump bearing lubrication system and speed increaser lubrication system.

The improper filling and venting potential root cause was also a possible common cause since the same venting procedure is used on all three CSIPs. The licensee's review of the venting procedure found it to be adequate. The inspector verified the results of the licensee's review to determine that the 'A' and 'B' CSIPs were properly filled and vented. The licensee walked down the CSIP recirculation piping to determine possible gas accumulation points and found no evidence of gas accumulation using ultrasonic testing. The licensee's root cause evaluation adequately considered potential common cause(s).

An extent of condition review was performed by the licensee and the failure of the 'C' CSIP did not impact the 'A' or 'B' CSIPs. The licensee performed thermography temperature evaluations on the outboard bearing housings of all three CSIPs during operation. The results were approximately 120 -130 degrees Fahrenheit (F) which were below the 160 degrees F vendor limit. The inspector reviewed the results of the oil analysis, vibration data, surveillance testing, and observed the operating 'A' CSIP pump lubrication temperatures and pressures. The licensee started the 'B' CSIP (standby CSIP) auxiliary lube oil pump and the inspector verified proper lubricating system

pressure and flow on the pump bearing return oil sightglasses and concluded that the ‘A’ and ‘B’ CSIP lubrication systems were operable.

The inspector concluded that the licensee had performed an adequate root cause evaluation of the ’C’ CSIP outboard thrust bearing failure although no definitive root cause could be determined.

02.03 Corrective Actions

a. Determine that appropriate corrective action(s) are specified for each root/contributing cause or that there is an evaluation that no actions are necessary.

The licensee specified corrective actions for the root/contributing causes in AR 20822 and in LER 50-400/2000-007-00. The corrective actions were also discussed during the January 30, 2001, regulatory conference. The September 27, 2000, and October 30, 2000, versions of AR 20822 did not specify corrective actions to prevent recurrence for the partial loss of lubrication and improper fill and vent potential root causes. The Final Significance Determination For A White Finding And Notice Of Violation letter dated February 2, 2001, requested that the licensee respond to the Notice Of Violation. AR 20822 was revised on February 23, 2001, and the inspector verified that it specified corrective actions to prevent recurrence for both potential root causes. The licensee provided a response to the Notice of Violation dated March 2, 2001 and an LER supplement 50-400/2000-007-01 which specified corrective actions including actions to prevent recurrence for both potential root causes.

For the improper CSIP filling and venting potential root cause the licensee corrective actions included:

- Issued a Night Order to Operations that described the consequences of an improper fill and vent with regard to the CSIP,
- Reviewed the CSIP system configuration for venting, and revised CSIP operating procedure OP-107, Chemical and Volume Control System, to specify the minimum volume of water to be collected to ensure proper filling and venting of the CSIPs.

The inspector verified that these corrective actions had been completed.

For the partial loss of lubrication to the outboard thrust bearing the licensee corrective actions included:

- Repaired the ‘C’ CSIP with vendor support ,
- Established oil analysis criteria for components that would result in further analysis for increased particle count and actions as appropriate,
- Reinforced expectations to individuals involved for timely disposition of abnormal indications,
- Increased the ‘C’ CSIP lube oil sampling frequency to a quarterly interval,

- Revised corrective maintenance procedure CM-M0019, Pacific Charging/Safety Injection Pump Size 2 ½ Inch RL Type IJ Disassembly and Maintenance, with lessons learned from vendor guidance. Specifically, to identify critical activities necessary to ensure the lube oil system will function as expected and to include the use of the appropriate verifications of these activities,
- Implement design modification, Engineering Services Request (ESR) 01-00026 to install temperature and proximity probes on the CSIPs which will allow for improved monitoring and failure detection on the CSIPs.

The inspector verified that these corrective actions had been completed except for revision of procedure CM-M0019 and implementation of ESR 01-00026. The corrective actions were adequate to address the root causes for the thrust bearing failure.

b. Determine that corrective actions have been prioritized with consideration of the risk significance and regulatory compliance.

Corrective actions were prioritized appropriately considering the risk significance of the CSIPs. Compliance with Technical Specification Limiting Condition for Operation 3.5.2, ECCS Subsystems - Tavg Greater Than Or Equal To 350 degrees F, was restored on January 7, 2000, when 'B' CSIP was declared operable. The 'C' CSIP was returned to operable status on July 21,2000. The initial version of AR 20822 did not specify any corrective actions to prevent recurrence. The February 23, 2001 version of AR 20822 identified the corrective actions to prevent recurrence which were also detailed in the licensee's NOV response letter dated March 2, 2001 and in LER 50-400/2000-007-01.

c. Determine that a schedule has been established for implementing and completing the corrective actions.

The licensee assigned and scheduled corrective actions appropriately to ensure timely completion. Formal tracking of corrective actions was implemented through the licensee's corrective action program. The schedule for implementing and completing the corrective actions was contained within the licensee's corrective action program in AR 20822. The inspector verified that all corrective actions specified were either completed or scheduled. Most of the corrective actions were complete except for revision to procedure CM-M0019 and implementation of ESR 01-00026.

d. Determine that quantitative or qualitative measures of success have been developed for determining the effectiveness of the corrective actions to prevent recurrence.

The inspector reviewed AR 20822 and verified that corrective actions to prevent recurrence were specified including the performance of an effectiveness review as required by the licensee's corrective action program procedure, CAP-NGGC-0200, revision 2, section 9.8 and attachment 9. The effectiveness review was scheduled to be completed by February 28, 2002.

03 Other Activities

a. (Closed) VIO 50-400/00-03-02, Failure To Have Two Operable CSIPs. This violation was associated with a White Significance Determination Process (SDP) finding. Based on supplemental inspection as documented in this inspection report the licensee performed acceptable problem identification, root cause evaluation, and corrective actions for the 'C' CSIP inoperability due to a failed outboard thrust bearing. This violation/White SDP finding is closed.

b. (Closed) LER 50-400/2000-007-00 and 2000-007-01, Technical Specifications Violation Due To Inoperable Charging Safety Injection Pump. This LER and its supplement were associated with VIO/White SDP finding 50-400/00-03-02. Based on supplemental inspection documented in this inspection report these LERs are closed.

04 Management Meetings

Exit Meeting Summary

The inspector presented the inspection results to Mr. J. Scarola, Harris Site Vice President and other members of licensee management on March 2, 2001. The licensee acknowledged the inspection results. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary and no proprietary information was identified.

PERSONS CONTACTED

Licensee

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C. Burton, Harris Director of Site Operations
C. Connors, Harris Pump Team Lead
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R. Duncan, Harris Plant General Manger
M. Ellington, Harris Project Analyst - Licensing
R. Field, Regulatory Affairs Manager
M. Franklin, HESS Emergency Core Cooling Systems Supervisor
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T. Pilo, Nuclear Assessment Section Superintendent
J. Scarola, Harris Site Vice President
V. Stephenson, HESS Mechanical Engineering Superintendent
P. Summers, Environmental and Radiation Control Manager
T. Wagoner, HESS Lube Oil Analysis Engineer
M. Wallace, Harris Senior Analyst - Licensing

NRC

B. Bonser, Chief Reactor Projects Branch 4

LIST OF DOCUMENTS REVIEWED

NRC Integrated Inspection Report 50-400/00-03

NRC Special Inspection Report 50-400/00-10

LER 50-400/2000-007-00, Technical Specification violation due to inoperable Charging Safety Injection Pump

LER 50-400/2000-007-01, Technical Specification violation due to inoperable Charging Safety Injection Pump

NRC Letter dated February 2, 2001, Final Significance Determination For A White Finding And Notice Of Violation 50-400/00-03, 50-400/00-10 Shearon Harris Nuclear Power Plant

Licensee' Notice of Violation response letter dated March 2, 2001

Handouts from January 30, 2001, Regulatory Conference in Region II, Shearon Harris Nuclear Power Plant

Procedure CAP-NGGC-0200, Corrective Action Program, Revision 2

EPRI/NMAC Lubrication Guide, NP4916, Revision 2

Procedure CM-M0019 ,Pacific Charging/Safety Injection Pump Size 21/2 Inch RL Type IJ Disassembly and Maintenance

Procedure OP-107, Chemical and Volume Control System, Revision 31

AR 20822, 'C' CSIP Bearing Damage

CSIP Vendor Manual - ISP

CSIP Auxiliary Lube Oil Pump Vendor Manual LGF

Auxiliary Operator Rounds Guidance, OMM-016, Attachment 2 sheet 6, RAB 236, Revision 40

Drawing CAR 2166 B401 sheet 228 Control Wiring Diagram Chg SI Pump Aux L.O. pp. Revision 9

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Previous Items Closed

50-400/00-03-02	NOV	Failure To Have Two Operable CSIPs (Section 03.a)
50-400/2000-007-00	LER	Technical Specifications Violation Due To Inoperable Charging Safety Injection Pump (Section 03.b)
50-400/2000-007-01	LER	Technical Specifications Violation Due To Inoperable Charging Safety Injection Pump (Section 03.b)

Previous Items Discussed

None

NRCs REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
● Initiating Events	● Occupational	● Physical Protection
● Mitigating Systems	● Public	
● Barrier Integrity		
● Emergency Preparedness		

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for

inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.