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SUBJECT: Ack NRC for opportunity to discuss SALP 13 rept for plant w/representatives during public meeting held on 960725 & opportunity to provide comments in writing re NRC Insp Repts 50-315/96-01 & 50-316/96-01.

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September 9, 1996

AEP:NRC:09730

Docket Nos.: 50-315
50-316

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

Gentlemen:

Donald C. Cook Nuclear Plant Units 1 and 2
NRC INSPECTION REPORTS NO. 50-315/96001 (DRP)
AND 50-316/96001 (DRP)
RESPONSE TO SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE
(SALP) 13 BOARD REPORT

Thank you for the opportunity to discuss the SALP 13 report for the Donald C. Cook Nuclear Plant with your representatives during the public meeting held at the plant on July 25, 1996, and the opportunity to provide our comments to you in writing. This letter provides general comments and the attachments provide more specific discussion regarding this report.

While we believe the report generally provides an accurate reflection of areas where Cook Nuclear Plant needs improvement based on our performance over the 19-month SALP period, the report is incomplete in that many positive events and accomplishments are not discussed. We also believe we performed better than the report indicates in the area of maintenance/surveillance. For the reasons stated in Attachment 1, we request that you reconsider our score in the maintenance/surveillance area.

We take very seriously the fact that our operations and maintenance ratings have declined since the SALP 12 assessment period, and we are also disappointed that our engineering rating continues to be a category 2. We are aggressively addressing the overall issues involved. A summary of several major improvement programs and other positive initiatives begun before the end of the SALP 13 period are discussed in Attachment 2.

There are several areas discussed in the SALP report that we believe could have been better characterized. Our comments regarding these issues are provided in Attachment 1.

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We are seeing significant improvement in our performance and in balance-of-plant materiel condition during the current SALP period. We believe this is occurring as a result of numerous initiatives which are discussed in Attachment 2 of this letter, and include; strengthening our corrective action program, enhanced standards for addressing non-outage corrective maintenance items, and a renewed management focus on several key operations performance elements. A very large step was taken towards a more unified and responsive organization with the consolidation of our Nuclear Generation Group in Southwest Michigan. This consolidation is already resulting in more timely and direct support of plant operations.

Although we do not have specific comments regarding the functional area of plant support, we want to assure you that we will continue to provide the necessary resources and management attention needed to maintain our excellent level of performance in these areas.

Sincerely,

E. E. Fitzpatrick
Vice President

Attachment

cc: A. A. Blind
A. B. Beach
NFEM Section Chief
NRC Resident Inspector
J. R. Padgett
W. T. Russell - NRC NRR

ATTACHMENT 1 TO AEP:NRC:09730

INFORMATION REGARDING ITEMS WITHIN THE SALP 13 REPORT
DONALD C. COOK NUCLEAR PLANT

I. Functional Area: Maintenance/Surveillance

Although we recognize there are always improvements to be made in the area of maintenance/surveillance, it is our opinion that the SALP report in this area was overly negative. We believe the condition of the balance-of-plant systems played too prominent a role, on the basis that the SALP is intended to address our safety performance. In the examples cited in the maintenance/surveillance area of the report, we believe that important information was omitted, or was not given appropriate weight in the writing of the report.

The report failed to acknowledge and provide credit for a number of significant accomplishments associated with maintenance and surveillance activities that occurred during the Unit 1 and 2 refueling outages. All of this work was performed in an excellent manner. Our perception is that in a number of these activities we are leading the industry, but are not being recognized for it.

We systematically refurbish all reactor coolant pump (RCP) motors in both units. Each outage, one motor is removed and replaced with a "spare" motor which was refurbished between outages. One RCP motor was replaced in each of the outages in 1995 for Unit 1 and 1996 for Unit 2.

Activities on Unit 1 included a planned visual inspection of the reactor vessel lower internals barrel-to-former plate bolts and subsequent removal of two loose bolts and visual inspection of the reactor vessel lower internals baffle plate bolts. An inspection was completed for loose reactor vessel head penetration control rod guide funnels. An extensive steam generator eddy current tube examination program was executed, which factors in state of the art tube inspection techniques and far exceeds T/S surveillance requirements. This was followed up with repair of steam generator tubes through the use of an innovative tube reroll process which not only reduced the need to plug tubes but allowed a number of previously plugged tubes to be returned to service. Major turbine rotor maintenance was performed to replace the "B" low pressure turbine rotor with a monoblock rotor in conjunction with brazing the last stage buckets of the "A" and "C" low pressure rotors to avoid torsional testing.

Work in Unit 2 included voluntary follow-up inspections of reactor vessel head nozzle penetrations at the 6 thermocouple column locations, and voluntary weld repair of a previously reported acceptable indication at one of the penetrations. A proactive visual inspection of reactor vessel lower internal core barrel-to-former plate bolts was performed, and the reactor vessel internals ASME Code Section XI 10 year inservice inspections were completed.

Following are some specific comments on the maintenance functional area of the report.

Work Control Process

SALP Report Text

"... if an action request was not originally initiated as a rework item, the priority system could delay subsequent rework for up to a year."

Response

This deficiency in our work control process was first identified during the integrated performance assessment process (IPAP) inspection, and was corrected during the inspection by Scheduling Department management.

Two actions were taken.

1. All rework items are given a priority-20 designation, which means they will be worked within 30 days.

2. Scheduling department planning personnel now review all action requests first to identify rework items. Items identified as rework are reclassified as priority-20, and a condition report is written. This review previously came later in the process, contributing to the delay related to the priority system.

These changes result in rework items being addressed in a more timely manner. There is no mention in the SALP report of this immediate and effective change to the work control program.

Lube Oil Analysis Program

SALP Report Text

"However, there were at least two equipment failures which could have been identified prior to the failure by a strong and proactive lube oil analysis program;

"the 2CD emergency diesel generator governor failure,

"and the Unit 1 east motor driven auxiliary feedwater pump outboard motor bearing failure."

Response

Development of our lube oil analysis program continues to be a priority in our engineering organization; however, we disagree with

the use of these two examples as evidence that the program is currently lacking.

By process of elimination of other possible causes, the governor failure was determined to be caused by contamination of the governor oil with relatively large particles. No clear trend was identified by preceding monthly oil samples. We do not believe it can be concluded that a more aggressive program would have identified this problem prior to failure. On the contrary, it was determined that the high sampling frequency for lube oil used at that time could have caused the contamination.

In the case of the auxiliary feedwater pump outboard motor bearing failure, it was determined that installation of the pump did not properly locate the mechanical and magnetic centers of the motor, and that the condition of the bearing resulted from this misalignment. Some wear occurred over the next several months, but would not have been identified as a precursor to catastrophic failure. The final run on the pump resulted in extensive additional degradation of the bearing in a very brief period. We believe this problem would not have been identified, prior to the occurrence, via a lube oil analysis program.

The degradation that did occur would not have prevented the motor from performing its intended safety function; therefore it was not characterized as a failure.

Voluntary Limiting Condition for Operation (LCO) Action Statement Entries for Maintenance

SALP Report Text

"... however, the estimated time for the system to be returned to service was frequently exceeded."

Response

For voluntary LCO entries, via our current procedures, a best estimate time is used for return-to-service time estimates. These time estimates are characterized as challenging, and allow no time for contingencies. It is our philosophy that this is most appropriate, and that adding contingency to the estimates to make sure the work is completed within the original schedule would be counterproductive. Because we do not have contingencies built into the time estimates, any problems encountered will extend the LCO period.

Corrective Maintenance Backlog

SALP Report Text

"Despite significant online maintenance, the corrective maintenance backlog increased twofold after March 1995, partly due to instances of ineffective implementation of work planning and scheduling."

Response

We believe there were other major contributors to the increase in the maintenance backlog. In early 1995, many non-corrective maintenance job orders were reviewed and reclassified as corrective maintenance, thereby increasing the backlog. The long unit 1 outage also contributed heavily to the increase in the backlog. The backlog is now decreasing, as discussed in Attachment 2. This decrease is consistent with our past experience with our work control system. These contributing factors and the steady improvement in the corrective maintenance backlog were not discussed in the SALP report.

Preconditioning

SALP Report Text

"The licensee appeared to be making progress on improving post-maintenance testing (PMT), but there were instances of pre-conditioning equipment prior to surveillance.

> "Examples included rolling the diesel generators prior to fast starts (which exercised several valves in the air start system),"

Response

Rolling the diesel generators, using the starting air system, prior to testing was a concept introduced as a good practice and based on actual guidance provided by the NRC in NUREG 1216, "Safety Evaluation Report Related to the Operability and Reliability of Emergency Diesel Generators Manufactured by Transamerica DeLaval, Inc." and endorsed again in Information Notice 91-62, "Diesel Engine Damage Caused by Hydraulic Lockup Resulting from Fluid Leakage into Cylinders." We have since changed our procedure to preclude using the starting air system to roll the diesel engine prior to fast start testing.

SALP Report Text

> "...operators were instructed to check the operability of the TDAFP steam traps just prior to the surveillance, which had the potential to pre-condition the steam traps."

Response

This situation identified a programmatic deficiency that provided the potential for preconditioning. A review of the last several years revealed evidence of only one case where preconditioning may have occurred. The steam traps are "listened to" prior to the surveillance as a good practice to ensure that steam is flowing through the traps (whistling) and there is no water. If there were water, it could migrate to the pump turbine and possibly cause an overspeed of the machine.

The weakness is programmatic in that the surveillance procedure did not clearly require a condition report be written and an investigation started as to the operability of the TDAFP in this condition. This would be the expectation when the non-conforming condition was identified. The surveillance procedure has been upgraded to include specific instructions to write a condition report if condensate is suspected in the steam trap.

II. Functional Area: Engineering

In the area of engineering, we understand the need for continued improvement in our programs and their application. We also recognize the need for continuing efforts to communicate progress to NRC regional management.

We believe that some specific information was incorrectly characterized in the SALP report. Following are the comments regarding the engineering functional area of the report.

Design Basis Information - Containment Bypass Flow

SALP Report Text

"When ice condenser bypass flow design limits were questioned, for example, initial responses were that 50 square feet of flow area was allowable. The actual design limit of 5 square feet was subsequently retrieved, but with some difficulty."

Response

The containment system engineer recalled this question from the resident inspector as being posed informally, and not indicating that followup was desired. In this informal setting, initially an incorrect answer of 50 square feet was given. The information was researched, and the actual design basis of five square feet was provided to the inspectors.

In light of the circumstances surrounding this example, we believe that it was inappropriately used in the routine inspection report

in which it originally appeared, and in the SALP report. The report does not make it clear that the correct answer was provided by the engineer to the inspector upon further research into the topic. Moreover, we are concerned that the use of informal responses in these reports, in this manner, may have a chilling effect on our staff in the future.

ATTACHMENT 2 TO AEP:NRC:09730

POSITIVE INITIATIVES AND EVENTS
DONALD C. COOK NUCLEAR PLANT

The following is a summary of three areas currently undergoing improvement efforts, either through new initiatives or through reinforcement of old ones. We believe these efforts will strongly support overall improvement and address many of the underlying causes of the negative events and trends cited in the SALP 13 report.

We also believe that there were very positive performance issues in all of the SALP functional areas. These areas are discussed in Part IV of this attachment.

I. Corrective Action Program

Deficiencies in the areas of problem identification and resolution have been identified via NRC inspections, as well as by our own on-site self assessments.

An interdisciplinary team started work in June 1995 to develop an improved corrective action process. A thorough assessment of plant and organizational needs, and identified weaknesses has been performed. The enhanced program is expected to be in place in early 1997. The new program and the related familiarization training will include reinforcement of the management expectation that adverse conditions be identified in a timely manner.

The new program will also help us better determine which condition investigations should receive the greatest manpower commitment for investigation and evaluation, thereby allowing us to focus our resources where we can contribute the most to safety, reliability, and performance.

With resources better focused, the evaluation and corrective and preventive actions should be more effective in resolving the identified problems. We also have in place a new organization with more clear direction and responsibility for trending related to the corrective action program.

II. Balance-of-Plant Materiel Condition

Prior to issuance of the SALP report and prior to the integrated performance assessment process, it was acknowledged by Cook Nuclear Plant management that the balance-of-plant materiel condition needed improvement. In general, we are aggressively addressing the non-outage corrective maintenance backlog.

Early this year, we analyzed the work control process and standards, and determined that the program design was valid. It was concluded that if effectively implemented, the program will yield the desired results.

The long 1995 unit 1 refueling outage contributed to the increase in the maintenance backlog. At the conclusion of the outage, we established improved standards for emergent corrective maintenance items, and for addressing old open action requests which were outside of our work control standards.

Scheduled work that is beyond the work control standard is now discussed in the daily management plant status meeting. The monitoring involved to assure timely feedback and accountability to all appropriate departments is significant.

Significant progress is already evident. Our on-line corrective maintenance backlog has been reduced this year from 1500 to 1200 items and is continuing to decline. Our progress indicates that the goal of less than 800 open non-outage corrective action requests will be met before the end of 1996.

III. Operations Performance

A new operations department superintendent took over on a full time basis early in 1996. His initial focus has been dedicated to "human performance" issues to achieve safety and reliability improvements.

The procedural support group has been restructured to support three primary functions: long term procedure upgrades, day-to-day support of operational needs such as procedure change sheets, and outage procedure development and maintenance.

Operations Management

The management team is stressing a common vision. Areas of focus for this vision are: "event free" operations, reducing the administrative and process requirement burdens on the operator while also increasing individual and supervisory accountability for operator performance, and emphasizing an "operations-centered" culture within the plant.

A full time "assessment group" has been formed within the operations department to manage the collection and analysis of various plant operating experiences to identify trends in a real time manner. One early result was recognition of a common element of performance deficiency within one operations shift, leading to the aggressive action recently taken for an entire operating crew. This action was positively noted in the SALP report.

Operations Procedures

A new operations procedures supervisor and additional on-shift operations expertise have been assigned to the procedure group, essentially doubling the resources dedicated to procedure development and maintenance.

To address procedure adherence and potential inconsistencies in how some of our procedures are used, we have developed improved procedure "use and adherence" guidance for operations procedures (normal, abnormal, annunciator response). Operations department staff and shift management have communicated this guidance to all department personnel. A more explicit operations manager expectation for procedure usage has been communicated to the staff to reinforce the usage rules.

Communications

Two actions are being taken to address communications between operations personnel and other plant personnel. The Shift Supervisor title has been changed to Shift Manager to tie the senior on shift manager closer to the plant management team. This is expected to help improve the level of human performance oversight and development.

Shift Manager level senior reactor operators have been integrated into the work control function in the operations department. This will bring consistency and a higher degree of on-shift experience to the support functions of work planning and coordination.

IV. Positive Initiatives and Events at Cook Nuclear Plant

In discussions during the July 25, 1996, SALP 13 meeting, we expressed disappointment in the overly negative quality of the SALP 13 report. We were encouraged by the NRC staff to include in our written comments any positive issues or events we believe should be considered in assessing the performance at Cook Nuclear Plant.

IV.1. Excellent Performance During the 1996 Refueling Outage

On May 9, 1996, we completed a refueling outage on Cook Nuclear Plant unit 2 in less than forty-eight days. The bulk of the planning and preparation for the outage occurred during the SALP 13 period. This was the shortest, safest refueling outage in plant history.

The scope of the outage included over 1800 action requests. Twenty-seven plant modifications were completed during the outage. Twelve of the modifications were made inside containment and nine of these were performed on major safety related components, including installation of upgraded analog rod position indication (ARPI) equipment, addition of a vent line to the safety injection pump suction header, Thermo-Lag fire barrier resolution and an upgrade of the mid-loop monitoring system. Also completed during the outage was the replacement of a reactor coolant pump motor and ultrasonic testing of all first and second cycle fuel assemblies. The maintenance work performed during the outage was excellent.

The unit has operated for over one hundred days since the end of the outage at or near 100% power. There were no Licensee Event Reports related to the outage and no reportable injuries.

The entire Cook Nuclear Plant staff contributed to and is proud of this accomplishment. We believe it should be recognized as an indicator of improvement in our work control process and standards, internal teamwork and communications, maintenance performance, and commitment to excellence in operations.

IV.2. Predictive Maintenance Program

Strong vibration analysis and thermography programs developed in the engineering organization have allowed early detection of potential failures, or have established root cause allowing improvement of chronic poor performance on various components.

The two programs are designed to improve plant safety and reliability through detection and diagnosis of equipment problems and degradation prior to equipment failures. The thermography program includes monitoring of plant transformers and the major 4kv and 600v breakers. The vibration analysis program includes safety related and balance of plant machines important to plant operations.

Examples of equipment in which these programs have detected problems recently include:

- unit 1 north control rod drive motor generator set
- unit 2 stator water cooling pumps
- unit 1 north hotwell pump
- control rod drive fans
- unit 1 auxiliary and reserve feed transformers
- unit 1 main transformer

IV.3 Steam Generator Tube Degradation Arrest

The significant amount of effort that has been directed towards arresting steam generator (SG) tube degradation showed very positive results during the Unit 1 1995 refueling outage.

We entered the outage with a cumulative average of 9.6% of SG tubes plugged, with a high of 12.8% plugged in one steam generator. A rerolling repair technique was used in conjunction with the licensed "F*" tube repair criteria and was responsible for restoring 934 tubes to service, many that were previously plugged. Added to that statistic, only 84 new tubes were plugged during this outage.

As a result, the outage was exited with an average of 9.3% of tubes plugged, and a high of 12.6% in the worst steam generator, a net increase in the number of tubes in service.

IV.4 Rod Position Indicators

Our rod position indicator (RPI) system had been a chronic problem for us, as well as for others with similar systems. Our original system was marginally accurate and unnecessarily difficult to calibrate.

American Electric Power (AEP) engineers developed and patented prototype modules, containing signal conditioning and signal measuring devices, which are direct plug-in replacements for the original electronics. These new modules have been successfully installed and operated in both units, thereby correcting a long-standing problem.

The new modules can be bench calibrated, are extremely stable and accurate, and have reduced outage critical path calibration time from 54 hours to about 13 hours.

Poor RPI system performance has become a significant industry issue in the resolution of NRC Bulletin 96-01. The NRC noted that there have been several cases where the RPI indicates several rod cluster control assemblies (RCCAs) not fully inserted, only to find out later that it is a problem with the RPI itself. The NRC has expressed concern that the RPI is not a reliable indication of RCCA position, that the operators cannot believe the instruments and that some of the "RPI problems" may have been actual incomplete insertions. Our actions to correct RPI accuracy eliminates this problem at Cook Nuclear Plant.

IV.5 Monoblock Replacement

A major success during the 1995 unit 1 refueling outage was the conversion of the low pressure B turbine to a monoblock design.

Because of excellent planning and execution by the organization, the replacement job was completed in 34 days, instead of the originally planned 56 days. Only one balance correction was required, there was only minor rubbing, and no subsequent turbine trip was experienced on high vibration.

The success of this effort greatly exceeded even the turbine manufacturer's expectations.

IV.6 Design Basis Documentation Reconstitution (DBDR)

The AEP Nuclear Generation Group has undertaken to identify, recover, compile, and reconcile the engineering documents that govern the design, construction, and operation of Cook Nuclear Plant. The project approach is to:

1. provide a descriptive text discussion of systems, structures, and components;

2. document related design rationales and constraints, including citations of applicable analyses and generic design issues; and

3. reference detailed calculations, specifications, codes and standards.

The program is expected to provide the following benefits.

1. Enhancement of the quality of decision making related to problem identification, modification design, configuration management, and plant operations.

2. Enhancement of the quality of safety reviews, reportability reviews, operability reviews and regulatory responses.

3. Facilitation of plant life extension assessments and submittals.

The DBDR program began in 1992. A total of sixty-nine design basis documents will be prepared. To date, twenty-one have been fully completed, and twelve are currently in some stage of development or approval.