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ILLINOIS POWER

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January 9, 1992
10CFR2.201

Docket No. 50-461

Mr. A. B. Davis
Regional Administrator, Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Subject: Response to Notice of Violation Documented in NRC Inspection Report 50-461/91020(DRP), dated November 29, 1991

Dear Mr. Davis:

This letter provides the Illinois Power Company (IP) response to the Notice of Violation documented in NRC Inspection Report 50-461/91020(DRP). The Notice of Violation discussed the lack of prompt identification and correction of the condition caused by the presence of foreign material in the diesel fire pumps' fuel oil storage tanks. Attachment 1 to this letter provides the response to the Notice of Violation. Attachment 2 addresses the NRC concern of potential diesel fuel oil tank wall thinning and the actions being taken to improve the overall performance and reliability of diesel fire pumps. As discussed between R. Lanksbury of your staff and R. Phares of my staff, the due date of this response was extended due to the delay in IP's receipt of the Notice of Violation and inspection report.

The cover letter of the inspection report from E. G. Greenman to J. S. Perry discussed a concern with the quality of IP's root cause analysis in resolving this issue. IP concurs with the concerns noted and agrees that this performance is not consistent with the recent improvements in the Corrective Action Program. In response to this concern and a similar concern with the correction of problems associated with the drywell fission product monitor (IP Licensee Event Report 91-005), IP is conducting a review of the Corrective Action Program for enhancements. This review focuses on the following areas; the identification and trending of recurring issues in combination with the trending of hardware problems, determination of trending thresholds and monitoring of timeliness of corrective action completion. This review and establishment of an implementation plan and schedule for any programmatic enhancements will be completed by March 31, 1992.

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Additionally, the IP Quality Assurance (QA) Department is performing a detailed causal factor analysis of these two conditions to determine if a generic weakness is present and if corrective actions are needed. IP will notify the NRC of any planned enhancements to the Corrective Action Program identified as a result of these reviews.

IP believes that this response addresses the concerns identified in the Notice of Violation and the cover letter of the inspection report.

Sincerely yours,

F. A. Spangenberg, III
Manager, Licensing and Safety

JAS/alh

cc: NRC Clinton Licensing Project Manager
NRC Resident Office
NRC Document Control Desk
Illinois Department of Nuclear Safety

The Notice of Violation states in part:

"...from October 2, 1990, to October 23, 1991, the presence of foreign material in the diesel fire pumps' fuel oil storage tanks adversely affected the performance of the fire pumps and this condition was adverse to quality and was not promptly identified and corrected."

I. Background and Reason for the Violation

The problem with fire pump diesel engines operating at reduced speed was originally identified in 1987 via Condition Report (CR) 1-87-06-039. The corrective action for this CR changed the fuel filter replacement frequency from once per year to once per quarter. In 1988, CR 1-88-01-019 was written to document the same problem. The 1988 CR investigation focused on fuel oil quality. Fuel samples were taken and the results of the samples indicated that water and sediment content were acceptable. Based on this data, the CR was closed on April 22, 1988.

In 1989, the problem was re-identified in CR 1-89-02-100. At that time, the investigation focused on the possible causes outlined in the vendor manual which could contribute to the engine not reaching the desired speed. Possible causes included the following:

- improper throttle linkage or adjustment
- high speed governor set too low
- water in fuel and/or waxing
- fuel pump calibration incorrect
- injector flow incorrect
- dirty filters/screens/breather
- engine overload
- gasket blow-by or leakage
- injectors need adjustment

Most of the possible causes were discounted due to the ability of the engine to reach rated speed following the replacement of the fuel filters. Additionally, periodic sampling of the fire pumps' diesel fuel oil storage tanks again had shown that the quality of fuel oil met or exceeded the manufacturer's specifications, i.e., water and sediment content were acceptable.

The root cause of the engines not running at rated speed was not properly identified because the CR investigations in 1987, 1988, and 1989 did not go into sufficient depth to identify the sediment or potential biological growth in the fuel oil because of improper or non-representative sampling techniques.

In October 1990, CR 1-90-10-002 was written to document instances where the fire pump diesels failed to maintain rated speed following extended operation. Additionally, as a result of this condition report, the Shift Supervisor initiated Maintenance Work Request (MWR) D16565 to clean the fuel tanks. The initial engineering evaluation for CR 1-90-10-002 provided an investigation plan to identify the root cause of the frequent filter fouling. However, this plan was not acted upon in a timely manner to correct the root cause of the

condition adverse to quality and the CR due date was extended without fully considering some appropriate information.

The reason for the violation was improper root cause determination during 1987, 1988 and 1989 and lack of priority placed on establishing the root cause for the poor performance of the diesel fire pumps in 1990.

II. Corrective Actions Taken and Results Achieved

During a "B" fire pump corrective maintenance outage (October - November 1991) the fuel oil storage tank was sampled and significant amounts of sediment and biological growth were identified. As a result, the fuel oil was removed and the tanks cleaned in accordance with MWR D16565. The "B" storage tank was cleaned on October 29, 1991. Following the completion of the "B" engine rebuild in December 1991, the "A" storage tank was cleaned on January 2, 1992. The tanks were then refilled with clean fuel oil.

The addition of biocides to the fire pumps' fuel oil to preclude biological growth has been proceduralized and implemented. To ensure any future fuel oil storage tank fouling will be detected, the periodic sampling procedures will be reviewed, with specific emphasis on the identification of biological growth and sediment. This review is scheduled to be complete by March 31, 1992.

To verify this corrective action has resolved the root cause of the condition, each fire pump will be run for an extended period of time (approximately 48 hours). During this period, engine speed will be periodically monitored to verify the engine continues to operate per design. This action will be completed by March 31, 1992.

III. Corrective Steps Taken to Avoid Further Violations

To ensure there are no other identified deficiencies that have not been effectively addressed, a review of outstanding (open) condition reports will be performed. This review will ensure that the root cause is being determined within an appropriate time frame. This review will be complete by January 31, 1992. Additionally, IP will standardize the documentation of justifications for CR extension requests to ensure that appropriate information is considered prior to the extension. This action will be implemented by January 31, 1992.

To improve the investigation of problems and timeliness of corrective actions, IP will review the Corrective Action Program (CAP) for enhancements. This review focuses on the following areas; the identification and trending of recurring issues in combination with the trending of hardware problems, determination of trending thresholds and monitoring of corrective action completion. This review and establishment of an implementation plan and schedule for any programmatic enhancements will be completed by March 31, 1992. IP will notify the NRC of the results of this review by April 30, 1992.

IV. Date When Full Compliance Will Be Achieved

Fire pump corrective actions will be completed by March 31, 1992. Full compliance with the Corrective Action Program requirements of Criterion XVI will be achieved by January 31, 1992. IP will notify the NRC of any additional Corrective Action Program enhancements if required.

Fuel Oil Storage Tank Wall Thinning

To ensure the fuel oil storage tanks have not experienced microbiologically influenced corrosion, the tank wall thicknesses have been measured using ultrasonic measurement techniques. The results of these measurements have been reviewed by Nuclear Station Engineering Department (NSED) personnel and are acceptable.

Plans to Improve Performance and Reliability of Fire Pump Diesels

Background

The 1991 IPQA audit of the CPS Fire Protection program identified that the diesel fire pumps (one or both) were unavailable for 57% of 1991. A review of this data by IP NSED personnel determined that a major portion of this unavailability was caused by the poor reliability of the diesel fire pumps' engines. Planned corrective maintenance also contributed to this unavailability as the 'A' fire pump engine was rebuilt in early 1991. However, the 'A' fire pump engine failed in August due to a loss of cooling water and the 'B' fire pump engine failed twice in 1991, and both times a major rework was required.

As a result of this engine failure rate, the following actions are being performed.

Review of Engine Failures

A root cause analysis has been performed on the engine failures that occurred in 1991. The cause of the 'A' fire pump engine loss of cooling water failure cannot be positively determined but it is believed to be one of two possible scenarios: 1) mispositioned cooling water valve, or 2) failure of a cooling water hose. Actions to prevent these causes from recurring are being evaluated and a determination of the corrective action is scheduled for completion by February 15, 1992.

Both failures of the 'B' fire pump engine have been analyzed and actions to prevent recurrence are being evaluated. A recommendation on corrective actions is scheduled to be complete by March 31, 1992.

Review of Operational and Maintenance Practices

A manufacturer's representative is being brought in to evaluate the operational and maintenance aspects of the fire pump engines. This evaluation will include a review of operating conditions and frequency and scope of preventive maintenance activities being performed. A recommendation based on the results of this review is scheduled by March 31, 1992.

Plans to Improve Performance and Reliability of Fire Pump Diesels (continued)

Fuel Oil System Review

The fire pump fuel oil storage preventive maintenance practices will be reviewed against the current practices for the emergency diesel generator fuel oil storage tanks, wit emphasis on site and industry experience regarding the storage of diesel fuel oil. These actions will be completed by February 28, 1992. Any lessons learned from this review and re-review of Information Notice 91-046, "Degradation of Emergency Diesel Generator Fuel Oil Delivery Systems" will be applied to appropriate diesel fuel oil storage systems by June 30, 1992.