

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-255/92007(DRS)

Docket No. 50-255

Licenses No. DPR-20

Licensee: Consumers Power Company
1945 West Parnell Road
Jackson, Michigan 49201

Facility Name: Palisades Nuclear Generating Plant

Inspection At: Palisades Site, Covert, Michigan

Inspection Conducted: March 16, through April 13, 1992

Inspectors: R. A. Langstaff 4/14/92
R. A. Langstaff Date
K. Salehi 4/14/92
K. Salehi Date

Approved By: M. P. Phillips 4/14/92
M. P. Phillips, Chief Date
Operational Programs Section

Inspection Summary

Inspection from March 16 through April 13, 1992 (Report No. 50-255/92007(DRS))

Areas Inspected: Routine, announced, safety inspection of the actions taken concerning previously identified items.

Results: Three unresolved items, one violation, and one open item were closed. One violation regarding past implementation of the licensee's 50.59 program was identified (Paragraph 2.e). The inspection showed that steps had been taken to correct the identified violation and to prevent recurrence. Consequently, no reply to the violation is required. In addition, a concern was identified regarding the licensee's interpretation of what constituted an increase in the consequences of an accident as defined in 10 CFR 50.59. (Paragraph 2.e).

DETAILS

1. Persons Contacted

Consumers Power Company

G. Slade, Plant General Manager
D. Anderson, Nuclear Performance Assessment
P. Donnelly, Safety and Licensing Director
*R. Gerling, Reactor and Safety Analysis Supervisor
*J. Kuemin, Licensing Administrator
D. Malone, ALARA Supervisor
J. Meincke, Plant Safety Engineer
K. Osborne, System Engineering Manager
R. Rice, Operations Manager
J. Schepers, Performance Specialist
D. Vandewall, NECO Projects Manager
T. Watson, Senior Nuclear Operations Analyst
R. Westerhoff, Systems Engineering

U.S. Nuclear Regulatory Commission

J. Heller, Senior Resident Inspector

*Denotes those who participated in the final exit interview conducted by telephone on April 13, 1992.

All of the above individuals attended the preliminary exit interview conducted on March 20, 1992.

Members of the licensee's engineering and licensing staff were also contacted during the course of the inspection.

2. Action on Previously Identified Items (92701, 92702)

a. (Closed) Violation 255/89019-05: The violation was for failure to perform periodic audits of the emergency operating procedures (EOPs) and the EOP development program. Since the inspection which identified the violation, several audits and surveillances of EOP related activities had been performed. The inspector noted that the recent audits were performance-based and were well done. This item is considered closed.

b. (Closed) Unresolved Item 255/90020-01: This item relates to implementation of the licensee's corrective action program regarding the potential return to criticality concern identified by a member of the licensee's engineering staff during 1989. The inspectors determined that the concern had never been placed in the licensee's program through the issuance

of either a Deviation Report (DR) or Action Item Record (AIR). The concern was subsequently brought to the attention of the NRC by the Department of Labor, and all subsequent licensee actions regarding the concern were the result of questions from the NRC. The details of the specific concern are discussed in Inspection Report 50-255/90020. The concern was partially substantiated by the NRC, which determined that continued operations were acceptable and that the concern should be treated generically for all Combustion Engineering and Westinghouse reactors. The purpose of this inspection was to determine whether the licensee failed to properly place the concern into the corrective action program.

The individual who raised the concern did not initiate a DR although the individual was well qualified to do so and the licensee's corrective action program contained provisions to submit a DR even when the issue was not concurred in by immediate supervision.

The individual's immediate supervisor did not concur that a safety problem existed and therefore did not initiate a DR or AIR for this issue. The supervisor had reasoned that since the individual raising the concern had not initiated a DR, the concern was of marginal merit at best. Contributing to this reasoning was the fact that many of the assumptions used in the calculation were difficult to technically justify and not based on standard prior techniques. In addition, he stated that he had little confidence in the review that had been performed of the work and wanted a separate analysis conducted to substantiate or refute the concern. He therefore assigned the project to another engineer for re-evaluation. This re-evaluation did not substantiate the concerns raised by the individual in the original evaluation concerning re-criticality. However, the inspectors noted that the calculation indirectly addressed the issue in that the assumptions used were based on the requirements of 10 CFR Part 50, Appendix K, concerning adequate core cooling. These assumptions would be non-conservative for a potential return to criticality analysis. This was not recognized by the engineering staff nor the supervisor. The concern was also discussed with the fuel vendor, Advanced Nuclear Fuels (ANF) on several occasions, who stated that the concern did not pose a safety problem. Given the results of the re-evaluation, discussions with ANF, and the fact that the originator of the concern did not initiate a DR, the supervisor determined that there was no operability concern and that a DR was not warranted.

The inspectors considered the actions taken by licensee in making their determination to be reasonable. Given the conclusion reached by the supervisor that the concern posed no operability concern, a DR would not be justified. Since the issue was never placed into the corrective action system, no further activities to resolve the concern or evaluate generic implications would have been conducted. This item is considered closed.

- c. (Closed) Unresolved Item 255/90025-07: The licensee did not consider the weight of nitrogen and temperature effects in differential pressure calculations used for calibration of the level transmitters for the SITs. Although the wide range indication from the transmitters was affected, the narrow range indication was calibrated in a manner which accounted for the weight of nitrogen and temperature effects. Operations personnel normally used the narrow range for level indication. In addition, the licensee used fixed float switches instead of the level indication to confirm technical specification compliance for SIT level. Because of the lack of design basis accuracy requirements and the low safety significance of this issue, further inspection effort on this issue is not warranted. This item is considered closed.
- d. (Closed) Open Item 255/90025-06: This item concerns the surveillance requirements for a replaced containment tendon. By a memorandum dated January 29, 1992, from G. Bagchi to L. Marsh, NRR, the NRC accepted the licensee's surveillance program for the containment tendon. This item is considered closed.
- e. (Closed) Unresolved Item 255/90020-02: This item concerned the licensee's performance of 10 CFR 50.59 safety evaluations for changes to the containment which added zinc or aluminum. The actual effects of those additions on hydrogen concentration in containment are documented in inspection report 50-255/90020.
 - (1) Past 10 CFR 50.59 Safety Evaluations: As part of AIR A-NL-92-059, provided to the inspectors on March 16, 1992, the licensee had concluded that 10 CFR 50.59 evaluations conducted for modifications involving the addition of aluminum and zinc to the containment during the 1976 to 1988 failed to address the potential for increasing the maximum hydrogen concentration during an accident. Because hydrogen can be generated by reactions with aluminum and zinc with steam, during accident conditions, the amount of

hydrogen generated as a result of increases in aluminum or zinc must be analyzed and compared to section 14.22 of the Updated Safety Analysis Report (USAR) to ensure the consequences of the accident have not increased. However, this had not been done. This is a violation of 10 CFR 50.59(b)(1), which requires the licensee to determine whether a change to the facility involves an unreviewed safety question. 10 CFR 50.59(a)(2) defines an unreviewed safety question as a change to the facility that increases the consequences of an accident previously evaluated in the safety analysis report. The licensee's corrective actions for this violation are described below.
(Violation 255/92007-01)

- (2) Current 10 CFR 50.59 Safety Evaluations: The current 10 CFR 50.59 safety evaluation process considered the effect of aluminum and zinc additions to containment. To stay within an analyzed limit, the licensee had set an administrative limit on the amount of aluminum and zinc to be added to containment. The inspectors considered the improvements to the licensee's 10 CFR 50.59 safety evaluation process to be acceptable.

However, the inspectors did identify a concern with the licensee's determination of what constituted an unreviewed safety question. The safety analysis for the revised hydrogen generation analysis erroneously reflected an acceptance limit of 4.1 volume percent. The 4.1 volume percent reflected the flammability limit for hydrogen. The USAR reflects an acceptance limit of 3.6 volume percent. The 3.6 volume percent is consistent with NUREG-0800 and the licensee acceptance limit reflected in its Safety Evaluation Report (SER) dated June 12, 1971. Given NRC approval of this limit in the SER, any increase above that value (3.6 volume percent) would constitute a reduction of margin or increase in consequences of an accident. Although the analyses performed (2.3 volume percent maximum) showed that the licensee was well below both limits, the inspectors were concerned that the acceptance limit used by the licensee was not correct.

3. Exit Interview

A preliminary exit interview was held with licensee representatives (denoted in Paragraph 1) prior to leaving the site on March 20, 1992. A final telephone exit was held on April 13, 1992. During both exits, the inspectors summarized the scope and the findings of the inspection. The inspectors also discussed the likely informational content of the inspection report with regards to documents or processes reviewed by the inspectors during the inspection. The licensee did not identify any such documents or processes as proprietary.