

November 22, 2006

MEMORANDUM TO: Douglas Pickett, Acting Branch Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing

FROM: Michael Scott, Branch Chief */RA/*
Safety Issue Resolution Branch
Division of Safety Systems

SUBJECT: REPORT ON RESULTS OF STAFF PLANT AUDIT– WATTS BAR UNIT
1 NUCLEAR PLANT CORRECTIVE ACTIONS TO ADDRESS GENERIC
LETTER 2004-02

Generic Letter (GL) 2004-02, "Potential Impact of Debris Blockage on Emergency Recirculation During Design Basis Accidents at Pressurized-Water Reactors," requested that all PWR licensees (1) evaluate the adequacy of the emergency sump recirculation function with respect to potentially adverse effects associated with post-accident debris, and (2) implement any plant modifications the evaluation determined to be necessary. Watts Bar Nuclear Power Plant (WBN) has conducted an evaluation of recirculation sump performance and is in the process of installing a new strainer during the fall 2006 refueling outage.

The staff has conducted a detailed audit of new sump design and the associated analysis and testing of WBN. This is one of several audits to be conducted for a sample of licensees to help verify the adequacy of licensee corrective actions to address GL 2004-02. This memorandum transmits the attached audit report to the Division of Operating Reactor Licensing for forwarding to the licensee. In addition to providing the WBN licensee feedback on its sump performance evaluation, the report also documents staff findings which have significant generic implications. Therefore, the report (when ultimately made publically available) will serve as a vehicle to inform other licensees of the staff's technical positions.

The licensee was very supportive during the staff's audit. In particular the staff appreciates WBN's effort to obtain detailed reactor vessel internal structure hydraulic data. This first audit was a learning process for both the licensee and the regulator, and the licensee's flexibility and cooperation were crucial in the successful completion of the audit.

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The staff's audit report summarizes the plant modifications planned by the licensee to improve recirculation sump performance, which include:

- Increasing the strainer area from 200 ft² to approximately 4600 ft²
- Reducing strainer opening size from large mesh to holes less than 1/8" diameter
- Modifying the Emergency Core Cooling System (ECCS) injection line throttle valve settings and flow element

The audit report includes a review of the design of the licensee's planned sump modifications, the licensee's evaluation of upstream and downstream blockage, and other post-accident debris effects identified in GL 2004-02. The audit report provides detailed feedback to the licensee in each section of the licensee's sump performance evaluation (e.g., debris generation, debris transport, head loss), identifying areas that were adequately addressed as well as areas for which further analysis or justification may be warranted. The final conclusions regarding the adequacy of the licensee's corrective actions for GL 2004-02 will be based on the staff's review of open items resulting from this audit, as well as on any other supplemental responses the licensee may make to GL 2004-02. Overall, the staff's impression is that WBN new sump modifications appear to be robust with sufficient design margin.

The audit did not comprehensively evaluate whether the licensee has identified and/or submitted appropriate licensing documents as a result of its planned changes to address GSI-191. The licensee's maintenance of its licensing basis is within the scope of the Reactor Oversight Program.

Enclosure: Plant Audit Report– WATTS BAR UNIT 1 NUCLEAR POWER PLANT
CORRECTIVE ACTIONS FOR GENERIC LETTER 2004-02

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CORRECTIVE ACTIONS FOR GENERIC LETTER 2004-02

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