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DEC 23 2003

LR-N03-0524

PSEG Nuclear LLC

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

RESPONSE TO NRC BULLETIN 2003-02
LEAKAGE FROM REACTOR PRESSURE VESSEL LOWER HEAD PENETRATIONS AND REACTOR COOLANT PRESSURE BOUNDARY INTEGRITY
SALEM GENERATING STATION UNIT 2
DOCKET NO. 50-311
FACILITY OPERATING LICENSE NO. DPR-75

Reference: Letter LRN-03-0367, 30-Day Response To NRC Bulletin 2003-02 Leakage From Reactor Pressure Vessel Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity, dated September 11, 2003.

Bulletin 2003-02, "Leakage From Reactor Pressure Vessel Lower Head Penetrations and Reactor Coolant Pressure Boundary Integrity," required that within 60 days of plant restart following the next inspection of the reactor pressure vessel (RPV) lower head penetrations, pressurized water reactor (PWR) addressees should submit a summary of the inspections performed, the extent of the inspections, the methods used, a description of the as-found condition of the lower head, any findings of relevant indications of through-wall leakage, and a summary of the disposition of any findings of boric acid deposits and any corrective actions taken as a result of indications found. Restart from 2R13 for Salem Generating Station Unit 2 was November 27, 2003.

The results of our examination are provided in Attachment 1 to this letter. Should you have any questions regarding this response, please contact Michael Mosier at (856) 339-5434.

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,

Executed on December 23, 2003

John Carlin
Vice President - Assessment

Attachment

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C: Mr. H. J. Miller, Administrator - Region I
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King of Prussia, PA 19406

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Within 60 days of plant restart following the next inspection of the RPV lower head penetrations, the subject PWR addressees should submit to the NRC a summary of the inspections performed, the extent of the inspections, the methods used, a description of the as-found condition of the lower head, any findings of relevant indications of through-wall leakage, and a summary of the disposition of any findings of boric acid deposits and any corrective actions taken as a result of indications found.

PSEG RESPONSE:

During the Salem Unit 2 refueling outage (2R13) October 2003, a planned 100% bare-metal visual examination (VT-2) of the reactor pressure vessel lower head penetrations was performed to inspect for any indication of boric acid deposits. This inspection was performed in accordance with commitments contained in our letter dated September 11, 2003 (LRN-03-0367), 30-Day Response to NRC Bulletin 2003-02.

To facilitate the examination, the reflective mirror insulation was lowered from the reactor pressure vessel lower head, providing a 360-degree, 100% visual access to all penetrations. The inspection was not restricted or inhibited in any manner by the presence of insulation, debris or other factors that interfered with the possible detection of boric acid leakage; therefore, the capability of detecting and discriminating small amounts of boric acid deposits, if present, was fully afforded to the two certified Level III VT-2 examiners.

The intersections of all 58 penetrations were easily observed 360-degrees by VT-2. There was no indication or presence of boric acid deposits. The intersections between the penetrations and the lower head were well defined and clean of any boric acid crystal growth extruding from the lower head, on the outside surface of the penetration.

Ten of the 58 penetration nozzles possessed small residual amounts of rust on the downhill side of the nozzle near the reactor vessel. Also found were small rust trails and translucent white trails on the bottom head. These trails appear to originate from above the lower lead area. The most likely cause of the trails was previous reactor cavity seal leakage. Other potential causes are a 1987 reactor pressure vessel head canopy seal leak cleanup and a recent reactor coolant system hot leg sample valve cleanup. The rust residue on the ten nozzles was removed using Scotch-Brite.

During the penetration examinations, small amounts of white crystallized substances were found on the insulation directly below the lowest point of the reactor vessel bottom head. Chemistry analysis was performed on these substances and identified it as boric acid from the reactor coolant system. The boric acid appears to have originated from the previously mentioned white translucent trails that ended at the lowest point of the lower head and not from any penetration. The most likely source of the boric acid is from a recent reactor

coolant system hot leg sample valve cleanup. This valve was replaced during 2R13 by a different design to prevent reactor coolant system boric acid leakage during plant operation.