OFFICE OF THE SECRETARY CORRESPONDENCE CONTROL TICKET

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Chairman Nils J. Dizz FYI Dom Burdziel

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9 Twin Orchard Drive Oswego, NY 13126 January 25, 2005

Mr. Bill Levis Chief Nuclear Officer PSEG Nuclear LLC **PO Box 236** Hancocks Bridge, NJ 08038-0236

Dear Mr. Bill Levis:

A good amount of Hope Creek related information started appearing on the NRC website (on ADAMS) just before the scheduled public meeting. I have read most of it. As a result. I have these various comments.

Observations

- 1. The piping system inside containment appears to be in some sort of harmonic resonance with reactor recirculation pump operation (at least at higher speeds) since initial plant operation. (The major, though not only, problem appears to be due to vane passing frequency.)
- 2. Action taken at the plant up until the most recent outage (moisture separator drain tank 8" pipe break) seems to be replacement of broken equipment and studies/monitoring. Apparently, plans were also made to strengthen certain valves so that they could better resist the applied high vibration. (I don't know if this strengthening has actually been done yet.)
- 3. No studies or corrective actions appear to have been taken to reduce the (harmful) piping system vibration inside containment.
- 4. Currently, recirc pump "B" has higher vibration and has passed the number of hours at which inspection is recommended, but still has not been inspected. It is suspected of having a bent shaft. (It also has one more big pipe attached to its piping than the "A" recirc pump.)

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- 5. Bentley Nevada information states that shafts that cannot be balanced (this is the situation with recirc pump "B") may be bent. They also state that the source of the bending may be a transverse crack.
- 6. Other information (I believe a GE SIL from the 1990s) states that operating two recirc pumps within 1 2% of each other can be a problem by causing modulation.
- 7. Vibration is determined from accelerometers. The engineering convention being used is to integrate acceleration once to get velocity; integrate again to get displacement.
- 8. Video recordings of the containment piping at power have not been done.
- 9. When tested, all 10 snubbers failed. (A poor test procedure was blamed for each of the 10 failures.)

Suggestions

Insert a camera into the isolated and drained recirc pump "B" to check condition of the cutwater and each of 5 vanes. Cut a hole into the pump casing if necessary, then repair if decon flanges will not provide access.

Attempt to change the containment pipe (& valve) resonance with the recirc pumps by:

trying a recirc pump impeller with a different number of vanes in at least one pump

prohibiting operation of the recirc pumps within 2% of each other using properly calibrated instrumentation

adding weight(s) to selected pipe locations (to change the mass ratio)

Use adequate lighting & TV cameras to show the equipment (vibration) response to the present configuration and for each changed configuration during plant operation

Determine if velocity probes or displacement probes are more suitable for determining vibration than the accelerometers.

Get the people who were successful in getting the Midland Combined Cycle plant designed and built to review your pump/containment piping and propose changes.

Find someone else to test snubbers.

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Yours truly,

Tom Gurdziel

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Chairman N. J. Diaz Comm. E. McGaffigan, Jr. Comm. J.S. Merrifield Comm. G.B. Jaczko Comm. P.B. Lyons IG H.T. Bell D. Lochbaum

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