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November 18, 1980
IPN-80-106

Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Subject: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Turbine Disc Inspection Results

Dear Sir:

The purpose of this letter is to report the results of the Indian Point 3 turbine disc inspection performed during October, 1980. In addition to causing removal of disc #2, governor end of low pressure rotor #3, the results also enabled correction of data previously reported to you in our letter of February 1, 1980 (IPN-80-14). These corrections will also be covered in this letter.

As discussed in our verbal presentation to your staff on November 10, 1980 (Conference Call between NRC Staff, Power Authority, and Westinghouse), the main results of the turbine disc inspection are as follows:

Low Pressure Rotor #1

This rotor did not have to be inspected at this time, thus the cylinder was not opened. LP-1 was returned to service after the outage in February 1980 with no indication of cracks.

Low Pressure Rotor #2

All keys and bores of discs #1 through #5 governor end and generator end were inspected to the latest Westinghouse

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ultrasonic testing procedure. Disc #2, generator end had the only reportable indications, as follows:

- Keyway #2 - .190" crack depth
- Keyway #3 - .130" crack depth

These were newly found indications at the apex of each keyway and different from those reported as a result of the initial inspections of this disc. The indications of .126" and .308" previously reported to NRC as crack depths for these keyways are actually locations below the keyway of what might be scratches or a burr on the keys. When this data was returned to Westinghouse in Lester, Pennsylvania, the indication location below the keyway arch was misinterpreted to mean crack depth. Consequently, Keyway #2 and #3 each show an indication with no depth or width, and an indication with a reportable crack depth.

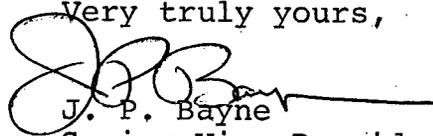
Calculations were made to determine the maximum allowable service life based on the actual crack growth rate for this disc of $.571 \times 10^{-4}$ inches/hour (.190" + .060"/4380 hrs.). The allowable service life for this disc is 19 months and the time for reinspection is one-half of the service life or 9.5 months. This coincides with the time of our next refueling outage.

Low Pressure Rotor No. 3

All keyways and bores of discs #1 through #5 governor end and generator end were inspected to the latest Westinghouse ultrasonic testing procedure. Disc #2, governor end had the only reportable indication. This indication had grown from .378" to .660". Since the turbine had run 4,380 hours since the last start-up (inspection) the crack growth rate based on conservative calculations is $.644 \times 10^{-4}$ inches/hour. Based on the allowable service life, a decision was made to remove this disc and this rotor was subsequently returned to service with no indications of cracks. As discussed in our conference call with the NRC, this crack was erroneously reported to be in disc No. 3 in our February 1, 1980 letter.

The cracked keyway was cut out of the removed disc and sent to a metallurgical laboratory for analysis. As discussed in our telephone conversation, the results of this analysis will be submitted to the NRC.

Very truly yours,


J. P. Bayne
Senior Vice President
Nuclear Generation