POWER AUTHORITY OF THE STATE OF NEW YORK

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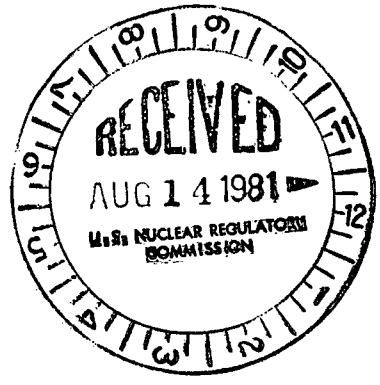
August 10, 1981
IPN-81-59

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



Attention: Mr. Darrel G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation

Subject: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Control Room Habitability
Toxic Chemicals Monitoring

References:
1. NRC Order Confirming Licensee Commitments on Post-TMI Related Issues, dated 7/10/81 (IP-81-103)
2. Control Room Habitability Report - Toxic Chemicals Impact Study of the Five Mile Radius of Indian Point, dated 7/20/81 (IPN-81-50)

Dear Sir:

This letter is in response to Item III.D.3.4 of the Attachment to Reference 1.

As first identified in Reference 2, there are four (4) toxic chemical vapors (namely anhydrous ammonia, carbon dioxide, chlorine and hydrogen cyanide) which could reach the IP-3 Control Room air intake in sufficient concentration as to cause a potential hazard to the Control Room personnel as defined in NUREG-0570 and Regulatory Guide 1.78. The Authority considers that many of the assumptions given in the above document including ambient temperature, wind velocity and direction, are extremely conservative. For instance, in the case of hydrogen cyanide where the toxic level would be exceeded by only 5 percent, instead of using 40°C ambient temperature, a more realistic but still conservative assumption of 36°C results in a 40% reduction of the concentration level. Therefore, hydrogen cyanide would not be considered as toxic hazard for the control room personnel.

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Based on the above conclusions, the Authority has initiated an industry survey to select adequate chemical monitors capable of detecting the three major toxic chemical vapors (anhydrous ammonia, carbon dioxide and chlorine).

The details of installation and operation of the monitors will be developed after their selection. However, in general terms, the Authority is planning to control the intake of any of the three toxic vapors by installing monitors at the outside make-up air intake ductwork to the IP-3 Control Room. The monitors will be calibrated to react at a predetermined vapor concentration. The Authority is presently evaluating automatic versus manual actuation of the Control Room HVAC System into the incident mode of operation (isolation and recirculation) when any of the three chemical vapors rise to their selected setpoint.

Two approaches of make-up air analysis and chemical detection are considered feasible. One method would utilize individual analyzers for each expected toxic vapor. The other approach uses a gas chromatograph to determine if any of the expected toxic vapors is present. A decision on which approach will be used will be made as the system design progresses.

The Authority has contacted several vendors regarding the supply of an air analysis system. However, they indicate that none of their present analysis equipment, whether it be a gas chromatograph or individual monitors for toxic vapors, is qualified to any seismic criteria such as IEEE-344-1975 or any nuclear safety criteria such as IEEE-323-1974. The Authority intends to install state-of-the-art equipment and will evaluate the need for seismic qualification of this equipment.

As previously committed, the Authority will complete the necessary modifications by January 1, 1983, as required by NUREG-0737.

Should you or your staff have any questions, please contact us.

Very truly yours,

J. P. Bayne
Senior Vice President
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