From: Mahesh Chawla
To: Joseph.bauer@exeloncorp.com
Date: 2/3/04 5:35PM
Subject: Byron/Braidwood Units 1 and 2 - Request for Rev. to TS 3.4.15, "RCS Leak Detection Instrumentation"

With reference to your above referenced request dated August 15, 2003, the NRC staff has following questions which they would like to discuss with Exelon. Please let me know your availability to have this conference call. If you have any questions, please call me at (301) 415-8371.

1.The capability of the particulate radioactivity monitor to detect a one gpm leak within an hour is discussed on page 5, of Attachment I "Evaluation of Proposed Change" of the August 15, 2003, License Amendment Request. It is stated that "using a source term based on representative real-time data, with no fuel defects, and varying ambient background level, the particulate channel detectors could have a setpoint at which the detectors are capable of detecting a one gpm leak in one hour. It is also stated that "because the minimum detectable activity of the detector is in close tolerance to the desired setpoint, numerous false positive indications would be realized if the monitors were set to alarm a one gpm leak in one hour. Therefore, alarm setpoints are set as low as practicable based on a statistical analysis of the monitor's trend."

A. Please explain how the statistical analyses of the monitor trends were used in determining the selected setpoints for each of the four Byron/Braidwood stations units. Also, explain why the setpoint values selected are considered to be "as low as practicable" for the intended application.

B.The time required to detect a 1 gpm leak is given as a range (3.6 to 7.3 hours). Please explain how the time required to detect the 1 gpm leak was calculated, include discussion of the assumed source term, containment atmosphere mixing assumptions, radionuclide transport modeling, ambient background, and the detector setpoints for which the leak detection time calculated is based.

C. Please explain the reason for not including the range of 3.6 to 7.3 hours in the TS bases.

2. In section 5.2.5.2 of the Byron/Braidwood UFSAR, it is stated that the Containment Radiation Monitoring system draws a continuous sample of the containment atmosphere and routes the sample stream through a fixed filter, a charcoal filter, and a gas chamber, where measurements are taken of the level of air particulate radioactivity and gaseous radioactivity inside the containment. The practice of purging at power, results in periodic reductions in the airborne radioactivity concentrations inside the containment.

A. Describe what impact containment purges have on the ability of the particulate radiation monitor to detect a reactor coolant system leakage of 1 gpm. Specifically, how do the purge impacts the time required to detect the leak.

B. When the reactor is started up after being shutdown for an extended period of time, the concentration of particulate radiation in the coolant will be low since it results primarily from the activation of corrosion products and fission products from fuel contamination or defects. Please discuss how reduced reactor coolant radionucilde concentrations, for periods of plant operation

immediately following refueling or other extended outages, affect the RCS leakage detection system capability of detecting a 1 gpm leak.

CC: Angelo Stubbs; George Dick; Hukam Garg; Thomas Boyce

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